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 Arunanchal 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 the services for acquiring 2D & 3D seismic data in the lease areas likely to be awarded to OIL in Assam and Arunanchal Pradesh, viz. **Namsai** (AA-ONHP-2017/16), and **Chongkham** (AA-ONHP-2017/13). It has planned to acquire a quantum of 2D seismic data of **200** LKM in Namsai block and **300 LKM** of 2D data in Chongkham block. Seismic data acquisition is expected to be completed in two financial years, viz. 2019 -20 and 2020 -2021.

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

***Chongkham Block (AA-ONHP-2017/13)*:** Chongkham area lies in the hinterland part of the Manabhum Thrust in Upper Assam Basin. Similar to the other area, lithology is expected to be predominantly clastic sediments (sand and shale alterations) with beds having gentle dips. However, formation beds are highly dipping towards the Manabhum Thrust. The basement is ultra-deep and expected at around 7000-8000m. Objective of the proposed survey in the block are to obtain geologically conformable subsurface images of all the formations down to the Barails (~ 6500m).

Namsai Block (AA-ONHP-2017/16): Geologically, Namsai area lies in the fore land (fore-dip) part of the Manabhum Thrust in Upper Assam Basin. Similar to the other area, lithology is expected to be predominantly clastic sediments (sand and shale alterations) with beds having gentle dips. The basement is ultra-deep and expected at around 7000-8000m. Objective of the proposed survey in the block are to obtain geologically conformable subsurface images of all the formations down to the Barails (~ 6500m).

B) Description of the Area and Prevailing Logistics

Chongkham Block (AA-ONHP-2017/13): The areas pertaining to the block area have difficult surface and near-surface logistics. Part of the survey are is a flat terrain, but rest of the area is uneven and covered with dense vegetation. The whole area has surface and near-surface boulder beds covered with loose sands and alluvium. Occasionally, boulder beds are exposed on the surface. Overall, the whole area has poor accessibility with no good motorable roads.

OIL from its past experience has observed that, shot hole drilling 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 area is drained by numerous streams which pose challenges to movements of drilling rigs and resources for the survey. The ground water table is closer to surface (10-15ft below).

During the earlier campaigns in the nearby blocks, it is observed that results of single of **55-60ft** depth are better than the pattern holes (of 25-30ft depth). Therefore, Single shot hole of 55-60ft depth is preferable. The survey operation fair weather window in these areas is generally from **November to May**.

Namsai Block (AA-ONHP-2017/16): The entire 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 the area necessitates very effective mechanized drilling schemes (high power and technologically advanced drilling rigs with water pumps and compressor, technology of casing while drilling etc).

Similar to the previous block, this area is also drained by numerous streams which pose challenges to movements of drilling rigs and resources for the survey. In general, the ground water table is closer to surface (10-15ft below).

During the earlier seismic campaigns, it was observed that, single hole of 55-60ft depth gives better results than the pattern holes (25-30ft depth). Therefore, Single shot hole of 55-60ft depth is preferable. The survey operation time fair weather window is generally 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 of 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 survey of **200 LKM** and **300 LKM** in the Namsai block and Chongkham block respectively 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 Chongkham block and Namsai block are stipulated in **Annexure-III**.

c) Time is the essence of this project. Bidder has to complete the data acquisition quantum, viz. 300 LKM of 2D survey in Chongkham and 200 LKM of 2D survey in Namsai block during the period of two financial years i.e. in **2019-20** and **2020-21.** Bidder needs to deploy at least 2(two) sets of crews, one for Chongkham area for two years (i.e. 2019-20 and 2020-21) and the other would be deployed for Namsai block for one year (i.e. 2019-20).

The data acquisition schedule is given as below:

Block (area/ location)	Work Quantum	Year of completion	Expected nos. of shooting days (November to May)	Minimum nos. of Shots to be taken per day
AA-ONHP-2017/13 (Chongkham)	300 LKM of 2D	2019-20 & 2020-21	85-90	35 shots
AA-ONHP-2017/16 (Namsai)	200 LKM	2019-20	85-90	45 shots

d) Bidder shall deploy adequate & 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 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) & 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 and loss accounts etc. for the last three years)

g) Budgetary quote as per format given at **Performa-B**.

