

DYNAMIC PPFG

Pre-Drill Modeling | Pore Pressure Fracture Gradient | Real Time Monitoring

Pre-Drill Modeling

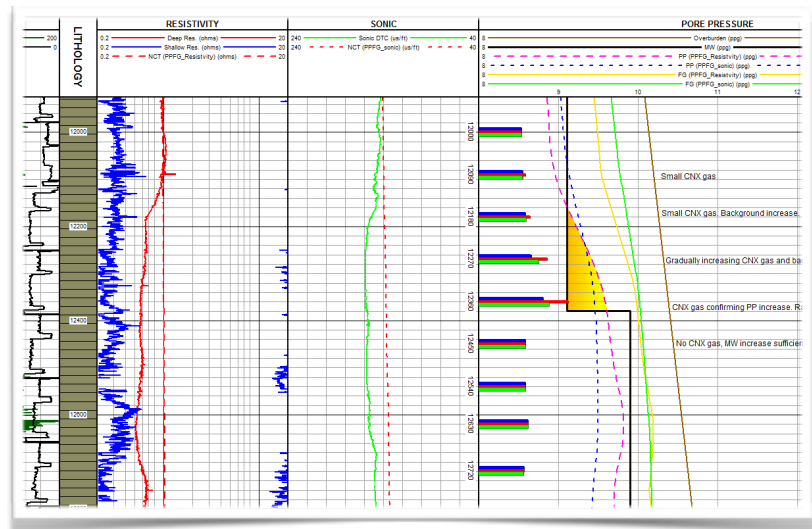
Drill a well utilizing all available offset data, including any and all petrophysical logs, seismic surfaces and geological data to establish an accurate overburden. Take offset geological data into account to rapidly integrate several wells to complete your Pre-Drill Pore Pressure analysis.

Real-Time Monitoring

Utilize real time data, plot changes and updates to your pore pressure model instantaneously. Update the 3D model, adjust the well path and generate a synthetic lookahead prognosis in real time with WITSML data feed.

Expert Team

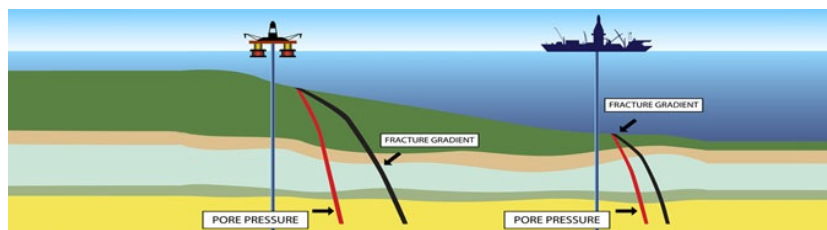
QO has assembled a cross disciplinary team of pore pressure expertise including Drilling Engineers, Academics, Geologists and Petroleum Engineers. We leverage this expertise to identify drilling hazards, wellbore stability challenges and PPFG analysis.

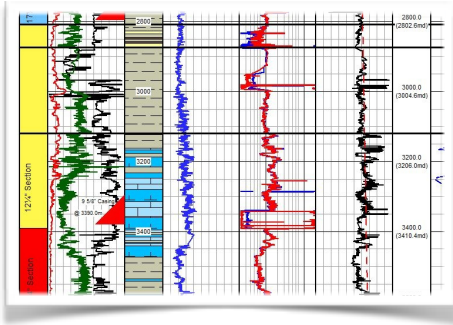


Safe Drilling Margins

The environments in which Oil & Gas companies are exploring to drill will only continue to escalate in levels of drilling complexity. This reality has led to the increased demand for accurate prediction of formation pressures to maintain safe drilling margins. QO's pressure analysts form an integral part of the well delivery team. Our contributions begin initially from the planning stages, with continuity through the drilling phases, and all the way to the post drill development of lessons learned for future projects. **As much as 25% of drilling NPT is PPFG related.**

QO pressure analysts work with our client teams to develop a pre-drill pore pressure and fracture gradient model for the well.





Reduce drilling downtime through accurate modeling and vigilant monitoring of PPFG parameters while drilling

Reduce your project risk by staying on target in the heart of the mud weight window and responding to pressure changes, influxes and losses as quickly as possible.

