

PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION C

(To be completed, filled in, signed
and stamped by the principal)

ANNEXURE 'A'

Material QUANTITATIVE INTERPRETATION SOFTWARE WITH M&SS.
Tender Enquiry No PROC-FC/CB/EXPL/HO-3179/2017
Due Date
Evaluation Criteria FULL

SCHEDULE OF REQUIREMENT

Sr No	Description	Unit	Quantity	Unit Price (FOB)	Total Price (FOB)	Unit Price C & F BY SEA	Total Price C & F BY SEA	Deviated From Tender Spec. If Any
1	QUANTITATIVE INTERPRETATION SOFTWARE PURCHASE.	Number	1					
2	TWO YEARS MAINTENANCE AND SUPPORT SERVICES (INCLUSIVE OF SOFTWARE TRAINING) as per TOR.	Number	1					

Note:

Terms Of Reference

FOR

QUANTITATIVE INTERPRETATION SOFTWARE

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IT'S MAINTENANCE & SUPPORT SERVICES AGREEMENT

M/s OGDCL Exploration Department intends to procure Quantitative Interpretation (QI) software along with hiring for its Maintenance and Support services. QI techniques are being used worldwide and are considered as established tools for hydrocarbon identification. In light of this development the specifications for a QI Software and its M&SS are as follows;

- The software language should be English only and there must not be any grammatical / spelling mistake in the whole software.
- M/s OGDCL intends to purchase 01 Software licence, Afterwards OGDCL shall become the owner of the intellectual property without paying any extra fee/charges.
- QI software version should be the latest available.
- Software updates, upgrades and modifications will be sent to OGDCL via any convenient, fast and reliable media, to upload by bidders technical team accordingly.
- Any fault, bug in software reported should be rectified within 48 hours.
- On the startup, when required, provide technical advice on atleast 03 projects by bidder's resource through any media or onsite.
- Provide details of relevant resources presently working in your organization along with their Resumes,
- Initial term of M&SS contract will be for 02 years and can be extendable further with mutual consent).
- The bidder shall be able to provide M&SS throughout the 2 years-contract period onsite (locally) and online as well (internationally even when required).
- The M&SS rates (for all modules, etc.) shall be quoted in tabular form as unit rates, monthly, annual and for the whole contract, and shall remain same for the whole period of contract.
- In case of award of contract, the vendor will have to provide project workflows.
- M&SS start date will be set as the date of signing of agreement after installation of software on hardware.
- Bug fixes, patch, new version and updates, should be installed as they become available, free of cost during M&SS contract period.

- Any updates and enhancement to existing documents may also be shared, as soon as they are available.
- Online, and call center help and guidance should remain available on 24/7 basis.
- OGDCL shall make all payments quarterly against verified invoices.
- OGDCL shall pay clean invoices, within Thirty (30) days after the receipt of invoice.
- OGDCL will not make any advance payment.
- About 04-08 M/s OGDCL relevant professionals will be provided adequate training on the software for achieving expertise (in house / abroad), without training cost.
- Payment for software purchase will be made after signing of agreement and its installation whereas payment for software maintenance and support services charges will continue for period of 02 years.

Technical & Financial Evaluation Criteria

- Technical and Financial evaluation criteria (undermentioned) has been set to qualify for the tender. For final bid evaluation, 70% weightage will be given for technical evaluation and 30% for financial evaluation. 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.

Technical Evaluation:

The Technical evaluation will be based on the criteria under mentioned in technical Evaluation table. The potential bidders are required to strictly follow the sequence of Technical Evaluation Criteria Table and submit their proposals accordingly.

With respect to TEC Table; in **Description of Technical Terms**, bidders software must fulfill/score for all terms to qualify other than “Any additional valuable Features” terms. Else the bidder will be declared as technically non-responsive. However “additional features” carry extra points and will count in Technical qualification.

