OIL INDIA LIMITED
(A Govt. of India Enterprise)
NEF PROJECT
P.O. Duliajan-786 602(Assam)

Sub: Expression of Interest (EOI)
(EOI NO.: OIL/NEF/GLOBAL/EOI/027/2015)

3D SEISMIC DATA ACQUISITION

OIL INDIA LTD (OIL), a premier Public Sector Undertaking, Govt. of India, engaged in exploration, production & transportation of crude oil and natural gas, invites Expression of Interests (EOIs) from reputed and established E&P Contractors/Service Providers meeting the pre-qualification criteria as mentioned below for empanelment/ short-listing of Vendors/Contractors/Service Providers to issue tender document for hiring of services for 3D Seismic Data Acquisition from NELP-IX Block : AA-ONN-2010/2 in Karbi-Anglong District of Assam, India.

1.0 OBJECTIVE OF SURVEY:

Pursuant to the committed Minimum Work Program(MWP) to the Govt. of India, Oil India Ltd (OIL) being the Operator in the above mentioned NELP block, has planned to **acquire 396 Sq. Km of 3D seismic data** within specific time frame. The main objective of the survey is to acquire high quality 3D seismic data for delineation of hydrocarbon prospects in Neogene-Paleogene (3500-5000m) in this thrust fold area.

2.0 PROJECT INFORMATION & BRIEF GEOLOGY:

2.1 The Exploration Block AA-ONN-2010/2 lies in the eastern part of the Assam-Arakan Petroliferous basin within the state of Assam in India. It is a part of the Dhansiri Valley of Assam –Arakan Basin. The generalized stratigraphic succession of Dhansiri Valley is based on the litho-units encountered within deep wells drilled in the neighborhood of the block and exposed in the Mikir Hills to the west and Naga foot hills to the east and southeast of the Dhansiri Valley. The Pre-Cambrian granitic basement rocks, sediments of the Eocene Jaintia Group, Miocene Bokabil Formation and Mio-Pliocene Girujan Clay Formation are exposed in the Mikir hills.

2.2 The Naga foot hills, bordering the Dhansiri Valley, contain exposures of Barail, Surma, Tipam and younger sediments. It may be noted that Cretaceous sandstones and the Sylhet siltstone and clay stones are present in some of the wells drilled to the northeast of the block (Barpathar-1 & Jamuguri-1) but are not seen in the outcrops.

2.3 The block, located in Dhansiri Valley, has Mikir Hills to its north and Naga Thrust (Naga – Schuppen belt) to its south. The granitic rocks of Pre-Cambrian age are exposed in major part of Mikir Hills, and Palaeocene and Neogene rocks outcrop at its periphery. The exposures of mostly Neogene and some Barail sequences overlying the Naga Thrust are seen in western peripheral parts of Naga Hills, adjoining the Dhansiri Valley.

2.4 In the sub-surface, the Eocene to Post Miocene succession is anticipated to overlie the Basement. The sequences are seen to occur from NE to SW.

