

Geoscience Services

Integrated
E&P Studies

E&P Software
Support and
Services

Seismic Processing
Consultancy/
Services

Well Log
Processing
Consultancy/
Services

E&P Project Data
Management

**Make business critical decisions
with the help of our experienced
geoscientists and engineering
consultants**



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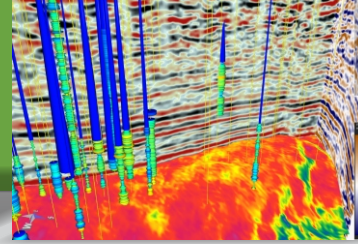
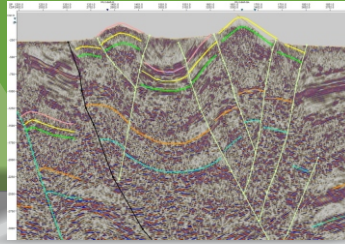
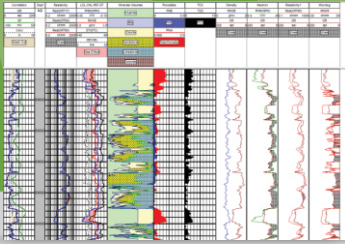
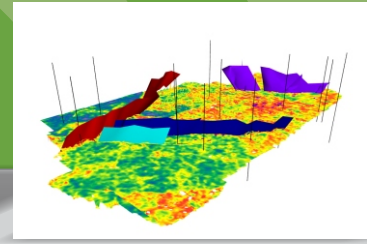
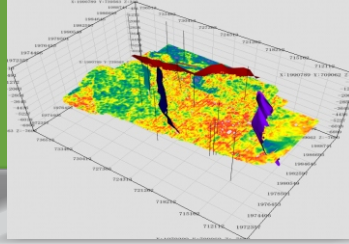
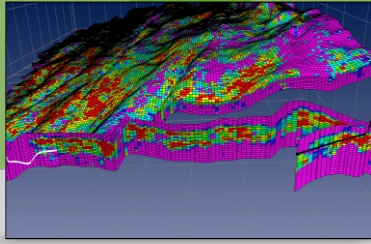
Extensive domain knowledge coupled with industry-standard E&P software expertise enables us to deliver cost effective geoscience services to the upstream oil & gas sector and governments across the globe.

Our service delivery approach aims at facilitating E&P companies in boosting production and enhancing profitability by augmenting their operations through offshore or onsite support from our highly skilled pool of geoscientists.

It is our objective to enable you to lower the risk associated with key decision points in the oil & gas lifecycle and realize the full potential of your investments.

Geoscience Services

- [Integrated E&P Studies](#)
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- [E&P Project Data Management](#)



Integrated E&P Studies

Enhance your reservoir knowledge with LMKR expertise of reservoir characterizations.

With our resource pool of highly skilled geoscientists and reservoir engineers we provide the complete basin and field level studies for conventional and unconventional resource identification and evaluation.

For exploration, we help you to identify the sweet spots, hydrocarbon potential, leads & prospects for new exploration blocks and acreages.

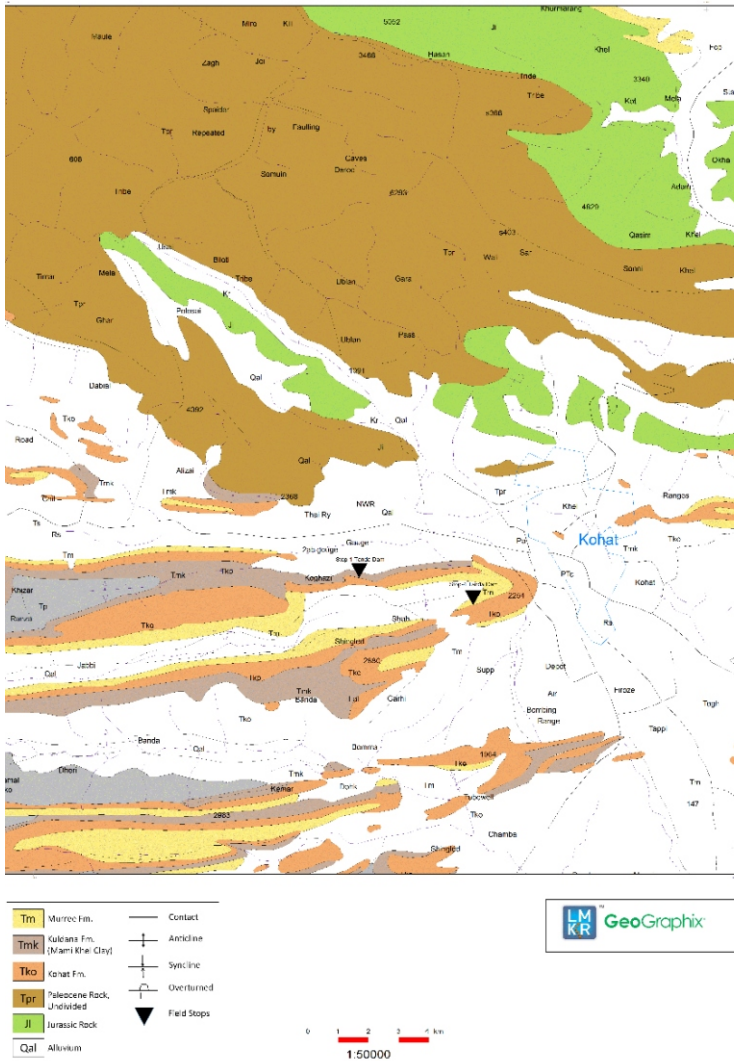
Our team of experienced geoscientists and reservoir engineers can also help you in reserves estimation, asset evaluation and reserves certification.

