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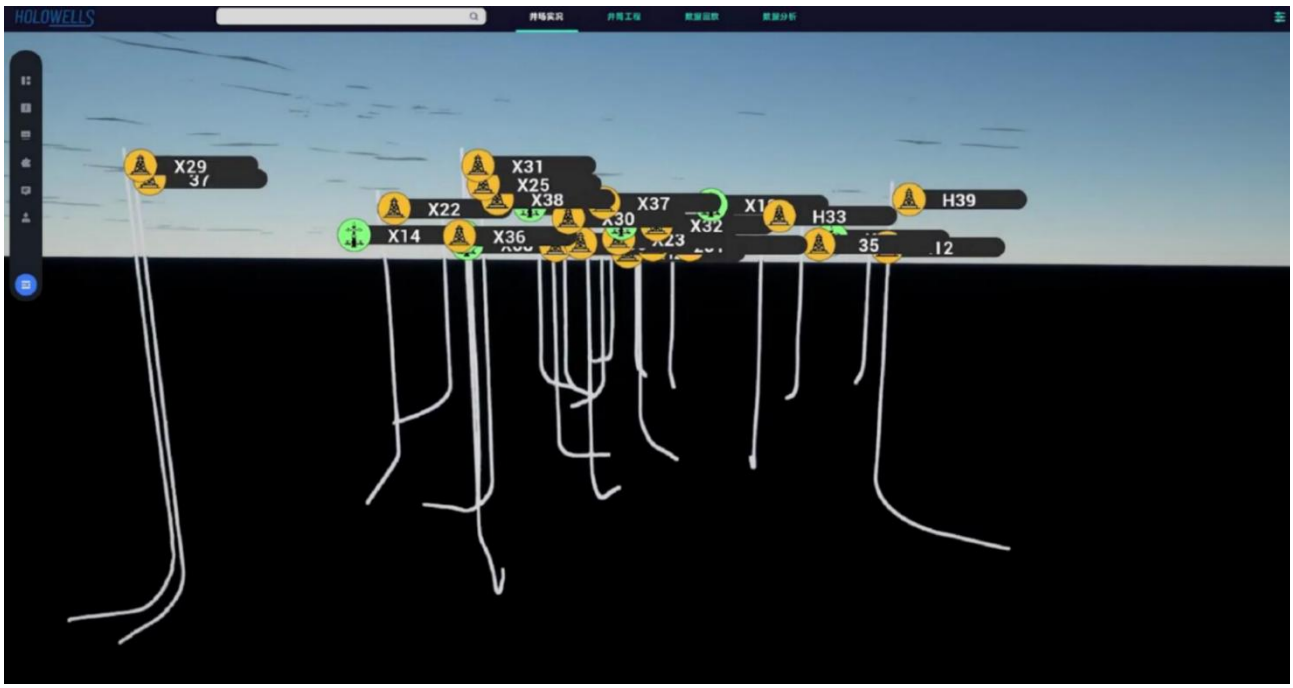
HOLOWELLS Digital Twin Well Construction Platform

Case Study: Minimizing Operation Risks Improving Efficiency With Data Analytics and Digital Twin

SEEING THE UNSEEN

When it comes to drilling, it's not possible to directly observe the activities taking place beneath the surface. Instead, we have to rely on the information gathered from sensors and job logs to guide us through the process.

Understanding the complete development progress for several wells can be a complex and time-consuming endeavor.



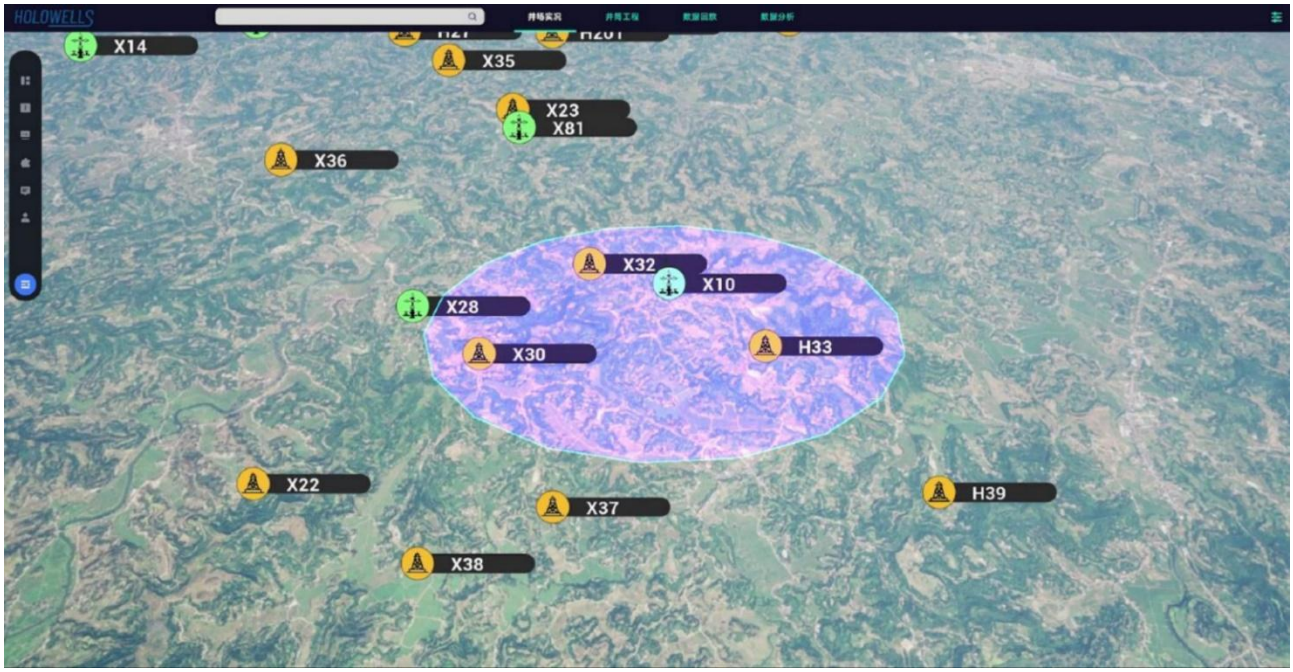
The digitalization of our industry has brought about significant advancements in the monitoring and management of drilling operations. We now have access to historical and real-time drilling data, which has allowed us to create more efficient and effective methods for monitoring our operations.

