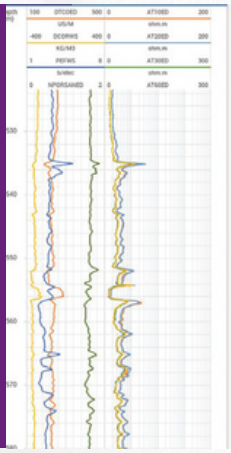
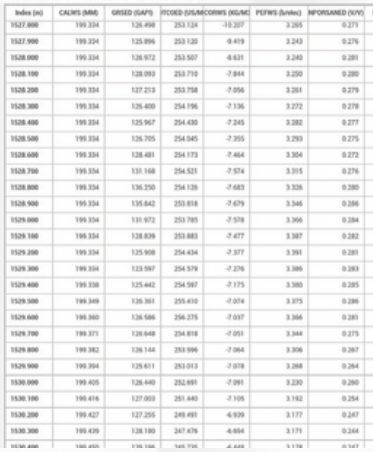
KATALYST DATA MANAGEMENT

WELLS AND WELL LOGS

Let Katalyst help you fix your data forever, and stop the cycle of forever fixing.





WHAT PROBLEM ARE WE SOLVING?

Well header and the digital well data represent an important asset in oil and gas companies. Managing that data, however, can be very complicated for many reasons. Fundamentally, there are various versions of well data – for the same well - created and amended as the life cycle moves from plan to execute to produce, understanding the source of truth is difficult. As a result, and because the volumes of data tend to be small compared to seismic, well data exists across the company, stored on multiple shared drives and in discipline specific applications. Even a question as simple as "How many wells do you have?" can be very difficult to answer. "It depends, do you mean wells we drilled, wells we are partners in, or wells we carry liability for?" is the answer we hear most often.

THE WELL GAP

Wells are foundational financial assets and this data is core to many workflows across organizations. Data has become increasingly valuable as the disciplines of data science and analytics have emerged. You would expect your "Operated" and "Non- Op" well data to be of the highest quality. That is not always the case; silos across disciplines, processes and teams, a lack of a central repository for all well data, and a reduction in data support staff can mean that operators often struggle to find and maintain quality proprietary data.

PROPRIETARY WELL DATA

Operators rely on public data to get a macro understanding of the subsurface environment they work in. Some well data is submitted to regulators, while operators retain proprietary technical and financial data that is high value and competitive. After regulators release reported data, public data vendors acquire and add value to the data by aggregating across many operators. Data becomes easy to access through various data vendor offerings. While data reported to regulators meets minimum requirements, data submission is inconsistent across operators and an operator's proprietary value-add data is not available through public data sources.

AT A GLANCE

CHALLENGES

- Quality Proprietary Data
- Single Source of Truth
- Discipline Specific Data
- Wells and Well Logs

KATALYST BENEFITS

- iGlass Digital Well File
- Find Your Data

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Additionally, **fixing bad data is the responsibility of the operator.** Data vendors do not correct errors in the data and as a result, the public data may be incomplete and/or incorrect. This leaves operators in a cycle of 'forever fixing'; when operators start a project they source public data. Then they validate and fix the errors in the public data, resulting in a value added dataset. However, this corrected data does not make it back into the public record and internal well data management is often lacking. The result is that the corrected data is often lost, and when searching in the same area, the same incorrect data is re-accessed.

WELL LOGS

Expensive to run, but invaluable for the reservoir characteristics they provide, well logs are used repeatedly across an organization. Well logs are difficult to manage as a data set, a well log will have many versions existing simultaneously. Raw well data is processed extensively and often interpreted by specialists. The result of that processing is the 'finished product' that interpreters will use. All of the interim versions are commonly kept, making the management of those versions important. In addition, many thousands of paper or scanned logs also need to be managed.

Let's summarize some of the main challenges with managing well data:

Duplicate data

Many copies of well files exist for a single well entity, both paper and digital. Underlying data within these duplicate copies may not align, creating an issue of trust, which copy is the right copy?

Volume of data

Hundreds of documents exist per well, many are transactional, and there are many versions generated over the early life cycle (planning, drilling, completing).

Silos of data

Multiple teams across the organization work with wells, all in their domain specific apps and with domain specific language.

Semantics

The Well Life Cycle is long and iterative. Different departments generate transaction-based data along the life cycle. The way this data is labeled and managed changes during the life cycle, making reconciliation of that data a challenge.

Amendments

Unique Well Identifiers (UWI) have been key to managing well data. Due to the way we drill wells now, UWI's can sometimes change. This breaks the provenance of the well. Managing UWI's is tough for most operators.

WHY CHANGE?

Historically, all data pertaining to a well was in a folder, on a shelf in a file room.

