



ऑयल इंडिया लिमिटेड  
(भारत सरकार का उद्यम)  
**Oil India Limited**  
(A Government of India Enterprise)

*Conquering Newer Horizons*

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**TENDER DOCUMENT**

**TENDER NO.: OIL/GABON/ENQ-2D SEISMIC P&I/26/15**

*For*

**HIRING OF SERVICE PROVIDER FOR Pre-STM PROCESSING OF 1200 GLKM AND INTERPRETATION OF 2500 GLKM OF 2D SEISMIC DATA IN BLOCK SHAKTHI-II (G4-245), GABON.**

**DATE & TIME OF CLOSING OF TENDER: 14<sup>th</sup> May 2015, 11:00 AM (Gabon Local Time)**

**DATE & TIME OF OPENING OF TENDER: 14<sup>th</sup> May 2015, 11:30 AM (Gabon Local Time)**

**General Manager  
GABON Project,  
OIL INDIA LIMITED,  
La Sablière, Immeuble FIDJI  
(pres de Cour Constitutionnelle)  
Libreville. B.P. 23134**

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**FORWARDING LETTER - SECTION - I**

**M/s. Beicip-Franlab**  
**E&P Division**  
**232 Aneue Napoleon Bonaparte**  
**92500 Rueil-Malmaison, France**

**SUB: HIRING OF SERVICE PROVIDER FOR PROCESSING OF 1200 GLKM AND INTEGRATION OF 2500 GLKM OF 2D SEISMIC DATA IN BLOCK SHAKTHI-II (G4-245), GABON.**

Dear Sirs,

1.0 A Consortium of M/s. OIL INDIA LIMITED (OIL) and M/s. INDIAN OIL CORPORATION LIMITED (IOCL), both Government of India Company under the administrative control of Ministry of Petroleum and Natural Gas, has been assigned by the Government of Gabon to carry out exploration activities in Block Shakthi II (G4-245) with 50% P.I. each. The consortium invites firm quotation from experienced and competent service providers meeting the BEC/BRC of the tender for hiring of service under **Single Stage Two Bid** system for Processing of 1200 GLKM and Interpretation of 2500 GLKM of 2D Seismic Data in the Block. The block is located adjacent to continental Basement margin within interior sub-basin of Gabon, under administrative guidelines of Gabon's Director General of Hydrocarbons [DGH]. OIL is the Operator of the Block.

1.1 Both OIL and IOCL are independent "Schedule A" premier National oil companies of India, under the Ministry of Petroleum and Natural Gas, Government of India. OIL is engaged in the business of Exploration, Production and Transportation of crude oil and natural gas and IOCL is engaged in the business of refining of crude oil, transportation of crude oil and marketing of petroleum product.

2.0 In connection with its proposed acquisition campaign in Gabon, OIL invites quotation from you for hiring of services for Processing of 1200 GLKM and Interpretation of 2500 GLKM of 2D Seismic Data in block Shakthi-II, Gabon.

3.0 One complete set of bid document for hiring of above services is being forwarded herewith. You are requested to submit your most competitive bid, complete in all respect including the attachments of requisite documents and declarations, well before the scheduled bid closing date and time. For your ready reference, few salient points (covered in detail in this bid document) are highlighted below:

Sl. No.	ITEMS	DETAILS
(i)	Tender No.	OIL/GABON/ENQ-2D SEISMIC P&I/26/15
(ii)	Type of Bid	Limited Two Bid System
(iii)	Bid Closing Date & Time	14 <sup>th</sup> May' 2015 at 11 :00 AM, GABON ST
(iv)	Bid Opening Date & Time	14 <sup>th</sup> May' 2015 at 11 :30 AM, GABON ST

<b>Sl. No.</b>	<b>ITEMS</b>	<b>DETAILS</b>
(v)	Price Bid Opening Date & Time	Will be communicated to the Eligible Bidders nearer the time.
(vi)	Bid Submission Place	Bid should be submitted on/or before Bid Closing Date & Time at the following address;  General Manager GABON Project, OIL INDIA LIMITED, Pres de la Cour Constitutionnelle La Sablière, Immeuble FIDJI Libreville. B.P. 23134
(vii)	Bid Opening Place	General Manager GABON Project, OIL INDIA LIMITED, Pres de la Cour Constitutionnelle La Sablière, Immeuble FIDJI Libreville. B.P. 23134
(viii)	Bid Security	Not Applicable.
(ix)	Amount of Performance Bank Guarantee	@ 7½% of total Contract Value valid for a period of 21 months ( 18 months contract period plus 3 months warranty obligation, contractual obligation including the defect liability period) from effective date of contract i.e. Receipt of LOA.
(x)	Bid validity	120 days from the Actual Bid Opening Date of the Technical Bid
(xi)	Duration of the Contract	18 months from date of commencement of the Contract i.e. Receipt of LOA in this case (as there is no separate mobilization time) to till the completion of the operation whichever is EARLIER.
(xii)	Quantum of Liquidated Damage for Default in Timely Completion of each Deliverable.	1/2 % of total contract value for delay per week or part thereof subject to maximum of 7 ½ %.
(xiii)	Bids to be Addressed to	General Manager GABON Project, OIL INDIA LIMITED, La Sablière, Immeuble FIDJI Pres de la Cour Constitutionnelle Libreville. B.P. 23134

4.0 OIL now looks forward for your active participation in the tender.

Yours faithfully,

R K Srivastava

Head-Geoscience & Admin

Gabon Project, Oil India Limited

La Sablière, Immeuble FIDJI

Pres de la Cour Constitutionnelle

Libreville. B.P. 23134

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## **SECTION - II**

### **INSTRUCTIONS TO BIDDERS**

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

#### **A. BIDDING DOCUMENTS**

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

(a) A forwarding letter highlighting the following points (Section I):

- (i) Company's Tender No.
- (ii) Bid closing date and time.
- (iii) Bid opening date and time.
- (iv) Bid submission place.
- (v) Bid opening place.
- (vi) The amount of performance guarantee.
- (vii) Bid validity.
- (viii) Duration of contract.
- (ix) Quantum of liquidated damages for default in timely completion.

(b) Instruction to Bidders (Section II)

(c) General Conditions of Contract (Section III)

(d) Terms of Reference/Technical specification (Section IV)

(e) Schedule of Rates (Section V)

(f) Special Terms and Conditions (Section VI)

(g) Bid Evaluation Criteria/Bid Rejection Criteria - (Section-VII)

(h) Statement of Non Compliance (Proforma I).

(i) Bid Form (Proforma II A).

(j) Performance Security Form (Proforma II B).

(k) Contract Form (Proforma II C).

(l) 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 require additional time 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 any printed literature or documents which may be in another language provided it is accompanied by an English translated version on the Bidder's letter head, duly signed and stamped, which shall govern for the purpose of bid interpretation.
- 5.0 **DOCUMENTS COMPRISING THE BID**: Bids are invited under **Single Stage Two Bid System**. The bid to be submitted by the Bidder shall comprise of the following components:

**A. TECHNICAL BID**

- (i) Letter of Authority as per Proforma – III on your letter head, duly signed and sealed by the Competent Authority.
- (ii) Complete technical details of the services and equipment specifications with catalogue, etc including the duly filled up Annexure – I, II, III(A), III(B), IV & V on Bidder's Letter head duly signed and sealed with requisite attachments, duly certified.
- (iii) Documentary evidence established in accordance with clause 9.0 of this section including a Statement of Compliance Of the BRC clauses as per Section 2.14 of Section VII, on bidder's letter head duly signed and sealed:
  - (a) Performance Guarantee Clause
  - (b) Force Majeure Clause
  - (c) Tax Liabilities Clause
  - (d) Arbitration Clause
  - (e) Acceptance of Jurisdiction and Applicable Law
  - (f) Liquidated damage and penalty clause
  - (g) Termination Clause
- (iv) Statement of Non Compliance (Proforma –I).
- (v) Copy of Commercial (Priced) bid **without indicating prices**.

**B. COMMERCIAL/PRICE BID**

Containing Commercial /Priced Bid comprising of following:

- (i) Bid Form as per **Proforma-IIA**.
- (ii) Price-Bid Format as per **SECTION-V**.

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

- 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. In case of any discrepancy between the words and in figures, the prices indicated in words only will be considered.
- 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 taxes including Corporate Income Tax, Withholding Tax 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 of accrual of income or the country of operation of the bidder shall be borne by the bidder. For information of bidders, the applicable Withholding Tax @10% (If party is not registered in Gabon), Corporate Income Tax and Personal Income tax (Corporate income tax at a rate of 35% and personal income tax for its employees at the progressive scale provided by the general tax code, except if the contractor benefits from the specific regime of oil subcontractors). Bidders are required to check this aspect and applicability of the same to them while submitting their offers.

8.0 **CURRENCIES OF BID AND PAYMENT:**

8.1 A bidder expecting to incur its expenditures in the performance of the Contract in more than one currency, and wishing to be paid accordingly, shall so indicate in the bid. In such a case, the bid shall be expressed in different currencies and the respective amounts in each currency shall together make up the total price.

8.2 Currency once quoted will not be allowed to be changed.

9.0 **DOCUMENTS ESTABLISHING BIDDER'S ELIGIBILITY AND QUALIFICATIONS:**

These are listed in **Section VII** in **BEC / BRC**

10.0 **BID SECURITY:**

10.1 **Bid Security is not applicable for this tender.**

11.0 **PERIOD OF VALIDITY OF BIDS:**

11.1 Bids shall remain valid **for 120 days** after the date of bid opening ( Technical Bid) 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 by e-mail / Fax/ Letter etc. 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 three copies of the bid clearly marking original "**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 authorizations (**as per Proforma III**) shall be indicated by written power of attorney accompanying the bid. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid.

12.3 The bid should contain no interlineations, white fluid erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such correction shall be initialed by the person or persons signing the bid.

**C. SUBMISSION OF BIDS**

Bids are to be submitted in triplicate under **Single Stage Two Bid System** i.e. **Techno-commercial (Un-priced) & Commercial (Priced) Bids separately in sealed envelopes**. The offer is to be submitted in physical form in triplicate within the bid closing date and time. **No e-mail / fax offer is being accepted.**

**Bids shall be rejected outright if the technical bids contain the prices.**

**13.0 SEALING AND MARKING OF BIDS:**

13.1 The tender is being processed according to a **single stage-Two bid procedure**. Offers should be submitted in two parts viz. **Techno-commercial (Un-priced) & Commercial (Priced) Bids each in triplicate (One Original & Two 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 Un-priced Techno-commercial Bid (Original + 2 copies) should be in one sealed cover bearing the following on the right hand top corner.

(i) Envelope No.1 **Techno-Commercial Un priced bid (Un-priced)**

(ii) Tender No. \_\_\_\_\_.

(iii) Bid closing date \_\_\_\_\_.

(iv) Bidder's name \_\_\_\_\_.

13.4 The cover containing the Commercial (Priced) Bid (Original + 2 copies) should be in a separate sealed cover bearing the following on the right hand top corner.

(i) **Envelope No.2 – Commercial (Priced) 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 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. Bids may also be handed over to the Officer in Charge of receiving the bids before the bid closing date and time. Company shall not be responsible for any postal delay/transit loss.

14.0 **DEADLINE FOR SUBMISSION OF BIDS:** Bids must be received by the company at the address specified in the “Forwarding Letter” not later than the Bid Closing time as mentioned in the "Forwarding Letter".

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

16.0 **MODIFICATION AND WITHDRAWAL OF BIDS:**

- 16.1 The Bidder after submission of bid may modify or withdraw its bid by written notice prior to bid closing date and time.
- 16.2 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.
- 16.3 No bid can be modified subsequent to the deadline for submission of bids.
- 16.4 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

17.0 **BID OPENING AND EVALUATION:**

- 17.1 Company will open the Bids (**Techno-commercial un-priced bid**), including submission made pursuant to para 16.0, 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 on the Tender Opening Sheet evidencing their attendance. Only one representative against each bid will be allowed to attend. It may further be noted that the decision of DGH representatives attending the Bid Opening will be final with respect to allowing the bidders' representatives to attend the Bid Opening.
- 17.2 Bid for which an acceptable notice of withdrawal has been received pursuant to para 16.0 shall not be opened. Company will examine bids to determine whether they are complete, whether documents have been properly signed and whether the bids are generally in order.
- 17.3 At bid opening, Company will announce the Bidder's names, written notifications of bid modifications or withdrawal, if any, and such other details as the Company may consider appropriate.
- 17.4 Company shall prepare, for its own records, minutes of bid opening including the information disclosed to those present in accordance with the sub para 17.3.
- 17.5 To assist in the examination, evaluation and comparison of bids the Company may at its discretion, ask the Bidder for clarifications of its bid. The request for clarification and the response shall be in writing and no change in the price or substance of the bid shall be sought, offered or permitted.
- 17.6 Prior to the detailed evaluation, Company will determine the substantial responsiveness of each bid to the requirement of the Bidding Documents. For purpose of these paragraphs, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Document without material deviations or reservation. A material deviation or reservation is one which affects in any 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.

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

17.8 The Company may waive minor informality or non-conformity 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.

**18.0 OPENING OF COMMERCIAL (PRICED) BIDS:**

18.1 Company will open the Priced Bids of the techno-commercially qualified Bidders on a specific date and time in presence of interested qualified Bidders. Technically qualified bidders will be intimated about the priced bid opening date in advance.

18.2 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.

18.3 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.

19.0 **CONVERSION TO SINGLE CURRENCY:** While evaluating the bids, the closing rate of exchange declared by Union Gabonaise de Banque, one day prior to priced bid opening date will be taken into account for conversion of foreign currency.

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

**21.0 CONTACTING THE COMPANY:**

21.1 Except as otherwise provided in para 17.0 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 17.5.

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 e-mail or registered letter 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.

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 issue of Letter of Award (LOA), the successful Bidder shall sign the contract and return it to the company. Till the contract is signed, the LOA issued to the successful bidder shall remain binding amongst the two parties.
- 25.3 In the event of failure on the part of the successful bidder to sign the contract within the period specified above or any other time period specified by Company, OIL reserves the right to terminate the LOA issued to the successful bidder. The party shall also be debarred for a period of 2(two) years from the date of default.

25.4 **FURNISHING FRAUDULENT INFORMATION/DOCUMENTS:**

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

26.0 **PERFORMANCE SECURITY:**

- 26.1 Within 15 (fifteen) days of the receipt of notification of award from the Company (LOA), the successful Bidder shall furnish the performance security @ 7 ½ % of total contract value for a period 21 months ( 18 months contract period plus 3 months warranty obligation, contractual obligation including the defect liability period) from effective date of contract in the form of bank guarantee as per the **Proforma-II B** or Banker's Cheque or Bank Draft in favour of OIL INDIA LIMITED payable at Libreville, Gabon or in any other format acceptable to the Company. The performance security shall be payable to Company as compensation for any loss resulting from Contractor's failure to fulfill its obligations under the Contract.
- 26.2 The performance security specified above must be valid as indicated in the contract. The same will be discharged by company not later than 30 days following its expiry.
- 26.3 The performance security shall be payable to Company as compensation for any loss resulting from Contractor's failure to fulfill its obligations under the Contract.
- 26.4 The Performance Security will not accrue any interest during its period of validity or extended validity.
- 26.5 In the event of failure of the successful Bidder to comply with the requirements of para 25.0 or 26.1, it shall constitute sufficient grounds for annulment of the award. In such an event the Company may call for new bid as the case may be and take action on the bidder as deemed fit including debarment and legal action as mentioned in para 25.3 and 25.4 above.
- 27.0 **CREDIT FACILITY:** Bidders should indicate clearly in the bid about availability of any credit facility inclusive of Government to Government credits indicating the applicable terms and conditions of such credit.

28.0 **BIDDERS' AWARENESS ON THE COMPLETE REQUIREMENT:**

It is imperative for each Bidder to fully inform themselves of all Gabon as well as local conditions, factors and legislation which may have any effect on the execution of the scope of 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 subsoil, 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.

29.0 **Specifications:**

Before submission of Bids, bidders are requested to make themselves fully conversant with all Conditions of the Bid Document and other relevant information related to the works to be executed under this contract. The bidder must be fully aware of all the laws prevailing in Gabon including statutory permissions required for complete performance of the work as per this bid to the satisfaction of OIL.

**END OF SECTION-II**

### SECTION III

#### GENERAL CONDITIONS OF CONTRACT

##### 1.0 DEFINITIONS:

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

- (a) "**Contract**" means agreement entered into between Company and contractor, as recorded in the contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein;
- (b) "**Contract Price**" means the price payable to contractor under the contract for the full and proper performance of its contractual obligations;
- (c) "**Work**" means each and every activity required for the successful performance of the services described in **Section IV**, the Terms of Reference;
- (d) "**Company**" or "**OIL**" means Oil India Limited;
- (e) "**Contractor**" means the individual or firm or Body incorporated performing the work under this Contract;
- (f) "**Contractor's Personnel**" means the personnel to be provided by the contractor to provide services as per the contract;
- (g) "**Company's Personnel**" means the personnel to be provided by OIL or OIL's contractor (other than the Contractor executing this Contract). The Company representatives of OIL are also included in the Company's personnel.
- (h) "**Gross Negligence**" means any act or failure to act (whether sole, joint or concurrent) by a person or entity which was intended to cause, or which was in reckless disregard of or wanton indifference to, avoidable and harmful consequences such person or entity knew, or should have known, would result from such act or failure to act. Notwithstanding the foregoing, Gross negligence shall not include any action taken in good faith for the safeguard of life or property.
- (i) "**Willful Misconduct**" means intentional disregard of good and prudent standards of performance or proper conduct under the Contract with knowledge that it is likely to result in any injury to any person or persons or loss or damage of property.

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

2.1 **EFFECTIVE DATE:** The contract shall become effective as of the date Company notifies Contractor in writing that it has been awarded the contract. The date of issue of Company's Letter of Award (LOA) shall be treated as the Effective Date of the contract.

2.2 **MOBILISATION PERIOD: There is no separate Mobilisation Period. Therefore, the commencement date of the contract is same as effective date of contract.**

2.3 **DURATION OF CONTRACT:** 18 months from date of commencement of the Contract i.e. Receipt of LOA in this case (as there is no separate mobilization time) to till the completion of the operation whichever is EARLIER.

##### 2.4 TIME SCHEDULES:

- (i) First set of data collection for the job/services for Phase I (Section IV) should be completed by contractor within a maximum period of 30 days from the date of

issue of Letter of Award (LOA) or advice from OIL, whichever is later and the work should be started within 7 days from the date of data collection.

