



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

E-mail : contracts@oilindia.in
Website: www.oil-india.com

Forwarding Letter

To,

Serial No.

Tender Fee: Rs. 10,000/-

Sirs,

**Sub : Hiring Services of Engineering & Project Management Consultant (EPMC) for Construction of Secondary Tank Farm(STF) at Duliajan, Assam(India)
Tender No. OIL/CCO/PDNO/IND/238/2009**

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 intends to create a Secondary Tank Farm (STF) near Naoholia, Duliajan, Assam with safe storage capacity of crude oil of 40,000 KLs. and invites Domestic Bids from qualified Engineering and Project Management Consultant (EPMC) 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 carried out for STF in consultation with OIL and finally selection of EPC contractor for Construction of STF and providing supervisory services for construction and commissioning of the STF on Lump Sum Turnkey basis. One complete set of Bid Document covering OIL's tender for the above is forwarded herewith.

1.3 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.: | OIL/CCO/PDNO/IND/238/2009 |
| (ii) Type of Bid: | Single Stage-Two Bid |
| (iii) Bid Closing date & Time: | 21-April-2009 at 12-45 hrs.(IST) |

- (iv) Technical Bid Opening date & time: 21-April-2009 at 13-00 hrs.(IST)
- (v) Commercial Bid Opening Date: Will be intimated to eligible bidder(s) & time nearer the time
- (vi) Bid Submission Place: Head (Contracts), Oil India Limited, Duliajan-786602, Assam, India
- (vii) Bid Opening Place: Office of the Head (Contracts) Oil India Limited Duliajan - 786602, Assam, India
- (viii) Bid Security Amount: Rs. 3,00,000.00
- (ix) Amount of Performance Guarantee: 10% of total estimated contract value
- (x) Bid Validity : 180 days from the bid closing date
- (xi) Mobilisation Time for Kick-Off: Meeting Within 15(Fifteen (days from date of issue of Letter of Award(LOA) by OIL.
- (xii) Duration of the Contract: 36 months from the date of issue of Letter of Award (LOA) by OIL
- (xiii) Quantum of Liquidated Damage for Default in Timely Mobilization for Kick-Off Meeting $\frac{1}{2}$ % of total contract value for delay per week or part thereof subject to maximum of $7\frac{1}{2}$ %.
- (xiv) Quantum of Liquidated Damage for Default in Timely Completion of Project 0.75 % of total contract value for delay per week or part thereof subject to maximum of 10 %.
- (xv) Bonus for Completion of Project: Before schedule date @0.75% of total contract value for early completion of each week subject to a maximum of 5% of total contract value
- (xvi) Bids to be addressed to: HEAD (CONTRACTS) OIL INDIA LIMITED DULIAJAN - 786 602 ASSAM, INDIA

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 RESIDENT CHIEF EXECUTIVE

INDEX

PART-1

INSTRUCTION TO BIDDERS

CLAUSE	SUBJECT	PAGE NO.
A	Bidding Documents	7
3.0	Amendment of Bidding Documents	7
B	Preparation of Bids	8
4.0	Language of Bids	8
5.0	Documents Comprising the Bids	8
5.0(A)	Technical Bids	8
5.0(B)	Commercial/Price Bids	8
6.0	Bid Form	8
7.0	Bid Price	8
8.0	Currencies of Bid and Payment	8
9.0	Documents Establishing Bidder's Eligibility and Qualifications	8
10.0	Bid Security	9
11.0	Period of Validity of Bids	9
12.0	Format and Signing of Bids	10
C	Submission of Bids	10
13.0	Sealing and Marking of Bids	10
14.0	Deleted	11
15.0	Deadline for Submission of Bids	11
16.0	Late Bids	11
17.0	Modification and Withdrawal of Bids	11
18.0	Bid Opening and Evaluation	11
19.0	Opening of Commercial/Price Bids	12
20.0	Evaluation and Comparison of Bids	13
21.0	Contacting the Company	13
D	Award of Contract	13
22.0	Award Criteria	13
23.0	Company's Right to accept or Reject any Bid	13
24.0	Notification of Award	13
25.0	Signing of Contract	14
26.0	Performance Security	14
27.0	Bidders' Awareness on the complete requirement of the project	14
28.0	Advance Payment	15

PART - 2

Bid Rejection Criteria/Bid Evaluation Criteria

CLAUSE	SUBJECT	PAGE NO.
I	Bid Rejection Criteria(BRC)	16
A	Technical	16
1.0	Qualification and Experience of Bidder	16
3.0	Duration of Contract Period	16
6.0	Experience of Consultant's Personnel	17
B	Commercial – Bid Submission	17
C	General	18

II	Bid Evaluation Criteria	18
4.0	Granting of Price Preference	19
5.0	Customs duty	19

PART - 3

SECTION - I
General Terms & Conditions of the Contract

CLAUSE	SUBJECT	PAGE NO.
1.0	Definitions	20
2.0	Effective Date, Mobilization Time, Completion Date of the Contract	20
2.1	Effective Date of Contract	20
2.2	Mobilization Time	20
2.3	Completion Time of Contract	21
3.0	General Obligations of Contractor	21
4.0	General Obligations of the Company	21
5.0	Personnel to be deployed by Contractor	21
6.0	Guarantee, Warranty and Remedy of Defects	22
7.0	Confidentiality, Use of Contract Documents and Information	22
8.0	Taxes, Duties & Levies	22
8.9	Service tax	23
9.0	Insurance	23
10.0	Changes	24
11.0	Force Majeure	25
12.0	Termination	25
12.1	Termination of Expiry of the Terms (Duration)	25
12.2	Termination of Account of Force Majeure	25
12.3	Termination of Account of Insolvency	25
12.4	Termination for Unsatisfactory Performances	26
12.5	Termination due to Change of Ownership and Assignment	26
12.8	Consequences of Termination	26
13.0	Settlement of Disputes and Arbitration	26
14.0	Notices	27
15.0	Subcontracting	27
16.0	Misc. Provisions	27
17.0	Liquidated Damages for Default in Timely Mobilization of Personnel for Kick-off Meeting	28
18.0	Liquidated Damages for Default in Timely Completion of Project	28
19.0	Performance Security	28
20.0	Association of Company's Personnel	29
21.0	Labour	29
22.0	Liability	29
23.0	Consequential Damage	30
24.0	Indemnity Agreement	30
25.0	Indemnity Application	31
26.0	Payment, Manner of Payment & Invoicing Procedure	31
27.0	Withholding	32
28.0	Applicable Law	33
29.0	Subsequently Enacted Laws	34

30.0	Royalty and Patents	34
31.0	Waiver & Amendments	34

SECTION – II
Terms of Reference/Scope of Work

CLAUSE	SUBJECT	PAGE NO.
1.0	Introduction	35
2.0	Objective	35
3.0	Execution Methodology	36
3.1	Phase – I	36
3.2	Phase – II	37
3.3	Phase – III	39
4.0	Scope of Service for EPMC	39
4.1	Studies to be Performed	39
A)	Hazop Study	39
B)	Environmental Risk Assessment Study	40
C)	Escape, Evacuation and Rescue Analysis	40
4.2	Basic Engineering & Front End Engineering Design	40
4.3	Involvement of EPMC on EPC Contractor	48
4.4	Assistance in Project Management	53
4.5	Operation & Maintenance(O&M)	57
5.0	Project Schedule	57
6.0	Various Milestones for Execution	58
7.0	Plant Battery Limits	59
8.0	Safety Regulations and Norms	59
9.0	Time Schedule	60
10.0	Warranty and Plant Commissioning	60
11.0	Assurance from EPMC	61
12.0	Special Clauses	61
12.4	Guarantees	64
12.5	Liquidated Damages for Delays in completion of Project	64
12.8	Drawings / Documents	65
12.9	Integration & Co-ordinated Execution	65
Annexure-A	Minimum Facilities Envisaged	66
1.0	Minimum Facilities Requirement	66
1.1	Creation of Secondary Tank Farm with Dehydration, Facility, Basic Process Philosophy	66
1.2	Setting up of Plant	68
1.7	Information for Design Consideration	69
A)	Location	69
B)	Specification of In-coming Wet Crude Quality	70
C)	Gas Composition by Volume	70
D)	Specification of Produced Formation Water	70
2.0	Minimum Facilities Envisaged	70
I)	Dehydrator	71
II)	Indirect Bath Heaters	71
III)	Crude Oil Storage Tanks	71
IV)	Effluent Treatment Plant(ETP)	71
V)	Piping	72
VI)	Boilers	72
VII)	Instrumentation	72

VIII)	Electricals and Illumination	75
IX)	Fire Fighting and Protection Facilities	77
X)	Captive Power Plant	79
XI)	Crude Oil Despatch Pump	80
XII)	Water Supply System	80
XIII)	Waste and Sludge Treatment Facility	81
XIV)	Data Communication and Security Access Control Facility	81
XV)	Crude Oil Circulation Pumps	83
XVI)	Civil & Structural	83
XVII)	Interconnection/Revamping of Piping at NHK CTF	86
XVIII)	Site Work	87
XIX)	Infrastructure for Security Requirements	87
XX)	General Guidelines	87

SECTION - III
Schedule of Rates / Schedule of Payment

CLAUSE	SUBJECT	PAGE NO.
A)	Price Schedule	89
B)	Payment Schedule	90

PART - 4

Annexures and Proformas

Annexure	SUBJECT	PAGE NO.
A	Minimum Facilities Requirement	66
B	Tentative Process Flow Diagram	92
C	Tentative Road Map	93
D	Tentative Boundary Layout	94
E	Tentative Plant Layout	95
Proforma		
I	Statement of Non-compliance	96
IIA	Bid Form	97
IIB	Form of Performance Bank Guarantee	98
IIC	Agreement Form	99
IID	Form of Bid Security (Bank Guarantee)	101
III	Proforma Letter of Authority	102

&&&&&

PART - I

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 :
 - (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) Quantum of Liquidated Damage for default in timely completion
 - (x) Bonus for Completion of project before scheduled time
 - (xi) Duration of the Contract
- (b) Instruction to Bidders (Part-1)
- (c) General Conditions of Contract (Section-I)
- (d) Terms of Reference/Scope of Work (Section-II)
- (e) Schedule of Rates / Schedule of Payment (Section-III)
- (g) Bid Rejection Criteria (BRC)/Bid Evaluation Criteria (BEC)-
(Part-2)
- (h) Statement of Non-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 Non-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-III)

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, if any, 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) only

9.0 **DOCUMENTS ESTABLISHING BIDDER'S ELIGIBILITY AND QUALIFICATIONS :** These are listed in Part-2.

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 and shall be in one of the following form:

- (a) A bank guarantee issued by a Nationalised/scheduled Indian bank in the form provided in the Bidding Document 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 finalisation of the tender.

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

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 initialled 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 initialled 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.**

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 **Deleted**

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

18.3 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.

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

18.5 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.

18.6 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.

18.7 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.

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

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

19.0 OPENING OF COMMERCIAL/PRICED 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. In case of any

unscheduled holiday or Bandh on the commercial bid opening date, the Bids will be opened on the next working day.

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 shall be denominated in the currency of the bid and shall be in the form a bank guarantee issued by a Nationalised/scheduled Indian bank in the format provided in the Bidding Document or in another form acceptable to the Company.

