

**Oil India Limited**  
**(A Govt. of India Enterprise)**

**Notice Inviting “Expression of Interest” (EOI) for Hiring of Services for Seismic Data Acquisition in Assam and Arunachal Pradesh**

Oil India Limited (OIL), a premier National Oil Company, is engaged in the business of exploration, production and transportation of crude oil and natural gas. OIL intends to hire services for acquiring 2D and 3D seismic data in the lease areas likely to be awarded to OIL in Assam and Arunachal Pradesh viz. **Namrup-Borhat** Block (AA-ONHP-2017/20) and **West Mechaki** Block (AA-ONHP-2017/12). It has planned to acquire 200 LKM of 2D seismic data and 100 SQKM of 3D seismic data in West Mechaki block and 125 SQKM of 3D seismic data in Namrup-Borhat block. Seismic data acquisition is expected to be completed in two financial years, viz. **2019 -20** and **2020-2021**. Minimum two (2) sets of seismic crews are required to accomplish the above mentioned jobs in two (2) financial years. At least one (1) no. of crew has to be deployed in each block to complete the data acquisition in the stipulated time. The tentative block boundaries, corner coordinates of the blocks and map of the areas are shown in the Annexure-I to Annexure-II.

**A) Brief Geology of the area & Objective of the Survey**

Geologically, the West Mechaki block is the fore land (fore-dip) part of the Upper Assam Basin located in the southern part of the River Brahmaputra. The Namrup-Borhat block is in foreland and the hinterland part of the Naga Thrust in the Upper Assam Basin.

In the West Mechaki block, the basement is expected at around 6000m; formations beds are with gentle dips. Geological objectives of the proposed surveys in this area are to obtain geologically conformable subsurface images of all the formations down to the Eocene Group/ Basement (~ 6000m-6500m depth). In the Namrup – Borhat block, the formations beds are highly dipping towards the Naga Thrust (in hinterland part).

Lithologically, in both areas dominant clastic sequence comprising of predominantly sand-shale alterations is expected. The objectives of the seismic surveys in these areas are to obtain geologically conformable subsurface images of all the formations down to 6500m-7000m.

**B) Description of the area & Prevailing Logistics**

**Namrup-Borhat Block (AA-ONHP-2017/20):** The proposed survey area has difficult surface and near-surface logistics. Northern part of the survey block is a flat terrain whereas the southern part is associated to supra-thrust part of the Naga Thrust. Geo-morphologically, the area has steep hills with thick forests. The accessibility of the southern part of the block (supra thrust part) is very limited. The whole area has surface and near-surface boulder beds covered with loose sands and alluvium. Occasionally, boulder beds are exposed on the surface.

OIL from past experience observed that, shot hole drilling in these areas necessitates very effective mechanized drilling schemes (high power and technologically advanced drilling rigs with water pumps and compressor, technology of casing while drilling etc).

The block area is drained by numerous streams which pose challenges to movements of drilling rigs and resources for the survey at the site. In general, ground water table is closer to surface (10-15ft below). During the earlier campaigns in the nearby blocks, it was observed that, single shot-hole of 55-60ft depth is better than the pattern holes (25-30ft depth). Therefore, Single shot hole of 55-60ft depth is preferable. The survey operation time fair weather window in the area is generally from **November to May**.

**West Mechaki block (AA-ONHP-2017/12):** This area is a traditionally flat terrain covered with alluvium. The survey area has primarily paddy fields, tea-gardens and grass lands. Ground water table is variable generally 20-25 ft below surface except near to the big rivers (12-15 ft). Since the area is covered with soft alluvium, no shot-hole drilling challenges are expected. Shot-hole can be drilled with traditional manual rigs. Similar to the earlier block, the survey operation fair weather window is from **November to May**.

Prior to submitting response to EoI, the prospective bidders are advised to have a through reconnaissance of the terrain and get fully acquainted with details not limited to surface topographic features, fair weather window, working culture in the area, socio-political conditions, security aspects and law of the land etc.

A thorough reconnaissance of the area is desired not only for realistic budgetary estimate but also for judicious planning to successfully execute the project.