Our expertise in upstream disciplines are

ranging from surface geology to reservoir simulation, for details of each discipline please select the following links:

- [Geological Field Studies/Mapping](#)
- [Petroleum System Modeling](#)
- [Petrophysical Interpretation](#)
- [Seismic Interpretation](#)
- [Reservoir Geophysics](#)
- [Integrated Reservoir Static Modeling and Mapping](#)
- [Well Planning](#)
- [Geo-Mechanics](#)
- [Field Development Plan](#)
- [Reservoir Management Plan](#)
- [Reservoir Simulation](#)

Geological Field Studies/ Mapping:
 LMKR have expert team of structural geology and sedimentology, using the modern approach of remote sensing and GIS technologies we deliver the accurate results



with high quality/ resolution maps. LMKR's field geological studies and services offerings are as follows:

- Determination of lateral & vertical extents and thickness of targeted shale, sandstone and carbonate units.
- Lithofacies description of shale, sand and carbonate units in any stratigraphic section
- Faults identification on surface
- Field stratigraphic log preparation using field observation

- Gross depositional maps
- Biostratigraphy using field observations
- Sedimentary structures identification and defining bedding patterns.
- Detailed petrography for the facies analysis to determine the paleo environments and provenance of different depositional units
- Prospect Identification using results of structural geology
- Seismic acquisition plan using results of structural geology

Petroleum System Modeling:

The ultimate goal is to determine the possible presence and extent of hydrocarbons and hydrocarbon-bearing rocks in a basin. We have expertise in Basin evaluation and can deliver high quality results in limited time frame. Using top of the line solutions for Petroleum System Modeling, LMKR offers

- Basin Classification and Structural Analysis
- Sequence Stratigraphy
- Depositional Environments
- Play fairway Analysis
- Common Risk Segment Mapping

Petrophysical Interpretation:

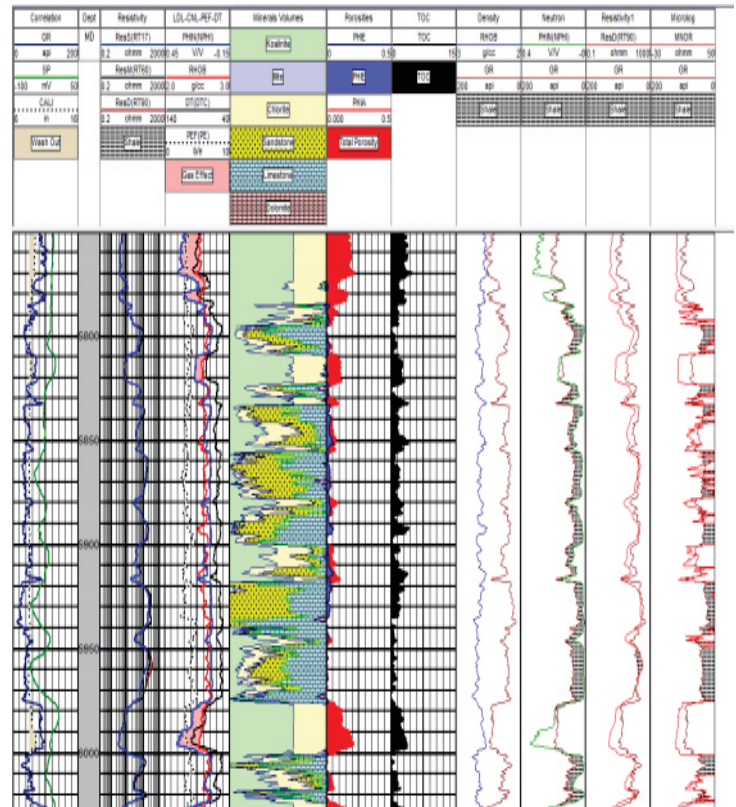
For the understanding of reservoir and its detailed characteristics, our expert Petrophysics team can help interpreting rock properties.

Our offerings under Petrophysical Interpretation services are as follows:

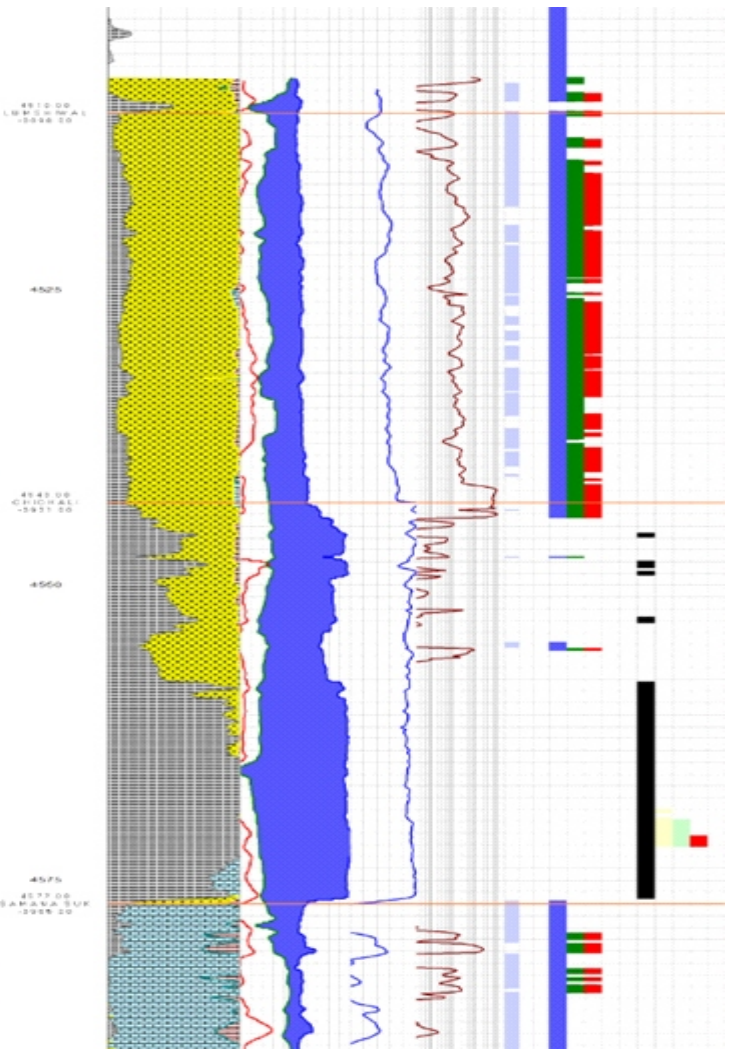
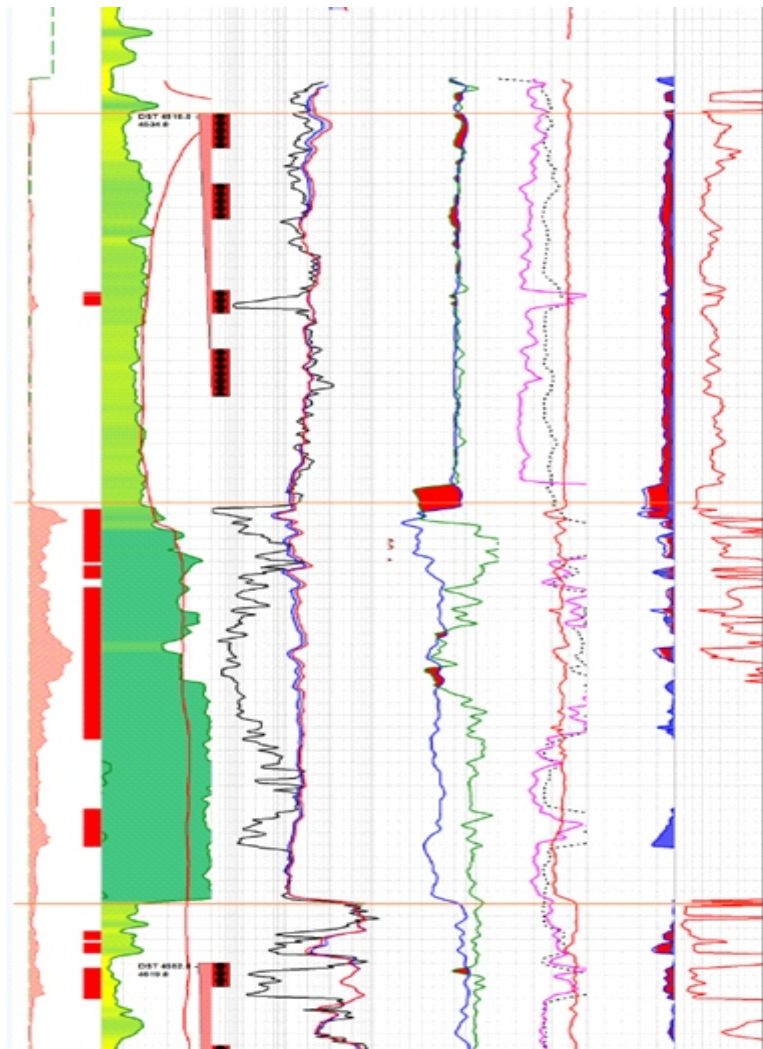
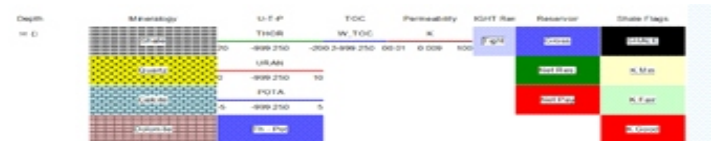
- Pre-job Planning and Acquisition Support
- Designing of logging programs to address formation evaluation challenges
- Tool combination plan for optimal data

quality, wellsite efficiency and safety

- Real-time support and QC of logging data and sample quality
- Standard Interpretation
- Detailed Formation Evaluation
- Log analysis of both carbonate and clastic rocks
- Quick look, Qualitative & Quantitative log interpretations, core calibration, pay zone identification and perforation interval selection
- Petrophysical analysis of unconventional reservoirs
- Interpretation of RFT/MDT data
- Integrated interpretation to determine field reserves



Block	Correlation	Resistivity	Density/PHI	PHI, DT	Porosity	Saturation					
Crab	SP	Res(DT1)	RDH	DT	PHI	SW					
20	-999.250	200.2	20000.95	2.888	2.95140	57.832	400.5	0.019	50	1.000	1.000
Engine Room	GR	Res(DT2)	PHI	PHI	PHI						
0.000	-5.171	1500.2	20000.45	0.022	40.150	0.000	2.354	10.0000	0.018	0	
Traverse			20000		0.240	0.541	0.250				



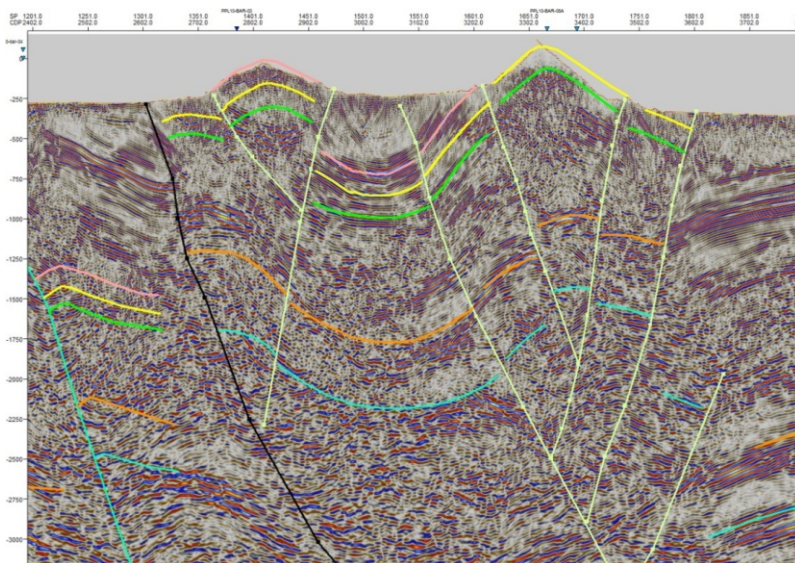
Seismic Interpretation:

The Seismic reflection interpretation usually consists of calculating the position of interfaces and identifying geologically concealed interfaces or sharp transition zones from seismic pulses return to the ground surface by reflection. The influence of varying geological conditions is eliminated along the profiles to transform the irregular recorded travel times into acceptable subsurface models. Using the industry leading software technologies LMKR's Seismic interpretation consultant group can help in