- Pre-Drill Basin Analysis
- Pore Pressure Prediction
- Wellbore Stability Evaluation
- Geosteering
- Drilling Hazards
- Mitigate risks with Real-Time Monitoring

DynaView was developed in collaboration with operators, academic researchers, drilling engineers and geologists. It has been successfully utilized in multiple environments such as HPHT offshore China, offshore Gulf of Mexico and deepwater West Africa.

While drilling, our analysts provide surveillance and analysis of the pore pressure and fracture gradient parameters, in real-time, using leak off tests, gas data, and other transient pressure tests to calibrate their predictions. Through vigilant monitoring and interpretation of the pore pressure data our analysts are able to help mitigate drilling risks and significantly reduce the response time in the event of any influxes or losses.

Sedimentary Basin Experience

Take advantage of the broad range of sedimentary basin experience we have developed over the years working in places such as: Gulf of Mexico, Grand Banks, North Sea, Atlantic Margins, Mediterranean, Moesian (Romania), Sahara, Black Sea, East Africa, Arabian-Iranian, Bengal, Mumbai, Indus, Nam Con Son, Malay, Tarim, Taranaki, Carnarvon and Cooper Basins.



From Pre-Drill Planning to Real-time Monitoring

At QO we believe there is great value in both well planning and operational continuity. In the realm of pore pressure evaluation that means having the skills and expertise to do pre-drill pore pressure modeling, often times far in advance of drilling the well, and then utilizing that information during real-time operations in a meaningful and interactive way.

When the personnel providing the pre-drill pore pressure modeling are able to maintain communication and continuity with the personnel involved in the drilling and well monitoring operations it is possible to achieve truly effective drilling risk mitigation. It is only through this rigorous and continuous process that sustainable success can be achieved.

Corporate Resume of Experience

Corporate Resume Real-time Pore Pressure Monitoring



Operator	Region/Basin	Service	Analysts	Project/Well	Type
Anadarko Petroleum	New Zealand, Taranaki	Wellsite	2	Romney	Deepwater Exploration
	Cote d'Ivoire	Wellsite	6	Saumon	Deepwater Exploration
	Colombia	Wellsite	3	Kronos	Deepwater Exploration
	Cote d'Ivoire	Wellsite	2	Paon	Deepwater Exploration
	Mozambique, Rovuma	Remote	1	Orca	Deepwater Appraisal
BG	Egypt, Nile Delta	Wellsite	1	Notus	HPHT
BP America	Gulf of Mexico	Remote	1	Macondo	HP Relief Well
	Gulf of Mexico	Remote(HMC)	7	Gila	Ultra-Deepwater
Cairn Energy/Capricorn	Senegal, MSGB Basin	Remote & Wellsite	3	North Fan	Deepwater Exploration
Chevron	Angola	Wellsite	2	MAF-B01	Deepwater Exploration
BP Brasil	Camamu-Almada	Wellsite	2	Pitanga	Deepwater Exploration
	Campes	Wellsite	4	Benedito	Pre-salt Exploration
ExxonMobil	Black Sea	Wellsite	1	Pelican South	Deepwater Exploration
	Gulf of Mexico	Wellsite	1	Julia	Deepwater Exploration
Maersk Oil	Angola, Lower Congo	Wellsite	2	Cubal	Deepwater Exploration
	Angola, Lower Congo	Wellsite	2	Mulavi	Deepwater Exploration
Nexen Petroleum	Gulf of Mexico	Wellsite	2	Kajuna	Deepwater Subsalt Exploration
Statoil US	Gulf of Mexico	Remote & Wellsite	2	Logan	Deepwater Subsalt Appraisal
	Gulf of Mexico	Remote & Wellsite	3	Martin	Deepwater Subsalt Exploration
Tullow Oil	Mauritania	Remote	1	Fregate	Deepwater
	French Guiana	Remote & Wellsite	2	Zaedyus	HPHT
Repsol	French Guiana	Remote	1	Jaguar	HPHT
	Angola	Wellsite	2	Sandia	Deepwater Exploration
Petrochina	China, Tarim KeLaSu	Remote & Wellsite	1	Ke-shun	HPHT