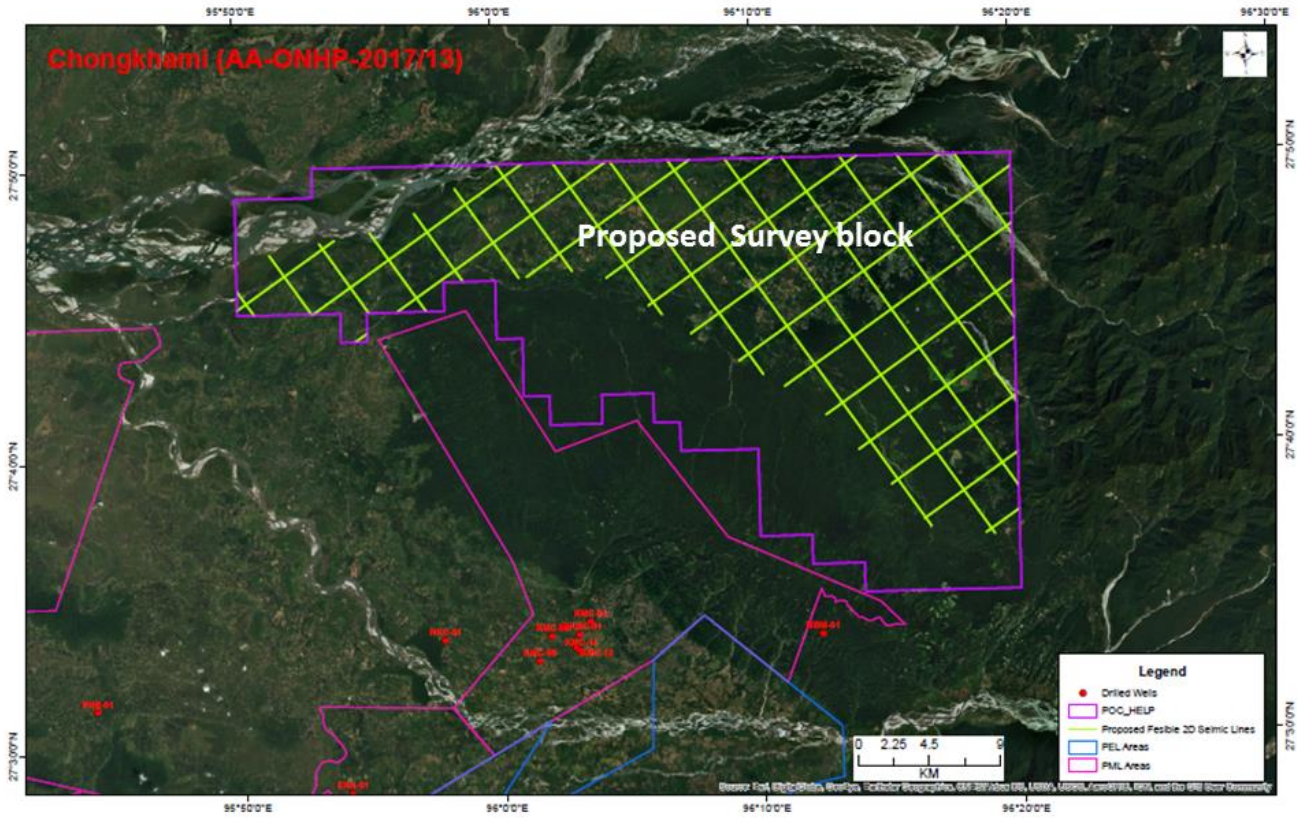
h) Any other information that will demonstrate the bidder's competence/capability.

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

Annexure-I

Tentative Boundary of Chongkham Block (AA-ONHP-2017/13)