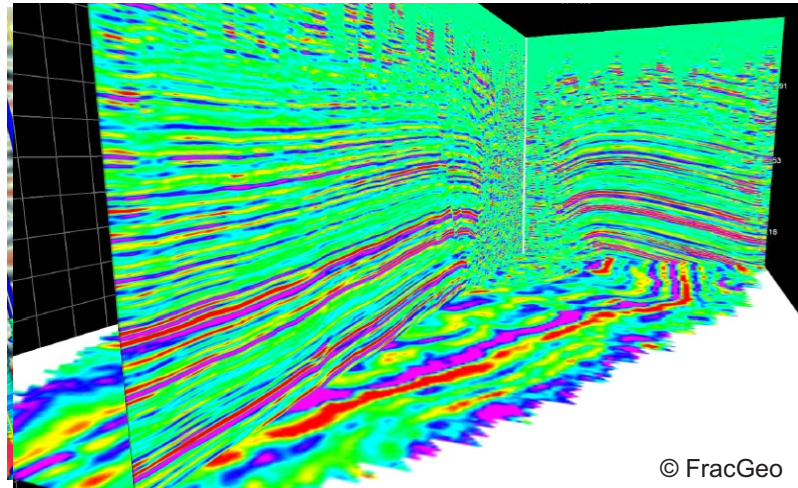
- Seismic survey designing, planning, parameters testing and QC of field operations
- 2D/3D seismic data processing, QC and parameters optimization

Advanced 2D/3D seismic interpretation and prospect generation in compressional and extensional regimes:

- Structural Interpretation (Two way time, Depth, Isochron, Isopach Maps)
- Fault Seal Analysis



- Structural Balancing & Restoration
- Velocity Modeling



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- Attribute Analysis
- Synthetic Seismogram
- Depositional Facies Modeling
- Reserves Calculation
- Prospects Risking & Ranking

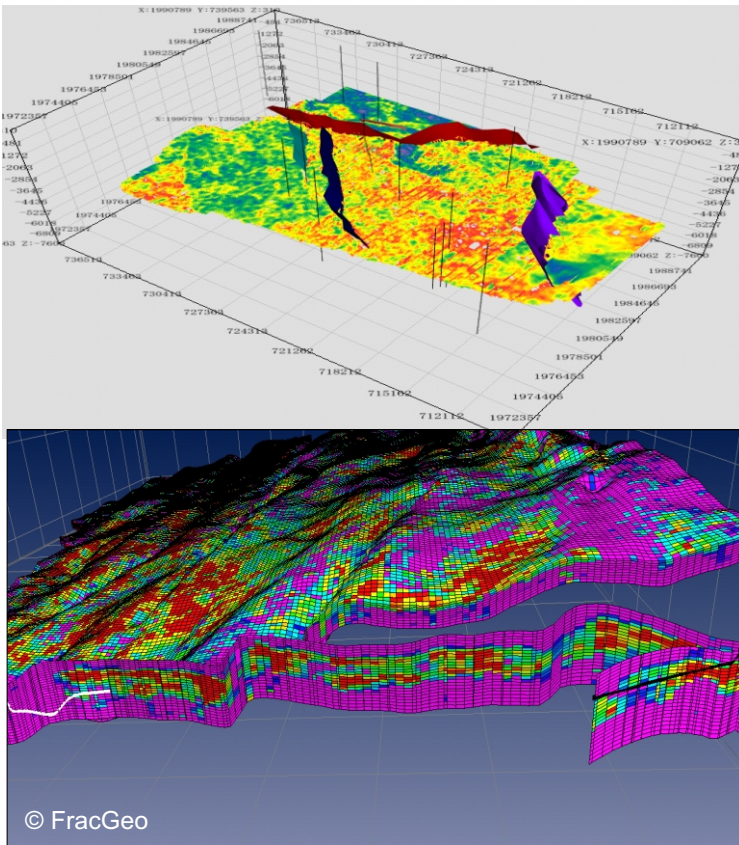
Reservoir Geophysics:

- Reservoir Characterization and Property Modeling
- Enhanced seismic resolution using advanced attribute analyses
- Stochastic High resolution post stack and pre stack elastic inversion
- Lithology constrained elastic inversion
- Reservoir parameters prediction over 3D volume
- Seismically Guided Geologic Modeling Using Neural Networks
- Seismically Guided Fracture Modeling Using Neural Networks

Integrated Reservoir Static Modeling and Mapping:

For decision making and finalizing the estimation of reserves, an integrated reservoir model is constructed known as "Static Reservoir Model".

With the team of experienced geoscientist and engineers LMKR offer services of integrated reservoir modeling by incorporating geological, geophysical,

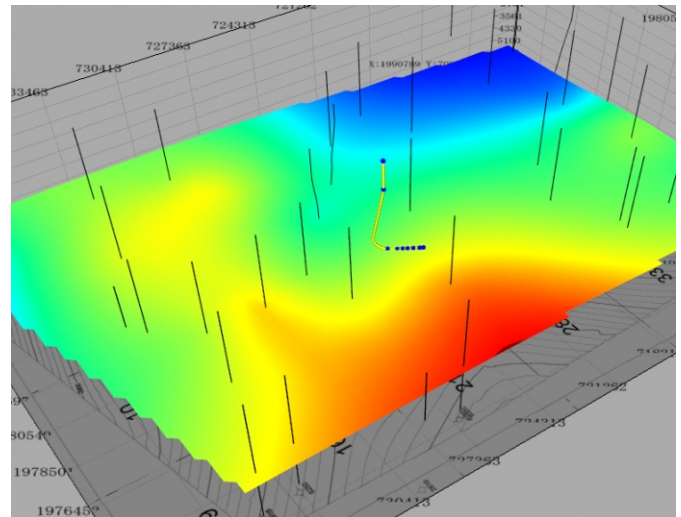


petrophysical and Geomechanical information. The reservoir modeling and characterization results are used in field planning and management.