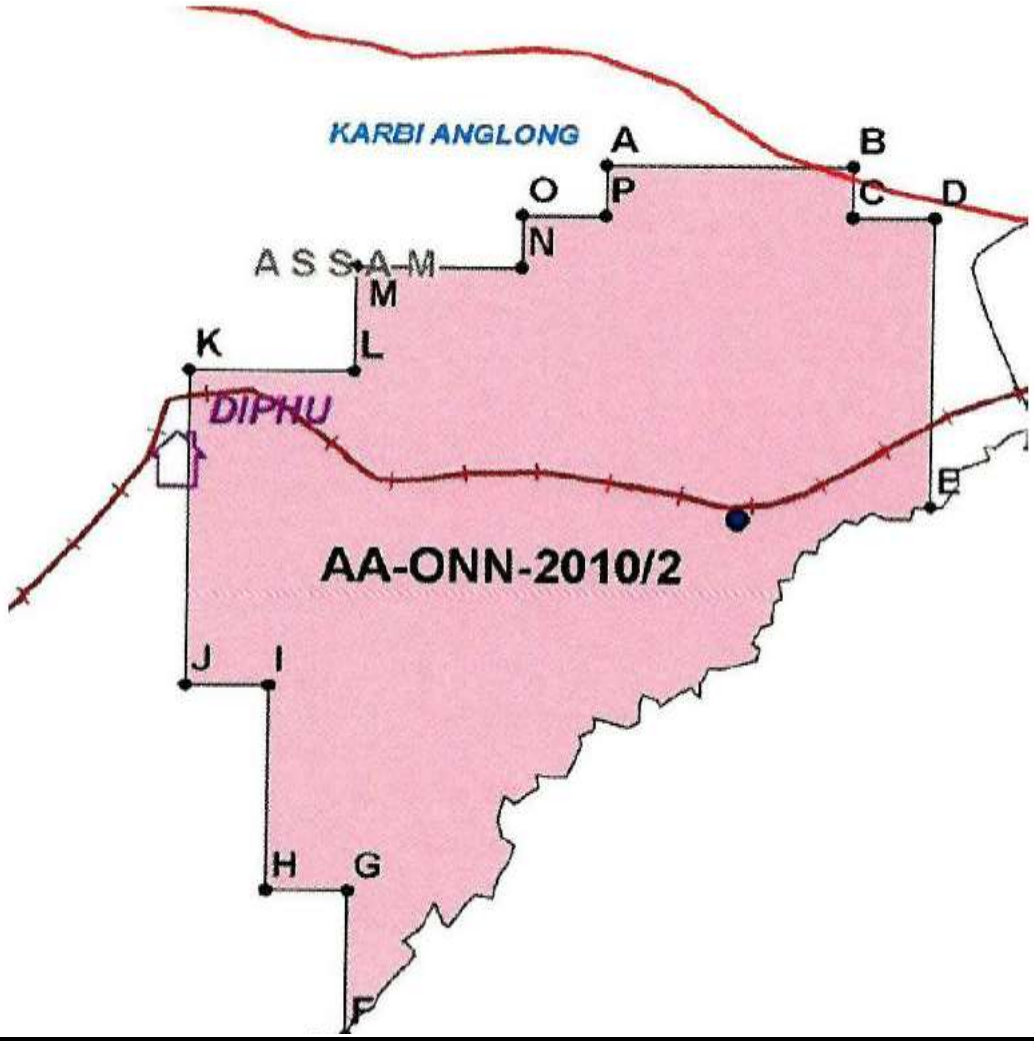
2.5 The block AA-ONN-2010/2 lies within the petroliferous basin of Dhansiri Valley area of Upper Assam Basin. The Dhansiri Valley is the SW part of petroliferous Upper Assam Shelf. The block is geologically located between Belt of Schuppen towards the south-east and Mikir Hills to its NW. There are oil fields all along and nearer to the NE-SW trending trace of the Naga Thrust. Some of these major fields are Nahorkotiya, Digboi, Lakwa, Geleki and Borholla. Some of the lows that have sourced these accumulations are Nazira Low, Safrai Low and Charaideo Low. Dimapur Low is another low in Dhansiri Valley adjacent to Naga Thrust and could have generated hydrocarbons to be accumulated in suitably placed reservoirs and traps.

3.0 LOCATION OF THE AREA:

The area comprising approximately 396 Sq. Km onshore India identified as block AA-ONN-2010/2 described herein and shown on the map attached as Annexure 1. The longitude and latitude measurements commence at points A,B,C,D,E,F,G, H,I,J,K,L,M,N,O and P are given below.

Co-ordinates of Block: AA-ONN-2010/2

Points	Coordinates					
	Longitude			Latitude		
	Deg.	Min.	Sec.	Deg.	Min.	Sec.
A	93	34	30	25	56	0
B	93	39	0	25	56	0
C	93	39	0	25	55	0
D	93	40	30	25	55	0
E	93	40	30	25	49	27.96
F	93	30	0	25	39	10.31
G	93	30	0	25	42	0
H	93	28	30	25	42	0
I	93	28	30	25	46	0
J	93	27	0	25	46	0
K	93	27	0	25	52	0
L	93	30	0	25	52	0
M	93	30	0	25	54	0
N	93	33	0	25	54	0
O	93	33	0	25	55	0
P	93	34	30	25	55	0



4.0 BRIEF SCOPE OF WORK:

4.1 Company desires to carry out acquisition of 396 Sq. Km 3D seismic data using state-of-the-art equipment. The Contractor must bring appropriate field electronics and transport facilities required for covering swamps, streams and rivers.