**C) Brief Scope of Work/Technical Specifications**

The brief Scope of Work/Technical Specifications includes the following:

- a) The bidder shall plan and execute high quality 2D (200 LKM) and 3D (100 SQKM) seismic survey in the West Mechaki block and high quality 3D survey (125 SQKM) in the Namrup-Borhat block using appropriate methodology, equipment and adequate shot hole drilling rigs by deploying experienced personnel with professional competence and to provide industry standards output to OIL.
- b) The tentative acquisition parameters for the proposed seismic surveys in West Mechaki block and Namrup-Borhat block are stipulated in **Annexure-III** and **Annexure-IV** respectively.
- c) Time is the essence of this project. Bidder has to complete the data acquisition quantum, viz. 200 LKM of 2D and 100 SQKM of 3D survey in West Mechaki and 125 SQKM of 3D survey in Namrup-Borhat block during the period of two financial years, viz. **2019-20** and **2020-21**. Bidder needs to deploy 2/3 nos. of seismic crews. Namrup-Borhat block has difficult surface logistics and hence will require suitable drilling rigs and appropriate resources.

The planned data acquisition schedule is given as below:

Block (area/ location )	Work Quantum	Year completion	of	Expected nos. of shooting days (November to May)	Minimum nos. of Shots to be taken per day
AA-ONHP-2017/12 (West Mechaki)	200 LKM of 2D & 100 SQKM of 3D	2019-20	&	85-90	70 shots
AA-ONHP-2017/20 (Namrup-Borhat)	125 SQKM of 3D	2019-20	&	85-90	45 shots

- d) Bidder shall deploy adequate and fit-for-purpose shot hole drilling technology (Portable mechanized drilling rigs with air compressor drilling/ pneumatic drilling, mechanized water rotary drilling rigs, manual rigs and

ancillary equipment etc.) in sufficient numbers to meet the recording of minimum nos. of shots in each day in each block specified in the table above.

- e) Shot-hole requirements are as under, but single shot-hole is always preferable

Single hole pattern	55-60ft of depth
Three (3) hole pattern	30-35ft of depth each
Five (5) hole pattern	20-25ft of depth each

- f) Bidder shall conduct geodetic survey including fixation of reference points and pillars, GPS networking and staking of the source-receiver locations required for seismic recording operation.
- g) Bidder shall carry out experimental work prior to the commencement of regular production to optimize the acquisition parameters like charge size, shot hole depth to ensure acquisition of meaningful data.
- h) Bidder shall carry out Up-hole/Shallow Refraction survey for near surface modelling to decide optimum depth (OD) of shot holes during the survey work. Up-hole survey and Shallow Refraction survey requires to be done at every 1 Km intervals along the proposed seismic profiles. The bidder should ensure loading of explosive below OD.
- i) Bidder shall make arrangements for procurement, storage, transportation and all statutory clearances pertaining to explosive magazine licenses and usage.
- j) Bidder shall deploy latest state-of-art 24-bit telemetry system with Delta-Sigma technology and compatible accessories/ground electronics suitable to acquire the quality data in the logistics and the terrain condition prevailing in the areas mentioned above.
- k) Bidder shall deploy high sensitivity and low distortion marsh geophones, fully compatible with seismic data acquisition system. All the receivers must be compatible to 24-bit recording for high bandwidth signal. The natural frequency of geophones shall be below or equal to 10 Hz. Bunching of 12 geophone units per receiver is required to form a single receiver. Bidder shall ensure proper coupling (tightly planted or buried geophones) to record good quality data.
- l) Planning and Quality Control of the seismic data acquisition is primarily the responsibility of the bidder. However, OIL's personnel shall be associated for monitoring and quality assurance through analysis of raw as well as processed data (QC processing) in field. Personnel from OIL shall do overall co-ordination throughout the contract period to ensure quality of data.
- m) The bidder shall deploy necessary processing system with adequate and competent personnel in field/base office to monitor and ensure quality of seismic and topographic data and generate output through onsite processing (QC purpose). However, if any error related to acquisition, bidder shall take corrective measures before the submission of final data.
- n) Bidder shall obtain permissions from Government authorities, Custom clearance, licenses for storage, transportation and use of explosives and any other license/clearance. However, necessary recommendatory letters based on appropriateness shall be provided by OIL. Bidder shall adhere to prescribed rules and regulations pertaining to explosive uses.
- o) Bidder shall arrange for safe transportation and delivery of three sets of data cartridges along with requisite technical information at OIL's premises.

- p) Bidder shall fulfil all the mandatory requirement of HSE specifications and appropriate safe work practices.