Well Planning:

Industry leading software LMKR GVERSE Planner allows multiple well planning to easily visualize geologic surfaces, quickly create surveys and geoprognosis reports. It provides geologists with the capabilities needed to accurately design proposed wells and rapidly make well completion decisions maximizing productivity. With the help of experienced geoscience and engineering consultants LMKR offers:

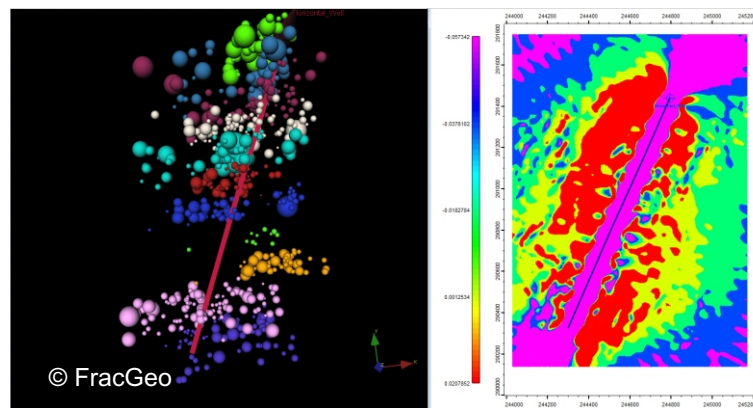
- Drilling workflow optimization to reduce Geological nonproductive time (GNPT).
- Pore Pressure prediction and Fracture Gradient Analysis
- Subsurface Drilling Hazard Analysis
- Reservoir Geomechanics



- Wellbore Stability and Broaching Analysis
- Wellbore Seismic Analysis
- Geosteering
- Real time monitoring

Geo-mechanics – (Fracture & Faults Modeling):

Geomechanical technologies focus on the estimation of subsurface properties affecting hydraulic fracturing including the



natural fractures and their complex interaction with regional stress and hydraulic fractures. This modeling uses new and fast computational tools that overcome the major limitations found in the existing software to accurately represent the physics of stimulation of fractured reservoirs. LMKR in collaboration with partners offer the following services around Geo-mechanics:

Geologic and Fracture Modeling

- Seismically constrained geologic and fracture models
- Geomechanical Modeling
- Modeling the interaction between natural and hydraulic fractures
- Estimation of asymmetric half lengths
- Estimation of stimulated permeability and export to any simulator

Field Development Plan:

Based on the results of Geology, Geophysics and Geo-mechanics, LMKR has expertise to develop a detailed field development plan considering the following factors:

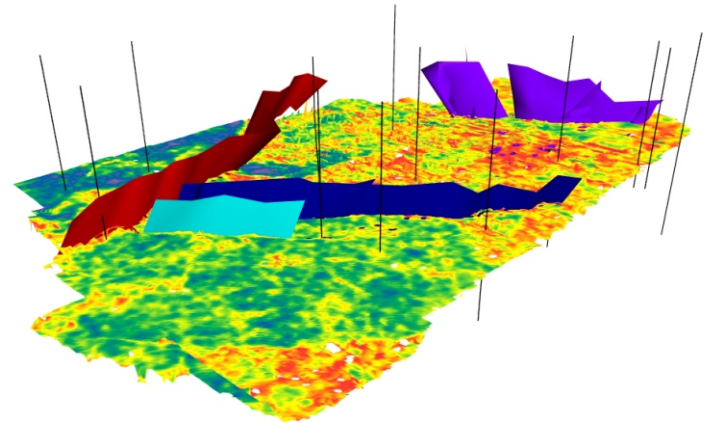
- Review and analyses of extraction technologies
- Implementation of best possible completion scenarios
- Calculation of estimated ultimate recovery by performing production profiling
- Combination of best possible infill drilling, proponent selection for optimized productions
- Number of wells to be drilled and production facility design
- Economic evaluation and analyses
- Risk factor identification and mitigation plan
- Filed Abandonment Plan

Reservoir Management Plan – (Production Optimization):

The usage of advanced inversion techniques enabled LMKR to estimate the changes in reservoir fluid saturation and pressure properties. This technique is useful to estimate the remaining hydrocarbon volumes and can help to optimize the

production and recovery factor. Following are the offerings:

- Projected ultimate recoveries
- Producing rates oil, gas and water
- Reservoir Pressure management and monitoring
- Development well placement