- (ii) Rest of the data to be acquired will be collected by the Bidder from OILs Office at Libreville, Gabon, during 2015-2016, depending on progress of seismic data acquisition in the field, at Bidder's own cost and responsibility.
- (iii) The Bidder has to submit an interim report based on the old seismic data and the new set of data within 3 (three) months of commencement of Project during Phase I.
- (iv) The processing and interpretation of the entire Seismic data volume (newly acquired and earlier existing data) must be completed within 3 (three) months from the date of receipt of the last set of data.

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

- 3.1 Perform the work described in the Terms of Reference (Section IV) in most economic and cost effective way.
- 3.2 Except as otherwise provided in the Terms of Reference and the special Conditions of the contract, provide all personnel as required to perform the work.
- 3.3 Perform all other obligations, work and services which are required by the terms of this contract or which reasonably can be implied from such terms as being necessary for the successful and timely completion of the work.
- 3.4 Contractor shall be deemed to have satisfied himself before submitting their bid as to the correctness and sufficiency of its bid for the services required and of the rates and prices quoted, which rates and prices shall, except insofar as otherwise provided, cover all its obligations under the contract.
- 3.5 Contractor shall give or provide all necessary supervision during the performance of the services and as long thereafter as company may consider necessary for the proper fulfilling of contractor's obligations under the contract.

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

- 4.1 Pay Contractor in accordance with terms and conditions of the contract.
- 4.2 Allow Contractor and his personnel 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 they will provide competent, qualified and sufficient personnel to perform the Work correctly and efficiently.
- 5.2 The Contractor should ensure that their personnel observe applicable company and statutory safety requirement. Upon Company's written request, contractor entirely at its own expense shall remove immediately any personnel of the contractor determined by the company to be unsuitable and shall promptly replace such personnel with personnel acceptable to the company.
- 5.3 The Contractor shall be solely responsible throughout the period of the contract for providing all requirements of their personnel including but not limited to, their transportation to & from field site, en route/ local boarding, lodging & medical attention etc. Company shall have no responsibility or liability in this regard.
- 5.3 Contractor's key personnel shall be conversant with English language (both writing and speaking).

**6.0 WARRANTY AND REMEDY OF DEFECTS:**

- 6.1 Contractor warrants that it shall perform the work in a first class, workmanlike, and professional manner and in accordance with their highest degree of quality, efficiency, and with the current state of the art technology/oilfield practices and in conformity with all specifications, standards and drawings set forth or referred to in the Terms of Reference. They should comply with the instructions and guidance, which Company may give to the Contractor from time to time.
- 6.2 Should Company discover at any time during the tenure of the Contract or **till the Unit/equipment/ tools are demobilised from site or base camp(if applicable)** that the work does not conform to the foregoing warranty, Contractor shall after receipt of notice from Company, promptly perform any and 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 performed by others and charge the cost thereof to Contractor **subject to a maximum of the contract value payable for the defective work which needs corrective action** which the Contractor must pay promptly. In case Contractor fails to perform remedial work, or pay promptly in respect thereof, the performance security shall be forfeited..

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

- 7.1 Contractor shall not, without Company's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing pattern, sample or information furnished by or on behalf of Company in connection therewith, to any person other than a person employed by Contractor in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance with prior permission from Company. However, nothing hereinabove contained shall deprive the Contractor of the right to use or disclose any information:
- a. Which is possessed by the Contractor, as evidenced by the Contractor's written records, before receipt thereof from the Company which however the Contractor shall immediately inform to Company; or
  - b. Which is required to be disclosed by the Contractor pursuant to an order of a court of competent jurisdiction or other governmental agency having the power to order such disclosure, provided the Contractor uses its best efforts to provide timely notice to Company of such order to permit Company an opportunity to contest such order subject to prior permission from Company.
- 7.2 Contractor shall not, without Company's prior written consent, make use of any document or information except for purposes of performing the contract.
- 7.3 Any document supplied to the Contractor in relation to the contract other than the Contract itself remain the property of Company and shall be returned (in all copies) to Company on completion of Contractor's performance under the Contract if so required by Company. However, the above obligation shall not extend to information which:
- (i) is, at the time of disclosure, known to the public which Contractor shall immediately inform Company ;

- (ii) is lawfully becomes at a later date known to the public through no fault of Contractor subject to Contractor's undertaking that no information has been divulged by them to the public;
- (iii) is lawfully possessed by Contractor before receipt thereof from Company which should be immediately informed to Company;
- (iv) is developed by Contractor independently of the information disclosed by Company which should be shared with the Company;
- (v) Contractor is required to produce before competent authorities or by court order subject to prior permission from Company;

8.0 **TAXES:**

- 8.1 All Taxes and Levies on Contractor as per the provisions of Laws of Gabon /Country of Operation of the bidder 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 by the Contractor.
- 8.3 Contractor shall be responsible for deduction & payment of personal taxes, if any, for all the personnel deployed in GABON.
- 8.4 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 by them in accordance with provisions under the law. Other than the information provided by the Contractor, the Contractor shall not be responsible for any inaccurate information provided by the Company to the Tax authorities and the Company shall indemnify the Contractor for all claims, expenses, costs or losses of any nature arising from such inaccuracy Contractor shall be responsible for preparing and filing the return of income etc. Within the prescribed time limit to the appropriate authority.
- 8.5 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.
- 8.6 Corporate and personal taxes on Contractor shall be the liability of the contractor and the Company shall not assume any responsibility on this account.
- 8.7 Being in Exploration phase, Company is exonerated from payment of TVA. The Company shall provide Exemption Certificate for TVA against each Invoice.
- 8.8 All local taxes, levies and duties, Sales Tax, Octroi, and all other taxes applicable in Gabon on purchases and sales (if required by the contractor) made by Contractor shall be borne by 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 (if applicable) during the currency of the contract including the third party items/ consumables. For materials/equipment belong to the Contractor or its sub-contractor, Contractor may self-insure the same.
- 9.2 Contractor shall at all time during the currency of the contract provide, pay for and maintain the insurances as needed.

- 9.3 If any of the 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.
- 9.4 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.
- 9.5 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 (change order) by the Company.
- 10.2 If any change result in an increase in compensation due to Contractor or in a credit due to Company, Contractor shall submit to Company an estimate of the amount of such compensation or credit in a form prescribed by Company. Such estimates shall be based on the rates shown in the Schedule of Rates (Section V). Upon review of Contractor's estimate, Company shall establish and set forth in the Change Order the amount of the compensation or credit for the change or a basis for determining a reasonable compensation or credit for the change. If Contractor disagrees with compensation or credit set forth in the Change Order, Contractor shall nevertheless perform the work as changed. And the parties will resolve the dispute in accordance with Clause 13 hereunder. Contractor's performance of the work as changed will not prejudice Contractor's request for additional compensation for work performed under the Change Order.
- 11.0 **FORCE MAJEURE:**
- 11.1 In the event of either party being rendered unable by 'Force Majeure' to perform any obligation required to be performed by them under the contract, the relative obligation of the party affected by such 'Force Majeure' will stand suspended for the period during which such cause lasts. The word 'Force Majeure' as employed herein shall mean acts of God, war, revolt, agitation, strikes, riot, fire, flood, sabotage, civil commotion, road barricade (but not due to interference of employment problem of the Contractor), acts of government of the two parties, which makes performance impossible or impracticable and any other cause, whether of kind herein enumerated or otherwise which are not within the control of the party to the contract and which renders performance of the contract by the said party impossible..
- 11.2 Upon occurrence of such cause and upon its termination, the party alleging that it has been rendered unable as aforesaid thereby, shall notify the other party in writing within Seventy Two (72) hours of the alleged beginning and ending thereof, giving full particulars and satisfactory evidence in support of its claim.
- 11.3 Should 'Force Majeure' condition as stated above occurs and should the same be notified within seventy two (72) hours after its occurrence, both the parties shall have no obligation. Parties will have the right to terminate the contract if such

'force majeure' condition continues 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 unless otherwise agreed to.

11.4 Time for performance of the relative obligation suspended by the Force Majeure shall be extended by the period for which such cause lasts.

**12.0 TERMINATION:**

12.1 This contract shall terminate:

(a) Upon completion of the job required to be done by the Contractor according to the Terms of Reference / Technical Specifications with full satisfaction of Company.

OR

(b) For Force Majeure reasons as per clause 11.0 and its sub-clauses above.

OR

(c) Upon declaration of the Contractor that they are unable to continue further operation on technical reasons, acceptable to the Company.

OR

(d) Under any circumstances considered to be not suitable by Company to continue the operations of the Contract. If any dispute arises on this account the same shall be settled as per the provisions of the contract.

OR

(e) In the event of liquidation / bankruptcy / insolvency of the Contractor.

12.2 In the event of termination of contract under Clause 12.1(d) above, Company will issue 15 (fifteen) days prior written 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. Contractor shall be entitled for payment for services actually rendered in conformity with the contract up to the date of its termination subject to the certification by OIL.

12.3 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.

12.4 If at any time during the term of the Contract, breakdown of Contractor's equipment result in Contractor being unable to perform their obligations hereunder for a period of 15 successive days, Company at its own 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.

12.5 Notwithstanding any provisions herein to the contrary, the Contract may be terminated at any time by the Company on giving 15 days written notice to the Contractor due to any other reason not covered under the above clauses from 12.1 to 12.4 and in the event of such termination the Company shall not be liable to pay any cost or damage to the Contractor except the payment for services as per the Contract upto the date of termination.

12.6 In all cases of termination herein set forth, the obligation of the Company to pay for services as per the Contract shall be limited to the period upto the date of termination. Notwithstanding the termination of the contract, the parties shall

continue to be bound by the provision of the Contract that reasonably require some action or forbearance after such termination.

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

13.0 **APPLICABLE LAW:**

13.1 The Contract shall be deemed to be a Contract made under, governed by and construed in accordance with the laws of Gabon for the time being in force and shall be subject to the exclusive jurisdiction of courts situated in Libreville, Gabon.

14.0 **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 Arbitration of the International Chamber of Commerce, in Paris, France, in French or English as the Parties may agree, by 03 (Three) Arbitrators. Each Party shall appoint one Arbitrator, and the International Chamber of Commerce shall appoint the third Arbitrator who must be in no way related to either Party and who will be the Chairman of the Arbitration Body.

15.0 **NOTICES:**

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

**Company**

**Contractor**

General Manager (Gabon Project)  
Oil India Limited  
La Sablière, Immeuble FIDJI  
Libreville. B.P. 23134  
Phone: +241 01 44 2992  
E-mail: oilgabon@gmail.com

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

16.0 **SUB-CONTRACTING:** Contractor shall not subcontract or assign, in whole or in part, their obligations to perform under the contract, **except with Company's prior written consent.**

17.0 **MISCELLANEOUS PROVISIONS:**

17.1 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 Gabon, 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.

17.2 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.

- 17.3 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.
- 17.4 Key personnel cannot be changed during the tenure of the Contract except due to sickness/death/resignation 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.

18.0 **PERFORMANCE SECURITY:**

The Contractor has furnished Performance Bank Guarantee for an amount \_\_\_\_\_ (being 7.1/2% of the estimated Contract value) in the form of Bank guarantee (No. \_\_\_\_\_, Dated : \_\_\_\_\_) issued by \_\_\_\_\_. The Performance Bank Guarantee is valid upto \_\_\_\_\_ (as indicated in para 26.0 in Section II) to cover the duration of contract including warranty or defect liability period indicated in Para 6 of this section i.e. Section - III. The performance security shall be payable to Company as compensation for any loss resulting from Contractor's failure to fulfil their obligations under the Contract. In the event of extension of the Contract period, the Contractor shall suitably extend the validity of the bank guarantee. Company will discharge the bank guarantee not later than 30 days following its expiry. Contractor may submit Performance Security in the form of Bank Draft/Banker's cheque or in any other format acceptable to the company.

19.0 **LIQUIDATED DAMAGES FOR DEFAULT IN CONTRACTUAL OBLIGATION:**

- 19.1 In the event of the Contractor's default in timely completion of deliverables 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 7.50% of the Contract Value.
- 19.2 The Company also reserves the right to cancel the Contract without any compensation whatsoever in case of failure to mobilise and commence operation within the stipulated period

20.0 **CONTRACT PRICE:**

- 20.1 The Contract Price must remain firm during performance of the Contract and is not subject to variation on any account, unless there arise situations such as in clause 28.0.

21.0 **LIABILITY:**

- 21.1 Except as otherwise expressly provided, neither Company nor its servants, agents, nominees, Contractors, or subcontractors shall have any liability or responsibility whatsoever to whomsoever for loss of or damage to the equipment and/or loss of or damage to the property of the Contractor and/or their Contractors or subcontractors, irrespective of how such loss or damage is caused and even if caused by the negligence of Company and/or its servants, agents, nominees, assignees, Contractors and subcontractors. 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.
- 21.2 Neither Company nor its servants, agents, nominees, assignees, Contractors, subcontractors shall have any liability or responsibility whatsoever for injury to, illness, or death of any employee of the Contractor and/or of its Contractors or subcontractors irrespective of how such injury, illness or death is caused and even

if caused by the negligence of Company and/or its servants, agents, nominees, assignees, Contractors and subcontractors. Contractor shall protect, defend, indemnify and hold harmless Company from and against such liabilities and any suit, claim or expense resulting there from.

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

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

**22.0 CONSEQUENTIAL DAMAGE:** 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 of 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.

**23.0 WAIVERS AND 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.

**24.0 PAYMENT & INVOICING PROCEDURE:**

**Please refer Para 5.0 of Section VI (Special Terms & Conditions) of the contract.**

**25.0 RATE OF PAYMENT:**

25.1 Company shall make payment to the Contractor as per the agreed rates referred to Price Schedule. These rates include all taxes, duties and other levies payable by Contractor under the Contract.

**26.0 WITH-HOLDING:**

26.1 Company may withhold or nullify the whole or any part of the amount due to Contractor 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 IV.
- b) Contractor's indebtedness arising out of execution of this Contract.
- c) Defective work not remedied by Contractor.
- d) Claims by sub-Contractor of Contractor or others filed or on the basis of reasonable evidence indicating probable filing of such claims against Contractor.

- e) Failure of Contractor to pay or provide for the payment of salaries/ wages, contributions, unemployment compensation, and taxes or enforced savings withheld from wages etc.
- f) Failure of Contractor to pay the cost of removal of unnecessary debris, materials, tools, or machinery.
- g) Penalty or compensation or legal implication arising out of, and not limited to, the violation of Labour law by the Contractor, HSE rules and regulation etc.
- h) Damage to another Contractor of Company.
- i) All claims against Contractor for damages and injuries, and/or for non-payment of bills etc.
- j) Any failure by Contractor to fully reimburse Company under any of the indemnification provisions of this Contract. If, during the progress of the work Contractor shall allow any indebtedness to accrue for which Company, under any circumstances in the opinion of Company may be primarily or contingently liable or ultimately responsible and Contractor shall, within five days after demand is made by Company, fail to pay and discharge such indebtedness, then Company may during the period for which such indebtedness shall remain unpaid, with-hold from the amounts due to Contractor, a sum equal to the amount of such unpaid indebtedness.

26.2 Withholding will also be affected on account of the following: -

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

26.3 Any payment due from Contractor in respect of unauthorized imports.

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

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

## **27.0 AMENDMENTS**

This Contract may be amended in writing upon mutual agreement of Company and Contractor.

## **28.0 CHANGE IN LAW:**

28.1 In the event of any change or amendment of any Act or law, Rules or Regulations of Govt. of GABON or Public Body or any change in the interpretation or enforcement of any said Act or law, rules or regulations by Gabon Govt. or public body which becomes effective after the date as advised by the COMPANY for submission of final price bid for this CONTRACT and which results in increased cost of the works under the CONTRACT through increased liability of taxes, (other than personnel and Corporate taxes), duties, the CONTRACTOR shall be indemnified for any such increased cost by the COMPANY subject to the production of documentary proof to the satisfaction of the COMPANY to the extent which is attributable to such change or amendment as mentioned above.

- 28.2 Similarly, if any change or amendment of any Act or Law including Gabon Income Tax Act, Rules or regulations of any Govt. or public body or any change in the interpretation or enforcement of any said Act or Law, rules or regulations by Gabon Govt. or public body becomes effective after the date as advised by the COMPANY for submission of final price bid of this CONTRACT and which results in any decrease in the cost of the project through reduced liability of taxes, (other than personnel and Corporate taxes) duties, the CONTRACTOR shall pass on the benefits of such reduced cost, taxes or duties to the COMPANY.
- 28.3 Notwithstanding the above mentioned provisions, the COMPANY shall not bear any liability in respect of (I) Personnel taxes on the employees of CONTRACTOR and the employees of all its sub-contractors etc. (ii) Corporate taxes in respect of the CONTRACTOR and its subcontractors etc.
- 29.0** Save to the extent of Contractor's indemnification obligations under Clause 21, and notwithstanding any other provision of this Contract to the contrary, the Contractor's cumulative and maximum aggregate liability arising from or related to the performance or non-performance of this Contract, whether so arising by virtue of the Contractor's breach of contract, negligence, strict liability or otherwise at law, shall be limited to the Contract Price. The Company shall be responsible for, and undertakes to save, defend, indemnify and hold harmless the Contractor Group from and against all claims, liabilities, proceedings, damages, losses, costs and expenses (including legal fee) to the extent to which they shall exceed the said maximum aggregate liability cap.
- 30.0 RECORDS, REPORTS AND INSPECTION:** The Contractor shall, at all times, permit the Company and its authorized employees and representatives to inspect all the Work performed and to witness and check all the measurements and tests made in connection with the said work. The Contractor shall keep an authentic, accurate history and logs including safety records, which shall be open at all reasonable times for inspection by the Company designated representatives and its authorised employees and representatives. The Contractor shall provide the Company designated representatives with a daily written report, on form prescribed by the Company showing details of operations during the preceding 24 hours and any other information requested by the Company whenever so requested. The Contractor shall not, without Company's written consent allow any third person(s) access to the said information, or give out to any third person information in connection therewith.
- 31.0 INTELLECTUAL PROPERTY OWNERSHIP:** While providing the Services to Company, contractor may utilize expertise, know-how and other intellectual capital (including intellectual Property) and develop additional expertise, know-how and other intellectual capital (including intellectual property) which are contractor's exclusive property and which Contractor may freely utilize in providing Services for its other customers. Except where expressly and specifically indicated in writing, and in exchange for appropriate agreed payment, Contractor does not develop any intellectual property for ownership by Company, Contractor retains sole ownership of any such intellectual capital ( including intellectual property) created by Contractor during the course of providing the Services. Contractor grants no title, license or right to Company to use Contractor intellectual capital (including intellectual property).
- 32.0 INTELLECTUAL PROPERTY INFRINGEMENT:** Contractor shall indemnify and hold the Company harmless from any third party claims arising on account of intellectual property infringement with respect to its Services. Except when such infringement is caused due to (a) combination of contractor's equipment or Services

in combination or their equipment and / or services not recommended by Contractor (b) out of unauthorized additions or modifications of contractor's equipment or services by Company, or (c) Company's use of contractor's equipment or services that does not correspond to Contractor.