Records staff managed the well file, and when you needed the information, you signed out the folder. This worked to keep well data centralized and organized, but made accessing data difficult at times.

Today, the majority of data is digital and stored in applications or on file systems; however copies of paper well files still exist. Every department has their own copy of the well file; drilling, completions, geoscience.

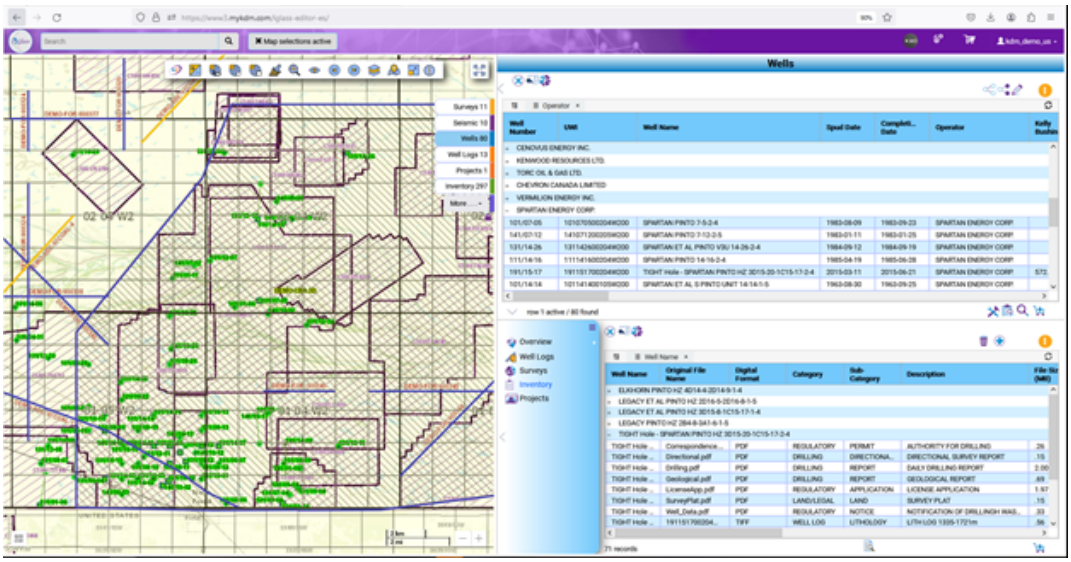
Going digital and digital well data has not addressed issues associated with well data, but instead have complicated the challenge of integrating well data across silos in organizations.

HOW CAN KATALYST HELP?

The iGlass™ Digital Well File

The iGlass architecture effectively creates a digital well file, giving you a single location to gather the well and well log data from all locations. The digital well file can include metadata, scanned images, electronic and digital data from across an organization, making well data accessible from a single map based interface. Find your data easily by searching on a map, by textual searching or by filtering across multiple filter facets.

EDITOR ES - SEARCH AND DISCOVERY, EDIT AND UPDATE



Multiple fields and attribute tags allow for versioning and create metadata that is easily searched. During the ingestion process, documents are identified as duplicates and automatically removed from the loading processes. Alias attributes handle amendments and facilitate integration between other systems, while one-to-many functionality attaches one document to multiple wells. Katalyst is GOLD certified on PPDM 3.8, but allows users flexibility to add their own attributes, to manage data in a way that makes sense to their organization.

Machine learning tools classify and extract data from raster logs and other documents to increase the quality and completeness of your well and log data. Our well log loader automates collection of key metadata, including Operator, UWI, well name, license, dates, depths, curves mnemonics, logging vendor and log title, for both raster and digital well log files. Curve dictionaries from major logging vendors are loaded and mapped across vendors. Using powerful search technology in Portal ES and Editor ES, users can build complex queries to drill into and easily access your well log data.

CONCLUSION

The Katalyst solution for wells and well logs is robust and provides tools and methodology to manage your surface data. Delivered as SaaS, iGlass has no IT foot print and creates a single digital well file that is used to easily find and access subsurface data.

- iGlass provides a digital well file solution to store well based technical and transactional data in a single location for an organization.
- iGlass provides an Enterprise level, industry leading solution for managing digital and raster well logs.
- iGlass provides a single location to store proprietary and public data, integrating both structured and unstructured documents and bridging siloes in organizations.
- Machine learning and automation ensure consistency and quality of metadata.
- Classification of data, one-to-many document handling, and duplicate data identification can collapse hundreds of documents per well into manageable groups, removing redundant copies of documents.
- Access is role based and secure, allowing you to protect data as needed.
- iGlass provides taxonomy and tagging to support wells along the well life cycle. This is useful to understand the historical work done on a well.
- Managing your well data effectively, allows your technical teams to focus on analyzing the data, rather than repeatedly finding, validating and cleansing data.