OIL & GAS DEVELOPMENT COMPANY LIMITED

TENDER ENQUIRY NO. PROC-SERVICES/CB/EXPL-4797/2020

HIRING 3D ADVANCE SEISMIC DATA PROCESSING SERVICES OF GARHI AREA FATEHJANG E.L

Note:

Bid bond of **USD 7,200/- (US Dollar Seven Thousand Two Only)** must be submitted with the technical bid. Please see tender documents for further detail.

The master set of tender documents (services) uploaded on OGDCL website (www.ogdcl.com) is the integral part of this TOR.

Hiring 3D Advance Seismic Data Processing Services of Garhi Area

Fatehjang E.L

TERMS OF REFERENCE (TOR)/TECHNICAL SPECIFICATIONS FOR TIME REPROCESSING AND DEPTH PROCESSING OF ~360 SQ.KM LAND 3D SEISMIC DATA IN FATEHJANG EL.

1. INTRODUCTION:

1.1 Oil and Gas Development Company Limited (hereafter referred as Company), a Government of Pakistan Enterprise, is a premier E & P Company engaged in exploration and production of crude oil and natural gas in different parts of Pakistan. The company intends to hire the Land 3D seismic data processing services for time & depth processing of ~360 sq.km 3D seismic data in its FATEHJANG E.L in Upper Indus Basin of Pakistan. Base map with 3D survey boundary is provided in **Annexure-I.**

1.2 INTRODUCTION TO THE AREA:

1.2.1 The area of interest, Fatehjang block, lies in Potowar sub basin of Pakistan near Main Boundary Thrust. OGDCL as operator of the block acquired 624 Sq. kms (Dynamite/Vibroseis) 3D seismic survey in FATEHJANG E.L in 2008-2010.

Tectonically, the area falls in active foreland fold and thrust belt where compressional tectonics related thrusted anticlines, fault bounded structures and imbricated features are present. The intended area is located south of the Main Boundary Thrust (MBT), which comes to outcrop in the immediate north of the block. Due to proximity to MBT and presence of decollements layers, the area is considered to be very complexed in terms of its structural synthesis. Therefore, fault definition and high resolution seismic data is key factor in successful processing in this area for resolving structural complexity.

The target reservoirs lie in the time range of 1800-3200 ms level (SRD at 600m AMSL). Details of the 3D seismic acquisition survey is provided in **Annexure-II**.

2. Objectives:

2.1 The primary objective of the 3D Advance seismic data processing is to have best quality, well focused/image data in Time and Depth domains which are representative of true subsurface picture.

2.2 Obtain noise free, high quality land 3D seismic data with enhanced S/N Ratio and improved frequency band width with reliable well to seismic tie.

2.3 Define accurate reflector character in terms of vertical and horizontal resolution, continuity and especially structural dip.

2.4 Major and minor faults must be visible at all levels**.** Fault plane definition is extremely critical in the project area.

3. Scope of Work:

3.1 The contractor shall process the data with Time and Depth Migration processing sequence after testing as per requirement and approval of the company with sequence of **Annexure III (A & B)**, along with other advanced processing modules offered by the contractor. On the basis of PSTM results, the company will decide for further Depth processing PSDM (Kirchhoff, RTM/CRAM/CBM), DI. Any step in the Time and Depth processing workflow may be modified with mutual consent without affecting the cost of the project. The processing sequence may be modified by addition or deletion or reordering of any module as and when required to achieve the optimum results without any additional cost and subject to approval of the Company.

3.2 The data is required to be processed at sampling interval of 2ms for Time migration and 5m for Depth migration with full record length of 6 seconds using dense grid along with true amplitude recovery and zero phase output.

3.3 The contractor shall provide digital copies of all the outputs, parameter testing, intermediate and final processing results, in acceptable formats. The complete volume of each iteration will be shared in SEG-Y format for review/QC. The contractor shall also provide data as per detailed list of deliverables provided in **Annexure-V, Annexure-VI**. The contractor is also required to provide weekly progress reports along with Gantt chart in a timely manner.

3.4 The Contractor shall have to complete the project within turnaround time given in the TOR.

4. 3D Advance seismic data processing sequence:

The processing steps would be required to be applied in manner so that amplitude, frequencies and phase of the data remain preserved and output yield is of enhanced S/N ratio, improved broadband spectrum and high resolution. However, a proposed standard processing sequence for PSTM & PSDM or RTM/CRAM/CBM is provided in the **Annexure-III (A, B &C)** and can be modified according to the requirement with no cost effect. However, the actual sequence will be determined at each step of processing in consultation with the company representatives.