- 33.0 SECRECY:** During this Contract Company and its employees, agents, other contractors (of any tier) and its/ their employees etc. may be exposed to certain confidential information and data of the Contractor. Such data and information shall held by the Company, its employees, other contractors (of any tier) and its/their employees in the strictest confidence and shall not be disclosed to any other party except on a need to know basis.
- 34.0 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.
- 35.0 ASSOCIATION OF COMPANY'S PERSONNEL:** Company's Representative may be associated with the work throughout the operations. The Contractor shall execute the work with professional competence and in an efficient and workman like manner and provide Company with a standard of work customarily provided by reputed Contractors to major international oil companies in the petroleum industry or any other major companies.
- 36.0 INDEMNITY AGREEMENT:**
- 36.1 Except as provided hereof Contractor agrees to protect, defend, indemnify and hold OIL harmless from and against all claims, suits, demands and causes of action, liabilities, expenses, cost, liens and judgment of every kind and character, without limit, which may arise in favour of Contractor employees, agents, contractors and contractor's 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 or in part or other faults.
- 36.2 Except as provided hereof OIL agrees to protect, defend, indemnify and hold Contractor harmless from and against all claims, suits, demands and causes of action, liabilities, expenses, cost, liens and judgment of every kind and character, without limit, which may arise in favour of Company employees, agents, contractors and contractor's 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.
- 37.0 **INDEMNITY APPLICATION:** The indemnities given herein above, whether given by Company or Contractor shall not include fault or the negligence of either party leading to the said loss, damage, liability, claim, demand, expense, cost or cause of action as may be caused, occasioned by or contributed to by the negligence, either sole or concurrent of either party.
- 38.0 **LIMITATION OF LIABILITY:** Notwithstanding any other provisions herein to the contrary, except only in cases of willful misconduct and / or criminal acts,

- a. Neither the Contractor nor the Company (OIL) shall be liable to the other, whether in Contract, tort, or otherwise, for any consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs.
- b. Notwithstanding any other provisions incorporated elsewhere in the contract, the aggregate liability of the Contractor in respect of this contract, whether under Contract, in tort or otherwise, shall not exceed 100% of the Annualized Contract Price, provided however that this limitation shall not apply to the cost of repairing or replacing defective equipment by the Contractor, or to any obligation of the Contractor to indemnify the Company with respect to Intellectual Property Rights.
- c. Company shall indemnify and keep indemnified Consultant harmless from and against any and all claims, costs, losses and liabilities in excess of the aggregate liability amount in terms of clause (b) above

**END OF SECTION-III**

## **SECTION IV**

### **TERMS OF REFERENCE / TECHNICAL SPECIFICATIONS**

#### **1.0 INTRODUCTION:**

Oil India Ltd (OIL) desires to hire services of an internationally reputed contractor having relevant experience and required infrastructure for Pre Stack Time Migration (Pre-STM), processing, and interpretation of both newly acquired and old 2D seismic data pertaining to block Shakthi-II (G4-245), Gabon. This section establishes the scope and schedule for the work to be performed by the Bidder and describes references to the specifications, instructions, standards and other documents including qualifications, experience and specifications for any materials, tools or equipment which the Bidder shall satisfy or adhere to in the performance of the work.

#### **2.0 SCOPE OF WORK:**

2.1 OIL being the operator in the consortium is already in the process of acquiring 1200 GLKM of 2D seismic data (Dynamite as energy source and geophones / Hydrophones as receivers). OIL desires to carry out 2D seismic PreSTM processing of the newly acquired 1200 GLKM seismic data and integrated Interpretation of new data 1200 GLKM and existing 1300 GLKM 2D seismic data in 2 (two) phases.

**2.1.1 Phase-1:** PreSTM Processing of newly acquired priority based 200 GLKM of 2D seismic data, Integrated interpretation of the 800 GLKM (i.e. 200 GLKM new data and 600 GLKM old existing 2D seismic data) and additional AVO analysis and Pre-Stack Inversion of about 200 GLKM (old and new 2D seismic data)

**2.1.2 Phase-2:** PreSTM Processing of remaining 1000 GLKM newly acquired 2D seismic and final Integrated Interpretation of newly acquired remaining 1000 GLKM and remaining vintage approx. 700 GLKM 2D seismic data.

2.2 The Bidder shall carry out Data Processing and Interpretation of above referred 2D seismic data with professional competence and in efficient manner to provide OIL the best standards of work by deploying latest processing and interpretation systems at their Centre, comprising the state-of-the-art hardware, Soft-wares and interpretation packages presently being used globally and customarily provided by reputed Geophysical Contractors to major oil companies in the Oil Industry.

2.3 The Bidder shall deploy personnel having adequate and relevant experience for carrying out the processing and interpretation of 2D seismic data to be provided by the company.

2.4 The total quantum of the data to be processed for prospect level interpretation is as indicated **in Para 2.1** at the contracted rates. However, Company reserves the option to increase/decrease upto **25% increase/decrease in quantum of work** on the volume of this contract, on same rate, terms and conditions of the contract.

#### **3.0 BRIEF GEOLOGY OF THE AREA & STATUS OF EXPLORATION:**

##### **3.1 INTERIOR SUB BASIN - GABON**

The block "Shakthi-II" is located adjacent to the main continental basement margin within the Interior Sub-basin. The Sub-basin consists of a narrow, north northwest – south southeast trending asymmetric rift basin that formed in the early Cretaceous. It is approximately 120 km long and 60 km wide, bound to the east by Precambrian basement, and to the south west by the Precambrian Lambarene

Horst, and is filled with up to with more than 3000 meters of Cretaceous & Mesozoic / Upper Paleozoic sediments.

### **3.2 REGIONAL GEOLOGY**

- 3.2.1 The regional geology of the Interior Sub-basin is controlled by the Pre-Cambrian metamorphic basement which comprises the Archaean Congo Craton, and the surrounding West Congolian Pan-African Shear Zone. The predominant structural fabric in the Pan-African basement is generally northwest – southeast trending, and considered to have influenced rift fault distribution.
- 3.2.2 Continentally derived fluvial sediments of Permian to Jurassic age sit unconformable on basement and infill remnant basement topography. These late Paleozoic – early Mesozoic sediments and Pre-Cambrian basement constitute the pre-rift section observed in the Interior Sub-Basin.
- 3.2.3 Continental rifting between Gabon and its conjugate Brazilian margin took place in the early Cretaceous (Berriasian – Hauterivian), and formed the Interior Sub-Basin. This rifting formed a fault controlled asymmetric rift basin with locally controlled horst and graben structures, which quickly developed into a deep anoxic lake.
- 3.2.4 Initial syn-rift sedimentation in the early Cretaceous formed the basal sandstone (N'Dombo Formation) which is of a continental / fluvial nature. As the lake system further developed generally muddy lacustrine turbidities (Kango, Remboue and N'Toum Formations) filled the basin. Within this turbidite system some localised sandy channel and fan systems were deposited (Forou Plage Formation). Since the basin seems to lack evidence of significant syn-rift growth structures it is believed that the basin was partially sediment starved during its initial formation, possibly due to rift flank uplift deflecting drainage systems away from the graben.
- 3.2.5 Thermally induced subsidence continued during the Aptian creating accommodation space and thus post-rift sedimentation (the continental fluvial Gamba Formation). The Ezanga evaporates overlying the Gamba Formation mark the latest episode and suggest a more restricted depositional environment.
- 3.2.6 The main structures seen in the Interior Sub-Basin are the Lambarene Horst, and the Axial Fault. The Lambarene Horst is a Pre-Cambrian horst block which forms the western margin to the basin. Syn-rift and post-rift sequences are seen too thin across a terraced margin to this horst and form hydrocarbon traps (e.g. The Remboue Field). The Axial Fault trends northwest – southeast and runs for approximately 200km through the centre of the basin. It is a southwestwardly dipping extensional fault which exhibits minor syn-sedimentary growth in the hanging wall. Along strike there is seismic evidence of inversion.

### **3.3 STRATIGRAPHY**

- 3.3.1 Seismic and well control in the Interior Sub-Basin indicates that the thickness of Paleozoic and Mesozoic sediments resting on basement is approximately 3200m. The basin is shallowest to the east and thickens towards the Lambarene Horst in the west. There are no Tertiary sediments so far reported within the Block.
- 3.3.2 During the Mesozoic period sedimentation in the Interior Sub-basin was in a lacustrine environment with variable amounts of sand deposition being controlled by relative lake levels.

#### **A. PALEOZOIC**

The following formations have been recognized within the Paleozoic sequence of the Interior Sub-Basin.

- i. **Agoula Formation:** The Permian Agoula Formation is the deepest formation penetrated by wells in the Interior Sub-Basin, and in well NG-1 it lies directly on crystalline basement. Well data indicate this Formation is up to 250m thick and is comprised of continental fluvial and lacustrine sediments. The Agoula Formation comprises mainly grey or red siltstones (red beds) with some dolomite, anhydrite and chert towards its base.

## **B. MESOZOIC**

The following formations have been recognized within the Mesozoic sequence of the Interior Sub-Basin.

- i. **M'Vone Formation:** The Triassic – Jurassic M'Vone Formation can be separated into two separate units, a lower sandy unit and an upper shale unit. Well data indicate that each of these units is about 100m thick. The basal sandy unit is continental in origin and is red-brown fine sandstone with intercalations of dolomite and some calcite cementation of grains. The upper shale unit is red-brown lacustrine shale with some muddy dolomite and anhydrite.
- ii. **N'Dombo/Kekele Formation:**The Neocomian N'Dombo/Kekele formations comprise a basal sand unit which sits unconformable on the underlying Triassic/Jurassic formations and is a target for exploration. Well data show these formations thicken to the south and west, with thicknesses of up to 200m. These sands are continentally derived and fluvial in nature, with a conglomeratic coarse base that fines upwards. Lithologically they are arkosic sands with some muddy dolomite and minor anhydrite.
- iii. **Bokoue – Bikoume Formations:**The limited quantity of ostracod fossils in the drill cuttings make it very difficult to differentiate between these two formations. Well data show these Neocomian formations to be generally 400m thick but can reach up to 900m thickness. They are seen to thicken to the south and west. These formations are lacustrine in nature and comprise blue-green and black organic shales, with some intercalations of fine sand and silt especially in the upper portion. These shales are described to have thick bituminous intervals from drill cuttings.
- iv. **Fourou-Plage Formation:**The Neocomian Fourou-Plage Formation unconformable overlies the Bikoume Formation and well data indicates it is generally 100m thick although locally can be up to 250m thick. It is a continentally derived fluvial formation which is generally blue-green and black micaceous silts with some thin interbeds of fine sand.
- v. **Lobe, Bifoun and Moundounga Formations:** Although ostracod fossil data is quite common from the more calcareous beds it is not possible to differentiate between these formations. Well data show these formations have a combined thickness of around 500m but can be up to 800m in the centre of the basin. These formations are lacustrine in origin comprising silty shales and silts with some interbeds of calcareous fossiliferous siltstone. This passes vertically into the black – brown micaceous shales of the Bifoun and Moundounga formations which have some intercalations of dolomitic mudstone and some siltstones.
- vi. **Benguie Formation:** The Benguie Formation is lacustrine black, blue-grey shale which is micaceous with some interbedded fine sands and fossiliferous dolomite towards the base. This formation is also described from drill cuttings to be bituminous in places. Well data show the Benguie Formation to be around 250m thick but can be as much as 700m towards the centre of the basin.

- vii. **Gamba Formation:** The Gamba formation has not been described by any study in details. However, Teisserenc and Villemin (1990) described the Gamba Formation as a poorly sorted coarse to medium grained sandstone with localised black shale and continue with upward fining and was possibly deposited in a fluvial environment which changed upwards to a lagoonal environment.
- viii. **Ezanga Formation:** The Ezanga Formation is reported only in the western part of the Interior Sub-Basin. It is an anhydrite evaporite formation.
- ix. **Madiela Formation:** The Madiela Formation is again only found in the western part of the Interior Sub-Basin. It is a calcareous dolomite with some siltstone and anhydrite, and is likely to have been deposited in a littoral environment. It is unclear whether this formation was deposited in a littoral lagoonal setting or a littoral marine setting, but it indicates that this formation may be the first marine influence in the Interior Sub-Basin.

### **3.4 PETROLEUM GEOLOGY**

#### **3.4.1 EXPLORATION HISTORY:**

- i. Exploration within the Interior Sub-basin of Gabon has been relatively sporadic and sparse, resulting in a number of hydrocarbon shows, one discovery (OU-5) and one producing field (the Remboue field).
- ii. Within the Block Shakti-II, exploration activities by earlier consortium in which OIL was the Operator, led to one discovery (Lassa-1) in the N'Dombo Formation. So far all the most promising hydrocarbon indications within the block Shakti have been made on the footwall block of the main Axial Fault, within the N'Dombo Formation. The Remboue field, however, is producing from the Gamba Formation, within a four-way dip closure over the terraced rift margin of the Lamberene Horst (**Figure 3**).
- iii. Given that a large majority of the wells within the block recorded bituminous shales within the Bikoume Fm. and fair to good reservoirs within the N'Dombo / Kekele Fm and Forou Plage Fm, it is believed that the Interior sub-basin does not suffer from lack of reservoir nor source rocks. Although often the source is younger than the main reservoirs there are likely mechanisms for migration between the two. In this fairly explored area most likely factor for well failure, is possibly poor trap integrity.
- iv. The shallow targets (e.g. Gamba Fm) needs to be top sealed by the Ezanga and Madiela formations and this needs to be addressed during interpretation of the data.

#### **3.4.2 SOURCE ROCKS**

- i. The anoxic lacustrine depositional environment in this basin is likely to produce good quality source rocks. Such source rocks have been identified in the Bokoue & Bikoume formations and in the Bifoun Formation from several drilled wells in Shakti block.
- ii. British Gas (BG) has carried out extensive geochemical analysis of source rock potential on well and outcrop data. The Bifoun and Bokoue / Bikoume source rocks are reported to have TOC in the range of 2-4%.
- iii. It is expected that these formations are distributed and mature across the majority part of the basin, however, likely to be thickest and deepest to the west of the Axial Fault Zone, in the centre of the basin.
- iv. The geological interpretations of the acquired data should address the following observations which are typical of Rift Graben setting.

- v. Hydrocarbon occurrence and distribution in rift basins is largely a product of the stratigraphic succession in the syn- and post-rift phases of basin evolution. Most of the known reserves of recoverable hydrocarbons occur in rifts with post-rift sag basins and in those basins that are dominated by marine fill. Key factors are the style of post-rift tectonics and whether the type of basin fills dominated by non-marine or marine strata. Tectonically derived topography is the prime control on both sedimentary processes and facies distribution, which results in a consistent geographic and stratigraphic distribution of hydrocarbon source rocks, reservoirs and seals in syn-rift successions. Potential reservoirs are generally abundant throughout the syn- and post-rift successions and less commonly, carbonates. Source rocks are restricted to specific stratigraphic horizons; their presence or absence is one of the limiting factors in hydrocarbon distribution. Good seals tend to be uncommon in continental syn-rift successions. Seals are more common in post-rift successions and widespread in marine syn-rift successions. The reserve distribution is largely controlled by seal distribution, which is best in sag-basin successions.
- vi. A strategy to be worked out by the Bidder for the efficient exploration of Interior rift basin of Gabon (area under study) by addressing Pre & Post-rift basin geometry and the nature of the stratigraphic fills. Plays which are developed at different phases of rifting need to be identified and most prospective areas (within the Pre, Syn and post-rift successions) by predicting the distribution of hydrocarbon source rocks, reservoirs and seals from Stratigraphic / Basin architecture.

#### **4.0 ACQUISITION PARAMETERS OF 2D SEISMIC:**

Number of channels	: 320
Sampling rate	: 2 ms
Record length	: 5 sec.
Group interval	: 20 mtrs.
Nos. of geophones /hydrophones per group	: 12
Shooting pattern	: Split spread
Fold of data	: 80 fold
Source	: Dynamite /Air-gun / Marsh-gun
Shot point interval	: 40 mtrs.
Shot Hole Depth	: 10 mtrs.
Geophone/Hydrophone Array Pattern	: Liner along the seismic line

#### **5.0 OBJECTIVES OF THE WORK:**

The objective of present work of processing and Interpretation of the geo-scientific data are:

- i. Resolution, delineation and mapping of structural and stratigraphic prospects / leads with the help of optimally processed seismic data with presently & earlier acquired data combined with well data, well logs etc. available in the area.
- ii. Detailed analysis of the identified prospects / Leads for their prospectivity from generation, migration and entrapment point of view, estimation of hydrocarbon resources, reserves and risk weighted economic analysis in terms of both NPV and IRR, using state-of-the art technology.
- iii. Assessment of requirements of additional 2D / 3D seismic volume, if considered essential, for adequate delineation of Prospects / Leads, indicating the grid size

and priority lines for 2D & locations / areas for close grid 2D / 3D with suggested design parameters for acquisition.