**D) Requirement(s) for Bidder**

The broad requirements for a bidder are as follows:

- a. Bidder should be an Indian/international company/firm/ joint venture/ consortium/technical collaborator having expertise and experience in seismic data acquisition in logistically difficult areas.
- b. Bidder should have fully trained personnel capable to undertake the seismic data acquisition jobs in prescribed areas very efficiently and complete the job as per time schedule.
- c. Bidder should be capable to deploy appropriate equipment like line telemetry (cable)/cable less/cable free system/ Hybrid system, ground electronics, and adequate shot-hole drilling solutions in the prescribed areas.
- d. Bidder should complete mobilization and commence work within 3 months (**90 days**) from issue of Letter of Award.
- e. The major equipment including surveying equipment, recording unit along with accessories, processing system (field QC) should not be more than three (3) years old on bid opening/closing date. The geophones should not be more than two (2) years old on bid opening/closing date.
- f. Bidders should adhere to various applicable rules and regulations in India related to safety, security, confidentiality and other activities of related to seismic data acquisition.

**E) Submission of EOI**

Interested bidders (Indian/international company/firm/joint venture/ consortium/technical collaborators) having expertise and experience in seismic data acquisition in similar areas are invited to submit their EOI. EOI response should accompany the following information/documents:

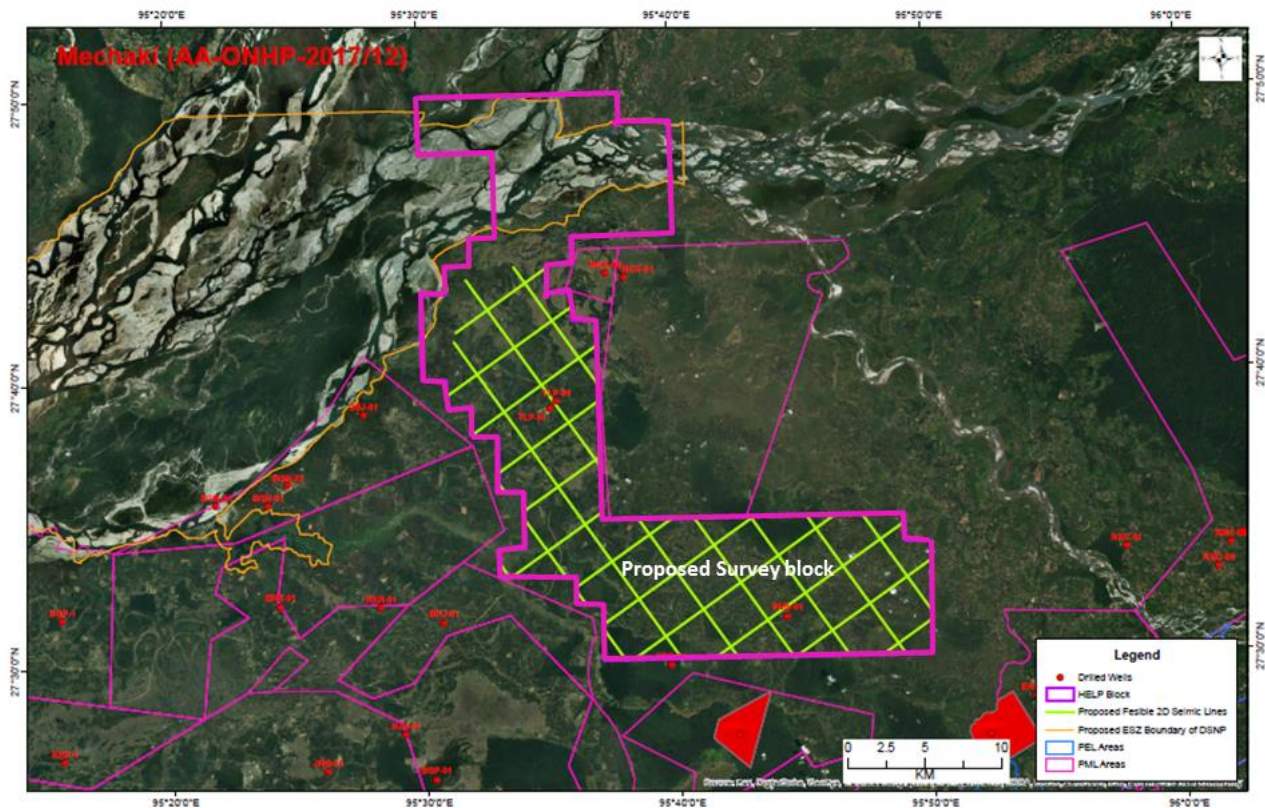
- a) Experience details of seismic data acquisition in last 5 years (as per **Performa-A**).
- b) Holistic mobilization plan (expected) including vintage (age) and numbers of key equipment, viz. Surveying Equipment, Recording Equipment, Geophones, Shot Hole Drilling equipment/types, Field Processing System etc.
- c) Expected type(s) and deployment pattern of shot hole drilling equipment (heli-portable rigs, air compressor drilling, mechanized rigs, pneumatic drilling, mechanized water rotary drilling rigs, manual rigs and ancillary equipment) for accomplishing the acquisition within stipulated time frame.
- d) Holistic execution plan for the entire project.
- e) Details of the experience of key personnel likely to be deployed during data acquisition.
- f) Details of the Annual Turnover (specify currency) as per Audited balance sheets/profit & loss accounts etc. for the last three years)