5. Parameters Testing/QC:

The contractor shall submit the data in the form of power point presentation(s) and/or SEG Y for comparison of qualitative results and decision making. The contractor would be required to submit its recommendations regarding processing sequence/parameter selection. The final decision, however, would be of the Company. The Company's professionals' will participate in the project for QC purpose at the stages as proposed in the **Annexure-VII (keeping in view COVID-19 situation at that time)**. The contractor would be required to provide the QC display of each processing step of time and depth processing after extensive testing in order to select the optimum parameters if there is some additional information obtained from testing then that will also be included, the company can ask for the provision of data in SEGY/PPT/TIFF/CGM etc. when and where required without any additional cost.

5.1 After testing of PSDM (Kirchhoff, RTM/ CRAM/ CBM) the company will decide the best fit algorithm to be executed on whole volume for final quality output.

6. Rates of Processing

The contractor shall specify Lump sum rates in US $ per Sq. Km. for PSTM and PSDM (Kirchhoff, RTM/CRAM/CBM) and DI (optional) separately as per **Annexure-IV**. The processing rate should be inclusive of all taxes, duties, courier charges, levy etc. and deliverables as per **Annexure V and VI** except Provincial Sales Tax/ICT Tax on Services in Pakistan.

Any additional processing module other than proposed processing sequence which will be applied for improvement of data quality with mutual consent of the company and contractor will be free of cost.

7. Technical Evaluation Criteria:

7.1 The Technical evaluation will be based on the technical evaluation table **Annexure-VII.** The potential bidders are required to strictly follow the sequence of Technical Evaluation Criteria and submit their proposals accordingly.

7.2 For final bid evaluation **80%** weightage would be given to Technical Evaluation **Annexure VII** and **20%** for financial evaluation at **Annexure-IV**. The lowest bidder will attain the maximum points in financial evaluation and others would be ranked on sliding scale. The points obtained in technical evaluation, and financial evaluation will then be combined and the contract will be awarded to the bidder obtaining maximum points.

7.3 The contractor must have workable project schedule and turnaround time for the Project. The bidders should submit project schedule in the form of Gantt chart.

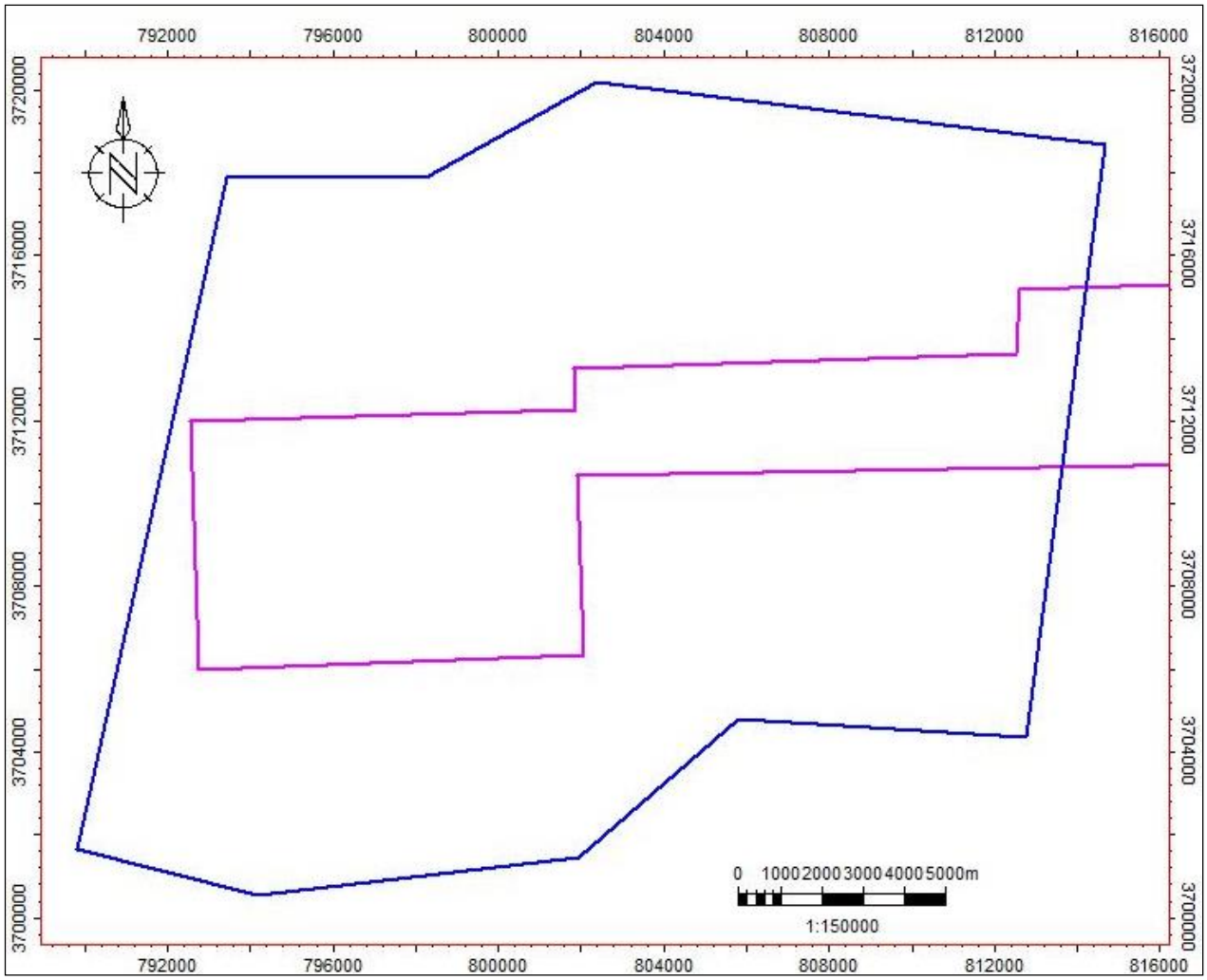
7.4 The contractor must provide schedule for the participation of professionals from the Client for the QC of the processing steps. Contractor shall provide a phase wise work program for the participation of the client professionals in line with **Annexure-VII**. Contractor will be bound to take all necessary measures to facilitate the Client's participation process. Any delay due to visa, air tickets etc. will be accommodated by the contractor, however cost of traveling and lodging will be borne by the Client itself.