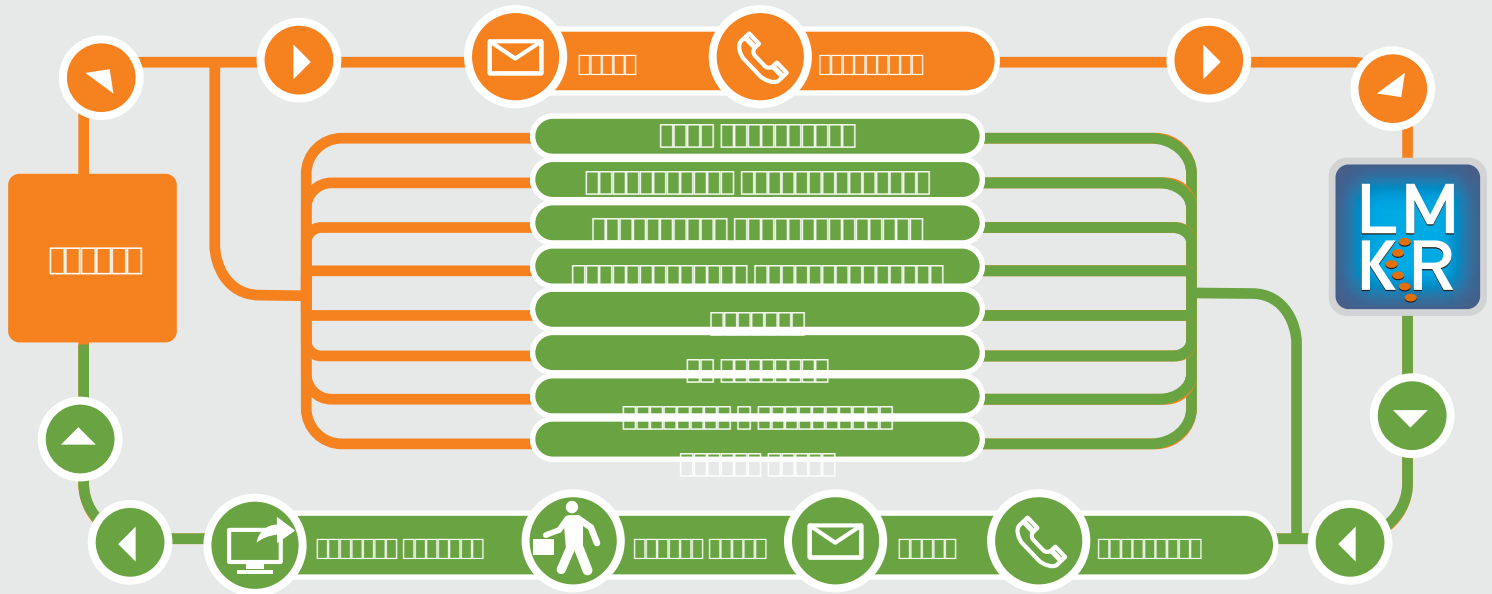


- Individual well and total field off take rate (Production rates)
- Determination of primary drive mechanism

Reservoir Simulation:

Reservoir simulation models are used in the development of new fields. Also, models are used in developed fields where production forecasts are needed to help make investment decisions and for reservoir management. For new fields, models may help development by identifying the number of wells required, the optimal completion of wells, the present and future needs for artificial lift, and the expected production of oil, water and gas.

LMKR has expertise of building dynamic reservoir model, history matching and running different simulation models. These models contribute to forecast the remaining reserves and economics analysis of the reservoir.



E&P Software Support and Services

Maximize the value of your E&P software investment using our onsite support consulting services in the following phases of the upstream oil and gas lifecycle:

G&G Exploration:

- **System Admin** - Support available for the System Admin, software installation, configuration and integration workflows.
- **Geology** - Software support and consultancy for the basic to advanced level of geological interpretations workflows including petrophysical interpretation, well correlation and surface mapping
- **Geophysics** - LMKR consulting services group can provide workflow support from basic to advanced level of seismic interpretation ranging from horizon and

fault interpretation to attribute analysis and inversion interpretation.

- **Geo-mechanics** - multivendor software support in the field of fracture modeling and Geo-mechanics

Reservoir Engineering and Management:

- LMKR's pool of consultants can help in static to dynamic modeling workflows using multi-vendor software
- Team of experience engineers can help in software workflows related to reservoir simulation, including history matching, upscaling etc.

Drilling and completion:

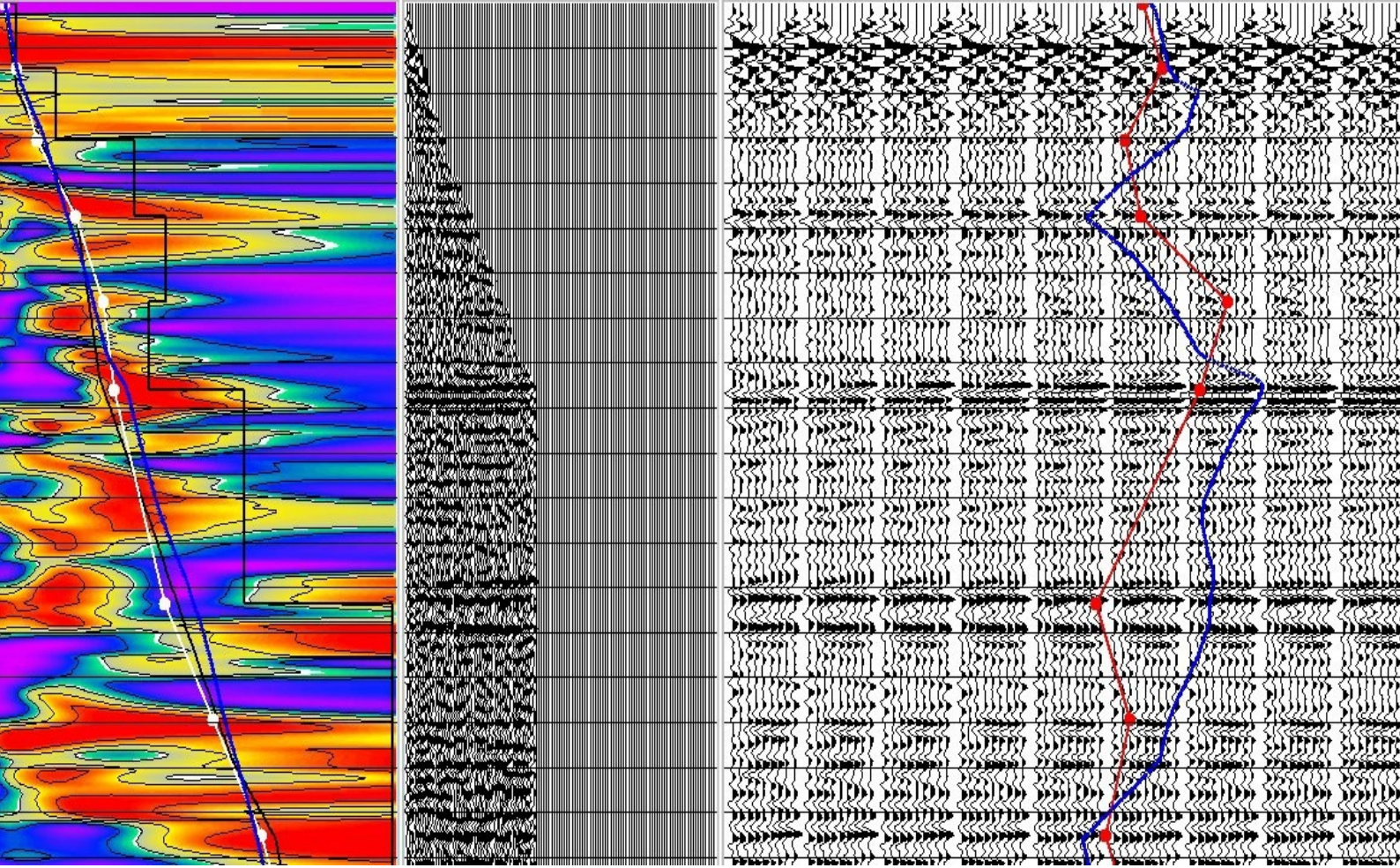
- Our team of Consultants/Engineers experts in Landmark Application and workflow can help you in Well Planning,

casing, cement design, drilling report customization, wellhead, wellbore and completion schematic, torque and drag analysis, hydraulic system design and tabular analysis.

