

iQx™ GEO - Well Data Made Simple

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Following the success of iQx™ Experience and Offset modules for drillers in well planning and skills transfer process, AGR recently launched a new application, iQx™ GEO for petroleum engineers and geoscientists.

iQx™ for drillers

The iQx™ platform was developed by and for drilling engineers tired of browsing historical well reports in search for well data, equipment selection and not least, the good and bad experiences to take into consideration when planning the next well. Usually, going through previous End of Well Reports requires spending the majority of time doing offset analysis, searching for data and reformatting findings in order to make data comparable.

AGR has drilled more than 500 well projects globally on behalf of their clients and using iQx™ internally has helped them capture experiences and data from previous projects improving the company's operating performance.

The development of iQx™ began four years ago and today it is used by several companies mainly in Norway.

iQx™ GEO for geoscientists and petroleum engineers

The development of iQx™ GEO module started a year ago by subsurface professionals at AGR. In essence, iQx™ GEO makes thousands of Petrobank files available for instant analysis without the need to browse multiple file formats.

Most subsurface engineers spend time loading data from files, converting file formats to readable formats and importing to interpretation software. This is an exercise, which can be tedious and time consuming. A "Petrobank" usually means safe storage of data files, with a huge variety in formats and codes. Adding up to the complexity of data files is the difference in mnemonic characteristics that suppliers use for their data acquisition tools, despite the fact that the tools are similar.

iQx™ is online and has the bene-

fit of processing vast amounts of data in a very short time. iQx™ stores data and facilitates direct analysis, graphical display and generates export files for interpretation. **"The iQx™ philosophy is – Big Data made simple"**. Instead of storing files, numbers are referenced directly for spatial analysis.

As subsurface specialists, we can see huge benefits in terms of data capture from the Petrobank. The Petrobank is a secure storage facility, but usually requires Project Data Managers to download and streamline data for interpretation work. **"AGR's iQx™ GEO ambition is to enable the end user (geoscientists and engineers) to be able to capture data directly and not relying on Project Data Manager anytime, anywhere with the only requirement being an internet connection"**.

AGR's Reservoir Management team has used iQx™ GEO for a year now testing feasibility and adapting the programme to subsurface needs. After a year of testing, the software makes a significant impact on data capture efficiency. This is good news since most of us want to work on the analysis, not data management.

Working across disciplines

The oil and gas industry has been struggling with the data management volume, complexities and multiple copies of everything – since day one! When a well is logged, real time data is followed by rush data; then followed by end of section data; then followed by end of well report and finally followed by blue book reports. The well results become a "truck load" of paper, films, files, reports and experiences in people's heads.

Different sub-surface profession-

als use well data for a huge variety of purposes:

1. Petrophysicists use raw logs for computer processed interpretations of hydrocarbon content.
2. Rock-physicists use logs for describing mechanical properties.
3. Geologists use logs for correlation, dating of sequences, interpretation of depositional environment, reservoir characterization, fault seal analysis, trap integrity.
4. Geophysicists use logs for tying wells to seismic, processing of seismic, depth conversion, fluid substitution and AVO analysis.
5. Reservoir engineers use logs for characterizing reservoir and flow properties, barrier identification and to make production profile estimates.
6. Basin analysts use temperature, pressure, porosity versus depth, maturity measurements, HC characteristics to understand petroleum systems.
7. Drilling Engineers use experiences from previous wells which are crucial to success in the next.
8. Drilling Supervisors can efficiently find answers to actual problems during operations by browsing iQx™ for data or experiences.
9. Drilling Managers can supervise all drilling teams effortlessly making sure that data and experiences are being captured and comparing performance between operations or development over time.
10. Drilling Optimization Engineer can compare several well designs, drilling parameters and experiences to continuously improve on performance.

iQx™ serves as a tool facilitating

co-operation across disciplines. Across professional disciplines, drilling incidents may also be important to others than just the drilling engineer:

- Losses and shows could indicate hydrocarbon filled fractured reservoir not detected by conventional logs.
- Obviously gains and shows are important indications that a discovery could be demonstrated.
- Spalling shale, tight hole, bit balling, dog-leg, hole instability, over-pull, drill break, pump pressure, lost circulation material, mud additives, rate of penetration, torque, weight on bit, temperature, gas readings are all incidents relevant for different reasons and interpretations to different professionals.

iQx™ is constantly being adapted to meet requests and wishes of different professionals in terms of data capture and display function. The basic paradigm shift is that data are stored as numbers rather than files. **"Imagine numbers and values from 6,000 wells at your fingertips"**.

iQx™ International Launch

AGR's iQx™ has been launched outside Norway, primarily towards international companies working across borders and basins as a tool for cooperation between offices and disciplines. Other countries utilising similar facilities to the Norwegian Petrobank (Diskos) are equally suited for iQx™ within their organisations.