Today, digital twin technology is utilized in the drilling process, giving operators the ability to monitor every operation with up-to-date data. This, in turn, enables informed, faster, and better decision-making, especially in the subsurface, where crucial aspects were previously invisible to the naked eye.

USER FRIENDLY

During the development process of a specific zone or region, engineers may encounter numerous drilling challenges and record them. These valuable data can be utilized to categorize the issues based on their location, type, parameters, frequency of occurrence, and more.

Such information can be highly beneficial in identifying patterns and trends, which can help improve future drilling operations.

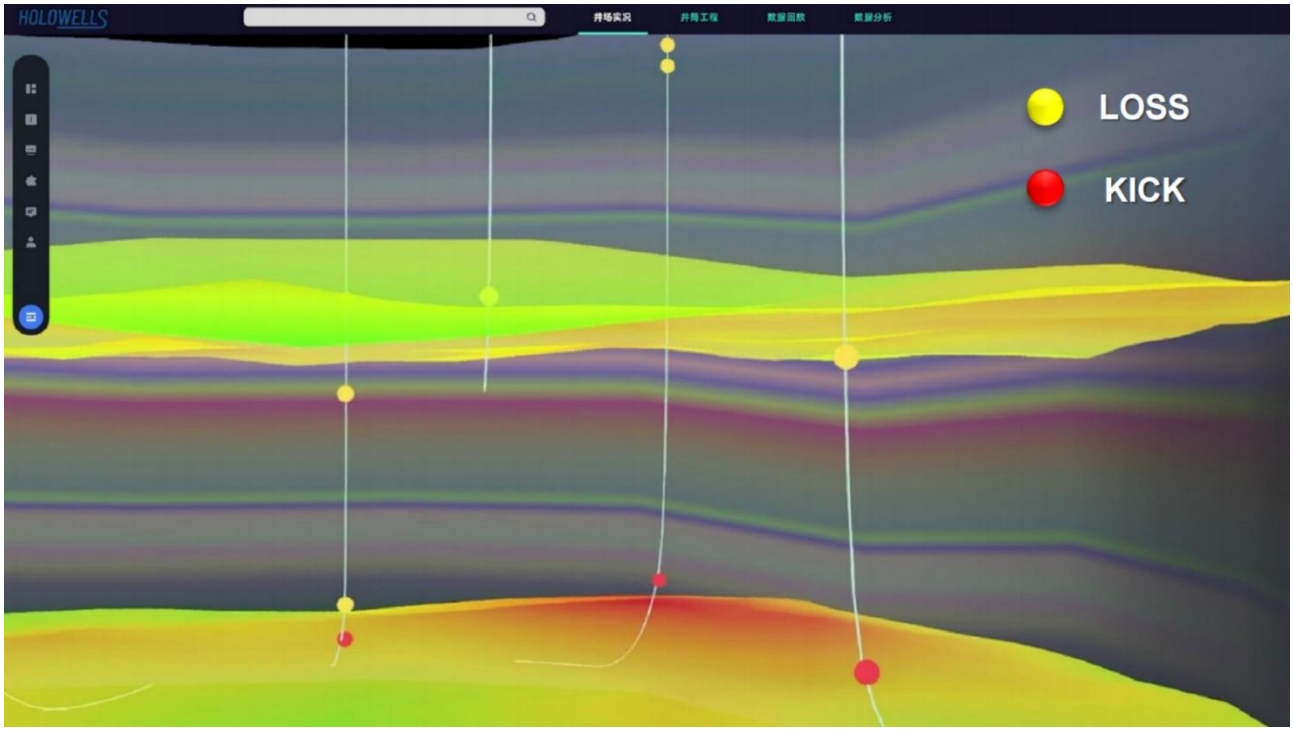


For example, an operator has encountered frequent kick issues during previous drilling operations and is now planning to drill new wells in the same region. By utilizing our HOLOWELLS digital well construction platform, the operator can easily select the specific region and filter the information they want to see, in this case, data related to kicks.