With respect to TEC Table; in the listed **General Terms** at least **01 point** each in A, B and C Terms respectively is required for scoring, else the bidder will be declared as technically non Responsive and its financial proposal will not be opened. The qualifying marks in Technical Evaluation are therefore **83 points**.

	cross-correlations between any two logs belonging to the same well				
	<ul style="list-style-type: none"> ▪ Histogram plot with statistics and standard deviation/percentile options 		0.5		
	<ul style="list-style-type: none"> ▪ Cross-plots without any data point limits 		0.5		
	<ul style="list-style-type: none"> ▪ De-spiking and log conditioning 		0.5		
	<ul style="list-style-type: none"> ▪ Vp, Vs, and Rho log prediction 		0.5		
	<ul style="list-style-type: none"> ▪ Vs prediction from Vp 		0.5		
	<ul style="list-style-type: none"> ▪ Litho-facies classification 		0.5		
	<ul style="list-style-type: none"> ▪ Vp, Vs, and Rho log prediction 		0.5		
	<ul style="list-style-type: none"> ▪ Elastic log calculation 		0.5		
	<ul style="list-style-type: none"> ▪ Facies log creation, QC and analysis 		0.5		
	<ul style="list-style-type: none"> ▪ Log calculator 		0.5		
	<ul style="list-style-type: none"> ▪ Programmer for logs, discrete value sets, and horizons 		0.5		
	<ul style="list-style-type: none"> ▪ Zero-incidence synthetics and log filtering 		0.5		
	<ul style="list-style-type: none"> ▪ Any additional valuable features 		01		
	Domain Conversion				
	<ul style="list-style-type: none"> ▪ MD to TVD – measured depth to true vertical depth (standard minimum curvature method) 		0.5		
	<ul style="list-style-type: none"> ▪ TVD to TWT – Could optionally make a time-depth conversion in the absence of checkshot 		0.5		
	<ul style="list-style-type: none"> ▪ Time depth conversion tool to calibrate seismic and well 		0.5		
	<ul style="list-style-type: none"> ▪ Any additional valuable features 		01		
	Seismic gather conditioning				
	<ul style="list-style-type: none"> ▪ Muting 		0.5		
	<ul style="list-style-type: none"> ▪ Filtering 		0.5		

<ul style="list-style-type: none"> ▪ NMO correction and velocity analysis 	0.5		
<ul style="list-style-type: none"> ▪ Filtering 	0.5		
<ul style="list-style-type: none"> ▪ De-convolving 	0.5		
<ul style="list-style-type: none"> ▪ Stacking 	0.5		
<ul style="list-style-type: none"> ▪ Scaling 	0.5		
<ul style="list-style-type: none"> ▪ Smoothing 	0.5		
<ul style="list-style-type: none"> ▪ Flattening 	0.5		
<ul style="list-style-type: none"> ▪ Time-depth conversion 	0.5		
<ul style="list-style-type: none"> ▪ Any additional valuable features 	01		
Horizon data conditioning			
<ul style="list-style-type: none"> ▪ Horizon picking 	0.5		
<ul style="list-style-type: none"> ▪ Interpolation 	0.5		
<ul style="list-style-type: none"> ▪ Smooth 	0.5		
<ul style="list-style-type: none"> ▪ Copy and rename 	0.5		
<ul style="list-style-type: none"> ▪ Time depth conversion 	0.5		
<ul style="list-style-type: none"> ▪ Advanced smoothing with specified filter size 	0.5		
<ul style="list-style-type: none"> ▪ Snap horizons to well markers, 	0.5		
<ul style="list-style-type: none"> ▪ Horizon calculator and creation using existing 2D 	0.5		
<ul style="list-style-type: none"> ▪ horizons, points values, or well markers 	0.5		
<ul style="list-style-type: none"> ▪ Any additional valuable features 	01		
Well tie and wavelet extraction			
<ul style="list-style-type: none"> ▪ Statistical wavelet 	0.5		
<ul style="list-style-type: none"> ▪ Rickor wavelet 	0.5		
<ul style="list-style-type: none"> ▪ Well based wavelet 	0.5		
<ul style="list-style-type: none"> ▪ Use stretch and squeeze to tie and update wavelet 	0.5		
<ul style="list-style-type: none"> ▪ Scale wavelet 	0.5		
<ul style="list-style-type: none"> ▪ Horizon calculator and creation using existing 2D horizons, points values, or well markers 	0.5		
<ul style="list-style-type: none"> ▪ Data import/export as LAS, ASCII, SEG Y, and XLS, from .rok files, OpenSpirit or Petrel plugin links, 	0.5		