4.2 The Contractor shall with their personnel and equipment carry out Differential Global Positioning System based survey, topographic survey, LVL and Uphole surveys, seismic recording and quality control of 3-D seismic surveys in the above mentioned block.

4.3 The Contractor shall with their personnel and equipment carry out routine 3D seismic data acquisition and QC processing of the above acquired 3D data.

4.4 The Contractor shall deploy the equipment, computer hardware and software of state-of-art technology for performing the services referred to in the contract and shall be fully responsible for the execution of seismic data acquisition and processing as per the plan that will be provided by the Company.

4.5 The Contractor shall deploy latest generation of seismic data acquisition system with delta-sigma technology with facilities of recording minimum 3500 channels per shot record. Contractor must have enough field electronics to lay at least 4000 channels on ground.

4.6 The Contractor shall deploy latest processing system presently used globally, for QC processing / analysis of the 3D seismic data acquired under this contract.

4.7 The area of the block to be covered with full fold (60 fold, with proper attributes) will be 396 Sq. Km size. For the purpose of the contract, area of coverage that will be quantified in Sq. Km. refers to the surface area in which every bin will have full-fold sub-surface coverage (60 fold) with proper geophysical attributes like bin-size, offset and azimuth distributions between and within bins. The data will be processed and the expected standards are given in the clauses below.

4.8 The two-way time of primary objective is between 2500 milliseconds to 6000 milliseconds and the apparent frequency content available on the existing seismic section is 15 to 80 Hz.

5.0 FIXING OF REFERENCE POINTS:

5.1 Before starting the survey on the proposed block, the Contractor shall fix adequate number of bench marks / reference points at different locations around the block, as asked by the Company, using the Differential Global Positioning System (DGPS) with L1 and L2 modes.

5.2 The Contractor will also fix bench marks/ reference pillars along roads for tying up during surveying. These bench marks shall be fixed using DGPS (using L1 and L2 modes). The Contractor must supply accurate co-ordinates (WGS-84 and Lambert) of these points along with necessary diagrams for locating the same in future.

5.3 In total about 200 nos. of reference points are required to be fixed covering the block and surrounding area. The Contractor shall fix additional bench marks / reference points, if required. The exact number of points over and above the minimum and their locations will be decided by the Company.

5.4 For all the reference points mentioned in 5.1 and 5.2 above, pillars need to be fixed in such a way that they serve as permanent bench marks with proper engravings. The pillars should be grouted 3 ½ feet in the ground with concrete cement and exposed 1 ½ feet on the surface.

6.0 METHOD OF WORK (SEISMIC DATA ACQUISITION):

6.1 The Contractor shall carry out 3-D seismic surveys by deploying latest seismic survey equipment with delta-sigma technology.

6.2 The data should be recorded on LTO tape in SEGD/SEGY format with sampling rate of 2 ms. The data should be recorded in two copies.

6.3 The Contractor has to use the following field acquisition parameters for the seismic survey:

Foldage	60 nominal
Bin size (Inline*Cross line)	25 X 25
Source	Explosive
Source Interval	50
Source Line Interval	400
Receiver Interval	50 m
Receiver Line Interval	400
Receiver Line Length	8000 m
No of Receiver Lines	12
No. of geophones/group	12
Sampling rate	2 ms
Record length	6 sec
Minimum largest offset	4665 m (approx.)
Maximum smallest offset	400 m (approx.)
Shooting pattern	orthogonal

Note1: Shot hole depth (while loading): About 20 meters in case of single hole; otherwise 3 pattern holes 10 Mts. Each.

Note2: Company would prefer a single hole of 20 m than a pattern hole of 3 holes. Pattern holes will be allowed only if single holes of 20 m are not possible due to subsurface conditions which will be decided by the company representative.