26.3 The Performance Security specified above must be valid for two years 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-I hereof. The same will be discharged by company not later than 30 days following its expiry. **In the event of extension of the Contract period, validity of the Performance Security shall be suitably extended by the Contractor.**

26.4 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 BIDDERS' AWARENESS ON THE COMPLETE REQUIREMENT OF THE PROJECT :

27.1 Bidders in their own interest are advised to visit the site of the works in Duliajan(Assam) to gather information about the site, its surroundings and for preliminary assessment for preparing their bids and for subsequent execution of the contract. However all expenses of the personnel including but not limited to their to and fro fares, boarding, lodging etc. to Duliajan shall be to prospective bidder's account. OIL shall arrange visit to the site from Duliajan at its cost.

27.2 Local Conditions :

It is imperative for each Bidder to fully inform themselves of all Indian as well as local conditions, factors and legislation which may have any effect on the execution of the work covered under the Bid Document. The bidders shall be deemed prior to submitting their bids to have satisfied themselves as to the

circumstances at the Site, including without limitation, the ground and sub-soil, the form and nature of the Site and the climate and hydrological conditions of the Site and obtained for themselves all necessary information as to the risks, contingencies and all other circumstances, which may influence or affect the Contract price and its obligations under the Contract.

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

27.3 Specifications :

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

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 fulfil 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.

END OF PART – 1

&&&&&

PART- 2

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

I) 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.

A) TECHNICAL :

1.0 QUALIFICATION & EXPERIENCE OF BIDDER:

1.1 The bidder shall be an ISO-9001(latest edition) or equivalent certified consulting firm providing Engineering and Project Management Consultancy (EPMC) services.

1.2 The bidder shall have experience in successful execution of at least 2(two) EPMC jobs incorporating Front End Engineering Design (FEED) involving latest, appropriate and proven technology ; preparation of Engineering Bid Package; Project Management including selection, procurement, installation and commissioning jobs in process facility projects in Oil & Gas industry sector during last 5 (five) years prior to the bid closing date. Bidder should submit copies of documents i.e. Work orders/Contracts/ Completion Certificate in support of their experience along with the bid. Bidder shall submit the present status of the ongoing projects as an Annexure showing the list of clients, scope of work of 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.

2.0 Bidders who are in similar nature business but fall short of experience requirement as given in Para 1.2 above, may also submit bid if their parent company meets the experience criteria as per Para 1.2 above and provided such bidders are 100% subsidiary company of the parent company and submit along with bid an Agreement between the parent and subsidiary and a Corporate Guarantee to provide full technical and financial support to the bidders during the period of the contract.

3.0 **Duration of Contract Period** : The duration of this Consultancy service shall be of 36 (thirty six) months period from the date of issue of Letter of Award (LOA) to the successful bidder to be executed in 3 (three) consecutive phases (Phase I of 12 months, Phase II of 21 months & Phase III of 3 months) as described in the Scope of Work. Offers with completion schedule longer than the above time period shall be rejected.

4.0 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 - II (Terms of Reference).

5.0 The successful bidder against this EPMC tender shall not involve / participate directly or indirectly or in any forms against the tender for the EPC contract. Bidder must confirm the same in their offer.

6.0 Experience of Consultant's Personnel:

6.1 The Project Manager (Team Leader) must have experience of minimum **10(ten)** years prior to the bid closing date in the field of oil & gas for process facility planning, design(FEED), Project execution and overall Project Management and as Team Leader in at least 2(two) successfully completed such facility projects during the period prior to the bid closing date.

6.2 The Team Members individually should have experience of minimum of **5(five)** years prior to the bid closing date in respective fields like Project Management, Process Engineering, Mechanical Engineering, Piping Engineering, Construction/Civil Engineering, Electrical Engineering, Instrumentation Engineering, Petroleum Engineering, IT, Corrosion Engineering, Chemical Engineering, etc. and must have worked in at least in one successfully completed process facility project in Oil & Gas industry during the period prior to the bid closing date.

B) COMMERCIAL – BID SUBMISSION

1.0 Bids are to be submitted in a single stage two bid system, i.e. Technical Bid (Unpriced) and Commercial Bid(Priced) separately. Bids shall be rejected outright if the technical bids contain the prices.

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

3.0 Bid security shall be furnished as a part of the bid. The amount of bid security shall be as specified in the bid document. Any bid not accompanied by a proper bid security will be rejected.

4.0 Bids received after bid closing date and time will be rejected.

5.0 Any bid received in the form of Telex/Cable/Fax/e-mail will be rejected.

6.0 Bids shall be typed or written in indelible ink and Original bid shall be signed by the bidder or his authorised representative on all pages.

7.0 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 initialled by the person(s) signing the bid. However, white fluid should not be used for making corrections. Any bid not meeting this requirement will be rejected.

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

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

10.0 Any bid containing false statement will be rejected.

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

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

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

C) GENERAL

1.0 In case bidder takes exception to any clause of tender document not covered under BEC/BRC, then the Company 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 company. The loading so done by the Company will be final and binding on the bidders.

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

3.0 If any of the clauses in the BRC contradict with other clauses of tender elsewhere, then the clauses in the BRC shall prevail.

II. BID EVALUATION CRITERIA (BEC)

The bids conforming to the technical specifications, terms and conditions stipulated in the bid documents and considered to be responsive after subjecting to the Bid rejection criteria will be considered for further evaluation as per the Bid evaluation criteria given below:

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

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

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

TOTAL CONTRACT COST, 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. Trial Run & Commissioning)

D = Applicable Service Tax

4.0 **Granting of Purchase Preference to central PSUs**

Purchase preference facilities to central Public Sector enterprises presently not applicable.

5.0 **Custom Duty** : The services under this Contract shall be carried out in ML/PEL areas of the Company issued or renewed to Company after 01/04/99 and therefore, imports under this Contract is presently exempted from Customs Duty. Bidders should take note of the same while quoting. No customs duty is therefore considered for evaluation.

END OF PART - 2

&&&&&

SECTION - I

GENERAL CONDITIONS OF CONTRACT

1.0 **DEFINITIONS:**

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

- (a) "Contract" means agreement entered into between Company and contractor, as recorded in the contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein;
- (b) "Contract Price" means the price payable to contractor under the contract for the full and proper performance of its contractual obligations;
- (c) "Work" means each and every activity required for the successful performance of the services described in Section-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, AND COMPLETION TIME OF THE CONTRACT:**

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

2.2 **MOBILISATION TIME** : The Kick-off Meeting shall be held at Duliaja(Assam) within **a maximum period of 15 days from the date of issue of Letter of Award (LOA)**. Contractor shall mobilise their personnel for attending the Kick-Off Meeting at Duliajan within 15 days from **the date of Letter of Award (LOA)**. Mobilisation shall be deemed to be completed when Contractor's personnel arrive at Duliajan for the Kick-Off meeting. In the event of delay on the part of the Contractor to depute their personnel for the Kick-Off Meeting, Liquidated Damage(LD) as per Clause No. 17.0 hereunder will be applicable.

2.3 **COMPLETION TIME OF CONTRACT** : The duration of the Consultancy service shall be 36 months from the date of issue of Letter of Award(LOA). In the event of delay on the part of the Contractor to complete the project within the stipulated period of 36 months, Liquidated Damage(LD) as per Clause No. 18.0 hereunder will be applicable.

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 II) 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 within the warranty period as company may consider necessary for the proper fulfilling of contractor's obligations under the contract.

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

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

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

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

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

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

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

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

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

6.0 GUARANTEE, WARRANTY AND REMEDY OF DEFECTS:

6.1 Contractor warrants that it shall perform the work in a professional manner and in accordance with 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 24(twenty four) months after completion of the project 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 payment as applicable shall be the responsibility of the Contractor.

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 fulfil the provisions under this contract.

- d) Contractor's equipment used for execution of the work hereunder, if any, 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 changes result in an increase in compensation due to Contractor or in a credit due to Company, Contractor shall submit to Company an estimate of the

amount of such compensation or credit in a form prescribed by Company. 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 fifteen (15) days with prior written notice. Should either party decide not to terminate the contract even under such condition, no payment would apply after expiry of fifteen (15) days 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 construction and trouble free trial run for 3 (three) months of the Secondary Tank Farm(STF) along-with completion of necessary works in Central Tank Farm (CTF) as per Terms of Reference (Section-II).

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

12.3 **TERMINATION ON ACCOUNT OF INSOLVENCY**- In the event that the Contractor at any time during the term of the Contract, becomes insolvent or makes a voluntary assignment of its assets for the benefit of creditors or is

adjudged bankrupt, then the Company shall, by a notice in writing have the right to terminate the Contract and all the Contractor's rights and privileges hereunder, shall stand terminated forthwith.

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

12.5 **TERMINATION DUE TO CHANGE OF OWNERSHIP & ASSIGNMENT**- In case the Contractor's rights and / or obligations under the Contract and/or the Contractor's rights, title and interest to the equipment/material, are transferred or assigned without the Company's consent, the Company may at its absolute discretion, terminate the Contract.

12.6 If at any time during the term of the Contract, breakdown of Contractor's equipment results in Contractor being unable to perform their obligations hereunder for a period of 15 successive days, Company at its option may terminate this Contract in its 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 up to 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 up to the date of termination. Notwithstanding the termination of the Contract, the parties shall continue to be bound by the provisions of the Contract that reasonably require some action or forbearance after such termination.

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

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

13.0 **SETTLEMENT OF DISPUTES AND ARBITRATION**: 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 Duliajan(Assam). The award made in pursuance thereof shall be binding on the parties.

14.0 NOTICES:

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

(a) Company

HEAD (Contracts)
OIL INDIA LIMITED
DULIAJAN-786602
ASSAM,INDIA
Fax. No. : 0374-2803549
E-mail: contracts@oilindia.in

(b) 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 shall keep Company indemnified against all penalties and liability of every kind for breach of any such Statute, Ordinance or Law, regulation or bye-law.

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

16.4 Key personnel can not be changed during the tenure of the Contract except due to sickness/death/resignation/termination/retirement of the personnel in

which case the replaced person should have equal experience and qualification which will be again subject to approval by the Company.

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

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

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

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

18.0 LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY COMPLETION OF PROJECT

18.1 In the event of Contractor's default in timely completion of the project under the provision of this contract, 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 a maximum of 10.0%. The Company may without prejudice to any other method of recovery, deduct the amount of such liquidated damages from any amount due to the contractor.

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

18.3 The Company also reserves the right to cancel the Contract without any compensation whatsoever in case of failure to adhere to the Project schedule

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

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

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

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

22.0 LIABILITY:

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

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

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

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

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

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

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

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

23.0 CONSEQUENTIAL DAMAGE: Except as otherwise expressly provided, neither party shall be liable to the other for special, indirect or consequential damages resulting from or arising out of the contract, including but without limitation, to loss or profit or business interruptions, howsoever caused and regardless of whether such loss or damage was caused by the negligence (either sole or concurrent) of either party, its employees, agents or sub-contractors.

24.0 INDEMNITY AGREEMENT:

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

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

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

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

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

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

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

26.4 Bidder will submit 6(six) sets of all invoices to Company address given under **para 14.1 (b)** duly superscribed 'Original' and 'copy' as applicable for processing of payment.

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

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

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

26.8 Company shall within 20 days of receipt of the invoice notify Bidder of any item under dispute, specifying the reasons thereof, in which event, payment of the disputed amount may be withheld until settlement of the dispute, but payment

shall be made of any undisputed portion. This will not prejudice the Company's right to question the validity of the payment at a later date as envisaged in sub-clause **25.3** above.