- g) Budgetary quote as per format given at **Performa-B**.
- h) Any other information that will demonstrate the bidder's competence/capability.

Interested bidders, who fulfil the specifics above, should submit their response by post/courier/email before **12/07/2018**. The hard copy in a sealed cover with the superscription "Expression of Interest (EOI) for Hiring of Services for Seismic Data Acquisition in Assam and Arunachal Pradesh" along with supporting documents may be sent within the stipulated period at following address:

**CHIEF GENERAL MANAGER (GEOPHYSICS)**  
**GEOPHYSICS DEPARTMENT**  
OIL INDIA LIMITED  
REGISTERED HEAD QUARTER  
DULIAJAN, DIST: DIBRUGARH  
ASSAM 786602  
PHONE NO: +91 374 2804754  
E - MAIL ADDRESS: [seismic.oalp@gmail.com](mailto:seismic.oalp@gmail.com)

**Tentative Boundary of West Mechaki Block (AA-ONHP-2017/12)**



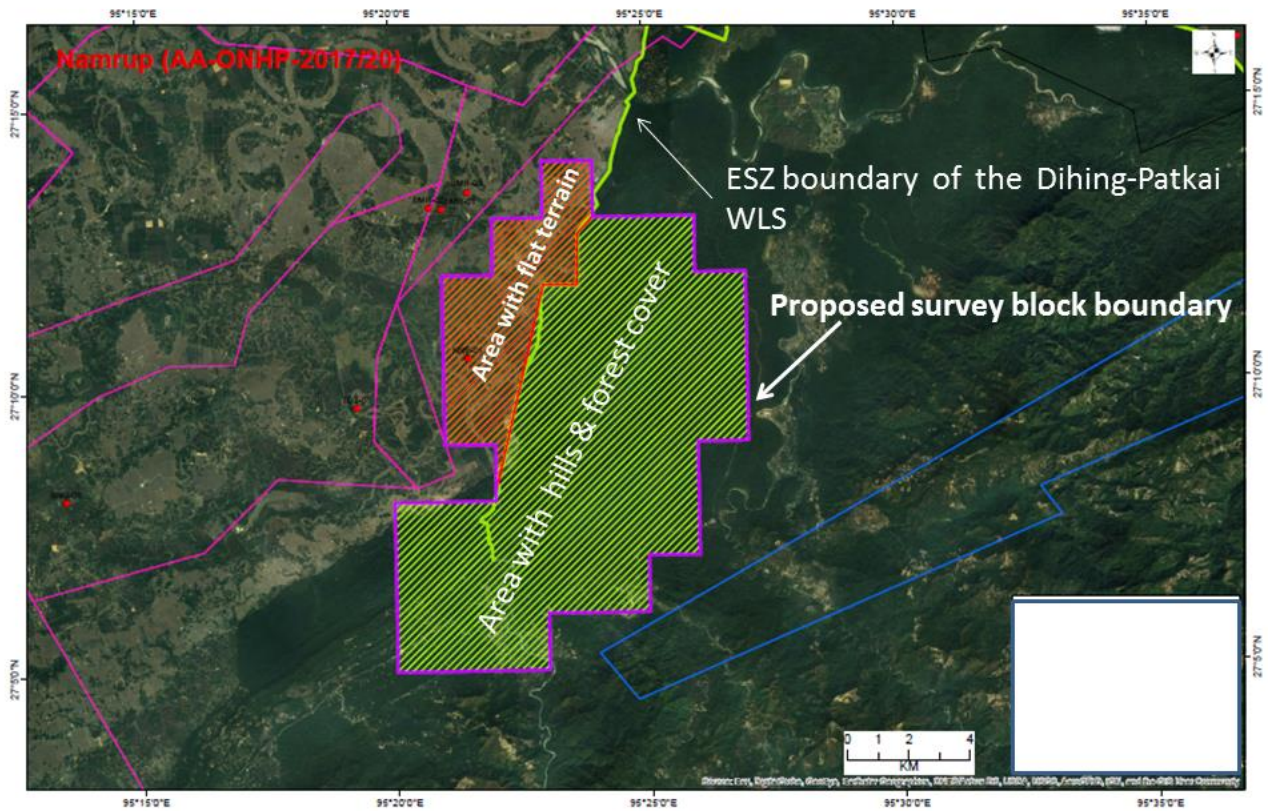
Tentative positions of the proposed 2D seismic profiles are shown in the map in green colour in the survey block.