- iv. Identification of exploratory drilling locations in the Area indicating ranking and inter-se priority for the entire Block

## **6.0 SEISMIC DATA PROCESSING:**

- 6.1. The Bidder shall carry out detailed tests of processing parameters so that optimum sequence / parameters can be firmed up. The tests need to be carried out as per industry standards. It is envisaged that such test processing will be done on **about fifteen percent** of total data volume, which will be identified in consultation with Company representatives. The testing parameter should be comprehensive for entire processing sequence with adequate QC checks. The processing parameters will be finalized on the basis of results of test processing after mutual discussions and final approval from Company representatives. The data may be acquired in two to four different blocks and testing need to be done in each block separately.
- 6.2. The Bidder shall carry out processing of 2D seismic data using the State-of-the-Art software and hardware available in the Geophysical industry. The Bidder shall ensure that an expert team of Geophysicists shall be engaged to carry out entire data processing work.
- 6.3. The Bidder shall submit a report on the test processing for finalization of production processing parameters for complete data set. The following **tentative processing sequence** is envisaged to process the seismic data; however, the actual sequence will be determined after completion of test processing in consultation with Company representatives. **It is also envisaged that the data will be processed for preservation of true amplitudes.** It is also required to match the processed seismic data with available well information before the final processing is complete.
- 6.4. Work flow for PreSTM Processing of 2D Seismic Data broadly includes the following but not limited to;
  - (i) Data loading
  - (ii) Anti alias Filtering and Resample to 4 MS
  - (iii) Geometry assignment, checks of Seismic/Navigation data
  - (iv) Data Editing (Shots and traces)
  - (v) Band pass Filter
  - (vi) Elevation Statics Correction
  - (vii) Statics calculation and application – Refraction / LVL / Up-hole data
  - (viii) True amplitude recovery
  - (ix) Surface consistent Decon
  - (x) Band pass Filter
  - (xi) Surface Consistent Amplitude balancing
  - (xii) CDP Gathering
  - (xiii) Velocity Analysis (at 2 km interval) & NMO correction
  - (xiv) Brute / Initial stack for Q.C.
  - (xv) FirstPass Surface Consistent Residual Statics Calculation & Correction
  - (xvi) Residual Statics
  - (xvii) Velocity analysis at every 1.0 Km interval & NMO correction
  - (xviii) Second pass Surface consistent Residual Statics Calculation & Correction
  - (xix) Residual Stack

- (xx) PSTM
- (xxi) Final Velocity analysis on PSTM Gathers at every 0.5 Km interval
- (xxii) FK Multiple attenuation
- (xxiii) NMO correction
- (xxiv) Trace Equalization
- (xxv) PSTM Stack
- (xxvi) Post Stack Decon / Spectral balance, if required
- (xxvii) Post Stack noise attenuation, if required
- (xxviii) Band Pass Filter and Scaling

**6.5. SPECIALIZED PROCESSING:**

- 6.5.1 The Bidder shall carry out specialized processing via AVO analysis and latest, suitable Pre-Stack Inversion of about 200 GLKM 2D seismic data. The Bidder shall ensure that an expert team of Geoscientists shall be engaged to carry out entire specialized processing work using the State-of-the-Art software and hardware available in the Geophysical industry.
- 6.5.2 AVO Analysis & Pre-Stack Inversion
- (i) Conditioning of PSTM gathers for AVO analysis
  - (ii) Generation of AVO attribute volumes (P wave stack, S wave stack, Intercept, Gradient, Product, Fluid Factor, etc.)
  - (iii) Generation of Vp/Vs volume, P wave impedance and S wave impedance volumes through inversion process and porosity cube, etc.

**Note:**

- a) The Bidder must ensure that different processes applied preserve the relative amplitude of the data.
- b) Close interaction of OIL Quality Control personnel or experts identified by OIL during finalisation of processing parameters for PSTM and special processing will exist. The OIL's representatives and experts shall actively participate with examining diagnostic displays and in the choice of processing parameters.
- c) Provisions to view output sections on interactive workstation must be provided.

**6.6. OPTIONAL PROCESSING:**

Some optional processing routines may be applied to the data, depending on the requirement with permission from Company. Such processing would be from amongst the following.

- (i) Post Stack Depth Migration (Post-SDM)
- (ii) Pre stack depth migration (Pre-SDM)

**6.7. QC PRODUCTS:**

Following minimum QC products are to be generated for quality checking as well for parameter selection:

- (i) Display every 25th shot record to check bad/ noisy traces for editing.
- (ii) Edited shot display ( every 25th ) after auto editing/ de-spiking
- (iii) Display S/N ratio, RMS amplitude of a selected window encompassing zone of interest
- (iv) Navigation Merging with Seismic

- (v) Plot of source signature and selected traces before and after signature decon.(digital source signature in ASCII file)
- (vi) Amp & power Spectrum plot before and after application of a process on gather and stack data as desired by OIL.
- (vii) Gather/Stack plot to see efficacy of geometrical spreading/exponential gain/offset dependent gain before and after the application of gain.
- (viii) Standard Deconvolution test panels with appended auto correlogram on stack and gather modes
- (ix) Iso-velocity plots for intersecting 2D seismic lines for checking horizon consistent velocity picks. Plots before and after spatial smoothening.
- (x) PSTM corrected gather display at intermediate locations of velocity analysis points.
- (xi) Mute panel display
- (xii) Panel display for TVF selection.

6.8. **QUALITY CONTROL AND PARAMETER TESTS:**

6.8.1 Quality Control of Processing is the responsibility of the CONTRACTOR. As part of the contract, CONTRACTOR should include a complete set of quality control techniques that shall supplement the various quality control steps outlined above. OIL requires that data be processed in a timely manner free of all geophysically significant errors in the final processed seismic data volume. Required deliverables will include all necessary QC information, support documentation, test data and processing recommendations. Failure to supply the requisite deliverables will be rectified at CONTRACTOR's cost.

6.8.2 OIL's representative (s) will verify the Quality Control methods used by CONTRACTOR. To achieve this objective, CONTRACTOR will allow OIL's representative (s) timely access to the data. The examination of the data for evaluation is to be done on a workstation and real data access will be provided to OIL's representative(s). Facility should exist to take screen dumps, whenever required.

6.8.3 **Quality Control:** As part of the contract, detailed quality control procedures applicable at different stages of processing supplementing the QC measures outlined above will be adhered to. All necessary QC and/or diagnostics such as data display (e.g. field records, test panels, stacked sections, time slice etc.) and impulse response of operators (e.g. migration, etc.) with associated amplitude spectrum will be made available. A near trace cube selected shot displays near trace plots of every CMP lines shall be available.

6.8.4 **Parameter Testing:** All necessary and sufficient testing shall be performed to determine optimum processing parameters at every stage of the processing sequence. Testing, in general, will be conducted at different locations to be selected by OIL. Parameter at the first test location after evaluation would be applied to the remaining test locations. Following general strategy for testing the data and selection of optimum parameter will apply.

- (i) For production of representative sections a preliminary processing flow would be decided in consultation with OIL's representative (s).
- (ii) Produce representative sections at the test locations
- (iii) Test parameters of sequence
- (iv) Tune the most sensitive parameters

6.8.5 Parameter testing for processing sequence shall include (but not limited to) the following:

- (i) Spherical divergence/exponential gain recovery tests to optimize full trace amplitude balance.
- (ii) Stacks at the test locations are required to evaluate fold of coverage/offset range contributions.
- (iii) Pre-stack Deconvolution testing will be evaluated on the basis of examining gathers and stack at the test locations with various deconvolution parameters, like operator length, white noise percentage, prediction gap etc. Difference plots to be provided for evaluation
- (iv) Pre-stack multiple attenuation/noise attenuation will be performed initially over the first test location. Parameter chosen from the first test location will be evaluated at the remaining test locations. Stacks at test locations are required to fully evaluate the efficiency of the multiple attenuation/noise attenuation techniques. Difference plots to be provided for evaluation.
- (v) PSTM testing to include tests of aperture, dip limitation, and stacks at test location are required. Tests for post stack amplitude scaling to preserve relative amplitude.
- (vi) Velocity map for each time horizon picked based on initial QC stacks to be produced. These will be checked for the consistency of velocity picks with different time horizons.
- (vii) Mute Testing: Front end, top mute as well as inside trace mute tests needs to be performed at the test locations. These tests will be evaluated by examining stacks and sub-stack gathers at the test location.
- (viii) Post stack random noise attenuation tests are to be performed for different add back option of original input data. These will be evaluated on the basis of examining the difference section with and without application. Difference plots to be provided for evaluation
- (ix) Q Compensation (both amplitude and phase).
- (x) Post stack deconvolution and spectral balance tests will be evaluated on the basis of examining stacks at the test locations with and without application of deconvolution and spectral balance respectively.
- (xi) Trace interpolation tests are to be performed for various dip ranges. Evaluation will be done on the basis of interpolation plots and adjacent in-line stack plots and time slice.
- (xii) Comparison of in-line and cross-line sections and along arbitrary line passing through well, if any, will be carried out before and after migration.
- (xiii) Migration tests in Seismic data set with upto five (5) migration velocity percentages shall be carried out.
- (xiv) In case of PSDM processing, depending upon the technical requirement and with interaction of OIL reps for QC, the contractor shall carry out migration velocity upto 5 iterations for PSDM parameter finalisation process.
- (xv) Filter and scaling tests will be performed on the basis of examining stacks at test location with various filter and scaling options.
- (xvi) Residual Amplitude compensation (RAC) function will be applied.
- (xvii) Wherever required, space varying option to be used in a process.
- (xviii) All outputs should be relative amplitude preserved.

6.8.6 OIL at its option may request additional or extra QC displays to be produced. Any other testing requirement and displays on data as requested by OIL's representative or suggested by the CONTRACTOR should be performed.

6.8.7 The bidder shall allow OIL to take any additional intermediate processing or QC outputs if required on tape Cartridges/USB disks for which OIL will provide the necessary tapes/discs on their own. This is in addition to the deliverables to be supplied by the bidder to OIL as specified in Annexure III of section IV.

6.9. **GENERAL REQUIREMENT:**

6.9.1 All necessary testing to determine optimum processing parameters consistent with good International Geophysical Industry practice will be performed prior to commencement of production processing.

6.9.2 The final processing parameters will be decided with the approval of OIL representatives. The cost of processing sequence shall include experimental testing on 15% data volume.

6.9.3 The Successful Bidder shall provide a competent team of seismic data processing Geophysicists and interpretation geologists/geophysicists, which should work in professional and efficient manner so as to deliver high quality data output. However, all technical co-ordination including Quality Control (QC) check etc., shall be done by the QC team of OIL INDIA LTD or its representative at different stages.

- (i) Experience in processing of seismic data from land/swamp pertaining to rift basins is also a requisite.
- (ii) EBCDIC headers are to be provided in respect of the processed data, in the standard prescribed formats.
- (iii) OIL will provide 2D raw seismic data in SEG D format along with acquisition and Navigation parameters.
- (iv) OIL representatives will be associated during the processing and interpretation jobs at all stages and Successful Bidder shall ensure simultaneous transfer of relevant technical knowledge and skill.
- (v) The Successful Bidder shall provide fortnightly reports on the progress of data processing. The report shall include, amongst others, the steps of processing and percentage of processing accomplished till date.
- (vi) All paper out puts will be properly folded by the CONTRACTOR at the time of final dispatch.

**7.0 SEISMIC DATA INTERPRETATION:**

7.1. Bidder shall incorporate surface geological information/ reports and remote sensing information on the areas/blocks. The Bidder shall integrate all the available well information, surface geological information, structural and tectonic interpretation from remote sensing data, gravity & magnetic data with seismic data in the Block for interpretation.

7.2. Using the above data, knowledge, worldwide experience and expertise, the Bidder is required to carry out integrated interpretation of seismic data bringing out geology of the Block for Identification of prospects and for hydrocarbon habitat in different geological / stratigraphic sequences in the block both in time and space.

7.3. The scope of the seismic Interpretation work will include:

- (i) Review of available 2D-3D seismic/well data and other technical reports

- (ii) Creation of data base for interpretation project by loading all seismic and well data onto Workstation.
- (iii) Seismic to well correlation through synthetic seismogram generated from the available well data.
- (iv) Picking and mapping of 6 horizons of interest which should include a reflector near **top of basement**, a reflector close to **top of Agoula Formation**, a reflector close to the **Top of N - Dombo Formation**, a reflector close to **top of Bokoue / kekele Formation**, one reflector close to **Top of Fourou-Plage Formation**, and a reflector close to **top of Bifoun / Moundoung Formation** in the area / block.
- (v) Picking/marketing of Faults and fault boundaries. Correlation of faults, establish fault pattern and generate detailed fault pattern Map. To map fault patterns, construction of seismo-geological sections & carry out paleo structural analysis across the whole block area (preferably across all the identified prospects & leads in the block area).
- (vi) Fault seal analysis for testing trap integrity of the identified prospects & leads.
- (vii) Preparation of two-way-time contour and average velocity maps at mapped levels.
- (viii) Preparation of depth maps at mapped levels and time thickness, isopach and interval velocity maps within different geological horizons.
- (ix) Seismic attribute analysis both surface and volume in whole block area with emphasis on identified prospects & leads.
- (x) Preparation of sweetness/porosity maps along the prospective horizons of interest covering the identified prospects & leads.
- (xi) Building up of sequence stratigraphic framework.
- (xii) AVO attributes maps across identified prospects & leads.
- (xiii) Pre-Stack Inversion studies and generation of impedance sections across identified prospects & leads.
- (xiv) Post Stack Inversion studies and generation of impedance sections across identified prospects & leads.
- (xv) Pore pressure analysis need to be carried out at drillable locations.
- (xvi) Construction of four nos. seismo-geological sections (both in time & depth) for all the identified Leads & prospects of the area / Block (i.e. along dip and strike). For stratigraphic traps such seismo-geological sections should be along and across depositional trends.
- (xvii) Play fair – way analysis and Identification of Prospects and Leads of interest (structural, stratigraphic and combination traps) based on above data and any other information/data Bidder may have access to and recommendation of locations for exploratory drilling.
- (xviii) Evaluation of the formation wise prospectivity of the identified prospects / leads from the point of view of the play-fairway analysis .Prepare prospect evaluation maps and rank prospects according to the geological risks, i.e. source , reservoir, top seal & trap ( retention of charge) indicating its presence distribution ,quality and effectiveness. A detailed Fault Seal Analysis of the identified Prospects along with analysis of post accumulation sealing & trapping.
- (xix) Estimation of un-risked and risked hydrocarbon resources including recoverable resources for all identified prospects & leads

- (xx) Risk-weighted economic analysis for all identified Prospects / Leads in the respective Area / Block, in terms of both NPV and IRR, using estimated production profile, work programme required for the same, cost thereof including cost of seismic survey, exploration and appraisal well costs, development well cost and proposed time schedule, Construct an economic model based on current fiscal regime of Gabon and to assess the typical rates of return that could be expected after applying most suitable field development concepts for the block.
- (xxi) Ranking of prospects and identification of prospects for exploratory drilling (accompanied by depth structure maps at each Target Horizons) considering drilling of such wells down to Basement in the Block, with inter-se - priority.
- (xxii) Preparation of detailed report on seismic data interpretation of the Block incorporating regional maps, prospect level maps, Geological sections and seismo-geological sections etc., in the scale as per Companies requirements.

7.4. Prior to final report submission, the Bidder shall submit a draft report at the end of each phase & also make a full scale presentation to the company office with recommendations for further studies like special processing, if any to be carried out, AVO analysis, inversion etc. The exact date and place (either at Libreville or at New Delhi) for presentation will be intimated to the Bidder nearer the time.

7.5. The Bidder will provide five (5) hard copies and five (5) soft copies of the final report on seismic data interpretation. Bidder will make exclusive presentations on the results of processing and interpretation of seismic data & to Oil India at OIL's office in New Delhi, India or at Libreville, Gabon.

**8.0 START OF WORK:**

About 1000 GLKM old data and around 200-400 GLKM newly acquired data shall be available to the Bidder within 30 days from issue of the Letter Of Intent/award (L.O.I./L.O.A) or advised by OIL, whichever is later, and to start work within 7 days thereafter. The Bidder is required to collect the data at his own cost and responsibility from OIL's office at **OIL's office at La Sabliere Immeuble FIDJI, (Près de la Cours Constitutionnelle) BP-23134, Libreville, Gabon.** The Processing and the Interpretation jobs should start immediately on arrival of the data at Bidder's Processing and Interpretation Center.

**9.0 DATA VOLUME:**

9.1. Approximate volumes of seismic data in the block which will be used in the study are shown in the Table-1 below. In addition to this data there are interpretation reports, well reports etc. which will be made available to Bidder. However while executing actual work this volume may vary depending on the actual 2D seismic data acquired in the block.

**TABLE-1: DATA VOLUME FOR PROJECT**

Phase	New 2D Seismic Data	Old vintage 2D Seismic Data	Well
1	~ 200 GLKM	~ 600 GLKM	27 available wells data surrounding block
2	~ 1000 GLKM	~ 700 GLKM	

9.2. Company reserves the option to decrease/increase the volume for 2D seismic Processing & interpretation on quantum of work of 1200 GLKM by +/- 25% and the original contract rate and the terms & conditions will remain the same as this contract.

#### **10.0 PERIOD OF CONTRACT AND SCHEDULE:**

- 10.1. The company will handover about 1000 GLKM earlier acquired data along with available well information by within 30 days from issue of the Letter Of Intent/award (L.O.I./L.O.A) or advised by OIL, whichever is later. Rest of the data to be acquired will be collected by the Bidder from OILs Office at Libreville, Gabon, during 2015-2016, depending on progress of seismic data acquisition in the field, at Bidder's own cost and responsibility.
- 10.2. The Bidder has to submit an interim report based on the old seismic data and the new set of data within 3 (three) months of commencement of Project for Phase-I. The objective of the interim report will be to delineate the Lassa Area and also generate drillable location if any. The interim report should consist of all relevant geo-scientific information based on which a drillable prospect.
- 10.3. The processing and interpretation of the entire Seismic data volume (newly acquired and earlier existing data) must be completed within 3 (three) months from the date of receipt of the last set of data for Phase-II.
- 10.4. Bidder shall give a technical presentation on interpretation results within 15 days from date of completion of interpretation and submission of draft report for the Area/ Block. The exact date and place (either at Libreville or at New Delhi) for presentation will be intimated to the Bidder nearer the time.
- 10.5. The final interpretation reports, five (5) copies for the Area / Block, after incorporating suggestions and recommendations, if any, made during the above presentations must be submitted within one month from the date of presentation of draft report.

#### **11.0 PERSONNEL AND EQUIPMENT:**

- 11.1. The Bidder shall deploy all personnel as per Annexure - I, equipment and facilities as per Annexure – II necessary for successful completion of the work, as per scope of work, at their processing & interpretation center.
- 11.2. The processing work should be carried out by processing geophysicists having a minimum of 7 years' experience, as on bid closing date, of land / swamps seismic data processing. Processing Manager should have in-depth knowledge of seismic data processing of land / swamps / riverine areas and should have at least 12 yrs experience in seismic data processing as on bid closing date of which 5 yrs should be of land seismic data processing and should have completed 10 (ten) projects of AVO and Pre-Stack Inversion related jobs. Experience in carrying out processing of seismic data from rift basins (from African onland petroliferous basins) is desirable.
- 11.3. The interpretation work should be undertaken by a group of experienced geoscientists. The Group Leader must have at least 15 years' experience as on bid closing date. The key interpretation personnel (geologists and geophysicists) must have minimum 10 yrs experience as on bid closing date in interpretation of seismic data for oil gas exploration, which should include at least two (2) projects from Syn-rift / Post-rift basins.
- 11.4. The Bidder should provide list of Hardware / Software / Equipment that will be used in the Processing & Interpretation jobs.