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

26.10 Payment of the last Invoice after successful commissioning of the Plant shall be made within 45 days following receipt of invoice by Company accompanied by the following documents from the Bidder :

- a) Audited account up to completion of the Contract.
- b) Tax audit report for the above period as required under the Indian Tax Laws.
- c) Documentary evidence regarding the submission of returns and payment to taxes for the expatriate personnel, if any, engaged by the Contractor or by its sub-contractor.
- d) Any other documents as required by applicable Indian Laws.

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

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

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

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

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

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

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

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

28.0 APPLICABLE LAW:

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

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

- a) The Mines Act - as applicable to safety and employment conditions
- b) The Minimum Wages Act, 1948
- c) The Oil Mines Regulations, 1984
- d) The Workmen's Compensation Act, 1923
- e) The Payment of Wages Act, 1963
- f) The Payment of Bonus Act., 1965
- g) The Contract Labour (Regulation & Abolition) Act, 1970 and the rules framed thereunder
- h) The Employees Pension Scheme, 1995
- i) The Interstate Migrant Workmen Act., 1979 (Regulation of employment and conditions of service)
- j) The Employees Provident Fund and Miscellaneous Provisions Act, 1952
- k) Assam, WB & Bihar Tax Act including VAT & Entry Tax Act
- l) Service Tax Act

- m) Customs & Excise Act & Rules
- n) Environment Protection Act
- o) Public Liability Act

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

29.0 SUBSEQUENTLY ENACTED LAWS: Subsequent to the date of submission of bid by the Bidders, if there is a change in or enactment of any law or interpretation of existing law, which results in additional cost/reduction in cost to Bidder on account of the operation under the Contract, the company/ Bidder shall reimburse/pay Bidder/Company for such additional/reduced costs actually incurred.

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

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

END OF SECTION - I

&&&&&

SECTION - II

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 55000 KLs and 36000 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 latest, suitable, appropriate & proven technology. The proposed installation will be designed to meet all the latest and relevant standards for QHSE-ISO and ISRS (International Safety Rating System) etc.

The facilities proposed to be set up, would be based on latest process control system available including online monitoring and control facility for the entire plant and 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 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 the facilities based on current practice followed in the upstream oil & gas industry and in consideration of the statutory regulations like OMR (Oil Mines Regulations), Indian Boiler Act guidelines, IE Rules of statutory bodies like OISD (Oil Industry Safety Directorate), CMRI (Central Mining Research Institute), DGMS (Director General of Mines and Safety), PESO (Petroleum & Explosives Safety Organisation), Ministry of Environment and Forest (MOEF), 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, Evacuation and Rescue Analysis as well as HAZOP study of STF and NHK CTF.
- 3.1.2 Latest, Suitable, appropriate & proven Technology selection from available worldwide and recommendation thereof.
- 3.1.3 Basic Engineering & Front End Engineering Design (FEED) to establish the system requirements considering entire life of the field.
- 3.1.4 Designing of LACT (Lease Automated Custody Transfer) for NHK CTF.
- 3.1.5 Health, Safety and Environment Policy.
- 3.1.6 Presentation of computer animated 3D Walkthrough model to OIL based on process flow concept as per Basic Engineering & FEED, for design visualization of entire plant layout which they conceive, their milestones and operations of the units with focus on critical processes.
- 3.1.7 Submission of Basic Engineering & FEED result to OIL and taking approval from OIL.
- 3.1.8 Finalization of Project schedule (Bar Chart of the whole project) considering various facets of the job and cost estimates and taking approval from OIL.
- 3.1.9 Preparation of estimates for EPC and O&M contract.

- 3.1.10 Preparation of Tender document as per the technology selected and commercial requirements based on Basic Engineering & FEED for obtaining competitive bids from EPC bidders. The tender shall ask the bidders to submit Detailed Engineering for the various aspects viz. equipment, construction, structural, piping, mechanical, electrical, instrumentation etc.
- 3.1.11 Printing & binding of tender documents (including 10 sets of hard copies & 5 sets of soft copies for OIL's own use) ; Publication of NIT in press through OIL's advertising agent (selection of Newspaper and expenses of publications will be to OIL's account).
- 3.1.12 Intimation to prospective bidders drawing their attention to the tender ; Issue of tender documents to bidders for EPC contract ; Making arrangements & attending Pre-bid Conference at EPMC's office at their expenses ; Providing clarifications to prospective bidders. The bids for EPC contract shall be submitted at EPMC's office and also in OIL's office. Opening of tenders (both Technical & Commercial) will be done at OIL's office at Duliajan only in presence of EPMC's representatives.
- 3.1.13 Evaluation of bids for technical and commercial compliance, clarifications from bidders, if any. Holding discussions(techno-commercial) and negotiations with the bidders.
- 3.1.14 Submit the scrutinized bids for OIL's comments/approval.
- 3.1.15 Selection of EPC contractor jointly with OIL and awarding of contract to EPC contractor.

3.2 PHASE-II:

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

- 3.2.1** Guide/supervision/monitor in the preparation of 3D Computer modeling with simulation of STF by EPC contractor on PDS platform. The operation of LACT facility at CTF should also be included in the 3D Computer modeling.
- 3.2.2** Guide/monitor for updation of construction sequences in the 3D computer animated model with simulation & Life Cycle Data sheet by EPC Contractor. EPC needs to provide PDS software with assurance for maintenance support from the OEM/authorized dealer for minimum 5 years.
- 3.2.3** Presentation to OIL with details.
- 3.2.4** Inspection and expediting services.
- 3.2.5** Construction supervision and assistance in project management.

- 3.2.6** Adherence to the TOR requirements and control.
- 3.2.7** Monitor and control the project schedule.
- 3.2.8** Ensure quality control and safety of operation.
- 3.2.9** Ensure adherence to statutory guidelines followed in upstream oil industry.
- 3.2.10** Getting statutory approval from respective authority for the entire STF and CTF and the individual equipment/ instrument as per clause **2.0** through EPC contractor.
- 3.2.11** Preparation of Tender document as per the technology selected and commercial requirements to obtain competitive bids from O&M contractors.
- 3.2.12** Printing & binding of tender documents (including 10 sets of hard copies & 5 sets of soft copies for OIL's own use) ; Publication of NIT in press through OIL's advertising agent (selection of Newspaper and expenses of publications will be to OIL's account).
- 3.2.13** Intimation to prospective bidders drawing their attention to the tender ; Issue of tender documents to bidders for EPC contract ; Making arrangements & attending Pre-bid Conference at EPMC's office at their expenses ; Providing clarifications to prospective bidders. The bids for EPC contract shall be submitted at EPMC's office and also in OIL's office. Opening of tenders (both Technical & Commercial) will be done at OIL's office at Duliajan only in presence of EPMC's representatives.
- 3.2.14** Evaluation of bids for technical and commercial compliance, clarifications from bidders, if any. Holding discussions(techno-commercial) and negotiations with the bidders.
- 3.2.15** Submit the scrutinized bids for OIL's comments/approval.
- 3.2.16** Selection of O&M contractor jointly with OIL.
- 3.2.17** Engaging an O&M contractor for the project STF for a period of 6 (six) years. The O&M contract to commence from the beginning of 3 months trial run and commissioning of the STF.
- 3.2.18** Assisting in the start-up/Pre-commissioning and integration of the plant. O&M contractor shall be associated during pre-commissioning & trial run of the plant.
- 3.2.19** Commissioning assistance.

- 3.2.20** Engaging competent manpower for pre-commissioning, preparation of manpower deployment pattern as per provisions of OMR and other Govt. regulation.
- 3.2.21** 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 & Joint Operating Agreement for operation of STF between OIL & O&M contractor.
- 3.2.22** Finalization & completion of live 3D computer animated walkthrough model by EPC contractor with EPMC's approval and putting it in-line.
- 3.2.23** Arranging training of OIL & O&M contractor personnel.

3.3 PHASE-III:

- 3.3.1** Successful continuous Trial run of the Plant for 3 (three) months by EPC with commissioning assistance from EPMC.

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

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

4.0 SCOPE OF SERVICES FOR EPMC:

- 4.1 STUDIES 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 ICI, UK is considered suitable for the HAZOP study. EPMC will conduct HAZOP study under their leadership.
- 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 any

possible hazards resulting from the age-old tanks & equipment, existing process & operation related facilities. Suitable solution for safe operation of the Plant should also be suggested. Documents like hard copies of the Plant layout, P & IDs, Electrical layout, Equipment failure frequency rate etc. of NHK CTF, whatever is available will be provided by OIL, but all the documentations required for HAZOP Study has to be prepared by EPMC.

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 evacuation should not expose the evacuees to a higher level of risk than the emergency situation itself present.
- (ii) Method of rescue should enable the rescuers to search locate and remove persons from the plant and its neighbourhood 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.

NOTE :

- (i) **Environmental Impact Assessment (EIA) study as well as approval from MOEF and Pollution Control Boards will be done by OIL. Bidders need not quote for same.**
- (ii) **The above studies to be done by EPMC may be sub-contracted through OIL approved parties.**

D) Requirement if any, as per ISRS (International Safety Rating System) protocol/guidelines to achieve at least Level-7 ISRS rating, in addition to above.

4.2 BASIC ENGINEERING & FRONT END ENGINEERING DESIGN: The Engineering Project Management Consultant (EPMC) appointed for the project shall have the primary responsibility of carrying out Basic Engineering & Front End Engineering Design (FEED) 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 shall reimburse the fees to EPMC at actual for the amount paid by them towards obtaining approval from the statutory bodies for the plant only against supporting documents.

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 Basic Engineering & FEED data will be submitted to OIL with Project cost estimation & Plant layout. Those will be approved by OIL finally. All the drawings should preferably be finalised by EPMC during Basic Engineering & FEED except for what will be prepared during Detailed Engineering phase (viz. fabrication drawings, construction drawings foundation, steel frame, construction drawings for electrical equipment, instrumentation and piping, vents/drains, Hook ups, Loops, vendor data etc.). Following on from Basic or FEED engineering work, EPC contractor will develop Detailed Engineering as per EPMC's guidelines.

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

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 EPMC 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 includes:
 - 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 treatment and disposal system,

Based on the above criteria, the EPMC shall consider latest, suitable, appropriate & proven 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/Space should also 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. 1.06**).

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 latest, suitable, appropriate & proven technology and development of Good Practice Guidelines.
- (d)** Preparation of lay out diagram based on conceptual flow diagram and site map with due consideration to the statutory requirements followed in upstream oil sector including OMR, OISD and other Govt. laws and by laws as applicable.
- (e)** Preparation of Process Flow Diagram showing operating conditions, Material Balance, Heat Duty, Composition of streams etc.
- (f)** 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, ground flare system, effluent disposal system, P&ID, PFD, Plot Plan etc., utility requirement and fire protection & fighting system as per statutory requirements, disaster management plan, guaranteed plant performance, turned down conditions etc., Equipment Layout, Line Schedule, Instrument Schedule etc.

- (h) Preparation of Plant operation manual complete with process control safety measures and procedures during commissioning and operation, etc.
- (i) Escape, Evacuation and Rescue Analysis; environmental protection scheme/systems, HAZOP study of STF and NHK CTF.
- (j) Preparation of time schedule for implementation.

4.2.2 EQUIPMENT ENGINEERING: It will include

- (a) Formulation of design philosophy, and approval from OIL.
- (b) Preparation of drawings as per Basic Engineering & FEED requirement, defining major equipment, giving the layout of equipment with sections and elevations, wherever necessary for equipment engineering as per the statutory guidelines followed in upstream oil industry.
- (c) Define scope and finalize engineering specifications based on process data sheets for all static and rotary equipment.
- (d) Provide specifications / standards for all equipment and machinery to be procured as part of turnkey supply considering system and statutory requirements.
- (e) Finalize agreed specification / standards for equipment/machinery to be incorporated in the contract of turnkey supplier in consultation with OIL.
- (f) Review/approval of drawings/documents of turnkey supplier during execution as necessary.