**Corner Points' Coordinates of the block AA-ONHP-2017/12**

Corner Pts.	Longitude	Latitude	Corner Pts.	Longitude	Latitude
1	95° 30' 0.000" E	27° 49' 58.800" N	21	95° 36' 0.000" E	27° 33' 0.000" N
2	95° 37' 58.800" E	27° 49' 58.800" N	22	95° 33' 0.000" E	27° 33' 0.000" N
3	95° 37' 58.800" E	27° 49' 1.200" N	23	95° 33' 0.000" E	27° 34' 1.200" N
4	95° 40' 1.200" E	27° 49' 1.200" N	24	95° 34' 1.200" E	27° 34' 1.200" N
5	95° 40' 1.200" E	27° 45' 0.000" N	25	95° 34' 1.200" E	27° 36' 0.000" N
6	95° 36' 0.000" E	27° 45' 0.000" N	26	95° 33' 0.000" E	27° 36' 0.000" N
7	95° 36' 0.000" E	27° 43' 58.800" N	27	95° 33' 0.000" E	27° 37' 58.800" N
8	95° 34' 58.800" E	27° 43' 58.800" N	28	95° 31' 58.800" E	27° 37' 58.800" N
9	95° 34' 58.800" E	27° 43' 1.200" N	29	95° 31' 58.800" E	27° 39' 0.000" N
10	95° 36' 0.000" E	27° 43' 1.200" N	30	95° 31' 1.200" E	27° 39' 0.000" N
11	95° 36' 0.000" E	27° 42' 0.000" N	31	95° 31' 1.200" E	27° 40' 1.200" N
12	95° 37' 1.200" E	27° 42' 0.000" N	32	95° 30' 0.000" E	27° 40' 1.200" N
13	95° 37' 1.200" E	27° 34' 58.800" N	33	95° 30' 0.000" E	27° 43' 1.200" N
14	95° 49' 1.200" E	27° 34' 58.800" N	34	95° 31' 1.200" E	27° 43' 1.200" N
15	95° 49' 1.200" E	27° 34' 1.200" N	35	95° 31' 1.200" E	27° 43' 58.800" N
16	95° 49' 58.800" E	27° 34' 1.200" N	36	95° 31' 58.800" E	27° 43' 58.800" N
17	95° 49' 58.800" E	27° 30' 0.000" N	37	95° 31' 58.800" E	27° 45' 0.000" N
18	95° 37' 1.200" E	27° 30' 0.000" N	38	95° 33' 0.000" E	27° 45' 0.000" N
19	95° 37' 1.200" E	27° 31' 58.800" N	39	95° 33' 0.000" E	27° 48' 0.000" N
20	95° 36' 0.000" E	27° 31' 58.800" N	40	95° 30' 0.000" E	27° 48' 0.000" N



**Tentative Boundary of Namrup-Borhat Block (AA-ONHP-2017/20)**



Tentative positions of the proposed 3D blocks is shown in the map.