Production surveillance and optimization:

Our Expert workflow consultants in Industry leading software can help you in

- Decline curve analysis and production forecasting
- PVT analysis and volumetric calculation

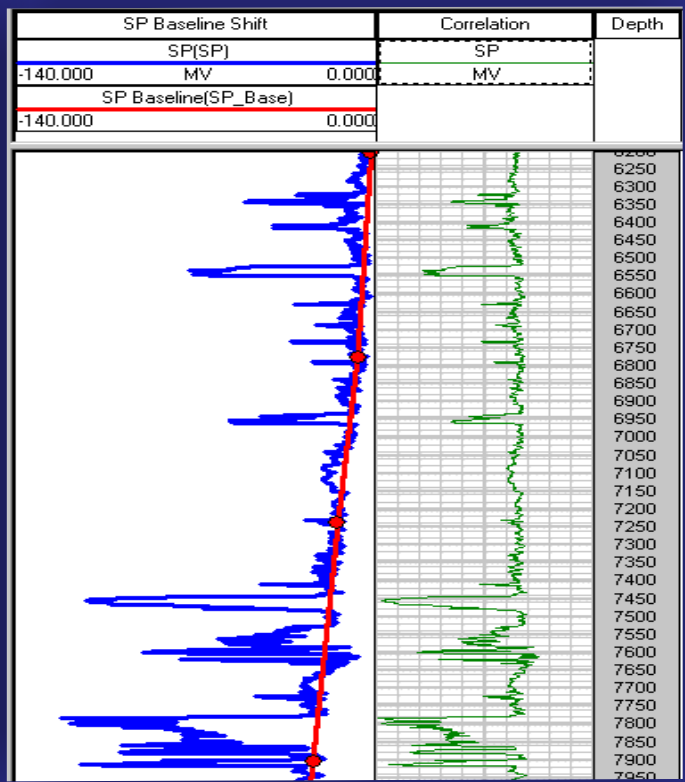
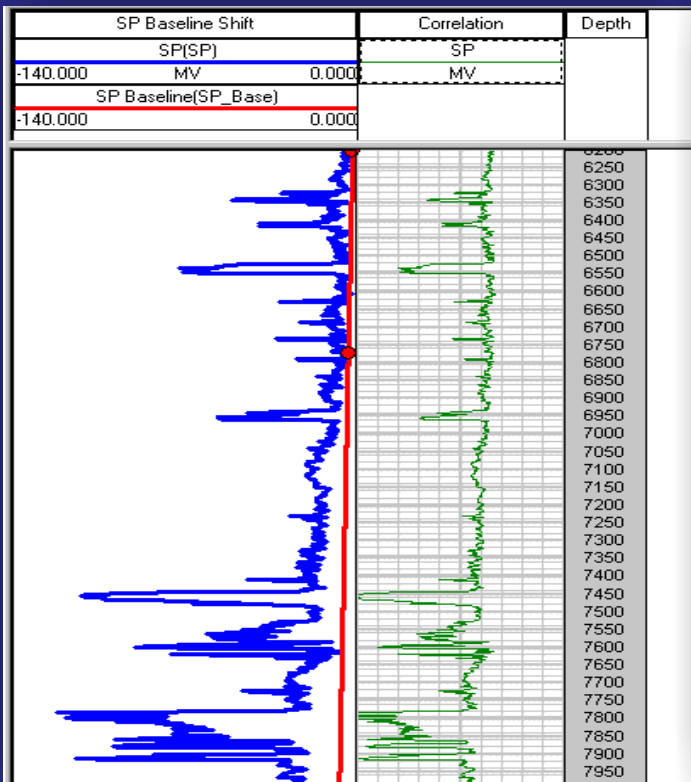


Seismic Processing Consultancy/Services

LMKR in collaboration with partners are offering vast seismic processing services. Supported by the resource pool with comprehensive experience in various geological settings and technology platforms, we provide 2D& 3D Seismic Data Acquisition, Processing/ Reprocessing and Field QC consulting services to E&P companies around the globe.

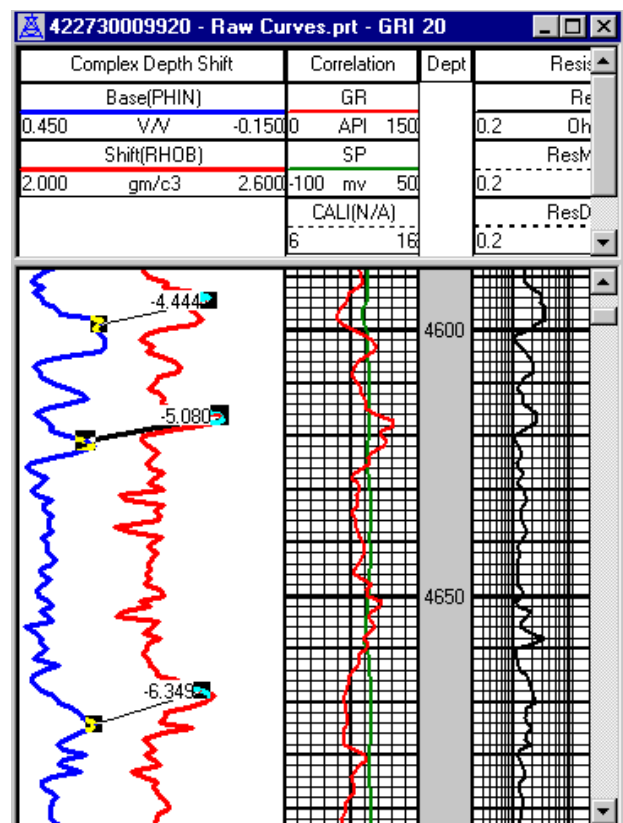
For 2D or 3D data acquired offshore or on land, our advanced imaging services include:

- Pre-stack time migration (PreSTM)
- Pre-stack depth migration (PreSDM)
- Reverse time migration (RTM)
- Velocity model building
- Real-time Model Morphing and Migration (RTM3)
- Tomography
- Waveform Inversion (FWI)
- AZIM and OVT PreSTM
- AVO/Inversion



Well Log Processing Consultancy/Services

Integrated interpretation of any geological model requires cautious grounding and judicious use of Petrophysical logs and other well-derived data. At LMKR, we process and made your well data interpretation ready.