#### **12.0 DATA/CARTRIDGE LIABILITY:**

- 12.1 Bidder shall be solely responsible for loss or damage due to any reason including fire, theft, etc. of any documents / cartridges and other important documents / floppies, CDs etc. pertaining to the contract while in their custody or control. In the event of such loss, the Bidder shall be responsible to redress the loss entirely at

their own cost. However, the decision on the modalities to redress such losses shall be entirely at the discretion of Company. The Bidder shall use original, high quality, high durability, error free Cartridges and 500 GB/appropriate External USB compatible HDD with zero write-skip error, zero read error and zero write error. Each cartridge is to be 100% tested to ensure error free performance at specified high recording density.

### 13.0 **DELIVERABLES:**

#### 13.1. **SEISMIC DATA PROCESSING:**

- 13.1.1 The following outputs (Deliverables) will be considered to be part of the PSTM, PSDM, AVO and Inversion processing sequence as mentioned above and price quoted for Processing should include these. All output products (paper plots, tapes/cartridges etc.) must conform to the highest industry standards in terms of their quality and future usage.
- 13.1.2 During the course of processing & specialized processing, the Bidder shall carry out detailed tests of all the processing parameters so as to firm-up optimum processing sequence. The results of all tests and intermediate QC results need to be certified by Company representatives and two copies of the test/QC outputs along with comprehensive report on firming up of optimum processing sequence to be submitted to OIL. All displays should be normally on paper, unless otherwise specified to CONTRACTOR. The list of deliverables for the processing outputs at different stages of processing is indicated in the **Annexure III(A) of section IV.**
- 13.1.3 The Bidder shall provide weekly reports on the progress of data processing and specialized processing. The report shall include among others the stage of processing and percentage of processing accomplished during the week.
- 13.1.4 The Bidder will submit five (5) hardcopies & five (5) softcopies of final report on seismic data specialized processing for the prioritized Lassa area, within two (2) weeks of the completion of said processing.
- 13.1.5 The Bidder will also submit five (5) hardcopies & five (5) softcopies of final report for the Block Shakthi-II on seismic data processing, within two (2) weeks of the completion of processing of entire data.
- 13.1.6 All the QC displays generated by CONTRACTOR as part of his standard procedure or specifically requested by OIL will be produced at scales indicated in the **Annexure III(A) of section IV.**
- 13.1.7 All final products (tapes/cartridges, paper plots etc.) must conform to the highest industry standards.
- 13.1.8 Following essential information must be included in the header blocks of the SEG Y tapes:
  - (i) Complete description of the projection system i.e., name of the spheroid, projection, central meridian etc.
  - (ii) Total number of lines, traces per line and Number of live lines and live traces per line.
  - (iii) Summary of the acquisition parameters and processing sequence.
  - (iv) Polarity of the processed data
  - (v) Seismic data (without AGC application) in SEG Y IBM 32 bit floating point format with line trace, CDP, X, Y information in the respective header words.

(vi) SEG-Y tapes should not contain embedded EOFs. The structure of the tape should be in: 3200 byte EBCDIC header, 400 byte binary header, data traces in sequence, EOT.

(vii) Data load sheet should be provided along with SEG-Y Volumes.

13.1.9 Following information is required in respect of deliverables

(i) CDs/cartridges must be properly labelled

(ii) Velocity information be provided

(iii) Time being the essence of the contract, the CONTRACTOR shall ensure data delivery to OIL as per schedule.

**13.2. DATA INTERPRETATION:**

13.2.1 The Bidder shall provide fortnightly reports on the progress of data interpretation. The report shall include the work done during that period of interpretation and percentage of interpretation completed.

13.2.2 The Bidder has to submit an interim report each (in hard copy and soft copy) after completion of Phase I & II of interpretation respectively followed by a presentation at Company's designated office. The Bidder has to submit the final interpretation report incorporating the Company's views/comments after Phase I and II of project.

13.2.3 The Bidder has to submit five (5) hard copies and five (5) soft copies in English language of final detailed report of the integrated interpretation of 2D seismic data.

13.2.4 The report has to cover each and every aspect of the requirement as per scope and objective of the work. Apart from text, tables and figures of the report, the following maps and figures are to be generated in the prescribed scales given in Annexure-III(B).

**14.0 QUALITY OF WORK:**

14.1. Bidder shall carry out processing and interpretation of 2D seismic data, in a fully professional manner and warrant that the information produced shall be of a quality as per international standards.

14.2. Company reserves the right to examine the Bidder's work center for the processing and interpretation jobs before/ during commencement of work or any time during the execution of the contract. The work will start only when the Company representatives are fully satisfied with the preparedness of the Bidder for taking up the entire job of processing and interpretation.

**15.0 OBLIGATIONS OF THE CONTRACTOR:**

15.1. The Bidder will collect all the available data required for processing and interpretation from **OIL's office at La Sabliere Immeuble FIDJI, (Près de la Cours Constitutionnelle) BP-23134, Libreville, Gabon**, within 15-days of the issue of letter of intent/award (L.O.I/L.O.A) from OIL. The processing and interpretation work will be carried out under supervision of Company representatives at Contractors Computer Centre.

15.2. All deliverables mentioned in Clause 13 of this Section will be provided to Company at no extra cost.

15.3. The Bidder should use latest versions of all software packages during the period of the contract.

- 15.4. Any other works required for efficient and successful execution of work shall be carried out by the Bidder except those enumerated under the clause **“Obligations of the Company”** detailed under clause 16.0.
- 15.5. Bidder’s interpretation geoscientists should interact with the processing geophysicists during processing of the data. This might result in geologically acceptable and interpretable processed data.
- 15.6. The Bidder shall furnish the list with Bio-data of key personnel proposed to be deployed prior to the commencement of Work. The bio-data shall essentially include the name, nationality, qualification and details of experience and passport details of the person.
- 15.7. The Bidder’s expatriate and technical personnel must have thorough knowledge of English.
- 15.8. The Bidder’s personnel must be sound enough to provide the above services in professional manner failing which Company reserves the right to ask for removal of any Bidder’s personnel within 24 hours written notice.
- 15.9. Company may depute 2-3 geoscientists during the data processing and interpretation phases. Bidder must provide adequate office space for the Company representatives during processing and interpretation. They also must provide fax, telephone and Internet facilities to Company representatives at their office.
- 15.10. Bidder shall arrange for collection of field and other data to the Bidder's processing and interpretation centers on loan basis and return all the data along with all deliverables to OIL’s office at **OIL’s office at La Sabliere Immeuble FIDJI, (Près de la Cours Constitutionnelle) BP-23134, Libreville, Gabon.**
- 15.11. Bidder may be required to make detailed presentations for block Shakthi-II after completion of processing and interpretation jobs at OIL’s office, New Delhi, India or Libreville, Gabon.
- 15.12. Bidder shall follow all health, safety and environment norms as prevalent in the geophysical industry globally.

**16.0 OBLIGATIONS OF THE COMPANY:**

- 16.1 Administrative help will be provided by Company for clearances and permits if required from Govt. of Gabon for the execution of work provided, the Bidder shall make available the required details for obtaining the required permits well in time.

**17.0 CONFIDENTIALITY OF TECHNICAL INFORMATION:**

- 17.1 The contractor, without prior written approval / permission shall not disclose / provide / reveal any technical information or reports, (viz., specifications, plans, drawings, maps, etc.) to any person other than those key personnel employed by the Bidder to carry out the operations. All the technical information shall be maintained strictly confidential.

**18.0 IMPORTANT TERMS AND CONDITIONS:**

- 18.1. The Bidder shall use the state-of-the-art HW/SW available in the industry. In the bid the Bidder should indicate in details the vintage & versions of hardware / software that will be used.
- 18.2. The Company’s geoscientists shall be associated with the Seismic data Processing and Interpretation work.
- 18.3. The Company shall have the right to increase / decrease up to 25% of the total quantum for processing and interpretation work on the same terms and conditions.

- 18.4. The Company's Geoscientists will supervise the data processing and quality control. The Bidder shall ensure that the data processing & interpretation is of the highest standard in geophysical industry and up to the Company's satisfaction.
- 18.5. The Bidder shall ensure simultaneous transfer of his expertise in advanced processing / interpretation techniques to the Company's geoscientists.

**(END OF SECTION - IV)**

## SECTION V

### **SCHEDULE OF RATES (Part-A) / PRICE BID FORMAT (PART-B)**

#### **PART-A**

**A. CHARGES FOR 2D SEISMIC DATA PROCESSING AND ADVANCE PROCESSING**

- 1.0 Charges for 2D Seismic Data Processing & Advance Processing shall be Payable on per GLKM basis.
- 2.0 Rate quoted for 2D data processing & advance processing is for the sequence mentioned in Section IV (Scope of Work/Terms of Reference). It should include all the charges for the equipment/accessories, spares, consumables, charges of contractor's personnel, processing tests, deliverables, and office space for Company representatives etc.

**B. CHARGES FOR AVO ANALYSIS:**

- 3.0 Charges for AVO, Modeling & Inversion shall be payable on per GLKM basis. It should include all the charges for the equipment/accessories, spares, consumables, charges of contractor's personnel, processing tests, deliverables, and office space for Company representatives, etc.
- 4.0 This will be considered for bid evaluation. Payment will be made on actual work done.

**C. CHARGES FOR SEISMIC INVERSION:**

- 5.0 Charges for Seismic inversion shall be payable on per GLKM basis. It should include all the charges for the equipment/accessories, spares, consumables, charges of contractor's personnel, processing tests, deliverables, and office space for Company representatives, etc.
- 6.0 This will be considered for bid evaluation. Payment will be made on actual work done.

**D. RATE FOR POST & PRE-STACK DEPTH MIGRATION:**

- 7.0 Charges shall be payable on per GLKM basis. It should include all the charges for the equipment/accessories, spares, consumables, charges of contractor's personnel, processing tests, deliverables, and office space for Company representatives, etc.
- 8.0 This will be considered for bid evaluation. Payment will be made on actual work done

**E. CHARGES FOR SEISMIC DATA INTERPRETATION:**

- 9.0 Charges for Seismic data interpretation shall be quoted for 2500 GLKM. Any increase/ decrease in this quantum will be considered on pro-rata per GLKM basis for payment purpose.
- 10.0 Rate quoted for seismic data interpretation is as per the specifications mentioned in Section IV (Scope of Work / Terms of Reference). It should include all the charges for the equipment/accessories, spares, consumables, charges of contractor's personnel, deliverables, and office space for Company representatives etc.

**PART-B (PRICE BID FORMAT)**

BIDDER TO QUOTE IN THE FOLLOWING PRICE BID FORMAT FOR ALL THE ITEMS:

<b>Sl. No.</b>	<b>Particulars</b>	<b>Unit of Measure</b>	<b>Volume or Quantity (A)</b>	<b>Unit Rate in quoted Currency (B)</b>	<b>Total Cost in quoted Currency (A) x (B)</b>
1.	Charges for <b>(PSTM)</b> Processing of seismic data (Dynamite source) with recording format: SEG-D on 3592 cartridge (320 channel, 80 fold, 20 m Group int., 40 m shot interval, 2 ms SR and 5 sec RL, and inclusive of all processing requirement / deliverables as elaborated in <b>Section- IV</b> )	GLKM	1200		
2.	Charges for Specialized <b>AVO</b> analysis (inclusive of all required deliverables as elaborated in <b>Section- IV</b> )	GLKM	200		
3.	Charges for Specialized Seismic Inversion <b>(INVR)</b> (inclusive of all required deliverables as elaborated in <b>Section- IV</b> )	GLKM	200		
4.	Charges for Optional Reprocessing <b>(RE-OP)</b> of seismic data (1980-90 vintage, Dynamite source) with Recording Format: SEG-Y, Cartridge -3480, SPI: 40/80/100m, GI: 40/80/100m, 48/96 Channel, 24/48 fold, RL: 5/4 Sec., SI: 2/4 ms.	GLKM	200		
5.	Charges for Optional Additional Velocity Analysis <b>(AVA)</b> (inclusive of all required deliverables as elaborated in <b>Section- IV</b> )	GLKM	100		
6.	Charges for Optional Post Stack Depth Migration <b>(Post-SDM)</b> (inclusive of all required deliverables as elaborated in <b>Section- IV</b> )	GLKM	300		
7.	Charges for Optional Pre-Stack Depth Migration <b>(Pre-SDM)</b> (inclusive of all required deliverables as elaborated in <b>Section- IV</b> )	GLKM	300		
8.	Charges for 2500 GLKM Seismic data interpretation	GLKM	2500		

	(inclusive of all interpretation requirements & deliverables elaborated in Section-IV)				
	<b>TOTAL ( Sum of total Cost of SL. No. 1 to 8) in Quoted Currency</b>				

**Notes:**

- i. Optional Processing (Sl. Nos. 3 & 4) will be carried out at the discretion of the Company.
- ii. The volume & cost indicated against each item of Price schedule will be taken into consideration only for Commercial Bid Evaluation. Payment will be made on actual job carried out and certified by the company representative.
- iii. The Contractor shall not carry out any additional work beyond the quantity mentioned in the contract without Company's prior approval.

**(END OF SECTION V)**

## **SECTION-VI**

### **SPECIAL CONDITIONS OF CONTRACT**

#### **1.0 ASSOCIATION OF COMPANY'S PERSONNEL**

- 1.1 Company's Representatives will be associated with the work throughout the operations. The Contractor shall execute the work with professional competence and in an efficient and workman-like manner and provide OIL with a standard of work customarily provided by reputed geophysical contractors to major international oil companies in the petroleum industry.
- 1.2 The final processing parameters will be decided with the prior approval of the OIL's representatives after conducting the test processing. Contractor shall not change any parameters without prior approval of OIL's representative.

#### **2.0 PROVISION OF PERSONNEL AND FACILITIES:**

- 2.1 The Contractor shall provide the key personnel as given in Annexure-I, for consultancy, quality control and data processing.
- 2.2 All the personnel mentioned in Annexure-I must have requisite experience in respective fields and should be fluent in English language. On Company's request, Contractor shall remove and replace at his own expenses any of their personnel whose presence is considered undesirable in the opinion of the OIL.
- 2.3 The contractor shall be responsible for, and shall provide for all requirements of their personnel and of their sub-contractor, if any, including but not limited to their insurance, housing, medical services, messing, transportation (both air and land transportation), vacation, salaries and all amenities, termination payment and all immigration requirement and taxes, if any, payable at no extra charge to the OIL.
- 2.4 The contractor shall furnish the list of equipment with type, make, and year of manufacture with supporting documents along with their offer.

#### **3.0 PERSONAL**

The recruitment of the personal shall be met as per prevailing law.

#### **4.0 CONFIDENTIALITY OF INFORMATION**

- 4.1 All information obtained by Contractor in conduct of operations and the information/maps provided by OIL to the Contractor shall be considered confidential and shall not be divulged by Contractor or its employees to anyone other than the OIL's representative. This obligation of Contractor shall be in force even after termination of the Contract.

#### **5.0 PAYMENT & MANNER OF PAYMENT, INVOICES**

- 5.1 Company shall pay to Contractor, during the term of the Contract, the amount due from time to time calculated according to the rates 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.
- 5.2 Payments due by Company to Contractor shall be made at Contractor's designated Bank. All Bank charges will be to Contractor's account.
- 5.3 Payment of any invoices shall not prejudice the right of Company to question the validity of any charges therein, provided Company within one year after the date of payment shall make and deliver to Contractor written notice of objection to any item or items the validity of which Company questions.

- 5.4 Contractor shall submit 03 (three) sets of all invoices to Company for processing of payment.
- 5.5 Contractor shall raise invoices for the data Processed and Interpreted and that has been handed over to the company at Libreville, Gabon along with relevant reports, cartridges etc. The data submitted without these shall be considered incomplete.
- 5.8 Payment of invoice, if undisputed, shall be made within 30 days of its receipt at Company's address.
- 5.9 The Company shall within 20 days of receipt of the invoice notify Contractor of any item under dispute, specifying the reasons thereof, in which event, payment of the disputed amount may be withheld until settlement of the dispute, but payment shall be made of any undisputed portion within 30 days. This will not prejudice the Company's right to question the validity of the payment at a later date as envisaged in Para-5.3 above.
- 5.10 The acceptance by Contractor of part payment on any billing not paid on or before the due date shall not be deemed a waiver of Contractor's rights in respect of any other billing, the payment of which may then or thereafter be due.
- 5.11 Contractor shall maintain complete and correct records of all information on which Contractor's invoices are based up to two (2) 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.
- 5.12 Any audit conducted by Company of Contractor's records, as provided herein, shall be limited to Company's verification (i) of the accuracy of all charges made by Contractor to Company and (ii) that Contractor is otherwise in compliance with the terms and conditions of this Agreement.
- 5.13 Payment to the party will be made in US Dollars or Local Currency (FCFA), in accordance to the Local law and regulations. The same will be made either through A/c Payee Cheques or Bank Transfer Advice. The Bank Commission/Charges will be to the contractor's account. Contractor is to furnish the complete details of the Bank, Beneficiary Account No. and Swift Code No. of the Bank and the Country Code.

## **6.0 SPECIAL OBLIGATIONS OF THE CONTRACTOR:**

- 6.1 Contractor will collect all the available data required for Processing and Interpretation from the office of OIL at La Sabliere, Immueble FIDJI (Près La Cours Constitutionnelle) Libreville, BP-23134, Gabon within 15 days of the issue of letter of intent from OIL. The Processing and Interpretation work will be carried out under the supervision of Company's representatives at Contractors Computer centre.
- 6.2 All deliverables mentioned in Section IV (Scope of Work/Terms of References and Technical Specification) will be provided to Company at no extra cost.
- 6.3 Contractors should use latest versions of all software packages during the period of contract.
- 6.4 Any other works required for efficient and successful execution of work shall be carried out by the Contractor except those enumerated under the clause "Obligations of the Company" defined below.
- 6.5 Contractor's interpretation geoscientists should interact with the processing geophysicists during processing and vice-versa. This might result in geologically acceptable and interpretable processed data.