8. Data Confidentiality/ liability

The contractor shall be solely responsible for secrecy, loss or damage of data due to any reason including fire, theft etc. of any documents/cartridges/soft copies and other important documents /CDs etc. pertaining to the contract while in their custody or control. Neither contractor is liable to reproduce the same data for any other business reasons other than specified by the Client.

Annexure-I

Base Map Showing Operational area (Blue color) of 3D advance seismic data processing



3D operational area (blue) for Advance processing (Coordinates are in Lambert Tangential Grid-I)		
Corners	X-Coordinates	Y-Coordinates
A	3150218.347430	1040665.563998
B	3137924.640896	1042071.484945
C	3133839.562057	1039727.834011
D	3129042.783246	1039703.987555
E	3125552.860352	1023469.388573
F	3129912.840240	1022405.754518
G	3137654.769943	1023360.486497
H	3141493.352790	1026748.807401
I	3148431.290527	1026350.258419

Annexure-II

Seismic Acquisition Parameters of 3D Seismic Data Volume:

Country of origin: Pakistan

3D Km^2 to be processed	360 Km^2
Vintage	2008-2010
Acquired by	Geofizyka Kraków Ltd
Source	Dynamite/Viberoseis
Source Interval	50 m
Receiver Interval	50 m
Receiver line spacing	400m
Source line spacing	350 m
Receiver Line Azimuth	12
Source Line Azimuth	102
Fold (inline x cross line)	96 (16 *6)
Sampling rate	2 ms
Max offset	6060 m
Bin size	25m*25m
Record length	6 sec

Supporting documentation:

Observer reports, Survey listings (Co-ordinates / elevation lists), SPS files, Up-hole data, Horizons interpretation (based on existing 3D processing), VSP velocity and sonic log of project wells, Stack of previous processing as a reference, etc.