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) Selection of electrical and instrument items along with requisite specifications as per OMR, Indian Electricity Rules, OISD and DGMS guidelines.
- (e) 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.
- (f) 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.
- (g) Provide final agreed specification/standards for piping engineering to be incorporated in contract of turnkey plant supplier in consultation with OIL.
- (h) 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 Instrumentation & Control System for the following:
 - Tank Farm Management System
 - Flow Metering System
 - Water-in-oil Monitor
 - Motorized Valve
 - Bath Heaters
 - Emulsion Treaters
 - Separator Vessels etc.
 - Steam boilers
 - Crude Oil Despatch Pumps
 - Effluent Treatment Plant with recycling facility
 - Lease Automated Custody Transfer (LACT) 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) Calculation of total electrical load for Instrumentation systems and design of suitable UPS.
- (j) Design of Data Communication link between Central Tank Farm (CTF) and Secondary Tank Farm (STF).
- (k) Preparation of technical specifications/data sheets for all equipment and review/approval of vendor's contractor's design documents, if any.
- (l) Preparation of instrument layout drawings, cable schedule, and inter-connection diagrams.
- (m) Preparation of instrument installation standards and erection specifications.
- (n) Technical appraisal of all instrument items supplied as part of turnkey bids in consultation with OIL.
- (o) Provide final agreed specifications/standards for all instrument supplies and installation/erection under turnkey concept as part of contract document.
- (p) 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 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 Detail soil investigation to be carried out by EPMC through an experienced and recognized institute approved by OIL and all test report including soil characteristics, ground water table level, safe bearing capacity and recommended type of foundations for various types of structures proposed for the project to be furnished considering the all relevant BIS codes.

Soil Liquefaction effect at earthquake motion considering all relevant provision of BIS codes to be studied, analysed and furnished with recommendation for structural safety.

Topographical survey should be made and detail contour map to be prepared for the site. This contour map to be used as a reference map for earth work, finalization of finished ground level, layout of various structures etc.

The final report of soil investigation is required to be submitted both as hard and soft copy for scrutiny and approval of OIL.

- (b) Economical planning of layout of all the facilities of STF considering serviceability, utility and safety.
- (c) Development of design criteria for all civil, structural and architectural works etc.; a brief note on the same to be furnished considering the international standard practices, as well as safe and standard practices in the up-stream oil Industries.

- (d)** Detail Planning, analysis, and design of all the structures, facilities, various foundations including offices, sheds and control room, Overhead water tanks etc. as per relevant BIS Codes and National Building Code.

The necessary static and dynamic loading shall be obtained from different vendors or generated wherever required as a basic data for civil & structural design including different types of foundations.

Where BIS codes are not sufficient, EPMC may refer to the American Petroleum Institute (API) Standard; however, reasons for such references to be briefed.

- (e)** Design of pavements, Potable water supply system and efficient drainage system.
- (f)** Concept or preliminary design of various structures such as building, industrial shed, tank foundation etc. are required to be done as per state of the art and relevant BIS code. This concept design should be submitted both as hard and soft copies for approval of OIL.
- (g)** Detail analysis & design as per relevant BIS codes on approval of concept design by OIL.

In designing foundations for various equipment, the static a dynamic loads, which are to be considered, are to be obtained by EPC from either vendors or reliable sources. The final design and drawings are required to be submitted for approval of OIL (both hard and soft copies) by EPMC. During the course of detail designing any clarification required to be furnished from both ends.

- (h)** In addition to the normal foundations EPMC should separately suggest base Isolation for Oil Storage tanks with their cost implication.
- (i)** Use of Pre-engineered structure for structural sheds also to be considered.
- (j)** Drawings should be prepared in detail in CAD /Auto-CAD and should cover all the details including the bar bending schedule, Joints and weld details or other shop drawings as per the requirement. The drawing shall include:

- i) Name of Project, Company (OIL), Consultant & Contractor.
- ii) Title of the Drawing
- iii) Drawing No. Issue Date, Revision No.
- iv) Statement for Revision
- v) Revision Identification Mark
- vi) Release Status
- vii) Designer/Checker's/Draughtsman's name/initial

The EPMC shall maintain an upto date drawing & document register and monitor drawing & document issued. This register shall list all drawings &

documents used in the design and construction for civil and structural works. The drawing register shall be a controlled document and shall be kept updated/revised and shall be issued on A3 /A4 size sheets.

- (k) Technical appraisals of bids received for the civil/structural specifications/standard are to be scrutinized and sent for approval of OIL.
- (l) The drawing and any other information required by the EPC contractor for the project, shall be furnished by the EPMC. During execution of the work, quality control as per relevant BIS code and safety measures required is in the scope of EPMC.
- (m) Incorporation of modifications during the course of execution of the project and incorporation of the same in relevant revisions and issue of revised drawings are in the scope of EPMC.
- (n) Provide “As Built Drawings” and submission of the same to OIL. Both in hard & soft copies based on the progressive completion of jobs.

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.

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, BIS and TAC 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 Annex-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. The drawing & design which will be prepared by EPC contractor during Detailed Engineering, shall be approved by EPMC.

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 Basic Engineering & FEED in consultation with OIL. The tender shall ask the bidders to submit Detailed Engineering for the various aspects viz. equipment, construction, structural, piping, mechanical, electrical, instrumentation etc. i.e. to be prepared on the basis of Basic Engineering & FEED.
- (b) Printing & binding of tender documents (including 10 sets of hard copies & 5 sets of soft copies for OIL's own use) ; Publication of NIT in press through OIL's advertising agent (selection of Newspaper and expenses of publications will be to OIL's account).
- (c) Intimation to prospective bidders drawing their attention to the tender ; Issue of tender documents to prospective bidders for EPC contract. Making arrangements & attending Pre-bid Conference at EPMC's office at

their expenses(pro prospective bidders shall attend pre-bid conference at bidders' expenses) ; Providing clarifications to prospective bidders.

- (d) Bids(technical and techno-commercial) from EPC shall be received at EPMC's office and also at OIL's office and opened at OIL's office at Duliajan in presence of EPMC's representatives. Initially only technical bids shall be opened which shall be evaluated and tabulated by EPMC on quotations comparison sheet for technical compliance. 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 to the techno-commercial queries. The EPMC shall prepare TQ's, obtain the replies and forward the recommendations based on this, and together with copies of all quotations and related correspondences forwarded to OIL with recommendations on the technically and acceptable offer.
- (e) On receipt of EPMC's recommendations on technical evaluation of the bids received against the tender, OIL shall arrange for obtaining necessary approval from OIL's competent authority for opening the priced bids of the technically qualified bidders.
- (f) After receipt of approval for opening of priced bids of technically qualified bidders, EPMC shall intimate the technically qualified bidders for attending the priced bid opening. Priced bids shall be opened at OIL's office at Duliajan in presence of representatives from EPMC and technically qualified bidders within one week of intimating the bidders. Bids of the technically disqualified bidders shall not be opened.
- (g) EPMC shall tabulate the priced bids of the technically acceptable bids on comparative statement sheet and put forward their recommendation to OIL. Negotiations and discussions with the bidder, if any required, shall be arranged by EPMC in consultation with OIL. Justification for price reasonableness shall also be submitted by EPMC to OIL.
- (h) On receipt of EPMC's recommendations on final commercial evaluation of the bids received against the tender, OIL shall arrange for obtaining necessary approval from OIL's competent authority for awarding the contract to EPC. On receipt of necessary approval, OIL shall issue the Letter of Award(LOA) to the contractor awarding the contract to EPC Contractor and enter into an agreement with the EPC contractor. EPMC will formulate the Contract agreement for EPC Contractor. EPMC shall make 30 sets of hard copies in binding format and 5 sets in soft copies of the contract agreement and submitted to OIL.
- (i) 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.

- (j) EPMC shall assist OIL in issuing Recommendatory Letter to Directorate General of Hydrocarbon(DGH), New Delhi for Essentiality Certificate for imported items. Although customs clearance shall be the responsibility of the EPC contractor, if necessary, EPMC shall assist EPC contractor in clearing the goods through customs authority. EPMC shall also assist in obtaining other required documents/certificates/licenses from Govt authorities for availing the benefit available to OIL towards supply of goods including Nil Customs duty, Excise duty exemption.
- (k) The EPC contractor will make necessary documentation in prescribed formats 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 have to ensure that all the statutory approval/certificates are obtained before commissioning of the Plant is deemed to be completed.
- (l) The EPC contractors will prepare 3D Computer modeling with simulation as per guidelines of EPMC contractor for the entire plant till it is put into operation. EPC Contractor will also update the construction sequences in the said model during construction phase. EPC needs to provide necessary software with assurance for maintenance support from the OEM/authorized dealer for minimum 5 years from the date of commissioning of the plant.

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 qualified 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.

EXPERIENCE & QUALIFICATION OF THE PROJECT MANAGER/ TEAM MEMBERS

- i) **PROJECT MANAGER:** There shall be a professionally qualified Project Manager to lead the Project Team. The Project Manager must have experience of at least 10 years in the field of oil & gas processing facility planning, design (FEED), Project execution and overall Project Management. He must have worked as a Team Leader in at least 2 (two) successfully completed surface facility projects. He must be well versed with all aspects of study as described in TOR, including but not limited to data acquisitions, installation in Oil & Gas industry and system designing, knowledge of different field proven technologies, comparison

and evaluation thereof to identify appropriate and latest proven technology, FEED, detailed design, preparation of tender document specific to the job requirement, material selection, operations, result analysis and trouble shooting, co-ordination and supervision of all kind of activities related to the construction of complete system and commissioning. He shall have the ability and authority required for performance of the consultant's job. He shall liaise with OIL's representative for the proper co-ordination and timely completion of the job on any matters pertaining to the job.

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

The services shall be rendered by 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 as per clause 4.4 D.
- (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 contractor's personnel.

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, 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 mechanical 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 during the period of

trial run 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. 20 copies of the above documents shall be submitted to OIL.
- (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) Project Manager shall be engaged to once LOA is issued to EPMC.
- (b) Project Manager will convene the Kick-off meeting.
- (c) Liaison with OIL.

- (d)** Carryout overall project management and administration of the project works covering planning, review, co-ordination and reporting.
- (e)** Project management and technical inputs to OIL in deciding methodology of project execution, framing of NIT, item rate tenders and bid package documents for EPC, finalizing procedures for evaluation of bids, contracts and assist OIL in obtaining government clearances.
- (f)** Responsible for all acts and omissions of the EPC contractor in regard to successful execution and commissioning of the project.
- (g)** 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.
- (h)** 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.
- (i)** Adoption of Project management Concept (PMC) for expediting works. This includes placement / deployment of personnel at contract / sub vendor works.
- (j)** Overall management of the project including assisting OIL in cost control reporting in mutually agreed format using modern management tools.
- (k)** Co-ordination of activities relating to the project of various departments within 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.
- (l)** Overall planning, scheduling, monitoring and controlling of overall project progress. Assist OIL in cost planning and control.
- (m)** Hold periodical review meetings with EPC contractor to monitor the progress identify constraints, slippages and suggest remedial measures.
- (n)** Preparation of reports as per clause 4.4 D (Documentation & Submission of Reports).
- (o)** Project cost estimation shall be prepared with requisite back-ups and also shall assist OIL for review of project cost estimate before and after placement of major orders.
- (p)** Prepare monthly cost statements and cash flow statements if required.
- (q)** Necessary technical write-up and drawings shall also be submitted to OIL to enable them to prepare detailed Project Report.
- (r)** Prepare Procurement Status Report on monthly basis.
- (s)** Check all the equipment and material including debris, scrapes etc. being taken out from the site by 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.
- (t)** Carry out process co-ordination.
- (u)** Management of Procurement Services.