- 6.6 Contractor shall furnish the list with Bio-data of key personnel proposed to be deployed prior to the commencement of work. The bio-data shall essentially include the name, nationality, qualification and details of experience and passport details of the person.
- 6.7 Contractor's expatriate and technical personnel must have thorough knowledge of English.
- 6.8 Contractor's personnel must be sound enough to provide the above services in professional manner failing which Company reserves the right to ask for removal of any Contractor's personnel with 24 hours' notice.
- 6.9 Company will depute 2-3 geoscientists during the data Processing and Interpretation. Contractor must provide adequate transport for computer centre and office space for the Company representatives during Processing and Interpretation. They also must provide fax, telephone and Internet facilities to Company representatives at their office.
- 6.10 Contractor shall arrange for collection of field and other data to the Contractor's Processing and Interpretation centre on loan basis and return all the data along with all deliverables at office of OIL at La Sabliere, Immueble FIDJI (Près La Cours Constitutionnelle) Libreville, BP-23134, Gabon.
- 6.11 Contractor will be required to make detailed presentations of the final draft report for each phase separately after completion of Processing and Interpretation jobs at OIL at La Sabliere, Immueble FIDJI (Près La Cours Constitutionnelle) Libreville, BP-23134, Gabon after incorporating the views of OIL's corporate office, Noida.
- 6.12 Contractor shall follow all health, safety and environment norms as prevalent in the geophysical industry globally.
- 7.0 SPECIAL OBLIGATION OF THE COMPANY:**
- 7.1 The Company shall provide, if required, necessary documents, for clearance from Gabonese Government.
- 7.2 Company shall organize all possible help from local Government/Administration to Contractor's personnel and equipment in case of natural disaster, civil disturbances and epidemics.

**END OF SECTION VI**

## **SECTION VII**

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

#### **I. BID REJECTION CRITERIA:**

The bid shall conform generally to the specifications and terms and conditions given in the tender. Bids shall be rejected in case the item(s) offered do not conform to the required optimum parameters stipulated in the technical specifications and to the respective international / national standards wherever stipulated. Notwithstanding the general conformity of the bids to the stipulated specifications and terms and conditions, the following requirements shall have to be particularly met by the bidders, without which the offer will be considered as non-responsive and rejected.

#### **1.0 TECHNICAL:**

- 1.1 Any offer which does not include all the jobs/services mentioned in Section-IV (Scope of Work/Terms of reference/Technical specifications) will be considered as incomplete and rejected.
- 1.2 The bids will be technically evaluated based on the requirements furnished in Section-IV (Scope of Work/Terms of reference). Bids which do not conform to the details of Section IV (Scope of Work/Terms of reference/Technical specifications) furnished therein and do not include all the jobs/services mentioned in the tender document will be considered as incomplete and rejected.
- 1.3 The Bidder should have an established state-of-the-art interactive workstation based Processing Centre for carrying out detailed Pre-stack Time Migration (PreSTM) Seismic Data Processing including other Specialized Processing and Studies and should have minimum 3 (three) years' experience in PreSTM Processing and have processed at least 2000 GLKM 2D land seismic data using leading/latest advanced processing software package as on the date of submission of EOI.
- 1.4 The Bidder should have an established state-of-the-art interactive workstation based Interpretation Centre and experience of completing at least 3 (three) 2D seismic data interpretation projects in last 3 (three) years and must have interpreted at least 2000 GLKM of 2D land seismic data using leading/latest interpretation package of international repute for evaluation and identification of prospects for exploration drilling. Period in this regard shall be reckoned prior to the schedule closing date of submission of this bid.
- 1.5 Towards past experience, bidder should submit along with the unpriced bid, in support of experience laid down at para 1.3 and 1.4 above, copies of respective contracts, along with documentary evidence in respect of satisfactory execution of each of those contracts, in the form of copies of any of the documents (indicating respective contract number and type of services), such as - (i) Satisfactory completion / performance report (OR) (ii) proof of release of Performance Security after completion of the contract (OR) (iii) proof of settlement / release of final payment against the contract (OR) (iv) any other documentary evidence that can substantiate the satisfactory execution of each of the contracts cited above.
- 1.6 For Seismic data PreSTM Processing, Bidder should provide for 1 (one) Processing Manager (Geophysicist) & minimum 2 (two) Processing Geophysicists. The Project Manager should have at least 12(twelve) years' experience, while both geophysicists at least 7 (seven) years of experience each in processing of seismic data for oil exploration. QC Processing Geophysicist, required to be part of the

team should have a minimum of 7 years of experience in QC related processing jobs of PreSTM techniques.

- 1.7 For Interpretation, Bidder should provide 1 (one) Group Leader (Geologist) & minimum 2 (two) Geoscientists (Geologist and Geophysicist). The Group Leader should have at least 15 (fifteen) years' experience, while both geoscientists must have at least 10(ten) years of experience each in interpretation of seismic data for oil exploration and development.
- 1.8 The Petro-physicists/log analyst, techno-economic analyst must have a minimum experience of 5 (five) years on Interpretation projects. Details of the Minimum work experience required for key personnel to be deployed are given in Annexure-I.
- 1.9 The minimum experience requirement of key personnel (Annexure I) and details of equipment (Annexure II) are to be provided The bidder shall provide detailed bio-data of personnel to be associated with the processing, special processing and interpretation jobs and the relevant experience in years will be reckoned prior to the schedule closing date of submission of this bid. The bid will be rejected if the requirement / experience of personnel and details of equipment are not as per the requirement.
- 1.10 The bidder shall confirm that they shall be able to collect data for processing within 15 days from date of receipt of LOA & commence work within 7 days thereafter.
- 1.11 Bidders must provide categorical confirmation of their capability and intent to meet the timing in their Techno-Commercial Bid; otherwise their Bid will be rejected.

## **2.0 COMMERCIAL:**

- 2.1 Average Annual financial turnover As per Audited Annual Reports for the last three accounting years, should be at least US\$ 0.6 MN. The proof of Annual Turnover should be in the form of Audited Balance Sheet/Audited Annual Reports and may be accompanied with a Certificate from Chartered Accountant indicating their Membership/code number, particularly in those cases where the reporting currency in the Audited Annual Reports are other than US\$, to certify the Average Annual Financial Turnover for the last three accounting year in equivalent US\$.
- 2.2 Interested Parties who themselves do not meet the experience criteria as stipulated above, can also be considered, provided the party is a 100% subsidiary company of the parent company which meets aforesaid experience criteria. In such cases, the party shall have to furnish an agreement/MOU between the parent company and the subsidiary company. Also, a Corporate Guarantee must be furnished from the parent company to OIL for fulfilling contractual obligation under the contract if awarded.
- 2.3 In case the interested party is a Consortium of Companies, any of the Consortium partner should satisfy the minimum experience criteria as mentioned above, either individually or combined In such case, while one partner may fulfill the experience criteria of Processing, the other partner may full fill the experience criteria of Interpretation. Similarly, any one of the Consortium member individually shall have to meet the financial criteria. Only the leader of the Consortium shall be permitted to submit the Bid on behalf of the Consortium along with the documentary evidence showing the intent of the Consortium members to submit the EOI and to be jointly and severally responsible to fulfill the contractual obligation under the contract if awarded.

- 2.4 Bids shall be submitted under **Single Stage Two Bid System** i.e. **Technical Bid (Un-Priced)** and **Priced Bid** separately in two separate envelopes. Bids shall be rejected outright if the prices are indicated in the technical bids. Bids not conforming to this two bid system shall be rejected outright.
- 2.5 Bidders must quote clearly and strictly in accordance with, Part-B Price Schedule, outlined in Price Bid Format of bidding documents.
- 2.6 Bid received through, or in the form of a fax or email will be rejected.
- 2.7 The bid documents are not transferable. Offers made by Bidders to whom Bid Documents were not issued by the Company will be rejected.
- 2.8 Bids with in-adequate validity from the Bid closing date i.e. **120 days** shall be rejected as non-responsive.
- 2.9 Bid shall be typed or written in indelible ink and original bid shall be signed by the Bidder or their authorized representative (duly authorized on all pages failing which the bid may be rejected).
- 2.10 Bid shall contain no inter-lineation, erasures or overwriting except as necessary to correct errors made by Bidder, in which case such corrections shall be initialed by the person(s) signing the bid. However, white fluid should not be used for making corrections. Any bid not meeting this requirement shall be rejected.
- 2.11 Any bid containing false statement will be rejected.
- 2.12 Any Bid received by the Company after the deadline for submission of bids prescribed by the Company will be rejected.
- 2.13 Price quoted by the successful Bidder must be held firm during its performance of the contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected.
- 2.14 The following Clauses with all its sub-clauses should be agreed in to, failing which the bid will be rejected:
  - (i) Performance Guarantee Clause
  - (ii) Force Majeure Clause
  - (iii) Tax Liabilities Clause
  - (iv) Arbitration Clause
  - (v) Acceptance of Jurisdiction and Applicable Law
  - (vi) Liquidated damage and penalty clause
  - (vii) Termination Clause

### 3.0 **GENERAL**

- 3.1 The compliance statement **Performa-I** should be duly filled in. 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 the Company. The loading so done by the Company will be final and binding on the Bidders. No deviation will however, be accepted in the clauses covered under BEC/BRC.
- 3.2 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/BEC also and such clarification fulfilling the BRC/BEC clauses in toto must be received on or before the deadline given by the Company, failing which the offer will be summarily rejected.

3.3 If any of the clauses in the BEC/BRC contradict with other clauses of the Bid Document elsewhere, then the clauses in the BEC/BRC shall prevail.

#### **4.0 BID EVALUATION CRITERIA (BEC)**

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

4.2 The Bids shall be technically evaluated based on the minimum requirements given in Section-IV (Scope of Work/Terms of Reference and Technical Specifications). The various equipments (software and hardware) should meet the minimum requirement/ specification given in the Bid Document.

4.3 Commercial Bids shall be evaluated taking into account the summation of the following:

<b>(1)</b> Charges for 2D Seismic data processing	(PSTM)	(1200 x GLKM)
<b>(2)</b> Charges for AVO	(AVO)	(200 x GLKM)
<b>(3)</b> Charges for Seismic Inversion	(INVR)	(200 x GLKM)
<b>(4)</b> Charges for Optional Re-processing	(RE-OP)	(200 x GLKM)
<b>(5)</b> Charges for Additional Velocity Analysis	(AVA)	(100 x GLKM)
<b>(6)</b> Charges for Post Stack Depth Migration	(Post-SDM)	(300 x GLKM)
<b>(7)</b> Charges for Pre Stack Depth Migration	(Pre-SDM)	(300 x GLKM)
<b>(8)</b> Charges for Seismic Data Interpretation		(2500 x GLKM)

**TOTAL ESTIMATED VALUE OF THE CONTRACT** for the purpose of evaluation will be calculated as follows:

**Total Estimated Contract Value = (1) + (2) + (3) + (4) + (5) + (6) + (7) + (8)**

4.4 Price-Bids of only the technically qualified bidders will be opened on a predetermined date and the same will be evaluated taking in to account the sum total cost of all components quoted by the bidders as per Price-schedule Format and the contract will be awarded to the lowest evaluated bidder.

4.4.1 The items referred in above mentioned clauses are to be read in conjunction with Part-B on PRICE SCHEDULE.

4.5 It is, however, to be clearly understood that the assumptions made in respect of the quantity of various items in the Price Bid Format are only for the purpose of evaluation of the bids. The Contractor will be paid on the basis of actual quantum of jobs carried out during job execution. However, execution of jobs in excess of the quantity mentioned herein requires Company's prior approval.

4.6 All taxes, levies and duty will be borne by the bidder.

4.7 The Bids in which the prices for any part of the work for 2D seismic data processing and interpretation given above, are not quoted, shall be rejected. However, if no charge is involved for nay of the work, 'NIL' should be mentioned against such part of work.

4.8 For evaluation of the bids, corresponding exchange rate as acknowledged by the DGH, Gabon, prevailing one day prior to the price bid opening would be considered in appropriate case. Similarly, for conversion to INR, B. C. Selling rate of State Bank of India prevailing one day prior to the price-bid opening will be considered. Where the time lag between the price bid opening and final decision exceeds three months, the rate of exchange prevailed on the date prior to the date of final decision will be adopted for Conversion in to single currency.

#### **END OF SECTION VIII**

**LIST OF KEY PERSONNEL TO BE OFFERED BY THE PARTY****PROFESSIONAL STAFF FOR 2D SEISMIC DATA PreSTM PROCESSING**

<b>Sr. No.</b>	<b>Position</b>	<b>Minimum Work Experience</b>	<b>No. of Personnel</b>
1	Processing Manager	12 years minimum experience in PreSTM 2D Seismic Data Processing including Other Specialized Processing & Studies (PreSDM, AVO, Inversion, etc.)	One (1)
2	Processing Geophysicists	7 years minimum experience in PreSTM 2D Seismic Data Processing including Other Specialized Processing & Studies (PreSDM, AVO, Inversion, etc.)	Two (2)
3	QC Processing Geophysicist	7 years minimum experience in QC related aspects of PreSTM 2D Seismic Data Processing including Other Specialized Processing & Studies (PreSDM, AVO, Inversion, etc.)	One (1)

**PROFESSIONAL STAFF FOR 2D SEISMIC DATA INTERPRETATION**

<b>Sr. No.</b>	<b>Position</b>	<b>Minimum Work Experience</b>	<b>No. Of Personnel</b>
1	Group Leader	Minimum 15years' experience in 2D Seismic Data Interpretation on interactive Interpretation workstation with state-of-the-art interpretation software packages.	One (1)
2	Interpretation Geologist & Geophysicist	Minimum 10 years' experience in 2D Seismic Data Interpretation on interactive Interpretation workstation with state-of-the-art interpretation software packages.	Geologist One(1)  Geophysicist
3	Petrophysicist/ Log Analyst	Minimum 5 years' experience in Petrophysical and Log Analysis jobs on interactive work station with state-of-the-art interpretation software packages.	One(1)
4	Techno-Economic Analyst	Minimum 5 years' experience in Techno-Economic Analysis of	One(1)

**Note:**

- a) Party must submit detailed Bio-data of all its key personnel to be deployed for the whole period of the project. Party should provide the details viz. Duration of the project, client & clients contact address, area etc. in which the key personnel was associated. Party shall deploy the same persons whose Bio-data is offered in the bid for Processing and Interpretation.
- b) The above list indicates the minimum requirement of Key Personnel and their experience. The interested party may deploy other personnel if required, in addition to above for timely completion of the work without additional cost whatsoever to Company. The Processing and Interpretation personnel have to be efficient enough to coordinate with Company and perform all other required interaction with external agencies for executing the job successfully. All the key personnel must be fluent in speaking, writing and understanding English language.

**END OF ANNEXURE I**

**EQUIPMENT FOR 3D SEISMIC DATA PROCESSING & INTERPRETATION**

The equipment to be deployed by the Contractor for the Data Processing and Data interpretation must be state-of-the-art and conform to international industry standards. The Bidders must provide the technical details of following equipment (Hardware & Software) to be used for processing.

- (i) Hardware Configuration: Details of Hardware like Type of processor, Number of CPUs/nodes, RAM size, Graphics, hard disk capacity/storage capacity etc. separately for both Processing & Interpretation.
- (ii) Software: Details of complete processing and data interpretation packages, licenses installed, their release date, version and status of maintenance contract etc.
- (iii) System Layout Diagram including tape drives, plotter and other I/O interface. Brochures of Hardware and Software Packages for both Processing & Interpretation.
- (iv) Location of Processing & Interpretation center for undertaking the said job.

**END OF ANNEXURE II**

**DELIVERABLES - PROCESSING**

- A.** Five (5) copies of complete detailed report on the processing in word format on CDROM as well as Hard copies which must at least include:
- (i) Details of all the parameter testing and evaluation carried out including quality control displays.
  - (ii) Final processing sequence and testing route.
  - (iii) Final location map with appropriate annotations for shot point, CDP lines, co-ordinates etc.
  - (iv) The CONTRACTOR should include an appropriate summary describing the effectiveness of different QC and processing steps in enhancing the seismic data quality during the course of the processing keeping in view the geological objectives of the project.
- B. SOFT COPY OUTPUTS** with appropriate coordinates on trace headers in standard SEG Y format.
- 1. FOR PRE-STACK TIME MIGRATION (PRE-STM)**

Sl.No.	Description	No. Copies	Media	Format
1	Raw data with geometry for the Unified Geometry with Navigation	5	3592/LTO3	SEG Y
2	Input to Migration CMP gathers (non-regularized)	5	3592/LTO3	SEG Y
3	Raw Migrated Gathers	5	3592/LTO3	SEG Y
4	Migration Velocity	5 (each format)	DVD	SEG Y & ASCII
5	Raw migrated Stack	5	3592/LTO3	SEG Y
6	Final Migrated Stack	5	3592/LTO3	SEG Y
7	Final stacking Velocity	5 (each format)	DVD/LTO3	SEG Y & ASCII

**2. FOR PRE-STACK DEPTH MIGRATION (PRE-SDM)**

Sl. No	Description	No. of Copies	Media	Format
1	Raw Depth Migrated Gathers	5	3592/LTO3	SEG Y
2	Final Migration Velocity Field	5(each format)	DVD	SEG Y & ASCII
3	Raw Depth migrated Stack	5	3592/LTO3	SEG Y
4	Final Depth Migrated Stack	5	3592/LTO3	SEG Y
5	Final stacking Velocity (if any)	5 (each format)	DVD	SEG Y & ASCII

**NOTE:** In addition, two (2) sets of external hard disks containing all data to be provided to Company.

**3. FOR AVO AND PRE-STACK INVERSION STUDIES (5 Copies each):**

- (i) Base map in Digital form on CD / DVD.
- (ii) AVO attributes volumes on CD/DVD/HDD.
- (iii) Pre-Stack Impedance volumes on CD/DVD/HDD.