Annexure-III

(A) Basic/Standard Processing Sequence for PSTM Processing

The main basic processing steps to be taken into account: The contactor will process the land 3D seismic data through following basic processing sequence which also forms the basis for price quotation. The proposed basic processing steps to be performed are listed below:

Sr. No.	Time Processing Sequence
1.	Reformat
2.	Geometry application
3.	Grid Define
4.	Minimum phase conversion and match filter
5.	Geophone response filter
6.	Manual and Automatic Trace Editing
7.	Amplitude Recovery
8.	Despike /Wild Noise Removal
9.	Refraction Static computation and application (Refraction tomography and Diving Wave tomography etc.)
10.	Coherent/Non Uniform Coherent noise removal in different domains
11.	Scattered/dispersive, random and high frequency noise attenuation.
12.	Surface consistent amplitude compensation
13.	Surface consistent Deconvolution/Robust Deconvolution
14.	1st Velocity analysis every at 1.0 Km x 1.0 Km
15.	1st Surface Consistent Residual Static Correction
16.	2nd Velocity Analysis at 0.5 Km x 0.5 Km
17.	2nd Surface Consistent Residual Static Correction (and more passes if required)
18.	Pre-stack Random noise attenuation in different modes
19.	Multi-dimensional 5D interpolation (OVT, COF planes etc.) and OVT splitting.
20.	Regularization in OVT Domain
21.	Surface consistent residual amplitude compensation in OVT
22.	Stacking and Post Stack Time Migration
23.	Final gather conditioning and velocity preparation for initial Pre-Stack Time Migration
24.	Initial PSTM
25.	First PSTM Velocity analysis at 0.5 Km x 0.5 Km
26.	2nd pass and more Pre-stack Time Migration (Anisotropic Turning-Wave Kirchhoff) and Velocity analysis with higher order NMO correction in order to have adequate results.
27.	Final PSTM (Anisotropic Turning-Wave Kirchhoff) & Final PSTM Stack
28.	Foot print removal (FKxKy), and Filtering and Scaling on Final PSTM Stack
29.	Run Final post Stack time Migration with Final PSTM velocities

NOTE:

- 5D MPFI and OVT processing will be finalized subject to testing results.
- All final output will have to be in zero phases and SEG standard normal polarity.

- Any advance processing module suggested by bidder to be used in place of above mention module that gives best results will be free of cost.

(B) Depth Processing Sequence for TTI PSDM (Kirchhoff, RTM/CRAM/CBM)

The contactor will process the land 3D seismic data through following basic Depth processing sequence which also forms the basis for price quotation. The contractor will provide all iterations on full volume not on selected lines

Sr. No.	Depth Processing Sequence
1.	Data preparation and gather Conditioning for PSDM and RMO picking
2.	Near Surface Velocity Model Building (NSM): A new shallow velocity model shall be required which can handle complex near surface velocity variation Merge the near surface & deeper velocities to form an integrated model suitable for depth migration workflows
3.	Initial Isotropic PSDM Velocity Model o Convert Final velocity model to depth interval o Smooth and insert near surface model. o Isotropic PSDM using the initial velocity model.
4.	Iteration 0 Migration
	o Isotropic PSDM
5.	Tomographic Inversion (Grid based / Layers based) to be tested
6.	Iteration 1 Migration
	o Isotropic PSDM
	o Calculation of Anisotropic parameters
	o Anisotropic PSDM
7.	Iteration 2 Migration
	o VTI/TTI Anisotropic PSDM
8.	Iteration 3 Migration
	o TTI Anisotropic PSDM
9.	Iteration 4 Migration
	o TTI Anisotropic PSDM
10.	Iteration 5 Migration
	o TTI Anisotropic PSDM
11.	Final Migration (Kirchhoff, RTM/CBM/CRAM subject to testing results) with minimum 40 Hz frequency

12.	Velocity Model Updating
13.	Re-run PSTM with final PSDM velocities
14.	Convert depth to time domain
15.	Spatially Continuous Velocity Analysis
16.	NMO Correction
17.	Stack
18.	Post stack processing
19.	Wells Calibration
20.	Convert back to Depth
21.	Run POST PSDM Stack

(C) Optional Processing:

01: Diffraction imaging (DI) processing
02: Any other additional processing modules proposed by bidder, without any additional cost exposure.

NOTE:

a) Contractor shall use dense grid of gathers, since this is important in PSDM, RTM/CRAM/CBM Project as this helps define the lateral velocity resolution and incorporate the thin velocity layer variation/ anomalies through the Inversion into the tomo-graphic model (if required) without any additional cost.

b) Number of tomo iterations may increase based on the satisfactory results without any additional cost.

c) Incase; if the TTI solution are not able to resolve the velocity anisotropy accurately, Tilted ortho-rhombic tomo solution will be tested/ used. However, contractor may also suggest better solution at that time without any additional cost exposure.

d) RTM/CRAM/CBM will be run after the last Tomographic iteration.

