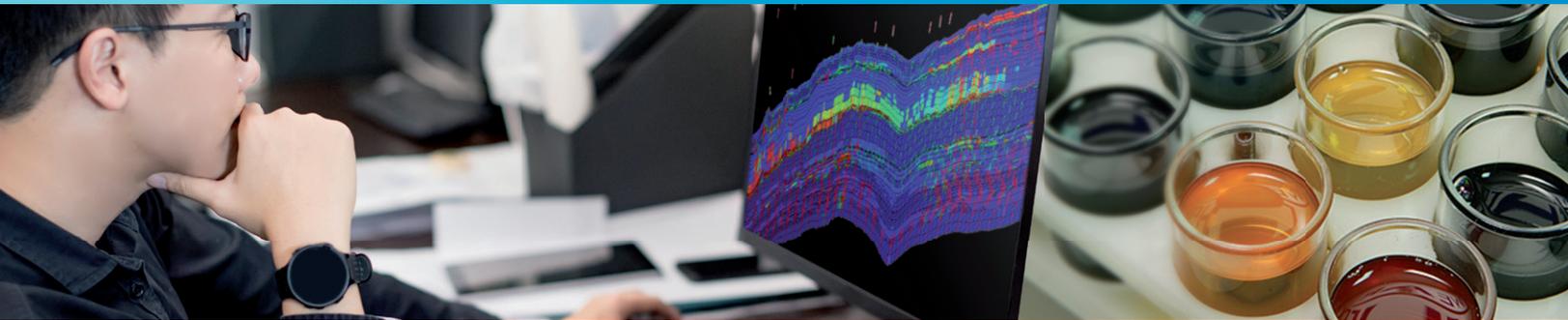


ResPack Hydrocarbons

Petroleum systems evaluation for new exploration opportunities



INDUSTRY CHALLENGES

Potential



When assessing or developing an asset, it can be difficult to know the hydrocarbon potential within the subsurface.

Certainty



Knowing hydrocarbon potential determines production success. Petroleum systems analysis provides an accurate estimation of recoverable reserves for better decision-making.

Production



A better understanding of hydrocarbon volume within the subsurface allows you to optimize production and maximize the value of your asset.

GEOSCIENCE SOLUTIONS

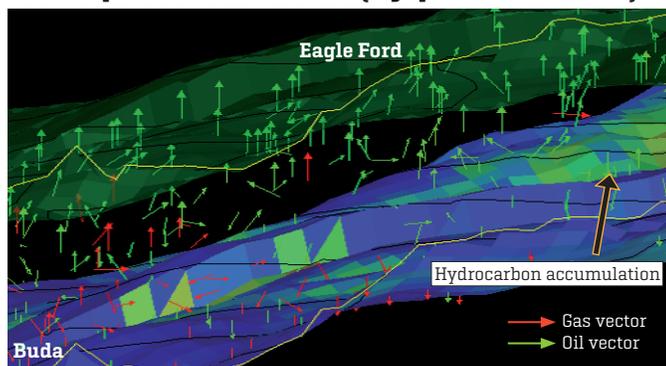
RESPACK HYDROCARBONS ADVANTAGES

- Subsurface samples are analyzed by CGG's organic geochemistry laboratory, established over 50 years ago
- CGG's experienced petroleum geochemists provide expert interpretation of your geochemistry data for a deeper understanding of the petroleum system
- Dynamic 3D petroleum systems models enable better informed decisions by simulating the generation, migration, and accumulation of hydrocarbons through the integration of 3D seismic inversion products [lithofacies, porosity, fractures, and other key volumes]

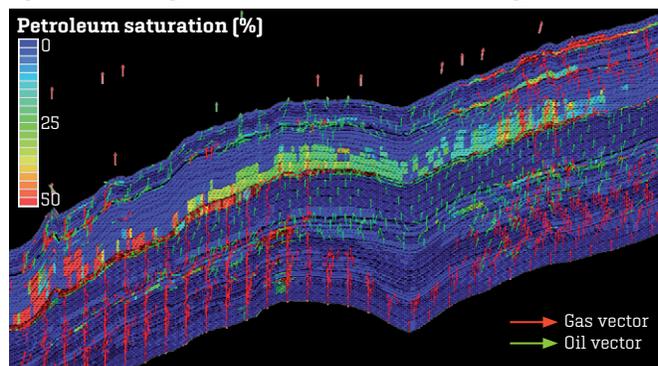
CASE STUDY

CGG completed a **ResPack Hydrocarbons** project in the Eagle Ford play to help a client identify resource potential within their asset. This project used integrated geological and geochemical data, petrophysics and 3D seismic inversion data to build a 3D petroleum systems model over the study area. Results from this dynamic modeling highlighted the hydrocarbon generation and migration process, as well as the present-day accumulation of hydrocarbons within the subsurface. Using this data, the client identified optimum areas for development.

Potential petroleum accumulations [high petroleum saturation]



Hydrocarbon migration and accumulation modeling

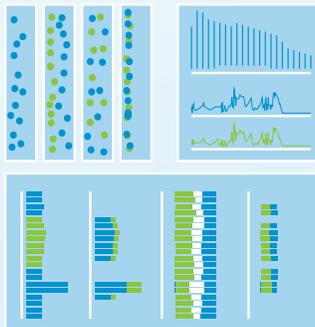


3D petroleum systems model (PSM) highlighting hydrocarbon migration pathways and accumulations within the Eagle Ford play.

RESPACK HYDROCARBONS DELIVERABLES

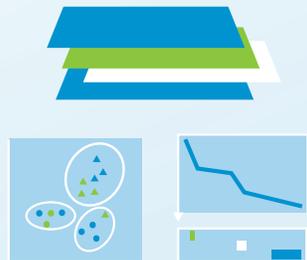
Organic geochemistry data

- Legacy and newly acquired geochemical data delivered in a quality-controlled database



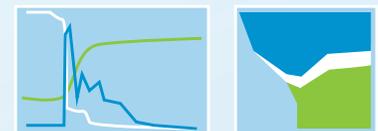
Petroleum systems evaluation

- Detailed report—supported by maps, plots, and geochemical correlations—with key information for a detailed assessment of petroleum system[s] within the study area



Petroleum systems modeling

- 1D/2D or 3D petroleum systems models to highlight the history of hydrocarbon generation, migration, and accumulation within assets
- Maps highlighting remaining source rock potential and volumes of potential hydrocarbon accumulations



RESPACK HYDROCARBONS ADD-ONS

ResPack Biostratigraphy	Evaluation and determination of formation age and depositional environment. Key input in the petroleum systems modeling phase. It also provides information related to deposition, erosion, and hiatus throughout basin evolution.
ResPack Sedimentology	Evaluation of core to determine depositional setting and sedimentary architecture. Sedimentological facies are used in core-to-log-to-seismic constraint and upscaling, ensuring the correct assignment of facies maps in the 3D petroleum systems model.
ResPack Petrophysics	Detailed study of reservoir properties and their vertical/lateral variations. Key properties such as effective porosity, permeability, saturations, and lithological variations are required to define the seal and reservoir rocks. Petrophysical evaluation based on log response [calibrated with core data] provides valuable information for petroleum system modeling.
ResPack Pore Pressure	The study of pore pressure and its variability within the subsurface. Pore pressure is a key factor in determining hydrocarbon productivity of unconventional plays.
ResPack Production Analysis	Advanced analysis to identify crucial production drivers within your asset, critical to understanding the potential remaining reserves in place.
GeoAnalytics	Advanced data analytics to identify production performance drivers within the subsurface from the integration of seismic, geology, and engineering data.

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