**C. HARD COPY OUTPUTS (5 Copies each):**

- (i) 5 (five) Hard copies (Horizontal scale: 25 traces / inch & Vertical scale : 5 inches / sec.) of Seismic sections each - Final Stack, Final Post/Pre Stack Time Migration, Final AVO attribute, Final Pre-stack Impedance, Final Post/Pre Stack Depth Migration.
- (ii) Displays of all parameter test results and QC checks.
- (iii) Base maps in scales 1: 100,000 and 1: 250,000 (5 sets on paper and 5 set on printable film)

**END OF ANNEXURE III(A)**

**DELIVERABLES - INTERPRETATION**

- A.** The Bidder has to submit five (5) hard copies and five (5) soft copies in English language of final detailed report of the integrated interpretation of 2D seismic data. The report will cover each and every aspect as mentioned in clause 7.0 of this section. Apart from text, tables and figures of the report (five (5) sets each of hard copies and soft copies in DVD), the following maps and figures are to be generated in the prescribed scales:
- (i) All regional maps in 1:50,000 & 1:25,000 scales with contour interval of 20ms/20m and /or 10ms/10m as per suitability.
  - (ii) Individual Time, Isovelocity, Depth, Isopach and prospect maps should be provided on 1: 25,000 & 1: 50,000 scales with 10-m/10 ms (TWT) contour interval.
  - (iii) Individual prospects maps in 1:10,000 scale with 10m contour interval
  - (iv) All geological sections/correlations/seismo-geological sections in 1:3960 vertical scale.
  - (v) Interpreted seismic sections through prospects.
  - (vi) Fault pattern map in 1:50,000 scale.
  - (vii) Isopach maps in 1:50,000 scale.
  - (viii) Attribute maps in 1:50,000 scale.
  - (ix) Velocity maps in 1:50,000scale.
  - (x) Interpreted logs in 1: 250 & 1: 600 (Elan/ Ultra or equivalent).
  - (xi) Well information/ Synthetic seismogram in LIS format
  - (xii) Base map / Grid map for Future 2D / 3D seismic work in the entire volume along with the co-ordinates.
- B. SOFT COPIES - FIVE (5) SETS:**
- (i) Project back up with all information (Two each on IBM 3592 cartridge, Two in LTO-3 and One set on 500 GB External USB Compatible HDD) of the interpreted data volume in the format decided by OIL's representative and soft copy of project backup in DVD/USB hard disks compatible to Geoframe/PETREL software.
  - (ii) Attribute volume and analysis output in format decided by OIL representatives.
  - (iii) Output of all horizons and faults mapped, well data and other relevant G&G data in format decided by OIL representatives.

**END OF ANNEXURE III(B)**

## **ANNEXURE -IV**

Name & Complete Address of Party:

<b>A. Details of PreSTM Processing experience of 2D Seismic Data in last 3 (three) years.</b>				
Successful completion of PreSTM Processing of 2000 GLKM of 2D Seismic Data.				
Details of PreSTM Processing of 2D Seismic Data including area, client name, its complete address etc.	Quantum (GLKM)	Duration (Starting date & Completion date)	Documentary evidence in support like client completion certificate etc.	Remarks, If any
1.				
2.				
3...				
TOTAL				

---

<b>B. Details of 2D Seismic Data Interpretation experience in last 3 (three) years.</b>					
Successful completion of Interpretation of 2000 GLKM of 2D Seismic Data.					
Successful completion of 3 (three) 2D Seismic Data Interpretation projects.					
Project	Details of Interpretation Projects including area, client name, its complete address etc.	Quantum (GLKM)	Duration (Starting date & Completion date)	Documentary evidence in support like client completion certificate etc.	Remarks, If any
Project 1					
Project 2					
Project 3...					
TOTAL					

### **Note:**

- Interested Party parties must submit documentary evidence in support of Project (s) involving 2D Seismic Data PreSTM Processing and Interpretation from their client clearly mentioning successful completion of the Projects, covered GLKM and year of completion.
- In case, the Party ever blacklisted due to BAD performance/non adherence to any contractual terms and conditions/breach of contract or any other reason, the Party must clearly mention in the Remark Column.

**END OF ANNEXURE IV**

**ANNEXURE -V**

<b>Financial Year</b>	<b>Annual Turnover</b>
2010-11	
2011-12	
2012-13	

**END OF ANNEXURE V**

**PROFORMA - I**

STATEMENT OF NON-COMPLIANCE (EXCEPTING BRC)

SL. NO.	SECTION/ CLAUSE NO.	BRIEF STATEMENT	NON-COMPLIANCE	REMARKS

We undertake that excepting above deviations, all the terms and conditions in the tender document shall be fully complied with.

Signature and seal of the

Bidder: Name of Bidder:

**PROFORMA - II A**

**BID FORM**

To

General Manager  
GABON Project,  
OIL INDIA LIMITED,  
La Sablière, Immeuble FIDJI  
Libreville. B.P. 23134

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

Gentlemen,

Having examined the General and Special Conditions of Contract , 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 ( **NO PRICE IN TECHNICAL BID**)\_\_\_\_\_ (Total Bid Amount in words and figures) or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to commence the work within ( ) days calculated from the date of award of Contract.

If our Bid is accepted, we will obtain the guarantee of a bank in a sum not exceeding \_\_\_\_\_ for the due performance of the Contract.

We agree to abide by this Bid for a period of 120 days from the date fixed for Bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof in your notification of award shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any Bid you may receive.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 2015.

-----

Signature

\_\_\_\_\_

(In the capacity of)

**NOTE: THIS BID FORM SHOULD BE SUBMITTED WITHOUT PRICE IN TECHNICAL BID AND WITH PRICE IN PRICED BID.**

**PROFORMA II B**

**FORM OF PERFORMANCE BANK GUARANTEE**

To  
General Manager  
GABON Project,  
OIL INDIA LIMITED,  
La Sablière, Immeuble FIDJI  
Libreville. B.P. 23134

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 there under 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 3 months after Contract completion date).

SIGNATURE AND SEAL OF THE GUARANTORS \_\_\_\_\_

Designation \_\_\_\_\_

Name of Bank \_\_\_\_\_

Address \_\_\_\_\_

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

## PROFORMA IIC

### CONTRACT FORM

This Contract is made on \_\_\_\_\_ day of \_\_\_\_\_ between Oil India Limited, a Government of India Enterprise, incorporated under the Companies Act 1956, having its registered office at Duliajan in the State of Assam, India and Project Office at La'Sablier, Libreville, Gabon hereinafter called the "Company" which expression unless repugnant to the context shall include executors, administrators and assignees on the one part, and M/s. \_\_\_\_\_ (Name and address of Contractor), hereinafter called the "Contractor" which expression unless repugnant to the context shall include executors, administrators and assignees on the other part.

WHEREAS the Company desires that Services \_\_\_\_\_ (brief description of services) should be provided by the Contractor as detailed hereinafter or as Company may requires.

WHEREAS, Contractor engaged themselves in the business of offering such services represents that they have adequate resources and equipment, material etc. in good working order and fully trained personnel capable of efficiently undertaking the operations and is ready, willing and able to carry out the said services for the Company as per **Section- II** attached herewith for this purpose.

WHEREAS, Company issued a firm Letter of Award No. \_\_\_\_\_ based on Offer No. \_\_\_\_\_ submitted by the Contractor against Company's Tender No. \_\_\_\_\_.

WHEREAS Contractor has accepted Company's Letter of Award vide their letter no. \_\_\_\_\_.

All these aforesaid documents shall be deemed to form and be read and construed as part of this Contract. However, should there be any dispute arising out of interpretation of this contract in regard to the terms and conditions with those mentioned in Company's tender document and subsequent letters including the Letter of Award and Contractor's offer and their subsequent letters, the terms and conditions attached hereto shall prevail. Changes, additions or deletions to the terms of the contract shall be authorized 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-III indicating the General Conditions of Contract,
- (b) Section-IV indicating the Terms of Reference/Technical Specifications,
- (c) Section-V indicating the Schedule of rates.
- (d) Section-VI indicating the Special Terms and Conditions

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 Libreville, Gabon, as of the date shown above.

Signed, Sealed and Delivered,

For and on behalf of  
 Company (Oil India Limited)  
 Name:  
 Status:

For and on behalf of  
 Contractor (M/s. \_\_\_\_\_)  
 Name:  
 Status:

In presence of

- 1.
- 2.

In presence of

- 1.
- 2.

**PROFORMA - III**

**PROFORMA LETTER OF AUTHORITY**

To

General Manager  
GABON Project,  
OIL INDIA LIMITED,  
La Sablière, Immeuble FIDJI  
Libreville. B.P. 23134

Sir,

Sub: OIL's Tender No. \_\_\_\_\_

We \_\_\_\_\_ confirm that Mr. \_\_\_\_\_ (Name and address) as authorized 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,

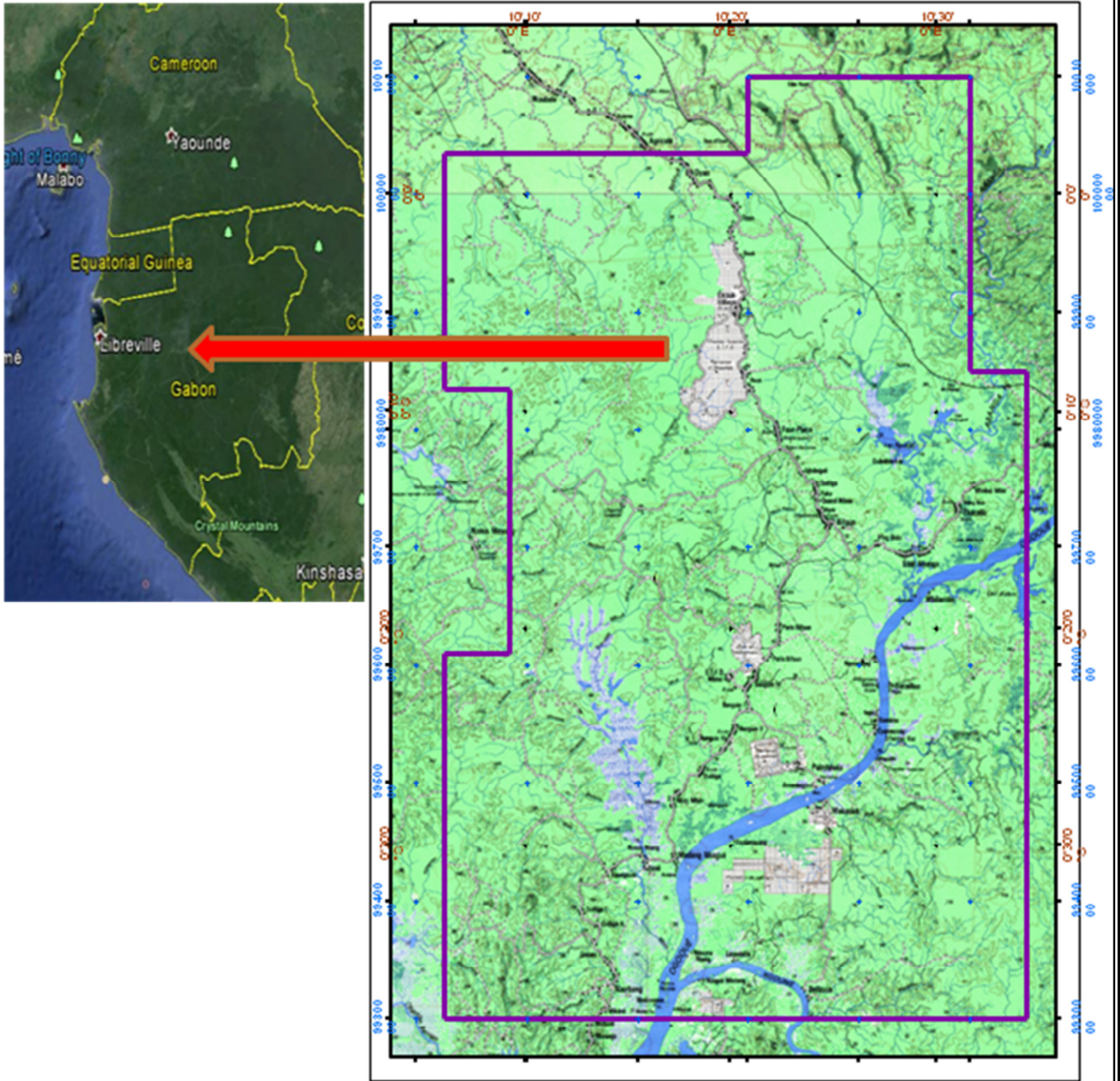
Signature: \_\_\_\_\_

Name & Designation: \_\_\_\_\_

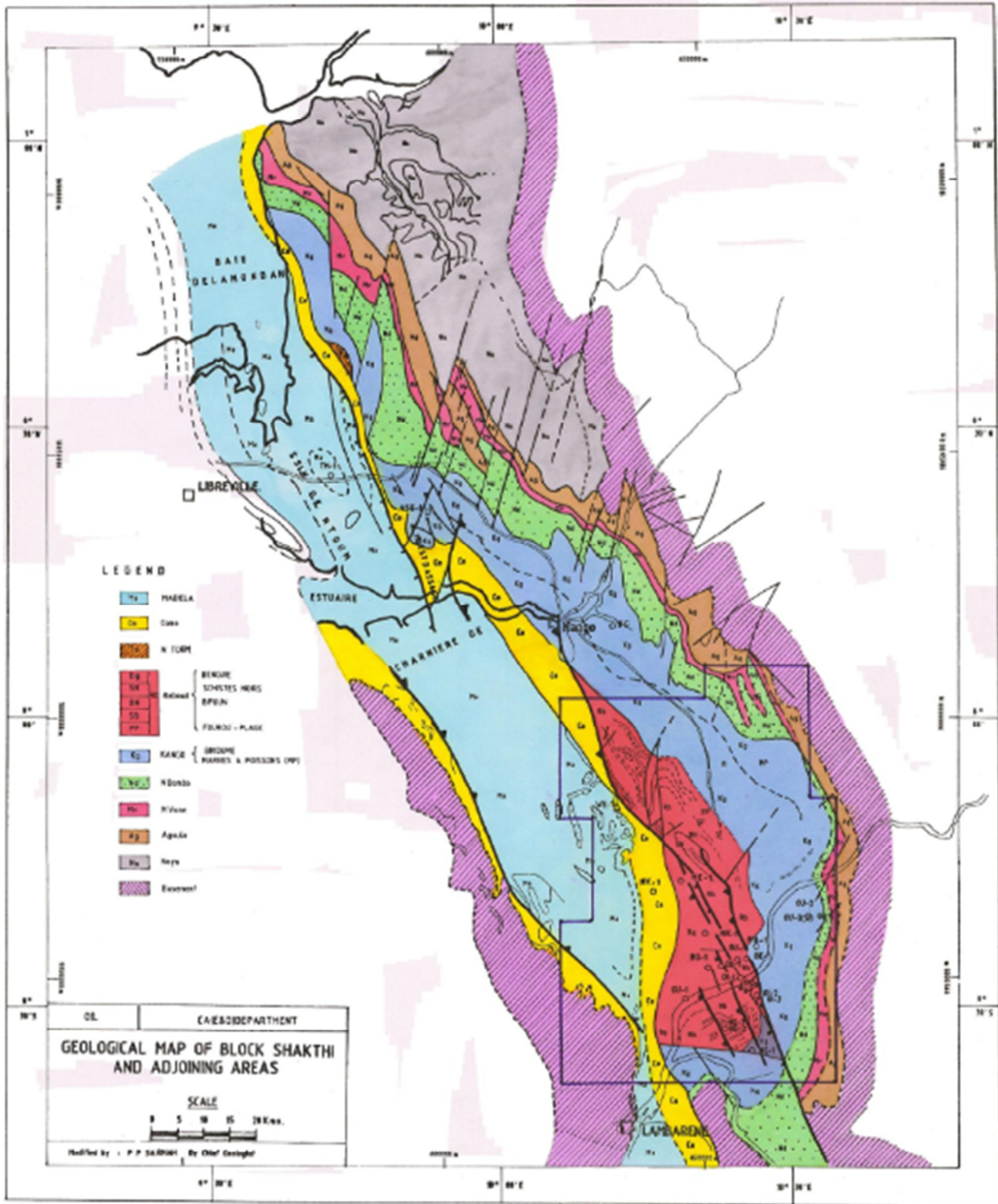
For & on behalf of: \_\_\_\_\_

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

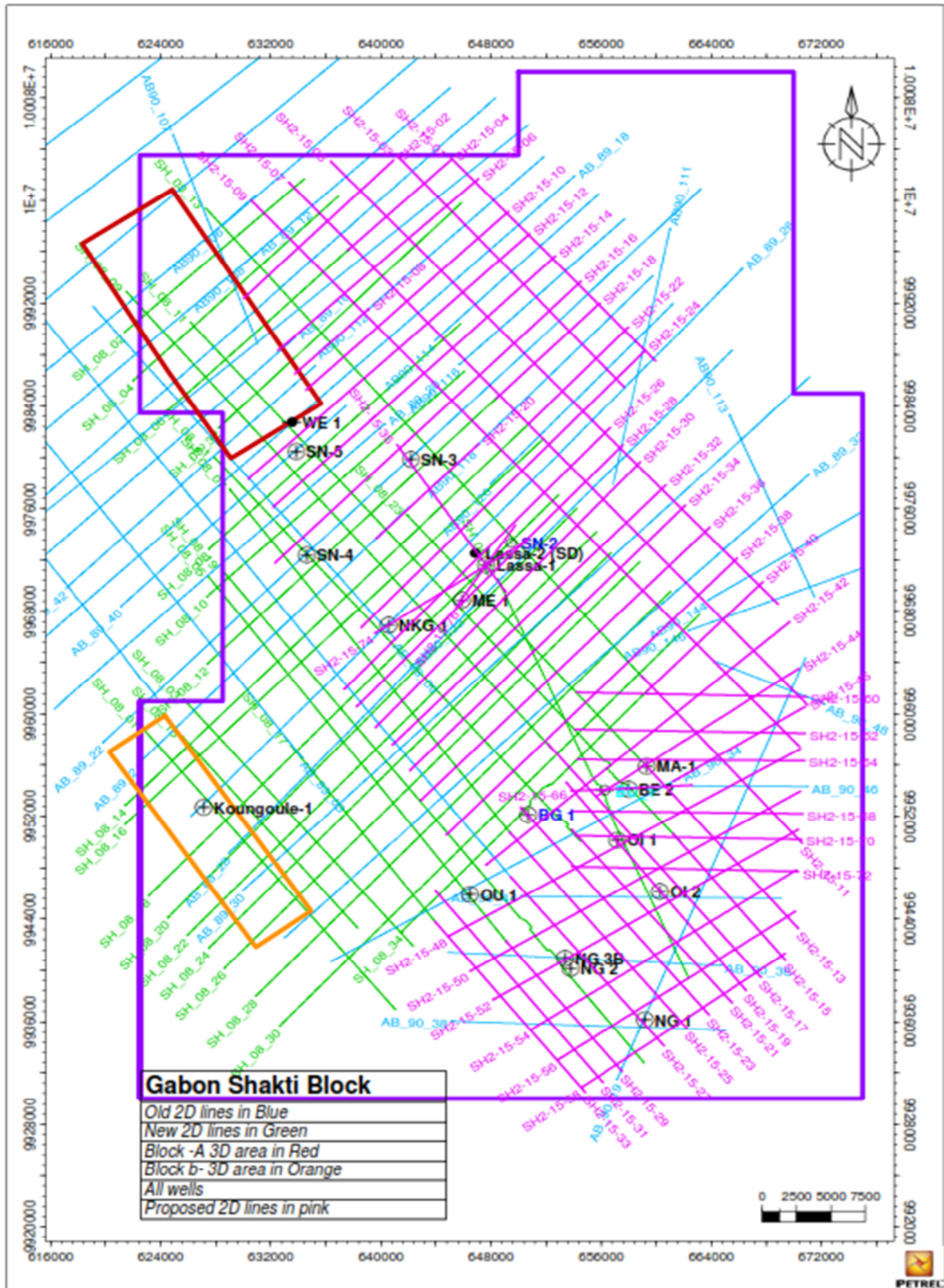
## BLOCK SHAKTHI II (G4-245)