e) Success of any iteration shall be based on improvement over the last update in term of image quality, resolution and faults definitions. Any iteration which is not showing the improvement over the last update (better image quality, faults definitions and resolution) shall be considered failed and contractor must revise it (without any additional cost) until the image quality, faults definition and resolution improves.

f) VIP and CIP Gathers (with preserved azimuth and offset information) output is mandatory

g) RTM/CRAM/CBM will be tested on target lines after the last Tomographic iteration. If the results of RTM/CRAM/CBM are not better than PSDM (Kirchhoff) last iteration, then RTM/CBM/CRAM will be excluded and cost of this will not be charged. If the results are satisfactory to the company, then it will be run on the whole volume as a production.

h) Near offset contains very heavy noise. Special attention and processing flow shall be required to treat it properly.

i) Final depth image should Correlate with the existing wells data (horizons depths, structural dip, fault positions, etc.)

j) The Contractor will be required to check and evaluate the polarity of the recording system for all tapes recorded by the seismic crew. The processor should ensure that the polarity of the processed data should represent SEG normal polarity (increase in impedance correspond to peak and vice versa.

Special Instruction to Bidders

1. For final bid evaluation, 80% weightage would be given to Technical Evaluation **Annexure VII** and 20% for financial evaluation at **Annexure-IV**. The lowest bidder will secure the maximum points in financial evaluation and others would be ranked on sliding scale. The points obtained in technical evaluation, and financial evaluation will then be combined and the contract will be awarded to the bidder obtaining maximum points.

2. Contractor would be bound to provide detailed processing sequence/flow applied with information of all parameters.

3. After the final approval of PSTM results, the contractor will proceed for PSDM with consent of the company. However, the time gap between approval of PSTM results and go ahead for the PSDM and/ RTM/CRAM/CBM will be excluded from the total project time.

4. Maximum Final Deliverable time is 02 months after completion of the project i.e. 10 months.

Annexure-IV

Financial Bid Format

Rates for land 3D seismic data Time Processing (PSTM) & Depth Processing (Kirchhoff, RTM/CRAM/CBM) shall be provided as per given table.

S.No	Processing Sequence Description	COST in US $ per Sq. km
1	Time Processing Sequence as per Annexure-III(A) **(Lump Sum)**	
2	PSDM (Kirchhoff, RTM/CRAM/CBM) Processing Sequence as per Annexure-III(B) **(Lump sum)**	
3	Total Lump Sum cost (Sr No.1+ Sr No.2)	
	Optional Processing	
4	Diffraction imaging (Optional), **(Lump sum)**	

NOTE:

i. *Financial bids will be evaluated on the basis of total cost Sr. No.3, above in the **Annexure-IV**, on the basis of lump sum turnkey rate (LSTK) basis.*

ii. *Separate invoices need to be generated for Sr. No.1 and 2 of **Annexure-IV**. 50% of the Payment for Sr, No. 1 of **Annexure-IV** will be made after successful completion of PSTM and the remaining payment will be made after successful completion of the project.*

iii. *The contractor should provide the list of all advance processing modules and should use these modules for improvement of data free of cost if needed during processing*

iv. *The contractor would be bound to provide the break up price for each step. However, the price of any module from Annexure-III (A) and Annexure-III (B) will be deducted from lump sum turn key rate, if not approved from the company.*

v. *Total square kilometers for charged rates will be calculated on the basis of subsurface coverage*

vi. *Prices must be quoted inclusive of all Taxes, duties, courier charges and levy etc. except provincial sales tax / ICT Tax on services where applicable will be borne by OGDCL at actual***.**

vii. *The diffraction imaging is optional processing and bidders will quote the separate price for DI, it will not be included in the main financial evaluation criteria of bid.*

Time Processing Deliverables for the Project **Annexure-V**

Sr. No.	Description	Format	Media	No. of Copies.
1.	a) First Break Picks b) Refraction Statics	ASCII	DVD	02 sets
2.	a) Final Stacks (Unmigrated) Full Volume with Gain & filter b) Final Stacks (Unmigrated) Full Volume without Gain & filter	SEGY	HD & LTO	Two sets on HD and two sets on LTO
3.	a) Final POSTM Stacks Full Volume with Gain & filter b) Final POSTM Stacks Full Volume without Gain & filter	SEGY		
4.	a) Final PSTM Stacks Full Volume with Gain & filter b) Final PSTM Stacks Full Volume without Gain & filter	SEGY		
5.	a) Final PSTM stacking Velocity Full Volume (ASCII) b) Final PSTM stacking Velocity Full Volume(SEG-Y)	SEG-Y & ASCII		
6.	a) Final PSTM CMP gather full volume with NMO Correction Without Filter and Gain b) Final PSTM CMP gather full volume without NMO Correction Without Filter and Gain	SEGY		
7.	a) Final Un-migrated CMP gather full volume with NMO Correction Without Filter and Gain b) Final Un-migrated CMP gather full volume without NMO Correction Without Filter and Gain	SEGY		
8.	PSTM Processing Reports	MS Word/ PDF	DVD & Hard Copy	02 sets on each media