6.4 The above mentioned acquisition parameters highlighted above is the minimum requirement of the Company. The Company desires to have symmetric sampling of offsets in each bin as far as possible. The data must have wide azimuth distribution at the offsets contributing to the primary and the secondary targets. The in-line and cross-line foldage are also expected to be similar. The Contractor needs to perform detailed modelling/ray-tracing for block and submit their observations and suggestions to the Company. The work in the block will only start once Company is satisfied with the parameters and intimates the Contractor about the same in writing. Contractor should take actions to cover swampy areas and streams as required.

6.5 The Contractor shall carry out line survey using latest equipment such as DGPS, total stations with an accuracy of 0.5m from planned positions. The survey tolerance has to be checked (based on line diagram and digital data provided by the Contractor), agreed upon and approved by Company prior to commencement of shooting of each swath. Any resurvey work, if required, will be carried out at Contractor's cost.

6.6 The Contractor shall carry out shallow refraction or LVL and Uphole surveys along trace lines. The LVL survey should be done at 500m interval whereas the Up-hole surveys are about 2.0 km apart along the trace lines. The trace lines along which LVL/Upholes shall be carried out should be about 1.0-1.2 km apart. The Up-hole survey should be carried out up to a depth of about 35-40 m meters. The LVL/Uphole recording equipment should be capable of recording a minimum of 24 channels with 0.1ms sampling interval.

6.7 The Contractor must carry out interpretation of LVL and Uphole data and subsequent computation of statics. The tomography-based technique should also be used for the interpretation of LVL and Uphole data.

6.8 The Contractor should have a full foldage 3D Field QC processing system capable of checking the 3D geometry and QC processing of acquired data capable of generating 3D stacks.

7.0 PERIOD OF CONTRACT:

7.1 The seismic data acquisition phase under this Contract is planned to commence in 2015-2016 Field season. The period of Contract for acquiring, processing and submission of reports with relevant maps (with proper attributes) for 396 Sq. Km of 3D data shall be **18 months**, excluding mobilization and demobilization periods. The areas where the work is planned have long monsoon (from June to September). The acquisition work will be required to be suspended during monsoon breaks. During the monsoon break, the Contractor will have to keep their equipment and skeleton manpower in the camp.

7.2 The period of Contract referred to in para 7.1 above are inclusive of national holidays, bad weather days, experimental work days, camp shift days and production loss due to equipment failure or any other reasons under Contractor's control.

7.3 In case there is delay in commencement of work for any reason whatsoever and as a result the assigned data acquisition work could not be completed in stipulated time (a field season is generally from October to May), then the Contractor has to complete the left over data acquisition work in the next field season but no stand-by charges towards Contractor's equipment and crew would be payable by Company for the monsoon break of about 4 months.

7.4 Entire Acquisition needs to be completed within a period of 18 months from date of completion of mobilization.

8.0 MANPOWER, EQUIPMENT & OTHER ACCESSORIES:

Contractors need to provide the manpower and equipment to carry out the above mentioned job as per the international industry standard.

9.0 PRE-QUALIFYING CRITERIA:

9.1 The Vendor/Contractor/Service Provider must fulfil the following minimum pre-qualifying criteria for the purpose of empanelment/short-listing and issue of tender document for acquisition of 3D Seismic Data.

(i) The Vendor/Contractor/Service Provider must have successfully executed at least one or multiple contract(s) of 2D/3D Seismic Data Acquisition with minimum cumulative volume of 1000 Sq. Km of Seismic Data in the last seven (7) years preceding the date of submission of EOI.

<u>NOTE</u>: Seismic Data as referred above includes 2D OR equivalent 3D OR equivalent mix of 2D and 3D seismic data. For technical evaluation, 2 (two) GLKM (Ground Line Kilometre) of 2D seismic data will be considered equivalent to 1 (one) Sq. Km (Square Kilometre) of 3D seismic data.