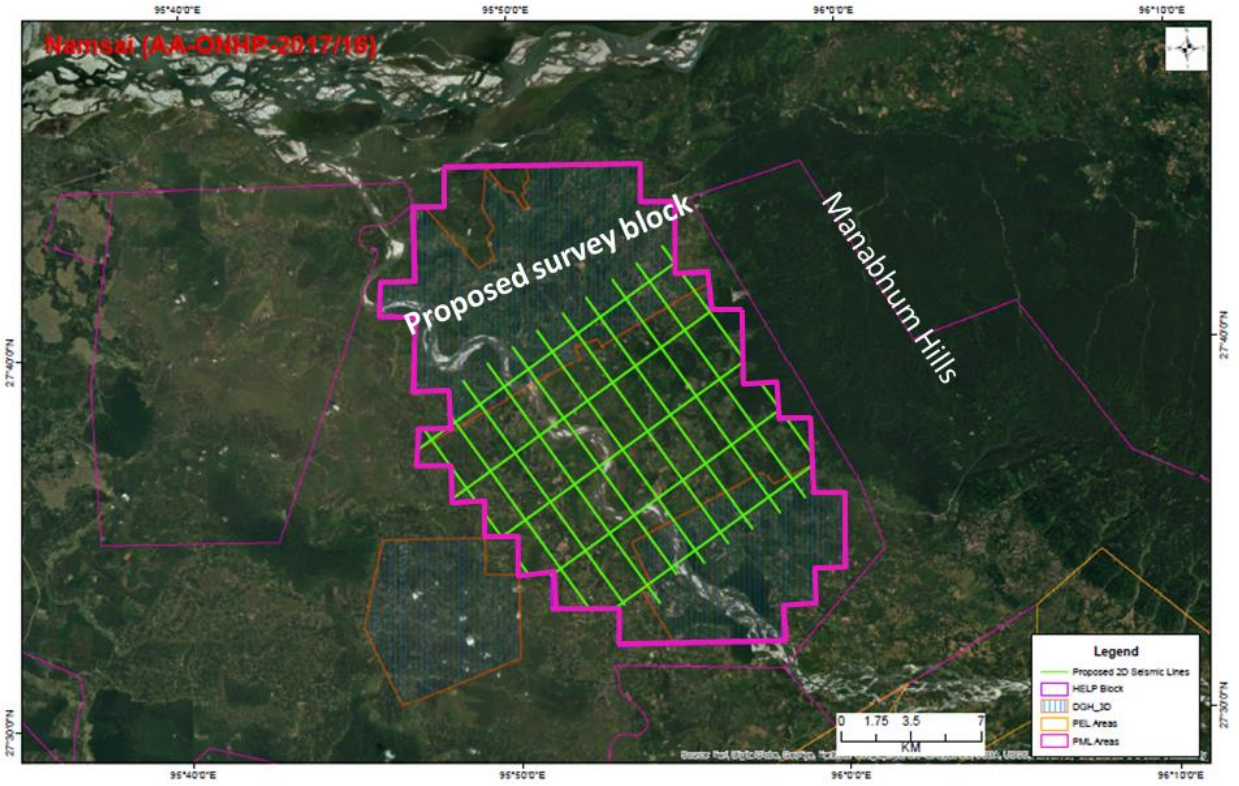
Position of the proposed 2D seismic block is shown in the map.

Corner Points' Coordinates of the block AA-ONHP-2017/13

Corner Pts.	Longitude	Latitude	Corner Pts.	Longitude	Latitude
1	95° 49' 58.800" E	27° 49' 1.200" N	16	96° 4' 1.200" E	27° 42' 0.000" N
2	95° 52' 58.800" E	27° 49' 1.200" N	17	96° 4' 1.200" E	27° 40' 58.800" N
3	95° 52' 58.800" E	27° 49' 58.800" N	18	96° 1' 58.800" E	27° 40' 58.800" N
4	96° 19' 58.800" E	27° 49' 58.800" N	19	96° 1' 58.800" E	27° 42' 0.000" N
5	96° 19' 58.800" E	27° 34' 58.800" N	20	96° 1' 1.200" E	27° 42' 0.000" N
6	96° 13' 58.800" E	27° 34' 58.800" N	21	96° 1' 1.200" E	27° 43' 58.800" N
7	96° 13' 58.800" E	27° 36' 0.000" N	22	96° 0' 0.000" E	27° 43' 58.800" N
8	96° 12' 0.000" E	27° 36' 0.000" N	23	96° 0' 0.000" E	27° 46' 1.200" N
9	96° 12' 0.000" E	27° 37' 1.200" N	24	95° 58' 1.200" E	27° 46' 1.200" N
10	96° 10' 1.200" E	27° 37' 1.200" N	25	95° 58' 1.200" E	27° 45' 0.000" N
11	96° 10' 1.200" E	27° 40' 1.200" N	26	95° 55' 1.200" E	27° 45' 0.000" N
12	96° 7' 1.200" E	27° 40' 1.200" N	27	95° 55' 1.200" E	27° 43' 58.800" N
13	96° 7' 1.200" E	27° 40' 58.800" N	28	95° 54' 0.000" E	27° 43' 58.800" N
14	96° 6' 0.000" E	27° 40' 58.800" N	29	95° 54' 0.000" E	27° 45' 0.000" N
15	96° 6' 0.000" E	27° 42' 0.000" N	30	95° 49' 58.800" E	27° 45' 0.000" N

