AI-Driven Well Timelines for Well Optimization

With WellLine, petro-technical experts can see all significant events during the life of a well in a timeline, enabling better and faster operational decisions that boost the bottom line from exploration to development, drilling, completion, and abandonment.

Our Story

Wells have a life. They go from an idea, to a hole in the ground. This hole produces oil or gas for a time and eventually this production stops. Often when the well stops producing, an intervention is done to get the well producing again. Finally, when the reservoir pressure is too low and artificial lift techniques are too costly, the well is abandoned. This timeline can span decades.

WellLine allows petro-technical engineers to see all of the events in a timeline regardless of where the data is stored. The data needed to pull this information together can exist in multiple databases, documents and log files.

WellLine has the ability to extract events from this data, present them on a timeline, and connect them all together. An event might be a non-productive time event, casing being run, an intervention to perform an acid job, a production failure, or many others. If you can define the event WellLine can find it in all of your wells.

Our Vision

We want to use a knowledge model to help your people make smarter, better decisions, and know the outcomes of those decisions. This allows us to improve the underlying algorithms that make recommendations in the first place, ensuring they improve over time—and with them, so will your bottom line.

Our Technology

WellLine is the first system built from the ground up with connectedness in mind. Our company's DNA is rooted in graph stores, artificial intelligence and machine learning. We model your business using terms like graphs, nodes, connections, edges, entity extraction, and natural language processing, all to produce a WellLine graph that can be used to make better decisions about oil and gas operations. Our platform is the first commercial product built on Maana.

The Opportunity

Oil and gas companies are under pressure to boost their margins by improving the efficiency of their upstream operations such as drilling, production, workovers of wells, and even well abandonment. Even small improvements can make a big impact. Imagine, for example, if a large multinational oil and gas company, having as many as 40,000 wells representing millions of dollars in total investment, realizes a small percent improvement in overall drilling operations: they can realize millions in savings. The potential ROI is huge.
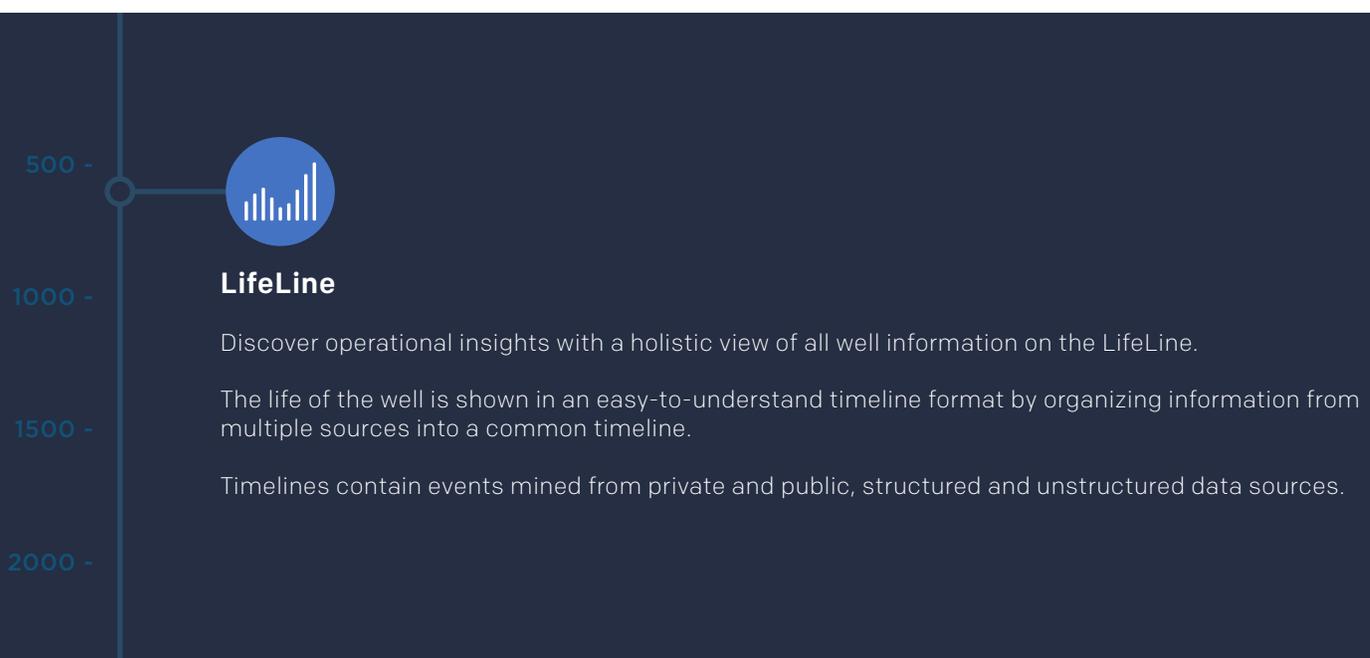
The Challenge

To realize these kinds of operational improvements and outcomes, petro-technical experts need visibility into all of the events occurring throughout the life of each well. This is no small task today, as the data and know-how about these wells is scattered across dozens of databases, thousands of documents and among hundreds of experts, many of whom have retired or will be retiring.