(ii) The Vendor/Contractor/Service Provider must have experience of carrying out successfully at least one (1) Project of Seismic Survey in hilly/ mountainous terrain during the last seven (7) years, calculated up to the date of submission of EOI.

9.1.1 In case the Vendor/Contractor/Service Provider who participates against this EOI is an Indian company/Indian joint venture company, either the Indian company/ Indian joint venture company or its technical collaborator/joint venture partner should meet the experience criteria laid down in para 9.1 above.

9.1.2 In case the Vendor/Contractor/Service Provider who participates against this EOI is a consortium of companies, the Leader of the Consortium should satisfy the minimum experience criteria as per para 9.1 above.

9.2 Vendor/Contractor/Service Provider who meets the above pre-qualifying criteria may submit their EOI with supporting documents as under:

(a) Details of jobs completed during last seven (7) years prior to submission of EOI in tabular form as per format attached vide **ANNEXURE-I**.

(b) Details of current work in hand in tabular form as per format attached vide **ANNEXURE-II**.

(c) Complete Technical specifications/details of the offered Survey Equipment/ Recording System together with confirmation of its vintage and present location.

(d) Financial standing of the Vendor/Contractor/Service Provider in terms of annual financial turnover for last three (3) accounting years as per format attached vide **ANNEXURE-III**.

NOTE: (i) All copy of documents submitted alongwith the EOI must be clear, legible & self-certified.

(ii) OIL INDIA LIMITED reserves the right to check physically the original documents.

(i) The EOI is liable to be ignored in case of submission of any misleading/ false representation by the Vendor/Contractor/Service Provider in the form of attachments and statements.

(ii) OIL INDIA LIMITED reserves the right to ignore any or all EOIs without assigning any reasons thereof.

10.0 SUBMISSION OF EOI:

The EOI together with the information/documents as mentioned above should be submitted in a closed envelop superscribing **"EOI for 3D Seismic Data Acquisition in NELP–IX Block: AA-ONN-2010/2 in ASSAM"** should reach the following address **on or before 26th August, 2015 (15:00 hrs – IST).**

Head-NEF
OIL INDIA LIMITED
Duliajan-786602, Assam, India
Ph: 91-374-2800405/2801799, Fax: 91-074-2801799,
Email: nef@oilindia.in Website: www.oil-india.com

However, in case the above date happens to be a Holiday/Bandh in Duliajan, the EOIs shall be received up to the next full working day till 03.00 PM (IST). EOI may be sent by post/courier service, delivered personally or dropped in the tender box placed at the office of NEF Project, Oil India Ltd, Duliajan-786602, Assam. OIL shall not be responsible for delay in receipt or non-receipt of the same.

13.0 Oil India Limited reserves the right to (a) either accept or reject any / all EOI/(s) (b) cancel the process, without assigning any reason whatsoever.

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ANNEXURE-I

Experience Statement of Vendor

Seismic Data acquisition during last seven (7) years

Sl No	Contract No	Name of client	Place of operation	Normal or Thrust-fold belt hilly region	Volume of Data Acquisition (Quantity)		Commencement of contract	Completion of contract
					2D	3D		
1.								
2.								
3.								
4.								
5.								
6.								
7.								

N.B: Please add rows in case of more experiences.

Authorized Person's Signature: _____

Name: _____

Name & Address of Vendor: _____

Seal of the Vendor:

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ANNEXURE-II

Details of current work in hand and other contractual commitments of the Vendor

Sl No	Contract No	Name of client	Place of operation	Normal or Thrust belt hilly region	Volume of Data Acquisition (Quantity)		Period of contract (from–to)	Commencement of contract
					2D	3D		
1.								
2.								
3.								

N.B: Please add more rows if required.

Authorized Person's Signature: _____

Name: _____

Name & Address of Vendor: _____

Seal of the Vendor:

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ANNEXURE-III

Financial Turnover of Vendor

(As per Audited balance sheets/profit & loss accounts etc. **for the last three years**)

Financial Year	Annual Turnover **(Pl. specify currency)**
2012-13	
2013-14	
2014-15	

Authorized Person's Signature: _____

Name: _____

Name & Address of Vendor: _____

Seal of the Vendor:

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