Annexure-II

Tentative Boundary of Namsai Block (AA-ONHP-2017/16)



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-2017/16

Corner Pts.	Longitude	Latitude
1	95° 54' 0.000" E	27° 45' 0.000" N
2	95° 54' 0.000" E	27° 43' 58.800" N
3	95° 55' 1.200" E	27° 43' 58.800" N
4	95° 55' 1.200" E	27° 42' 0.000" N
5	95° 55' 58.800" E	27° 42' 0.000" N
6	95° 55' 58.800" E	27° 40' 58.800" N
7	95° 57' 0.000" E	27° 40' 58.800" N
8	95° 57' 0.000" E	27° 39' 0.000" N
9	95° 58' 1.200" E	27° 39' 0.000" N
10	95° 58' 1.200" E	27° 37' 58.800" N
11	95° 58' 58.800" E	27° 37' 58.800" N
12	95° 58' 58.800" E	27° 36' 0.000" N
13	96° 0' 0.000" E	27° 36' 0.000" N
14	96° 0' 0.000" E	27° 34' 1.200" N
15	95° 58' 58.800" E	27° 34' 1.200" N
16	95° 58' 58.800" E	27° 33' 0.000" N
17	95° 58' 1.200" E	27° 33' 0.000" N
18	95° 58' 1.200" E	27° 31' 58.800" N
19	95° 52' 58.800" E	27° 31' 58.800" N
20	95° 52' 58.800" E	27° 33' 0.000" N
21	95° 51' 0.000" E	27° 33' 0.000" N

Corner Pts.	Longitude	Latitude
22	95° 51' 0.000" E	27° 34' 1.200" N
23	95° 49' 58.800" E	27° 34' 1.200" N
24	95° 49' 58.800" E	27° 34' 58.800" N
25	95° 49' 1.200" E	27° 34' 58.800" N
26	95° 49' 1.200" E	27° 36' 0.000" N
27	95° 48' 0.000" E	27° 36' 0.000" N
28	95° 48' 0.000" E	27° 37' 1.200" N
29	95° 46' 58.800" E	27° 37' 1.200" N
30	95° 46' 58.800" E	27° 37' 58.800" N
31	95° 48' 0.000" E	27° 37' 58.800" N
32	95° 48' 0.000" E	27° 39' 0.000" N
33	95° 46' 58.800" E	27° 39' 0.000" N
34	95° 46' 58.800" E	27° 40' 58.800" N
35	95° 46' 1.200" E	27° 40' 58.800" N
36	95° 46' 1.200" E	27° 42' 0.000" N
37	95° 46' 58.800" E	27° 42' 0.000" N
38	95° 46' 58.800" E	27° 43' 1.200" N
39	95° 46' 58.800" E	27° 43' 58.800" N
40	95° 48' 0.000" E	27° 43' 58.800" N
41	95° 48' 0.000" E	27° 45' 0.000" N

Annexure-III

Tentative Acquisition Parameters for the survey block Namsai (AA-ONHP-2017/16) and Chongkham (AA-ONHP-2017/13)

2D Surveys (200 LKM) in Namsai Block	
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	3350 (Approx.)

2D Surveys (300 LKM) in Chongkham Block	
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	5000 (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		
Seismic Data Acquisition(Namsai block: AA-ONHP-2017/16) for 2D survey				
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)				
Seismic Data Acquisition (Chongkham block: AA-ONHP-2017/13) for 2D survey				
Data Acquisition Charges (I)	LKM	300		
Up-hole Survey (J)	No.	100		
Shallow Refraction Survey (K)	No	200		
Experimental Survey (L)	Per Day	10		
Any Other Charges (M)				
Total (N=I+J+K+L+M)				
Total Charges for Data Acquisition (O=H+N+A+B)				
Taxes (as applicable), P				
Total Charges for Data Acquisition including applicable taxes, Q (W=O+P)				

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.