B) PURCHASE:

- (a) Provide all technical specifications and technical BID EVALUATION CRITERIA/ BID REJECTION CRITERIA for EPC contractor 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 bids received to obtain technical clarifications from bidders, arrange meetings and discussions with bidders.
- (d) Conduct technical discussions with bidders and assist OIL to conduct in commercial negotiations with bidders.
- (e) Provide recommendations of the most suitable bidders on the basis of TECHNICAL BEC., technical acceptability, requisite experience etc.
- (f) Assist OIL in obtaining clearance from Empowered Committee.
- (g) Preparation of draft and final contracts 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 within the country. EPMC will intimate tentative locations/dates of such inspection before fifteen (15) days. Cost of such inspection by OIL personnel will be borne by OIL. EPMC shall accompany OIL for such inspection. EPMC's personnel expenses for such visit shall be reimbursed by OIL at actual against supporting documents.

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. The format of the report shall be discussed and mutually agreed between OIL & EPMC. 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, if any.
- 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 from the date of commissioning of the plant. EPMC will also prepare a Joint Operating Agreement (JOA) for O&M of the Plant. OIL will enter into JOA 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:

- 6 (six) months for preparation of Basic Engineering & Front-End Engineering Design, plot plans, P&IDs as per statutory guidelines and system requirements and preparation & completion of tender documents, preparation of cost estimates.
- 6 (six) months for Invitation of Bids from EPC contractors and award of the job to EPC contractor.
- 21 (twenty one) 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.

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) **Basic Engineering & Front End Engineering Design for Installations: 10 (ten) Weeks**

The EPMC will have to submit reports in triplicate on Basic Engineering & FEED (hard and soft copy), computer animated AEC walkthrough in suitable software for design visualization of the entire plant & operation etc. of the installation and HAZOP and Environmental Risk Assessment Study to OIL for clearance/ approval within 10 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: 14 (fourteen) 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 12 weeks of approval of (i) above.

(iii) **Invitation of Bids from EPC contractors, Evaluation of bids and recommendation of successful bidders: 24 (twenty four) 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 within 17 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: **84** 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.

7.0 PLANT BATTERY LIMITS:

The battery limit of STF starts at crude oil inlet manifold inside the plant and ends at delivery header of CODP for treated crude and delivery header of clarified water disposal pump.

The wet crude inlet point (12”X600 class RTJ Flange), dry crude outlet point (12”X600 class RTJ Flange) and clarified water outlet point (4”X900 class RTJ Flange) will be made available by OIL inside the plant at specified space.

The detail of electrical power to be supplied for Plant operation is indicated in Annexure for minimum facilities envisaged, clause 2.0 (VIII) & 2.0 (X). The bidder in his techno-commercial bid shall project power requirement for the plant.

Natural gas for fuel, servo system or otherwise shall be provided by OIL at a single offtake point inside the plant. The bidder in his techno-commercial bid shall project the requirement of natural gas usage for normal operation of 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

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

8.2 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.

8.3 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.

8.4 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.

8.5 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.

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

10.0 WARARNTY AND PLANT COMMISSIONING:

The entire plant/system as well as each individual equipment, parts, components shall be new of recent make of the best quality and workmanship and 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. Defective goods / materials or parts notified by OIL during the warranty period shall be replaced immediately at no extra cost to OIL.

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 which shall be at no extra cost to OIL. The warranty period of 24 months 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 QUALITY OF CRUDE & 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 10000 KLPD & 5400 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) OIL will consider an EPMC consultancy as successfully completed if any such project was successfully implemented to the satisfaction of the owner and guaranteed performance was achieved after completion of the commissioning of the Plant and its facilities. Necessary documents to be provided along with the bid.
- c) The Technology for the entire Plant to be proposed by the bidder will be considered as latest, suitable, appropriate & proven technology if it has been implemented elsewhere in two different projects by any third party, to the satisfaction of the owner in the recent past. For this, the bidder must forward the following information:
- (i) Brief description of the projects and area in which the proven technology was applied.
 - (ii) Name of the Projects / fields where the technology was applied.
 - (iii) Name and address of the owner and operator of these assets.
 - (iv) Name and address of the EPC Contractor who carried out the turnkey implementation of the projects.
 - (v) Date of execution and schedule of the project jobs.
 - (vi) Certificate of owner that the technology was proven appropriate technology at the time of implementation.

- d) Copies of document duly authorized defining the constitution and legal status of the bidder, place of registration and principal place of business.
- e) EPMC contractor to provide three organograms and three project time schedules (one each for each phase of work) showing the group leader and other key personnel in each discipline with relevant experience. (To refer to "Experience and Qualifications of team members /EPMC). The project time schedules and the organograms covering the three phases shall form a part of the Bid.
- f) The EPMC contractor also must provide a guarantee that all systems provided will be adaptable, with minor modifications at the most if need be, to future technical developments in the next 10 (ten) years. Any such modifications that might be required must be commercially viable. The EPMC along with the Bid, which will require approval of OIL, must provide a technical justification about this adaptability.
- g) The EPMC contractor shall provide computer animated walkthrough 3D model displaying only process flow to OIL for design visualization of entire plant layout with focus on critical processes which they conceive from Basic Engineering & FEED and submit to OIL in 2 sets of R/W Compact Discs. This will be the basis for EPC contractor for preparing 3D computer animated AEC (Architecture, Engineering and Construction) model for the entire plant.
- h) The EPMC contractor shall ensure in getting 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 **36** months from the date of LOA to EPMC, 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 (SECTION 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 the Basic Engineering & FEED of the Tank Farm in respect of suitable, appropriate & fault-free design, and system adaptability, process philosophy, etc. without defects/faults that affect operation of the plant, for a minimum period of two years from the date of successful commissioning.

- (c) The 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. However cost of such visits for EPMC personnel shall be borne by EPMC.
 - (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. Cost of OIL's personnel's visits to EPMC office shall be to OIL's account.
 - (e) The EPMC contractor will set up an Office-cum-base at Duliajan for day to day co-ordination during job execution under Phase I, Phase-II & Phase-III of the entire project. However, for Phase-I of the contract, the EPMC Contractor shall commence their job with a kick-off meeting at OIL, Duliajan. During the meeting, the detail work programme including Bar Chart & major milestones of Phase-I will be presented by EPMC and the same will be discussed & finalized. However, for undertaking the job under Phase-I, the EPMC Contractor shall have an option to undertake the same either at Duliajan office as well as at their own central base. For this, the EPMC Contractor's personnel along with the project Manager (Team Co-ordinator) shall make a number of visits and stay at Duliajan at their cost as and when required during the Phase-I period. In such case, the minimum number of visits and the duration of the each stay of the EPMC Contractor's personnel shall be indicated. However, OIL reserves the right to direct the EPMC Contractor to make additional visits and extend the duration of the stay if felt necessary without incurring additional cost to OIL. OIL may provide Guest House accommodation to EPMC Contractor's personnel at their cost subject to availability.
 - (f) 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.
 - (g) EPMC is required to strictly adhere to the time frame provided.
 - (h) 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 sufficient reasons.
- 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 with consideration of cost implications arising from such changes, if any.

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 OIL, EPMC shall include in tender documents for EPC, 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 completion time (36 months) 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 The bidder shall provide latest, suitable, appropriate & proven technology covering the following areas, but not limited to :

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

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

12.7 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.

12.8 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, EPMC will provide the documents & drawings which 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

Note: EPMC will prepare necessary drawings & documents as per their Basic Engineering & FEED. Other detailed engineering drawings viz. fabrication, foundation, construction drawings, etc will be prepared by EPC contractor and the same has to be approved by EPMC.

12.9 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 Clause 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.

&&&&&

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:

1.1 CREATION OF SECONDARY TANK FARM WITH DEHYDRATION FACILITY:

BASIC PROCESS PHILOSOPHY:

The Secondary Tank Farm (STF) 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 2 (two) nos. of crude oil storage tanks of 10000 KLs capacity each 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 Branch line.

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 may be used as Wet Crude Receipt Tanks. The treated dry crude oil will be stored in designated dry crude storage tanks. However, all 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 °C 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 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. The inlet wet crude manifold will be inside the battery limit of STF. **Necessary land maps for the site will be available at OIL's office.** A schematic land map is enclosed as **Annexure-D** for visualization of the site. Following pipeline connections will be required for and will be under the scope of the EPC contractor and under the consultancy of EPMC.

- 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.

1.2 Setting up of the plant, in view of the foregoing, shall involve broadly providing for / creation of but not limited to the following facilities / infrastructure :

- Tank Farm (i.e. Crude Oil Storage Tanks) of 40,000 KLs safe holding capacity consisting of *total Six (6) nos. Floating Roof Tanks* 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/formation water 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 pumping out/disposal of 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.
- Electrical and Illumination.
- Instrumentation, Control & Communication system for plant management. & fail-safe operation through control room operation.
- Telephone, Data Communication and Security access Control Facility.
- Painting of the entire plant.
- Landscaping, development of green plantation in select areas within the plant boundary, internal ring road & green belt on plant periphery.
- Interior designing & furnishing of offices & control room.

- Operation & Maintenance (O&M) of the plant for a period of six years with Joint Operating Agreement & Safe Operating Procedure.
- 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.
- Out of 9 Nos. existing crude oil storage tanks, two tanks of 10,000 Kls capacity will be used for installation of LACT facility.
- Installation of High Mast lighting system (30 Meter) in NHK CTF at strategic locations.
- 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.

- 1.3 OIL shall provide for this project a barren piece of land measuring approx. 180 bighas (approx. 24,000 sq. m) with boundary wall, gates & approach road.
- 1.4 For power supply please refer to Clause 2.0, sub-clause (VIII) below.
- 1.5 The project site is located in a monsoon-fed belt. Average load bearing capacity of the soil, soil investigation survey & terrace levels of the site, ground water level, average rain fall and seismic data at site etc. will be collected by the EPMC.
- 1.6 Tentative schematic PFD, ROAD MAP, LAND MAP & PLANT LAYOUT for the STF are enclosed. The schematic PFD & LAYOUT is indicative only and is subjected to change as per the plant design.
- 1.7 **INFORMATION FOR DESIGN CONSIDERATION:**

- (A) **Location:** The STF is at a distance of about 12 KM from Duliajan on the Namrup – Tinsukia (via Madhuting – Naoholia) road. Approximate land available is 180 Bighas (approx. 24,000 sq. m). Please refer to the enclosed LAND MAP.

(B) **SPECIFICATION OF IN-COMING WET CRUDE QUALITY:**

Wet crude quality data:

		<u>Min.</u>	<u>Max.</u>
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)	2000	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:**

<u>Composition</u>	<u>Volume</u>
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

(D) **SPECIFICATION OF PRODUCED FORMATION WATER:**

	<u>Min.</u>	<u>Max.</u>
pH	7.0	8.5
Salinity (ppm)	50	9700
Carbonate (ppm)	60	500
Bi-carbonate (ppm)	130	7500

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 10000 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 30°C to 50° C.