Annexure-VI

Depth Processing Deliverables for the Project

Sr. No.	Description	Format	Media	No. of Copies.
1.	a) Final PSDM Stack Calibrated with wells without post stack sequence b) Final PSDM Stack Calibrated with wells with post stack sequence c) Final PSDM Stack uncalibrated with wells without post stack sequence d) Final PSDM Stack uncalibrated with wells with post stack sequence	SEGY	HD & LTO	Two sets on HD and four sets on LTO
2.	a) Final PSDM Stack calibrated with wells stretch to time without post stack sequence b) Final PSDM Stack calibrated with wells stretch to time with post stack sequence c) Final PSDM Stack uncalibrated with wells stretch to time without post stack sequence d) Final PSDM Stack uncalibrated with wells stretch to time with post stack sequence	SEGY		
3.	a) Final PSDM, RTM/CBM/CRAM Gathers	SEGY		
4.	a) Final PSDM velocity before well calibration b) Final PSDM velocity after well calibration	SEG-Y & ASCII		
5.	a) Final RTM/CBM/CRAM Stack Calibrated with wells without post stack sequence b) Final RTM/CBM/CRAM Stack Calibrated with wells with post stack sequence c) Final RTM/CBM/CRAM Stack uncalibrated with wells without post stack sequence d) Final RTM/CBM/CRAM Stack uncalibrated with wells with post stack sequence	SEGY		
6.	a) Final RTM/CBM/CRAM Stack Calibrated with wells stretch to time without post stack sequence b) Final RTM/CBM/CRAM Stack Calibrated with wells stretch to time with post stack sequence c) Final RTM/CBM/CRAM Stack uncalibrated with wells stretch to time without post stack sequence d) Final RTM/CBM/CRAM Stack uncalibrated with wells stretch to time with post stack sequence	SEGY		
7.	All outputs of DI (optional)			02 sets Each

8.	Final Depth Processing Report	Word/ PDF	DVD & Hard Copy	02 sets Each

Annexure-VII

Technical Evaluation:

Cat No.	Description of Technical Information	Qualifying Criteria		Max. Marks
1	**Company History & Profile (mention the list of projects executed in the mentioned time span)**			**46**
	No. of Years in PSTM Processing of land 3D Seismic Data belonging to Fold and thrust Belt/Salt Tectonics (compressional regime) area	**PSTM**	More than 10 years = 04 marks 05 to 10 years= 02 marks Less than 05 years=00 marks	4
	No. of Years in PSDM Processing of land 3D Seismic Data belonging to Fold and thrust Belt /Salt Tectonics (compressional regime) area	**PSDM**	More than 10 years = 08 marks 8 to10 years = 05 marks 4 to 7 years =02 marks Less than 4 years=00 marks	8
	No. of Years in RTM/CBM/CRAM Processing of land 3D Seismic Data belonging to Fold and thrust Belt/Salt Tectonics (compressional regime) area	**RTM/CRAM/CBM**	More than 10 years =05marks 8 to10 years =03 marks 4 to 7 years =01 marks Less than 4 years=00 marks	5
	No. of Years in Diffraction Imaging Processing of land 3D Seismic Data belonging to Fold and thrust Belt/Salt Tectonics (compressional regime) area	**DI**	More than 3 years = 05 marks 2 to3 years = 03 marks 1 to 2 years =01 marks Less than 1 years=00 marks	5
	No. of land 3D projects for PSTM in the last 5 years in the fold and thrust Belt (compressional regime) area (Please provide Client list as per Annexure IX)	**PSTM**	More than 10 projects =06 marks 07 to 10 projects =03 marks 03 to 06 projects =01 marks Less than 03 years=00 marks	6
	No. of Land 3D projects for PSDM in the last 5 years in the fold and thrust Belt/Salt Tectonics (compressional regime) area (Please provide Client list as per Annexure IX)	**PSDM**	More than 05 projects =08 marks 03 to 05 projects =05 marks less than 3 projects =0-2 marks	8