Even if all of this fragmented data and experience is aggregated, there is still the challenge of extracting knowledge from it – the expertise needed to actually improve the operation of wells. This represents a major gap and business problem throughout the industry – one that's been solved by WellLine.

How WellLine Can Help

WellLine is the world's first knowledge graph for wells. This industry-first innovation establishes and enriches well timelines, which enables oil and gas companies to create a powerful digital knowledge layer for wells. WellLine focuses on empowering users to easily access knowledge related to operating wells: organizing and indexing well data and knowledge around common well concepts like equipment, vendors, well activities, drilling events, drilling problems, Health and Environmental Safety events, incidents, people, documents, and more.

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LifeLine

Discover operational insights with a holistic view of all well information on the LifeLine.

The life of the well is shown in an easy-to-understand timeline format by organizing information from multiple sources into a common timeline.

Timelines contain events mined from private and public, structured and unstructured data sources.

ConnectionExplorer

Expose insights from hidden connections in massive amounts of information with ConnectionExplorer.

WellLine scans data to identify mentions of common industry concepts, then links these concepts together in a web of interconnected relationships.

Users can explore and interact with these relationships by topic or concept: a single well problem leads the user to related equipment and important actions taken around the time of the problem.

Natural Language Generation

Understand technical and difficult-to-interpret structured data that is locked away in technical databases with obscure column names and stored in complicated ways.

Remove the need for users to switch between separate applications to query and understand data.

WellLine's natural language generation capabilities translate technical data into meaningful and human readable events on the timeline alongside other well events.

Event Extraction and Classification

See events in the LifeLine extracted from free-form notes and documents written by drillers, operators and engineers.

WellLine identifies and extracts significant events from structured and unstructured text, and connects those events to common industry concepts.

Entity Extraction

Benefit from the millions and millions of connections found between common well concepts such as equipment, lithologies, chemicals, and actions.

WellLine mines, extracts and indexes these concepts from structured and unstructured data sources, enriching millions of comments. This allows for a better understanding of the events, enabling engineers to quickly find items of interest and relationships between concepts.

WellLine also allows extracts and surfaces physical quantities such as hole sizes, depths, and mud weights, allowing their use for further event understanding and discovery.

Extensibility

Solve new problems by extending WellLine via GraphQL API interfaces and micro-service architecture.

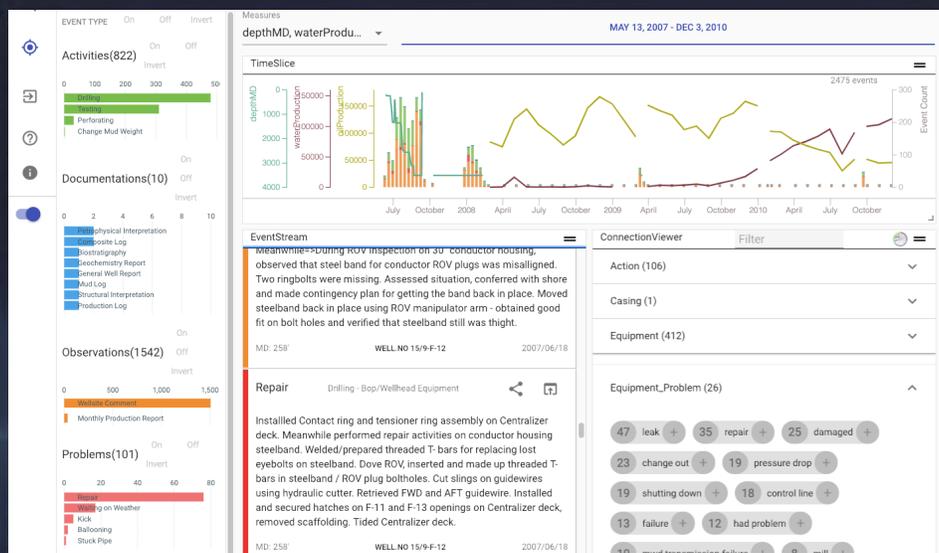WellLine's extensibility allows customers to:

▸ Integrate WellLine directly into traditional oil and gas applications.

▸ Leverage the digital knowledge layer available in WellLine in your own custom applications.

▸ Surface important events on the timeline by defining custom event extractors.

▸ Surface important entities extracted by WellLine using custom enterprise equipment lists, personnel lists, basins, formations and other entities.

The Benefits

With a digital knowledge layer for wells, petro-technical staff can easily access knowledge related to many facets of their day-to-day work, including: people, equipment, vendors, wells, well activities, events, drilling problems, HES events and incidents, and more. Simultaneously, oil and gas companies can potentially save millions of dollars annually by empowering experienced engineers with AI to make significantly better operational decisions.

To learn more about how WellLine can help your business, please visit wellline.com or email us at info@wellline.com.