(III) **CRUDE OIL STORAGE TANKS:**

2(two) nos. of Floating Cone Roof Tanks of 10000 KLs capacity each and 4(four) nos. of Floating Cone Roof Tanks of 5000 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. There should be arrangement for prevention of deposition of sludge and of removing deposited sludge in crude oil tanks.

(IV) **EFFLUENT TREATMENT PLANT (ETP):**

Produced 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 inlet line of Effluent Holding Tanks shall also

have a connection to the crude oil circulation line of the crude tanks so that accumulated formation water of crude oil tanks can be pumped directly to the Effluent Holding Tanks without performing treatment in Dehydrators. 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, coating-wrapping (coating-wrapping of underground pipes will extend 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. Optimum numbers of stand-by units should be considered.

(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.

List of recommended spares, list of special test equipment for maintenance should be provided.

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

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.

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.

OPTION - I:

Power for entire loads of the installation shall be made available from OIL's existing sources. OIL will provide power to the tune of 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

OPTION - II:

Power for entire loads of the installation shall be made available from the Captive Power Plant (CPP) where suitably designed Low voltage Gas Engine Driven (GED) Genset shall be installed. These GED Gensets shall be of similar capacity with the provision of synchronization facility to cater the entire power requirement of the installation. While sizing the genset capacity, bidder has to take 20% future load growth provision. Arrangement shall be made to add similar capacity of Gen set in future. Gen set running philosophy will be 100% running with minimum 50% standby. This system shall be compatible with OIL's existing 11 kV power supply system through suitably rated HT Switch gears and Transformer (As mentioned in option I), so that it can be easily changed over to either system.

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:

- a) Entire hazardous areas of the STF shall be covered with Fire Water ring main pressurized at 7 Kg/cm² residual pressure with the provision of Diesel pump(s) conforming to BIS standard. Capacity of diesel pump shall be of 410 m³/hr. each. All the pumps shall be in auto mode. The ring main shall have water cum foam monitors & hydrants at a regular spacing as per the relevant norms with necessary hose boxes along with type 'B' synthetic hoses and nozzles. The entire fire water ring main shall be maintained at 7

Kg/cm² pressure at a hydraulically remotest point with the help of automatic electrical motor driven jockey pump. The auto system shall have a hydro-pneumatic tank and a compressor along with the jockey pump.

- b) The jockey pump shall start automatically when level in the hydro-pneumatic tank falls below the low level and shall stop when normal level in the tank has been restored. Pressure switches are to be provided in the hydro-pneumatic tank for automatic operation of the air compressor.
- c) Moreover, for jockey pump duty type of the motor shall be selected based on the cycle of operation of the jockey pump. If felt, a timer can be introduced in the control circuit to keep the motor running for a predetermined time after each automatic start to avoid too frequent motor operation.
- d) For tank cooling purpose, multi-feeder type medium velocity water spray/drenching system with triple ring arrangement shall be provided for each crude oil tanks.
- e) Foam system for tank protection shall be of semi-automatic type with centralized foam storage facilities (having UL listed fluoro protein foam with foam filling pump) with online foam induction arrangement through suitable foam inductor/proportioner. Provision for alternate foam pouring arrangement through fire tender in case of failure of the semiautomatic system shall be made. All the foam equipment (foam pump, maker, inductor, proportioner etc.), piping, fitting, foam tanks etc. shall be of stainless steel of suitable grade.
- f) Entire fire hazard area shall be covered with fire detection and alarm system addressable at control room with manual call points at some strategic areas.
- g) Automatic fire detection and alarm system shall be provided for control room.
- h) Two nos. mobile 1000 GPM monitor shall be provided in the installation and provision to operate these monitors shall be made at some strategic point in the fire water ring main near crude oil tank area.
- i) Since the water requirement for foam system, water spray system and hydrant system shall be tapped from the common fire water ring main, hence for better fire water protection water flow rate shall be calculated at the rate of 10 lpm/m² of the largest tank's shell surface area and then it should be loaded with 3400 lpm for supplementary hose stream (as per clause 7.4.1.4.2 of TAC fire protection manual part II).
- j) There shall be "Above Ground Fire Water Storage Tank" of four (4) hours capacity of total hourly fire water pumping requirement.

- k) Apart from above 4 hours capacity “Above ground fire water storage Tank” there shall be a “RCC Static Ground Fire Water Storage Reservoir” of capacity minimum 20,000 KLS (Twenty thousand kiloliters) in two interconnected compartments for supplementary water requirement for prolonged fire fighting for this stand alone project. The static water reservoir capacity should also be considered for storage of storm water of the entire plant area.
- l) Apart from above entire STF shall be equipped with first aid fire fighting equipment as per OISD – 189.
- m) All the above fire fighting systems/facilities shall conform to TAC, NFPA, OMR, BIS, and OISD Std. 117 &189 which ever is stringent.

(X) CAPTIVE POWER PLANT:

OPTION – I:

For normal running operation of the installation, OIL shall supply power to the tune of 1 MW from its 11 kV network. However, to tackle black out situation as well as to run the critical equipments, a suitably 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. 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.

OPTION – II :

The EPMC shall design the Captive Power Plant (CPP) to cater the Power for entire loads of the installation, where suitably designed Low voltage Gas Engine Driven (GED) Genset shall be installed. These GED Gensets shall be of similar capacity with the provision of synchronization facility to cater the entire power requirement of the installation. While sizing the genset capacity, bidder has to take 20% future load growth provision. Arrangement shall be made to add similar capacity of Gen set in future. Gen set running philosophy will be 100% running with minimum 50% standby. Fuel (natural gas) required for the Gen Set will be provided by OIL. The Generating Set should have acoustic enclosure to reduce sound pollution to the optimum level (i.e. 75 db at one meter distance from acoustic enclosure). Around five nos. parameters of Gen Set (e.g. RPM, Voltage, Frequency, Water temp., 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 shall be compatible with OIL's existing 11 kV power supply system through suitably rated HT Switch gears and Transformer 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.

Oily Sludge Disposal Pit :

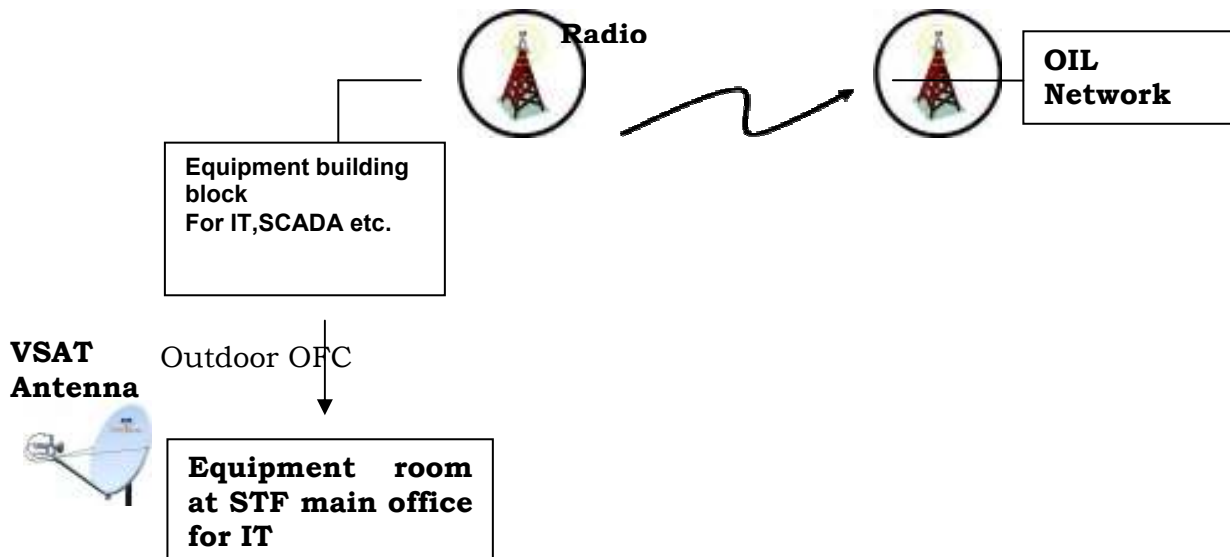
Provision for disposal & storage of oily sludge in a concrete, HDPE lined pit to be kept in the installation. Provision for leachate collection ground water monitoring to be kept around the Sludge Pit.

(XIV) DATA COMMUNICATION AND SECURITY ACCESS CONTROL FACILITY:

(a) DATA COMMUNICATION / ERP CONNECTIVITY:

For data communication / ERP connectivity the facility should include a communication tower of maximum 33m height along with nearby free ground area radius of approx.12 m, concrete platform for installing a VSAT antenna (*Area = 6.5 square ft. , thickness =8 inch min and 10nos. of ballast blocks 20Kg each*). If the Main office rooftop is available, it will be a better option for installing the VSAT antenna.

The data connectivity from STF to OIL's Duliajan office (*backbone*) will be extended by OIL through wireless network. The equipment required for such communication as indicated below should be procured. Only the equipment required for the KU band VSAT communication will be provided by OIL. The outdoor cabling between the equipment building block and the main office (*EPC contractor should do the cabling within the STF*) should be done with MM OFC if it is within 2KM span otherwise with SM OFC for necessary data connectivity. The indoor data cabling for the STF main office should be done with standard CAT6 cable through Cisco 2960 switch as per the number of workstation so required. The rough schematic for data connectivity should be as follows:



Required material specifications for Data connectivity:

Radio equipment:

- 1) Radio Tower and accessories (Tower height depends upon site condition=33max, Area=12m radius from centre)= **1** set
- 2) Wireless Bridge (EION, VIP 110-24 ,Freq=2.4 GHz)= **2** Nos.
- 3) CAT-6 STP cable (D-Link) = **One box** (300m approx.)
- 4) Antenna (Andrew- Semi parabolic 24dbi)= **2** sets
- 5) 8 pin Connector (EN3C8f) = **5** Nos.
- 6) Surge Protector with Male to Male connector (Telemetric Coax protector CA90)= **2** Nos.
- 7) Lightening arrestor, Earthing cable, Earth pit, Aviation light and other accessories for proper earthing.

V-SAT EQUIPMENT:

- 1) V-sat platform (Area=Size 6.5ft/6.5ft ; height=8 inch or Main office rooftop is better option)
- 2) All other equipments and accessories for the VSAT installations will be provided by OIL

OTHER ACCESSORIES

- 1) Router (Cisco-871)=**1**
- 2) Cisco 2960 workgroup switch=**2**
- 3) 3KVA UPS =**1**
- 4) Power protector (Model No=MA15/D/2/SI; Ratings=240V/50Hz/15A)=**2**
- 5) Patch cord and UTP cable (Cat 6) = **As per requirement.**

(b) Intrusion detection / Security control system:

The EPMC should study the complete requirement of the latest Security Control System for the STF. The system should have surveillance camera's

(*AXIS 215 PTZ Network Camera with its unique pan/tilt/zoom capabilities and tamper-resistant design or advanced*) placed along the periphery of the campus and all entrance points which should be monitored at security gate and control room and recorded centrally or at a remote location through IP network with a facility to take backup in standard video format. EPC should also do the cabling of any such setup within the STF.

(c) Computers:

The scope of supply will include 6 desktop computers for the plant engineers and above 6 on line monitors for the process flow control. One extra Laptop computer with one LCD Projector should also be provided for the conference room.

(d) Telephone:

“Radio Communication backbone link in licence free 5.8 GHz band and media gateways along with necessary infrastructure like tower, civil works etc is to be provided. The installed system should be compatible with the systems already installed in Duliajan. Provision of telephones from other service providers is to be made for alternative communication for control room and IM’s room. Intrinsically safe wireless walkie-talkie sets with licence will be provided by the EPC contractor for interplant communication. Intrinsically safe (DGMS approved) telephones will be provided for installation in hazardous area within the STF complex.”