The interface and interaction features create an experience akin to playing an RTS game, rather than utilizing a software "tool" to address a problem. It is user-friendly and demands minimal training.

RISK IDENTIFICATION

As our example progresses, the operator has chosen the location for the new well. The image below displays the previously drilled wells and their paths, while the red dots indicate the depths at which kick events occurred, each well within the region of interest can be examined to identify additional operational challenges.

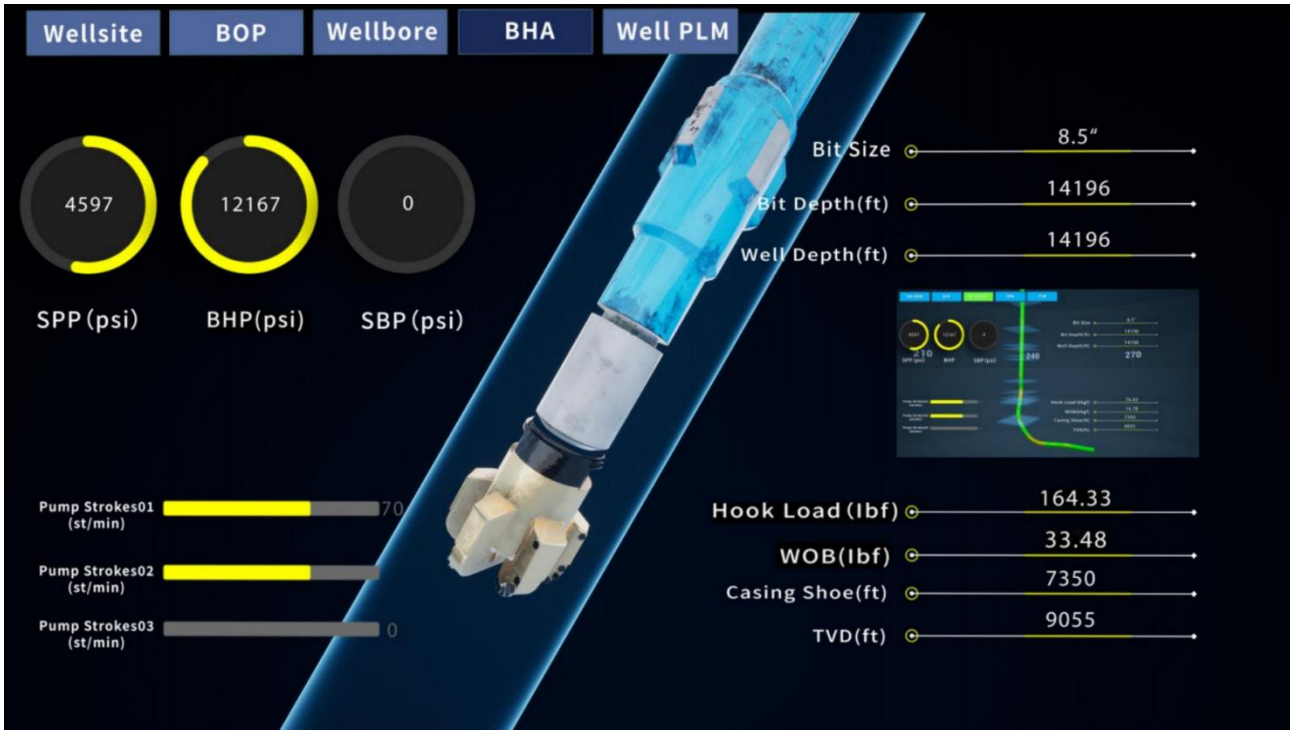


By examining every well in the region of interest, potential operational challenges like lost circulation, borehole instability, and other drilling issues can be identified. Unstructured data from daily drilling report, job logs, offset well data, and real-time drilling data, can be extracted to gather information on these problems. The data is then visually presented on the wells' trajectories, giving the operator a complete picture of potential issues and enabling them to plan future operations more strategically.

REAL-TIME DATA & BHA

During drilling operations, real-time data and drilling hydraulics are displayed, and the wellbore trajectory and Bottom Hole Assembly (BHA) can be viewed. This enables the operator to monitor the drilling process of a single well or multiple wells in real-time, regardless of their location.

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Our customers have been able to save a significant amount of time and resources that were previously spent on these time-consuming tasks, which has given them more time to focus on other important decisions.

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