**Corner Points' Coordinates of the block AA-ONHP-2017/20**

Corner Pts.	Longitude	Latitude	Corner Pts.	Longitude	Latitude
1	95° 24' 0.000" E	27° 13' 58.800" N	13	95° 19' 58.800" E	27° 4' 58.800" N
2	95° 24' 0.000" E	27° 13' 1.200" N	14	95° 19' 58.800" E	27° 7' 58.800" N
3	95° 25' 58.800" E	27° 13' 1.200" N	15	95° 22' 1.200" E	27° 7' 58.800" N
4	95° 25' 58.800" E	27° 12' 0.000" N	16	95° 22' 1.200" E	27° 9' 0.000" N
5	95° 27' 0.000" E	27° 12' 0.000" N	17	95° 21' 0.000" E	27° 9' 0.000" N
6	95° 27' 0.000" E	27° 9' 0.000" N	18	95° 21' 0.000" E	27° 12' 0.000" N
7	95° 25' 58.800" E	27° 9' 0.000" N	19	95° 22' 1.200" E	27° 12' 0.000" N
8	95° 25' 58.800" E	27° 7' 1.200" N	20	95° 22' 1.200" E	27° 13' 1.200" N
9	95° 25' 1.200" E	27° 7' 1.200" N	21	95° 22' 58.800" E	27° 13' 1.200" N
10	95° 25' 1.200" E	27° 6' 0.000" N	22	95° 22' 58.800" E	27° 13' 58.800" N
11	95° 22' 58.800" E	27° 6' 0.000" N			
12	95° 22' 58.800" E	27° 4' 58.800" N			

**Tentative Acquisition Parameters for the survey block West Mechaki (AA-ONHP-2017/12)**

<b>2D Surveys (200 LKM)</b>	
Group Interval	20 m
SP Interval	60 m
Live channels	600 (i.e. 300 X 300), symmetric split spread
Nominal Fold	100
Total expected no. of Shots in the block	3500 (Approx.)

<b>3D Surveys (100 SQKM)</b>	
Group Interval	20 m
SP Interval	40 m
Nos. of receiver lines in the swath	10
Receiver line Interval	400m
Shot line Interval	440m
Shot density (nos. of shots per SQKM)	60
Max. In-line Offset	6000m
No. of live channels per shot	6000 (approx.)
Geometry	Orthogonal (with symmetrical split spread)
Total expected no. of Shots in the block	6000 (Approx.)



## Annexure-IV

### Tentative Acquisition Parameters for the survey block Namrup-Borhat (AA-ONHP-2017/20)

<b>3D Surveys (125 SQKM)</b>	
Group Interval	20 m
SP Interval	40 m
Nos. of receiver lines in the swath	10
Receiver line Interval	400m
Shot line Interval	440m
Shot density (nos. of shots per SQKM)	60
Max. In-line Offset	6000m
No. of live channels per shot	3000 (approx.)
Geometry	Orthogonal (with End-on spread)
Total no. of Shots in the block expected	7500 (Approx.)

**Performa-A**

**Experience details of seismic data acquisition in last 5 years as below**

Sl.No.	Contract No	Contract Period	Client	Country/ Location	Volume of work (2D)	Terrain conditions	Equipment used

## Performa-B

### Budgetary quote for Seismic data Acquisition

Description	Unit of measurement	Quantity	Unit Rate (INR or USD)	Amount (INR or USD)
Mobilization Charges (A)	Lump sum	01		
Demobilization Charges (B)	Lump sum	01		
<b>Seismic Data Acquisition(West Mechaki: AA-ONHP-2017/12) for 2D survey</b>				
Data Acquisition Charges (C)	LKM	200		
Up-hole Survey (D)	No.	100		
Shallow Refraction Survey (E)	No	100		
Experimental Survey (F)	Per Day	5		
Any Other Charges (G)				
Total (H=C+D+E+F+G)				
<b>Seismic Data Acquisition (West Mechaki: AA-ONHP-2017/12) for 3D survey</b>				
Data Acquisition Charges (I)	SQKM	100		
Up-hole Survey (J)	No.	50		
Shallow Refraction Survey (K)	No	50		
Experimental Survey (L)	Per Day	5		
Any Other Charges (M)				
Total (N=I+J+K+L+M)				
<b>Seismic Data Acquisition (Namrup-Borhat: AA-ONHP-2017/20)</b>				
Data Acquisition Charges (O)	SQKM	125		
Up-hole Survey (P)	No.	50		
Shallow Refraction Survey (Q)	No	50		
Experimental Survey (R)	Per Day	5		
Any Other Charges (S)				
Total (T=O+P+Q+R+S)				
Total Charges for Data Acquisition (U=H+N+T+A+B)				
Taxes (as applicable), V				
Total Charges for Data Acquisition including applicable taxes, W (W=U+V)				

**Note:**

The budgetary quotation is being sought for budgetary purposes only, i.e. to assess the market and project viability. It may be noted that the award of work will be made subsequently after invitation of bids through e-tendering as per laid down procedures/guidelines of OIL.

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