(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 of design of fittings & fixtures for as per requirement of electrical items of works.

- (g) Detail interior & landscaping planning & designing.
- (h) Planning & designing of drainage system.
- (i) 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 and items of rate may be as per CPWD-DSR Rate with incorporation of necessary cost index for this area for the item rate. Further items not covered in the aforesaid Schedules to be based on prevailing Govt. Schedules of items and rate of the area of the project/ market rate analysis which should be supported with proper documents.
- (n) Getting the final approval drawings from OIL before release for execution.
- (o) All other civil jobs for successful completion of the project.

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.

Landscaping: The details of landscaping will be forwarded to OIL for necessary approval.

SCOPE:

A) **EARTH FILLING ,GRADING & LEVELING:**

Earth filling to be planned and executed to provide a new Filled up Ground Level and the newly developed ground level will be called as Finished Ground Level (FGL) on completion of filling and compaction up to 95% of proctor density. The Scope of the work also includes preparation of detail contour map of the whole STF- site and **finalization of FGL based on following properties:**

- i. Preparation of contour map of the whole area in a 5.0m X 5.0m grid. And finalisation of FGL.
 - ii. The lowest level of the FGL will be 0.5m above the Highest Flood Level or the existing Namrup – Tinsukia (via Madhuting – Naoholia) road / Height point of near by road level (Carriage way top) which ever is higher or as per direction of OIL. The FGL will have a uniform Gradient from the middle of the site and it will be 1:500 in longer direction and 1:400 in shorter direction.
 - iii. The Final FGL of the whole is to be shown in the contour map in a 5.0m x 5.0m grid.
 - iv. Calculation on Earth filling, grading, leveling will be based on the FGL.
- B) **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.
- C) Design and construction of pile foundations if required shall be carried out as per relevant IS & other codes.
- D) The effect of ground water table shall be duly considered while designing the structures including the various foundations.
- E) 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.
- F) **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).

G) **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.

H) **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.

I) **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 2 Nos. existing 10,000 kls. Capacity tanks of Central Tank Farm (CTF) to lease oil from the tank battery to OIL's main trunk line and branch line. In designing the LACT, EPMC shall consider latest, suitable, appropriate & proven technology.

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 Conditions of Contract, and Terms of Reference & Scope of work (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.
- 19) Provision of bypass arrangement for all possible equipment like Heat Exchanger, Bath Heaters, EET, MOVs, etc.

END OF SECTION – II

&&&&&&

SECTION - III

SCHEDULE OF RATES & SCHEDULE OF PAYMENT

A) PRICE SCHEDULE:						
The contract will have to be executed by the consultant in three phases as detailed below, for which the bidders are requested to quote rates as under:						
Srl. No.		PARTICULARS	UNIT	QTY	Unit Rate (Rs.)	Total Amount (Rs.)
1.0	A	Execution Phase-I: HAZOP study, Escape, evacuation, Rescue analysis etc. for STF & CTF.	Lump sum	1		
2.0		Execution Phase-I: Basic Engineering & FEED and presentation of Computer animated AEC Walkthrough to OIL.	Lump sum	1		
3.0		Execution Phase-I: Formulation of Health, Safety and Environment Policy.	Lump sum	1		
4.0		Execution Phase-I: Finalization of Project schedule (Bar Chart of the whole project) and Preparation of cost estimates.	Lump sum	1		
5.0		Execution Phase-I: Preparation of tender documents based on Basic Engineering & FEED. Issue of tender documents for inviting bids from EPC contractors, evaluation of bids and selection of EPC contractor.	Lump sum	1		
6.0	B	Execution Phase-II: Construction Supervision and Project Management including approval of detail engineering, drawings, technical specifications/ bid evaluation etc. if any, prepared by EPC contractor & awarding of the contract.	Month	21		
7.0		Execution Phase-II: Preparation of documents and getting statutory approval for STF and the individual equipment/ instrument.	Lump sum	1		
8.0		Execution Phase-II: Preparation of Tender document for O&M contractor and issue of Tender document.	Lump sum	1		
9.0		Execution Phase-II: Evaluation of bids for technical and commercial compliance and selection	Lump sum	1		

		of O&M contractor.				
10.0		Execution Phase-II: 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.	Lump sum	1		
11.0	C	Execution Phase-III: Engagement of O&M contractor for trial run & commissioning of STF.	Month	3		
12.0	D	Service Tax as applicable				
TOTAL ESTIMATED CONTRACT VALUE, T = A + B + C + D						

NOTE:

- The phase wise prices of the bid should be in the following proportions:
 - Total Charges for PHASE-I (Sl. No. 1 to 5): 30% of the total project cost "T".
 - Total Charges for PHASE-II (Sl. No. 6 to 10): 50% of the total project cost "T".
 - Total Charges for PHASE-III (Sl. No. 11): 20% of the total project cost "T".
- Bidders are to quote their prices inclusive of all taxes and duties including corporate, personal taxes, etc. but excluding customs duty which shall be extra to OIL's account if applicable. Bidders are requested to attach supporting documents, if they are exempted from payment of Service Tax failing which Service Tax will be applicable at normal rate.

(B) PAYMENT SCHEDULE:

PHASE - I:

Payment shall be made on prorata basis depending upon progress of each event as per approved Bar Chart/ Mile Stones.

PHASE - II:

- Monthly payment for Sl. No. 6.0 shall be made on the basis of physical progress of the work of each activity with respect to the approved Bar Chart/Mile-Stones.
- Payment for Sl. No. 7.0 shall be made on pro-rata basis depending upon job progress as per approved Bar Chart/ Mile Stones.
- Payment for Sl. Nos. 8 & 9 shall be made after successful completion of each event as per approved Bar Chart/ Mile Stones.
- Payment for Sl. No. 10 shall be made on the basis of physical progress of the work of each activity with respect to the approved Bar Chart/Mile-Stones.

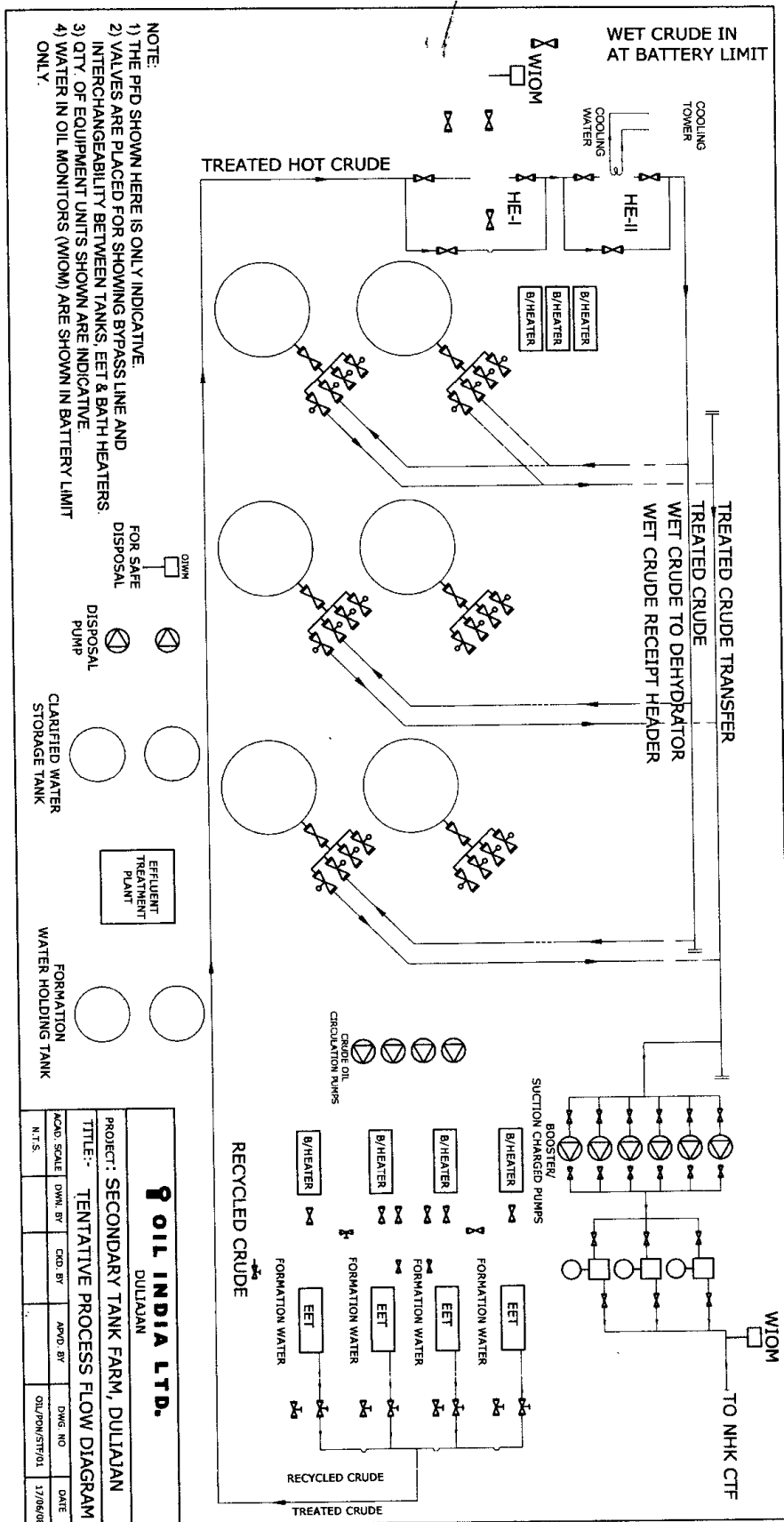
PHASE - III: Payment for Sl. No. 11 shall be made as follows:

- (i) 60% of the quoted value through equal monthly instalment depending upon job progress as per approved Bar Chart/ Mile Stones.
- (ii) Balance 40% after successful completion of 3 months uninterrupted trouble free operation of the plant to the desired performance level & handing over to OIL.