Large companies may have challenges in their own "data vault". iQx™ technology enables huge databases to be structured geographically with values rather than files. Proprietary data is honoured and each company retains full ownership and integrity of their concessional rights. In terms of mergers and acquisitions iQx™ is well suited to capture company data.

iQx™ can be tailor-made with solutions that will incorporate company-specific approved interpretations and raw data. In this way, iQx™ can become a very simple solution to a complex challenge of how to share data and interpretations.

To date, this scale of data capture and organisation has not been

done before, simply because the technology is new. In terms of the iQx™ Experience and iQx™ Offset modules, working across borders, basins and offices means that; **"one incident or experience is described in a system; with a reference, a cause and remedial action and is kept for future reference independent on who was there at the time"**. The reference can be formation (rock), equipment (rig, bit, mud etc) or basin (geography), thus lessons learned can be used independently of which engineer did the work originally.

Data capture efficiency

In large companies professionals tend to depend on a project data manager (PDM), which will secure available data to do the work, the work station is populated with data before project starts and during the course of the work. Big Data has become a buzz word, with a number of people being kept busy organizing projected data input and output.

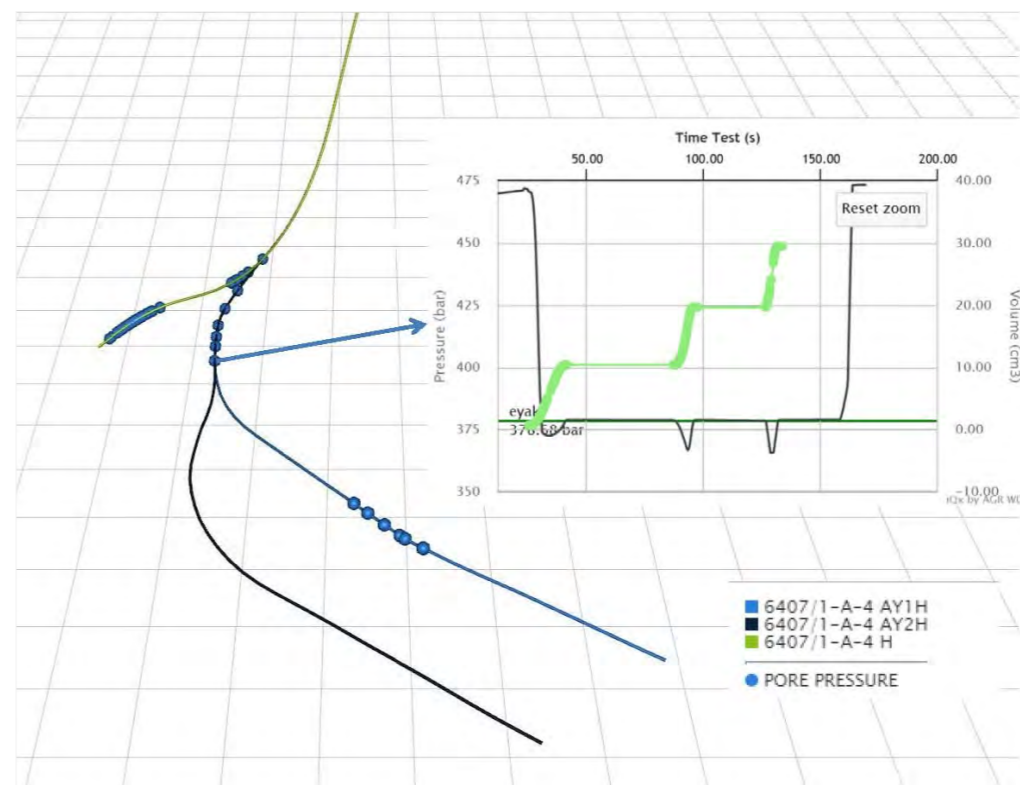
In an industry where people move frequently between companies and between departments, important knowledge often leaves

the organisation or the company with the people. With iQx™ it is possible to make sure that data and experiences are not only retained but are made accessible to the end user, independent of experience with the company or the specific operation. AGR's iQx™ solution is user driven, where the end-user is empowered to capture data directly - this is a key to retaining organisational knowledge.

ENDS

About AGR

Global service company AGR delivers well construction and engineering project management, HSEQ, reservoir and facilities engineering solutions to the upstream oil and gas industry. AGR also offers rig access management, consultancy manpower, software technologies and tailored training. AGR has managed over 500 well projects and delivered more than 1,000 reservoir studies in all major basins and reservoir types. AGR has offices in Norway, UK, Australia, USA, Colombia, UAE and CIS.



Investigation of pressure points in production wells