	<ul style="list-style-type: none"> ▪ Multi-well visualisation, input, analysis and QC 		0.5		
	<ul style="list-style-type: none"> ▪ Built-in comprehensive log editing and conditioning, including anisotropy correction 		0.5		
	<ul style="list-style-type: none"> ▪ Seismic traces for wavelet extraction can be vertical traces around the wellbore or well path following composite traces 		0.5		
	<ul style="list-style-type: none"> ▪ Field-wide wavelet and synthetic archival and retrieval at any time, 		0.5		
	<ul style="list-style-type: none"> ▪ Wavelet averaging, provided for inversion 		0.5		
	<ul style="list-style-type: none"> ▪ Any additional valuable features 		01		
	<p>2D Features</p> <ul style="list-style-type: none"> ▪ Quick creation of tuning wedge and layer cake models from well markers 		0.5		
	<ul style="list-style-type: none"> ▪ Creating model along seismic line (inline/crossline, 2D survey, or digitised arbitrary line) 		0.5		
	<ul style="list-style-type: none"> ▪ Range of zone fill options (rock physics models, log data, constant, quantity, neural network) 		0.5		
	<ul style="list-style-type: none"> ▪ Zone properties could be varied laterally and orthogonally 		0.5		
	<ul style="list-style-type: none"> ▪ Zone property interpolation between events, guided by user defined sequence stratigraphic layering 		0.5		
	<ul style="list-style-type: none"> ▪ Vertical smoothing, 		0.5		
	<ul style="list-style-type: none"> ▪ Gassmann dry rock and unconventional fluid substitution, 		0.5		
	<ul style="list-style-type: none"> ▪ Dynamic model updates enabling interactive modelling of changing zone 		0.5		

3	Rock Physics – Petrophysics		11		
	<ul style="list-style-type: none"> ▪ Rock physics built-in templates ▪ Petrophysical elastic model ▪ Facies and fluid classification ▪ Gassmann dry rock modelling, plus heavy oil and anisotropic Gassmann calculations ▪ Calibrating elastic properties of water, oil & gas ▪ Relative Rock Physics to decompose log to trend log and relative log ▪ Lithology based up scaling, ▪ Neural Net (train on wells with full data, apply on wells with partial data) ▪ Log prediction using Rock Physics Model Templates, ▪ Up scaling data from carbonate modelling to give a carbonate model with multiple pores and a fracture set ▪ Grouping of Rock Physics Models into RPM templates ▪ External Interface Plug-in based RPMs (in addition to the existing User Programmer and Point Based RPMs), allowing multiple inputs/outputs ▪ Could be coded by the user ▪ Plot models in many cross-plot spaces when a 		<p>0.5</p> <p>0.75</p> <p>0.75</p> <p>0.75</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.75</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p>		

	<p><u>The module should have a workflow like:</u></p> <ul style="list-style-type: none"> - Input data - Seismic scaling - Wavelet/multi-well wavelet extraction and well tie - Low frequency model - Inversion parameterization - Inversion analysis - QC results ▪ Any additional valuable features <p>Stochastic Inversion</p> <ul style="list-style-type: none"> ▪ Create robust 3D models and simulation inputs from wells ▪ Model geometry to make it compatible with other geological and reservoir simulation models, ▪ Sharing well database and cross-plot functionality, ▪ Seismic property calculation: reflectivity, AI & GI, EEI, LambdaRho & MuRho, ▪ Spectral inversion, ▪ Post Inversion Property Prediction Features ▪ Bayesian classification of rock types ▪ Reservoir properties from impedances through Rock Physics Models ▪ Multi-realisation analysis ▪ Facies and fluid probability trends (PDF) ▪ Stochastic inversion to integrate high frequency detail from the logs and lower frequency 		<p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.1</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p>		
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	<p>information in the seismic bandwidth,</p> <ul style="list-style-type: none"> ▪ Multiple realisations capture uncertainty in reservoir heterogeneity, ▪ A rapid QC on 2D sections at the click of a button. This allows the user to QC the results of a single or multiple 2D stochastic inversions before running multiple 3D realisations ▪ Well QC testing of stochastic inversions available for single and multiple inversion ▪ Advance tools to calibrate seismic and well velocity, ▪ Software should handle laterally varying trends and handle overlapping of facies (minimum 5), ▪ Respect and follow trends of horizontal and vertical variograms, ▪ Produce a number of probabilistic realizations and user must have control to choose the best realizations according to certain criteria ▪ Ranking of realisations to capture the prospect location ▪ Any additional valuable features 		<p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>0.5</p> <p>01</p>		
5	Interpretation of Inversion Results		6		
	<ul style="list-style-type: none"> ▪ 3D volumes of facies and fluid probabilities ▪ Net of to Gross volume ▪ Geo bodies ▪ Volumetric calculation ▪ Stratigraphic slices ▪ Any additional valuable features 		<p>01</p> <p>01</p> <p>01</p> <p>01</p> <p>01</p> <p>01</p>		