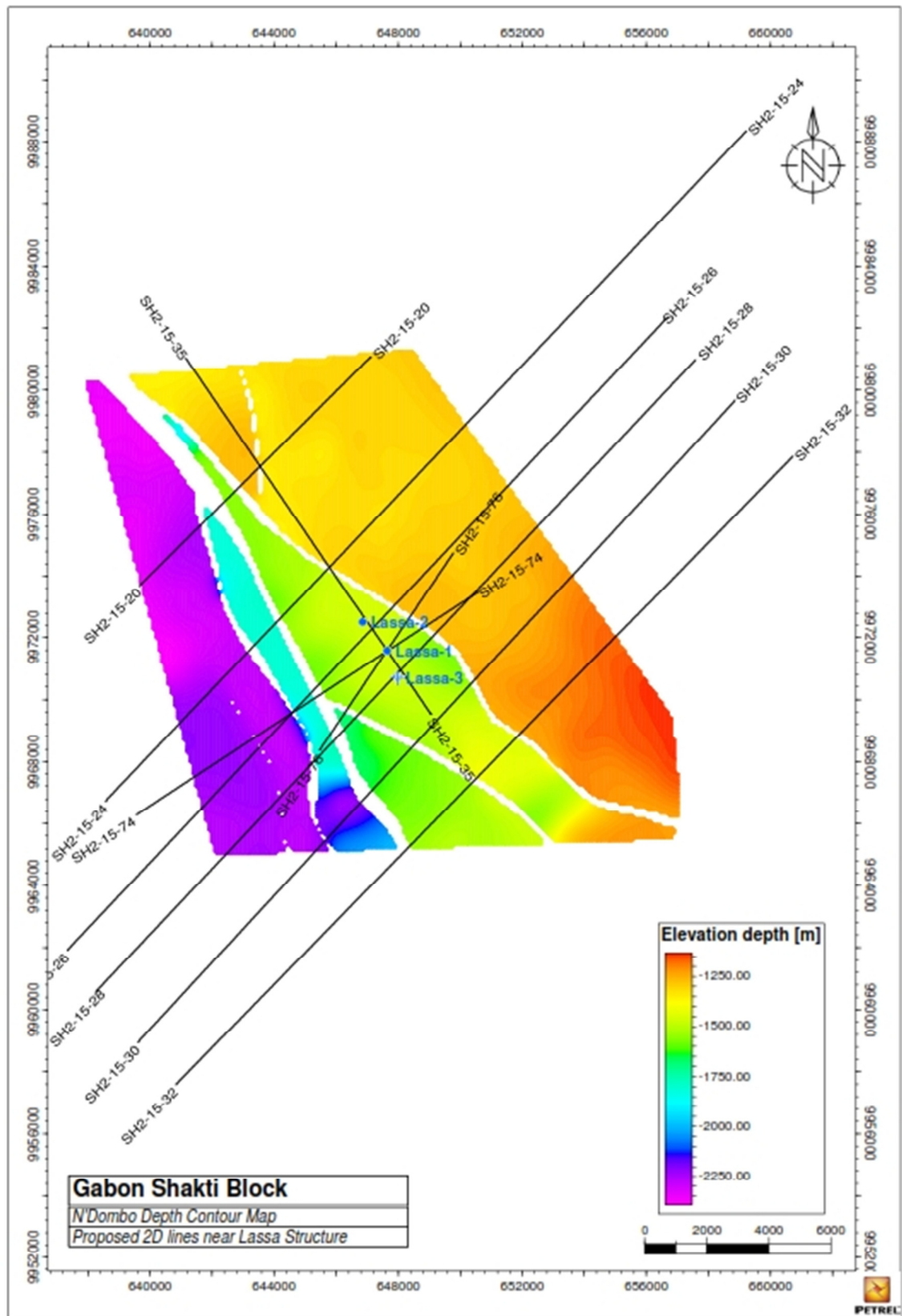
**FIG-1: Location Map of Block SHAKTHI II (G4-245)**



**FIG-2: Geological Map of Block SHAKTHI II (G4-245) and Adjoining Area**



**FIG-3: 2D Seismic Profiles in Block SHAKTHI II (G4-245)**



**FIG-4: 9 (Nine) Priority 2D Seismic Profiles to be Processed (Phase-I)  
 Block SHAKTHI II (G4-245)**

Co-ordinate of the planned 2D Seismic Lines (Figure 3, Pink Lines) to be processed/Interpreted in Block SHAKTHI II (G4-245) (**Figure 1**) are tabulated below;

**Table -1: Co-ordinate of the planned 2D Seismic Lines**

<b>S No.</b>	<b>Line Name</b>	<b>Vertices</b>	<b>X (m)</b>	<b>Y (m)</b>	<b>Length (GLKM)</b>
1	<b>SH2-15-01</b>	1	645023.04	10003356.65	21.7888
		2	659973.95	9987506.62	
2	<b>SH2-15-02</b>	1	630020.45	9992364.38	15.3266
		2	640934.99	10003124.38	
3	<b>SH2-15-03</b>	1	641151.71	10003500.00	24.4905
		2	657717.66	9985462.49	
4	<b>SH2-15-04</b>	1	637592.96	9996099.86	10.3629
		2	645151.84	10003188.81	
5	<b>SH2-15-05</b>	1	636335.00	10003047.43	47.3934
		2	668852.96	9968569.65	
6	<b>SH2-15-06</b>	1	632526.18	9988335.10	19.8276
		2	647146.51	10001728.38	
7	<b>SH2-15-07</b>	1	633293.29	10001420.90	55.54
		2	671026.90	9960667.20	
8	<b>SH2-15-08</b>	1	639149.85	9991600.19	7.44963
		2	633725.90	9986493.56	
9	<b>SH2-15-09</b>	1	630540.72	10000024.01	58.4117
		2	670475.89	9957396.47	
10	<b>SH2-15-10</b>	1	634558.58	9985264.84	20.2648
		2	649314.06	9999155.10	
11	<b>SH2-15-11</b>	1	658875.12	9963031.27	17.6533
		2	670646.76	9949875.70	
12	<b>SH2-15-12</b>	1	630314.19	9978291.30	28.061
		2	650851.49	9997412.94	
13	<b>SH2-15-13</b>	1	659067.95	9956174.91	17.2154
		2	670387.06	9943203.87	
14	<b>SH2-15-14</b>	1	652705.35	9995666.15	28.3436
		2	632165.05	9976135.33	
15	<b>SH2-15-15</b>	1	661194.72	9950677.81	12.8606
		2	669406.23	9940780.05	
16	<b>SH2-15-16</b>	1	632289.67	9971758.87	31.2651
		2	654557.31	9993705.64	
17	<b>SH2-15-17</b>	1	667663.38	9939387.04	24.02
		2	652111.97	9957693.22	
18	<b>SH2-15-18</b>	1	648366.18	9984601.16	10.5977
		2	655924.62	9992029.58	
19	<b>SH2-15-19</b>	1	653432.33	9954698.55	20.8961
		2	666539.29	9938424.16	
20	<b>SH2-15-20</b>	1	647125.32	9981080.54	10.523
		2	639646.95	9973677.32	

<b>S No.</b>	<b>Line Name</b>	<b>Vertices</b>	<b>X (m)</b>	<b>Y (m)</b>	<b>Length (GLKM)</b>
21	<b>SH2-15-21</b>	1	653822.81	9951020.59	17.9337
		2	665538.66	9937442.84	
22	<b>SH2-15-22</b>	1	650712.11	9982599.01	10.5122
		2	657997.64	9990177.09	
23	<b>SH2-15-23</b>	1	650133.61	9952737.11	21.2879
		2	663884.64	9936486.41	
24	<b>SH2-15-24</b>	1	659251.58	9988389.69	29.9768
		2	638546.53	9966712.27	
25	<b>SH2-15-25</b>	1	649363.80	9950761.82	20.0073
		2	662251.93	9935458.61	
26	<b>SH2-15-26</b>	1	637329.28	9961913.99	28.1655
		2	656699.81	9982360.88	
27	<b>SH2-15-27</b>	1	649380.26	9947349.72	17.4106
		2	660624.20	9934056.77	
28	<b>SH2-15-28</b>	1	638239.71	9960565.94	28.1404
		2	657596.59	9980991.22	
29	<b>SH2-15-29</b>	1	649084.67	9942297.99	13.2867
		2	657574.88	9932077.73	
30	<b>SH2-15-30</b>	1	639599.49	9958941.45	28.3429
		2	658895.12	9979701.89	
31	<b>SH2-15-31</b>	1	643928.15	9946262.69	19.3789
		2	656159.70	9931231.67	
32	<b>SH2-15-32</b>	1	640792.74	9957548.34	28.4933
		2	660749.30	9977885.65	
33	<b>SH2-15-33</b>	1	643913.54	9943828.45	17.2731
		2	654870.96	9930475.78	
34	<b>SH2-15-34</b>	1	642098.41	9955567.03	28.8624
		2	662163.77	9976313.59	
35	<b>SH2-15-35</b>	1	649085.42	9969488.54	14.0561
		2	641122.77	9981071.7	
36	<b>SH2-15-36</b>	1	642844.74	9953204.73	30.0294
		2	663927.70	9974588.71	
37	<b>SH2-15-38</b>	1	644716.09	9950518.99	30.2984
		2	665914.13	9972166.93	
38	<b>SH2-15-40</b>	1	659298.99	9961739.70	12.0551
		2	667773.39	9970313.47	
39	<b>SH2-15-42</b>	1	647644.46	9948227.71	29.0921
		2	669712.77	9967184.00	
40	<b>SH2-15-44</b>	1	655624.09	9953558.97	17.8872
		2	670430.64	9963594.79	

<b>S.No.</b>	<b>Line Name</b>	<b>Vertices</b>	<b>X (m)</b>	<b>Y (m)</b>	<b>Length (GLKM)</b>
41	<b>SH2-15-46</b>	1	661214.49	9954723.2	11.3014
		2	670869.35	9960597.33	
42	<b>SH2-15-48</b>	1	644919.96	9942669.89	29.4791
		2	670511.45	9957301.79	
43	<b>SH2-15-50</b>	1	646466.70	9939928.10	27.8268
		2	670487.98	9953974.74	
44	<b>SH2-15-52</b>	1	648103.87	9937684.56	25.9559
		2	670380.87	9951005.43	
45	<b>SH2-15-54</b>	1	650883.51	9935361.39	23.0546
		2	670251.04	9947867.91	
46	<b>SH2-15-56</b>	1	652811.96	9932998.02	20.8526
		2	670135.13	9944605.64	
47	<b>SH2-15-58</b>	1	654564.58	9930850.14	18.1537
		2	669385.96	9941332.72	
48	<b>SH2-15-60</b>	1	654189.81	9961671.44	16.7495
		2	670935.77	9961329.23	
49	<b>SH2-15-62</b>	1	654062.49	9958793.42	16.8121
		2	670871.84	9958487.90	
50	<b>SH2-15-64</b>	1	654259.52	9956437.59	16.5449
		2	670804.26	9956357.26	
51	<b>SH2-15-66</b>	1	653800.19	9953991.11	8.87976
		2	662668.67	9954438.35	
52	<b>SH2-15-68</b>	1	653989.45	9952415.65	16.6848
		2	670673.07	9952221.18	
53	<b>SH2-15-70</b>	1	654124.29	9950500.28	16.4876
		2	670609.46	9950215.75	
54	<b>SH2-15-72</b>	1	653905.70	9948080.06	16.4646
		2	670366.33	9947716.64	
55	<b>SH2-15-74</b>	1	639536.79	9966266.30	13.2689
		2	650642.61	9973527.49	
56	<b>SH2-15-76</b>	1	645464.46	9968363.60	7.72134
		2	649787.06	9974761.58	

Co-ordinate of **2D Seismic Lines (Figure 4)**, as per **Clause 2.1.1, Section IV** to be Processed and Interpreted on priority (Phase-I), are tabulated below;

**Table - 2: Co-ordinate of the Priority 2D Seismic Lines**

<b>S.No.</b>	<b>Line Name</b>	<b>Vertices</b>	<b>X (m)</b>	<b>Y (m)</b>	<b>Line Length (km)</b>
1	<b>SH2-15-20</b>	1	647125.32	9981080.54	10.523
		2	639646.95	9973677.32	
2	<b>SH2-15-24</b>	1	659251.58	9988389.69	29.9768
		2	638546.53	9966712.27	
3	<b>SH2-15-26</b>	1	637329.28	9961913.99	28.1655
		2	656699.81	9982360.88	
4	<b>SH2-15-28</b>	1	638239.71	9960565.94	28.1404
		2	657596.59	9980991.22	
5	<b>SH2-15-30</b>	1	639599.49	9958941.45	28.3429
		2	658895.12	9979701.89	
6	<b>SH2-15-32</b>	1	640792.74	9957548.34	28.4933
		2	660749.3	9977885.65	
7	<b>SH2-15-35</b>	1	649085.42	9969488.54	14.0561
		2	641122.77	9981071.7	
8	<b>SH2-15-74</b>	1	639536.79	9966266.3	13.2689
		2	650642.61	9973527.49	
9	<b>SH2-15-76</b>	1	645464.46	9968363.6	7.72134
		2	649787.06	9974761.58	

## **RECOMMENDED PARAMETERS FOR LVL SURVEY**

**Table -3: LVL Survey Parameters**

Geophone's Natural Frequency	4.5HZ
Recording Format	SEG-2
Sample Rate	125micro-second
Recording Length	150 ms
Spread Length	160m
Charge Size	0.25 Kg
Shot Hole Depth	0.5 m.
Number of Channels	24
Offset	2m.
Geophone Interval	1, 2,4,4, 4, 5, 5,5,10,10,20, <b>20</b> ,20, 10, 10,5,5,5,4,4,4,2,1

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## **RECOMMENDED PARAMETERS FOR UP-HOLE SURVEY**

**Table -4: UP-HOLE Survey Parameters**

Geophone's Natural Frequency	4.5HZ
Number of Geophones	6
Recording Format	SEG-2
Sample Rate	125micro-second
Recording Length	200 ms
Geophone Offset	2m.
Shooting Depths	1m, 2m,3m,4m, 5m,6m, 7m,8m,9m,10m, 12m,14m, 16m,18m,20m,22m, 24m,26m, 28m,30m,35m, 40m,45m, 50m,55m,60m.

## **GEODETIC PARAMETERS**

**Table - 5**

Spheroid	WGS84
Semi-Major Axis (m)	6378137.000
Inverse Flattening	298.257
Central Meridian	9° East of Greenwich
Original Latitude	0°
Scale Factor	0.9996

## **LOCAL DATUM GEODETIC PARAMETERS**

**Table - 6**

Spheroid	Clarke 1880
Semi-Major Axis (m)	6378249.145
Inverse Flattening	293.465

## **PROJECTION PARAMETERS**

**Table - 7**

Grid Projection	UTM
Longitude of Origin	9° East of Greenwich
Latitude of Origin	0°
Scale Factor	0.9996
False Easting (m)	500,000.0 m
False Northing (m)	10,000,000 m

## **GEODESIC POINTS OF REFERENCE**

### **Name: LAMBARENE**

First rank point

Stone situated in Ascecna installations near the stadium,  
nearest the airport

### **Coordinates WGS 84 (Ellipsoid GRS 80)**

Longitude: 10°14'34.05341"E

Latitude: 00°42'11.69347"S

### **Coordinates Geographic Clarke 1880**

Longitude: 10°14'36.999672"E

Latitude: 00°42'12.999492"S

### **Coordinates UTM Clarke 1880**

Easting: 638410.210 m

Northing: 9922202.850 m

### **Name: KANGO**

First rank point

Stone situated in the enclosure of the College, Kango

### **Coordinates WGS 84 (Ellipsoid GRS 80)**

Longitude: 10°05'08.25718"E

Latitude: 00°12'01.29252"N

### **Coordinates Geographic Clarke 1880**

Longitude: 10°05'12.001128"E

Latitude: 00°11'58.999056"N

### **Coordinates UTM Clarke 1880**

Easting: 620925.40 m

Northing: 10022079.28 m

## **GEODESIC POINTS OF REFERENCE**

### **Name: OYAN 4**

Second rank point

Stone situated near the Equator tourist panel, Oyan 4 village

### **Coordinates WGS 84 (Ellipsoid GRS 80)**

Longitude: 10°20'06.30279"E

Latitude: 00°01'24.95446"S

### **Coordinates Geographic Clarke 1880**

Longitude: 10°20'10.200336"E

Latitude: 00°01'26.323896"N

### **Coordinates UTM Clarke 1880**

Easting: 648695.46 m

Northing: 9997348.89 m

### **Name: NZORBANG**

Second rank point

Stone situated at the entrance of catholic school near the playing place (square), Nzorbang village

### **Coordinates WGS 84 (Ellipsoid GRS 80)**

Longitude: 10°14'16.20491"E

Latitude: 00°35'44,34411"S

### **Coordinates Geographic Clarke 1880**

Longitude: 10°14'20.000436"E

Latitude: 00°35'44.998728"S

### **Coordinates UTM Clarke 1880**

Easting: 637860.74 m

Northing: 9934127.03 m

## **GEODESIC POINTS OF REFERENCE**

### **Name: BENGUIE IV**

Second rank point

Stone situated in the enclosure of Public School, nearest the mast of the flag, Benguie IV village

### **Coordinates WGS 84 (Ellipsoid GRS 80)**

Longitude: 10°20'45.58558"E

Latitude: 00°22'48,950051"S

### **Coordinates Geographic Clarke 1880**

Longitude: 10°20'48.998508"E

Latitude: 00°22'50.0011708"S

### **Coordinates UTM Clarke 1880**

Easting: 649891.76 m

Northing: 9957925.41 m

\*\*\*\*\* **END OF TENDER DOCUMENT** \*\*\*\*\*

The document inviting tender has been issued to the following four parties :

- (i) M/s. BEICIP-Franlab, France
- (ii) M/s. Geogizyka Tourn S.A., Poland
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India