Customized approach in Well Log Processing according to your (client's) Needs

Move digital log data from logging field tapes or digitized logs to the log processing environment

Raw or Digitized Data is plotted and compared with original/raster Logs.

Transformation/conversion of Hard copy data into ASCII files/Excel files to generate import ready formats

RAW Data Preparation

Data completeness/QC
Array Handling
Unit Conversions
File naming conventions
Raw Data Set generation

Edit Data Preparation

Depth matching & shifting
SP baseline shifting
Elimination of invalid data
Rescaling/patching/block editing
Curve Normalization
Environmental Corrections
Core Data Generation
Edit Data Set Generation

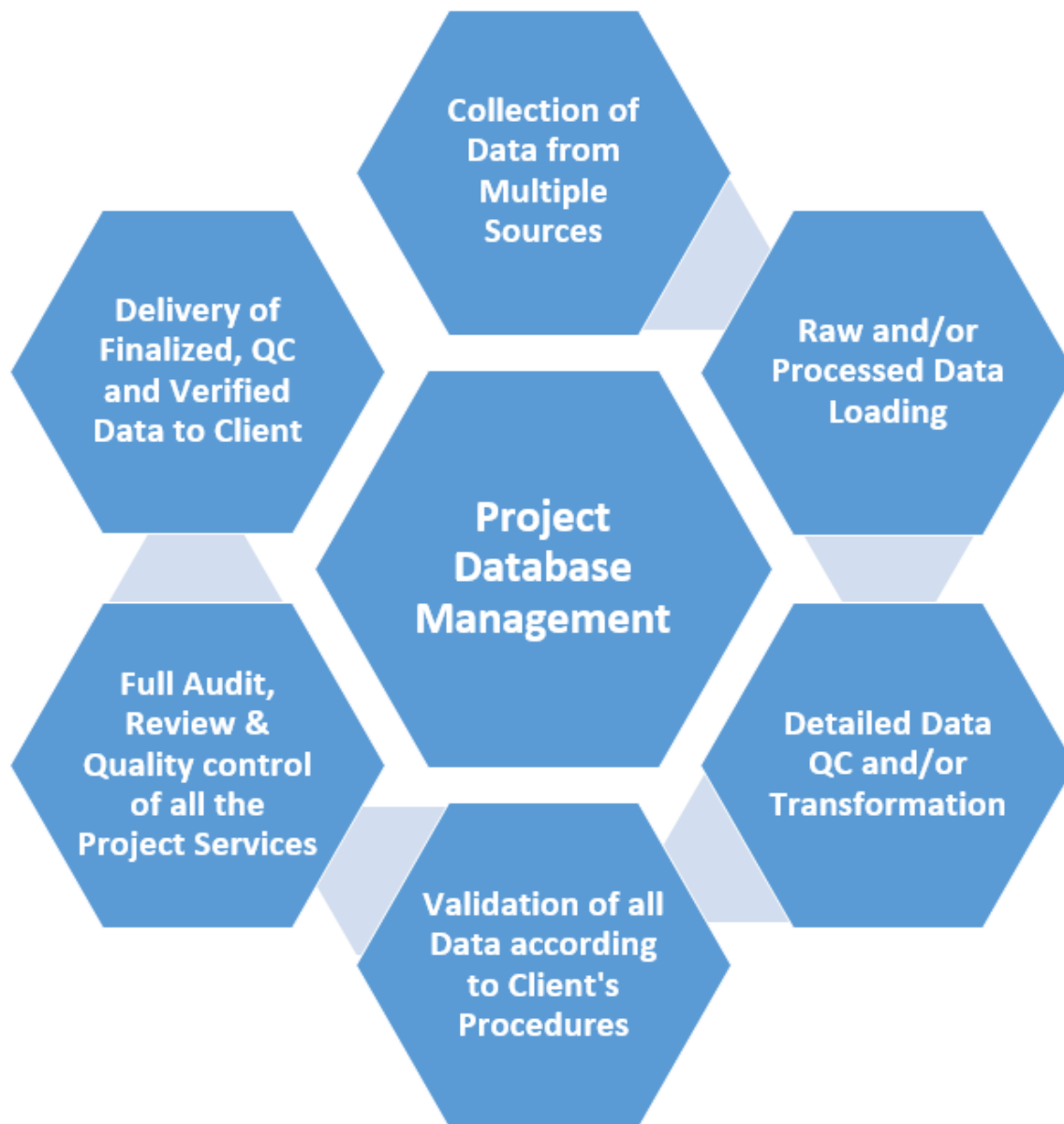
Composite/Hybrid Data preparation

Unifying runs of same channels
Unifying runs of different code channels
Composite/Hybrid Data set generation

Preparation of an Audit Trail (processing Report) with each and every step applied during processing of well data.

Radical QA/QC services of LMKR to ensure and maintain quality in processing and procedures

Delivery of Final data in industry leading formats.



E&P Project Data Management

While upgrading your data management application, the need to ensure that your E&P data is migrated and managed in its new environment efficiently is pivotal. At LMKR, a pool of highly skilled geoscientists and engineers with a vendor neutral knowledge base enable us to provide E&P companies with scalable and cost effective

E&P application data management services. Through onsite consulting or offsite support, we can migrate and manage your interpretation data/projects related to well, seismic, drilling, production, cultural and map data across a wide spectrum of multi-vendor E&P data management applications.

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Founded in 1994, LMKR is a petroleum technology company with an extensive solutions portfolio that includes reservoir-centric interpretation, modeling and analytics software, mobile technology solutions, E&P data services as well as geoscience and information management consulting solutions - all focused towards lowering the risk associated with exploration and production of conventional and unconventional resource plays.