	No. of Land 3D projects for RTM/CBM/CRAM in the last 5 years in the fold and thrust Belt/Salt Tectonics (compressional regime) area (Please provide Client list as per Annexure IX)	**RTM/CRAM/CBM**	More than 05 projects = 05 marks 03 to 05 projects =03 marks less than 3 projects =0-1 marks	5
	No. of Land 3D projects for Diffraction Imaging in the last 3 years in the fold and thrust Belt/Salt Tectonics (compressional regime) area (Please provide Client list as per Annexure IX)	**DI**	More than 05 projects =05 marks 03 to 05 projects =03 marks less than 3 projects =0-1 marks	5
2	**Processing Facilities Software and Work Flows**			**22**
	a. Provide processing sequence up to Final Stack including mandatory processing sequence provided by company + any additional processing steps proposed by the contractor. b. Provide processing modules along with versions which will be applied for proposed processing sequence specially for 1. Refraction statics solution 2. Deconvolution Modules 3. Noise Attenuation Modules 4. Multiple Attenuation Modules			8
	a. Provide PSTM processing sequence (mandatory + proposed additional processing steps) b. Provide List of the available PSTM Migration algorithms			5
	a. Provide PSDM processing sequence (mandatory + proposed additional processing steps) b. Provide List of the available PSDM Migration algorithms			5
	a. Provide DI processing sequence (mandatory + proposed additional processing steps) b. Provide List of the available DI algorithms			4
3	**Hardware**			**08**
	Provide List of hardware / machines / equipment in operating condition owned by the company, available with contractors used in land 3D seismic data PSTM and PSDM processing as per Annexure-XI	Hardware/equipment version not older than 05 years=08 marks Hardware/equipment version not older than 08 years=04 marks Hardware/equipment version not older than 10 years=02 marks Hardware/equipment version older than 10 years=00 marks		08

4	**Manpower (Qualification of 16 Years Degree in Geophysics/ Geology) and having experience in 3D PSTM ,PSDM (Kirchhoff, RTM/CRAM/CBM) and DI Processing**		**22**
	Attach the resume of the contractor permanently employed manpower for land 3D **PSTM** processing projects (Give complete detail experience belonging to Fold and thrust Belt/Salt as per attached Annexure X).	At least 05 professionals with minimum experience of 05-10 years Scores will be awarded on the basis of experience	5
	Attach the resume of the contractor permanently employed manpower for land 3D **PSDM** processing projects (Give complete detail experience belonging to Fold and thrust Belt/Salt Tectonics as per attached Annexure X).	At least 04 professionals with minimum experience of 05-10 years Scores will be awarded on the basis of experience	7
	Attach the resume of the contractor permanently employed manpower for land 3D **RTM/CRAM/CBM** processing projects (Give complete detail experience belonging to Fold and thrust Belt/Salt Tectonics as per attached	At least 03 professionals with minimum experience of 03-08 years Scores will be awarded on the basis of experience	7
	Attach the resume of the contractor permanently employed manpower for land 3D **Diffraction imaging** processing projects (Give complete detail experience belonging to Fold and thrust Belt/Salt Tectonics	At least 02 professionals with minimum experience of 01-03 years Scores will be awarded on the basis of experience	3
5	**Work Plan/Project Schedule** **TOR Compliance**	Bid Prepared as per TOR Format 100 % Compliance=02 marks Below 100%=00 Marks	**02**
6	**OGDCL professional participation in the 3D seismic data processing PSTM, PSDM (Kirchhoff, RTM/CRAM/CBM) and DI) project.**		**Mandatory**
	Submit workable QC schedule for OGDCL professionals.	1. During Noise Attenuation & refraction statics. (Two Professionals for 02 weeks) 2. During PSTM processing & finalization. (Two professionals or 02 weeks) 3. During Near Surface and Deep Modelling. (Two Professionals for 02 weeks) 4. During PSDM (Kirchhoff, RTM/CRAM/CBM) & finalization/ well calibration. (Two Professionals for 02 weeks)	

	TOTAL MARKS (Qualifying Marks 70%)		**100**

MANDATORY REQUIREMENTS:

1. Seismic data processing companies and team leaders must have an experience of on-shore projects as per **Annexure VII**

2. Total turnaround time to complete the project is 10 months (5 months for PSTM and 5 months for PSDM (Kirchhoff, RTM/CBM/CRAM). After completion of PSTM, complete volume should be delivered to OGDCL. The time of the project will start from complete data handing over to the contractor.