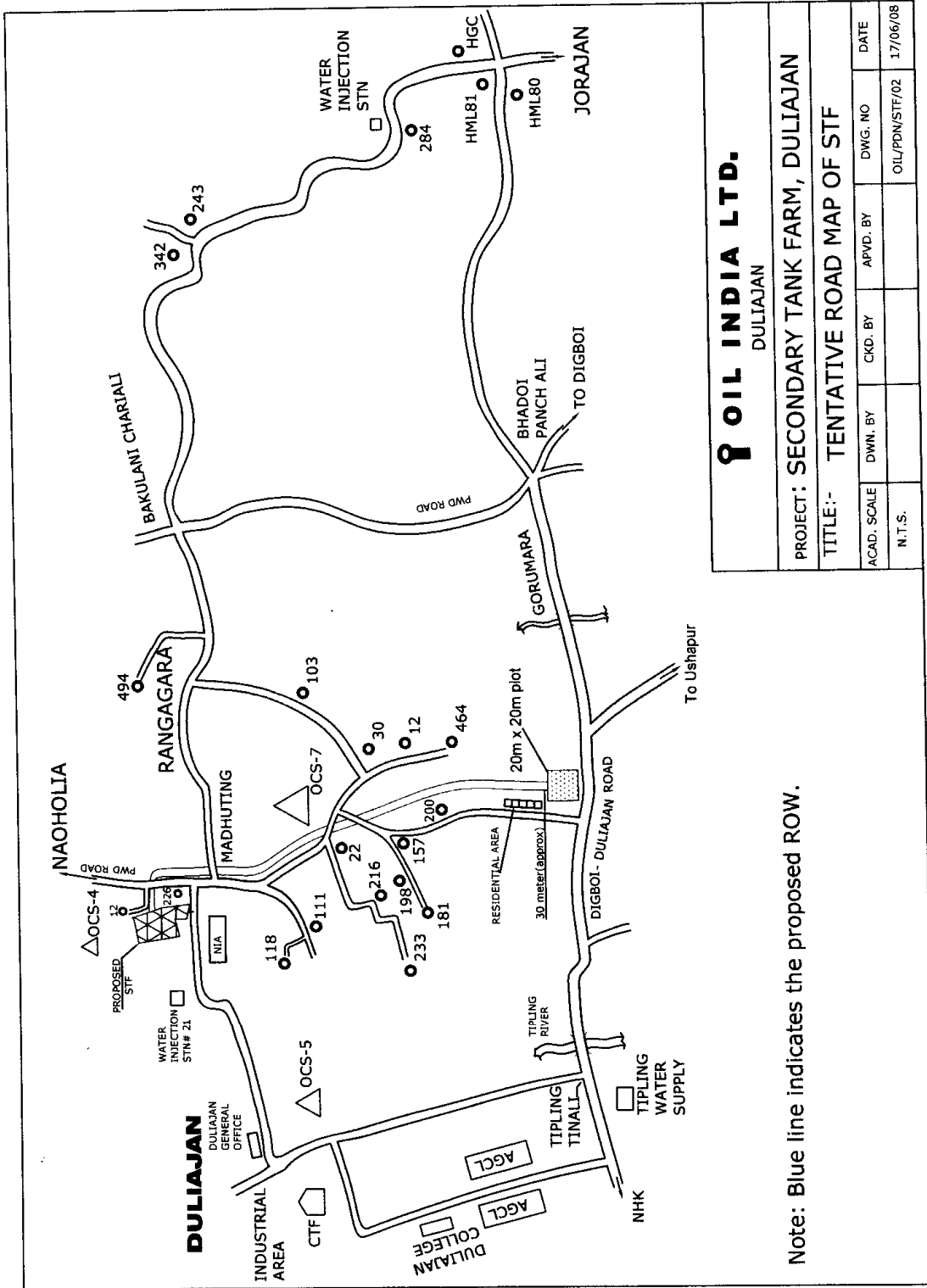
END OF SECTION – III

&&&&&

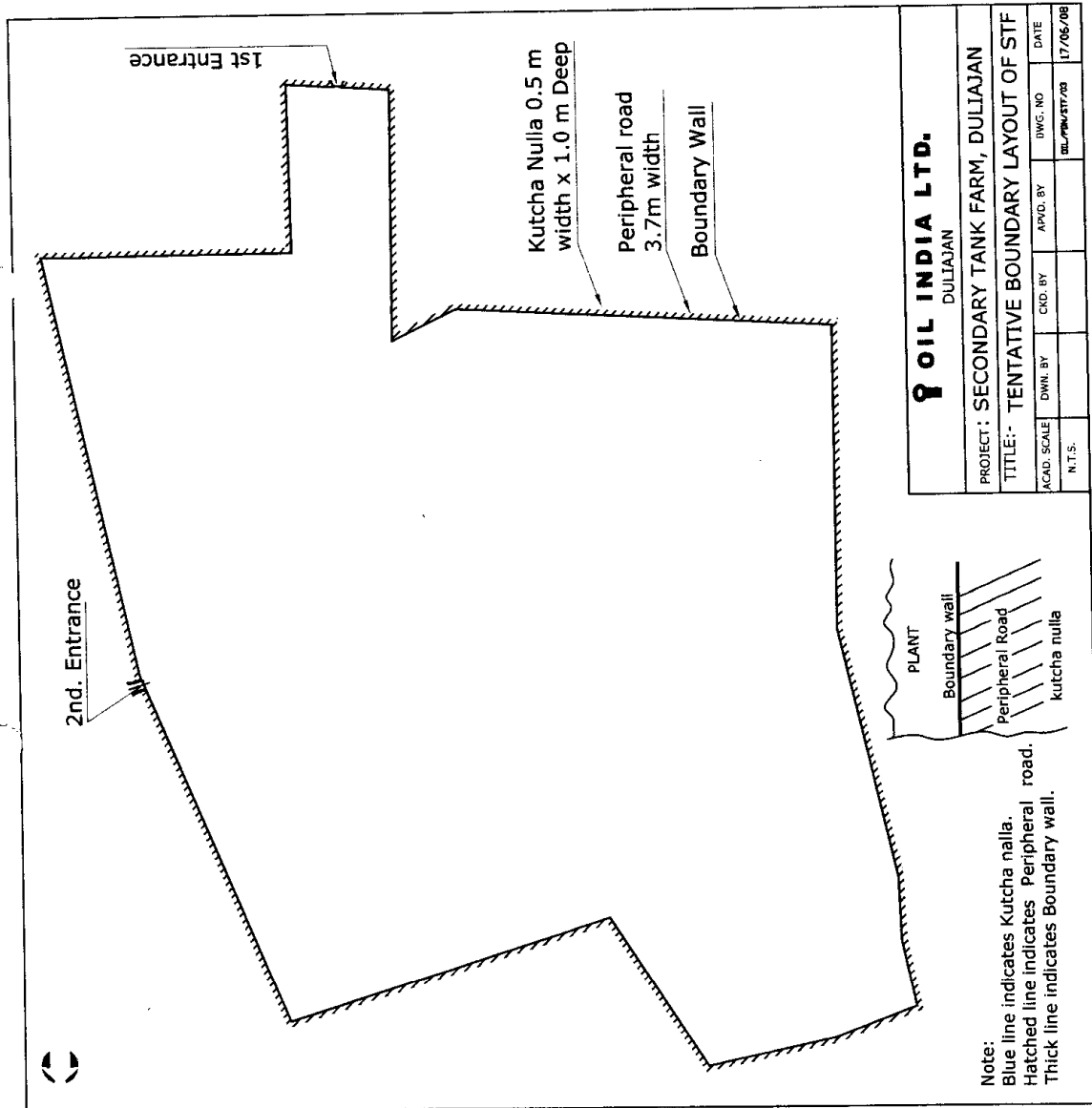
TENTATIVE PROCESS FLOW DIAGRAM



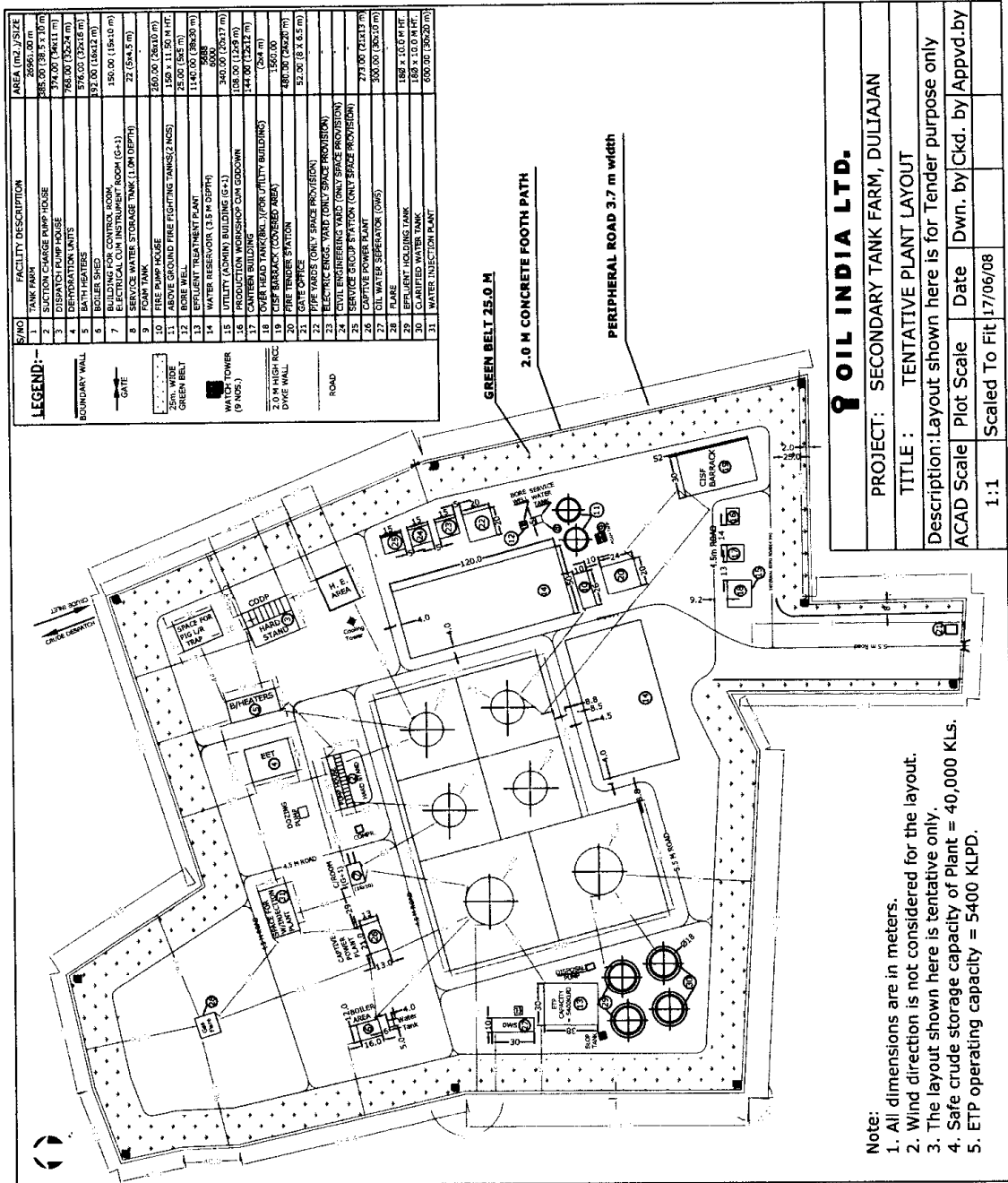
TENTATIVE ROAD MAP



TENTATIVE BOUNDARY LAYOUT



TENTATIVE PLANT LAYOUT



STATEMENT OF NON-COMPLIANCE

SECTION NO.	CLAUSE NO./ SUB-CLAUSE NO	NON COMPLIANCE	REMARKS

Signature of the bidder

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 _____ 2009.

Signature

(In the capacity of)

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 27 months after Contract completion date).

SIGNATURE AND SEAL OF THE GUARANTORS _____

Designation _____

Name of Bank _____

Address _____

Date Place _____

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 / Scope of Work,
- (c) Section-III : Schedule of Rates and Schedule of Payment

3. In consideration of the payments to be made by the Company to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Company to provide the Services and to remedy defects therein in conformity in all respect with the provisions of this Contract.

4. The Company hereby covenants to pay the Contractor in consideration of the provision of the Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of this Contract at the times and in the manner prescribed by this Contract.

IN WITNESS thereof, each party has executed this contract at Duliajan, Assam as of the date shown above.

Signed, Sealed and Delivered,

For and on behalf of
Company (Oil India Limited)

For and on behalf of Contractor
(M/s. _____)

Name:

Name:

Status:

Status:

In presence of

In presence of

1.

1.

2.

2.

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 _____ 2009.

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 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.

&&&&&&&