3. After the final approval of PSTM results, the contractor will proceed for production run of PSDM (Kirchhoff, RTM/CBM/CRAM) with consent of the company. However, the time gap between approval of PSTM results and go ahead for the PSDM (Kirchhoff, RTM/CBM/CRAM) will be excluded from the total project time.

4. Filling of Questionnaire as per Annexure-VIII.

5. Compliance to HSE policy is mandatory.

NOTE:

1. Contractor shall be declared as disqualified for Non Compliance against mandatory requirements.
2. Contractor should allocate dedicated team for OGDCL projects. At the time of award of contract contractor shall ensure to provide professionals of same level on which they have been awarded the contract
3. In case of JV, the JV leader should be professionally a Processing Company.
4. For the execution of the project, contractor should provide the processing team from the list of professionals mentioned at Annexure-VII, category 4.
5. The bidders must submit soft copy of bid document in pdf/ word along with hardcopy.

Annexure-VIII

Questionnaire

Sr#		Questions	Answer
1		Registered Name of the Firm/Company.	
2		Permanent Address of Head Office and Branch Offices (if any) with telephone no(s)/fax no(s).	
3		Date and place of establishment of Company. (Please attach appropriate proof)	
4		Name and address of Foreign Associates (if any)	
5		Name, Designation and Qualifications of the person(s) authorized to represent the firm in Contractual Matters. (Authorization letter from Chief Executive of the Firm to be attached).	
6	a.	Financial status of the Company with supporting documents.	
	b.	Last 3 years audited financial statements of the Company. (Please attach Audit Reports with the Balance Sheets).	
	c.	NTN Certificate and statement/proof of income tax deduction for last 3 years. (Please attach copies)	
7		Name and address of the Bankers	
8		Performance of the firm on at-least 5 recently completed jobs / contracts of similar nature (Certificates of satisfactory performance from organizations/owners to be attached)	
13		Average turnaround time for about 500-600 sq.km 3D PSTM, PSDM (Kirchhoff, RTM/CRAM/CBM), RTM and DI data projects. Mention turnaround time for last 05 similar projects along with project volume.	
14		Availability of Innovational processing flow for any processing project	
15		Do you have a facility for remote/interactive data QC?	
16		Do you have a facility for Video Conferencing?	
17		Do you have 3D seismic data visualization facilities?	
18		Do you have FTP site for transfer of data from processing center to clients office for QC	
20		Details of any litigations/cases in which the Firm/Company has been involved.	
21		Any other information.	
Note:	1	List of Facilities, ownership of contractor's machineries/equipment, availability of technical and skilled personnel, support capabilities and experience of the contractor may be checked and verified physically through technical audit.	
	2	Mis-statement by the contractor will lead to subsequent disqualification at any stage.	

List of Projects/Contracts during the Last 10 Years **Annexure-IX**

(Mention complete detail of 3D PSTM, PSDM (Kirchhoff, RTM/CRAM/CBM), RTM and DI processing projects belonging to Fold and thrust Belt/Salt Tectonics).

S.NO.	CLIENT NAME With address , email & Contact Number	SATISFACTORY REPORT OF THE CLIENT	DESCRIPTION OF WORK	AMOUNT (Million US $)	CURRENT STATUS OF THE CONTRACT	VALIDITY	
						FROM	TO
1.							
2.							
3.							
4.							
5.							

Note: Please do not mention offshore projects or projects belonging to extensional regime (Normal faulting)

Annexure-X

List / Resume of Manpower Permanently Employed by the Contractor

Location and List of Resume of Staff (Mention complete detail experience of 3D PSTM, PSDM (Kirchhoff , RTM/CBM/CRAM) and DI processing belonging to Fold and thrust Belt/Salt Tectonics						
S.NO	NAME OF PROFESSIONAL	DESIGNATION	ACADMIC QUALIFICATION (YEARS)		PROFESSIONAL EXPERIENCE	MENTION PROJECTS DETAIL
			DEGRE	OTHER		
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Annexure-XI

Details of hardware used by the contractor for 3D land Seismic Processing

S.NO.	HARDWARE NAME	ACQUIRED BY THE COMPANY ON	QUANTITY	CONDITION	REMARKS
1.					
2.					
3.					
4.					
5.					
6.					