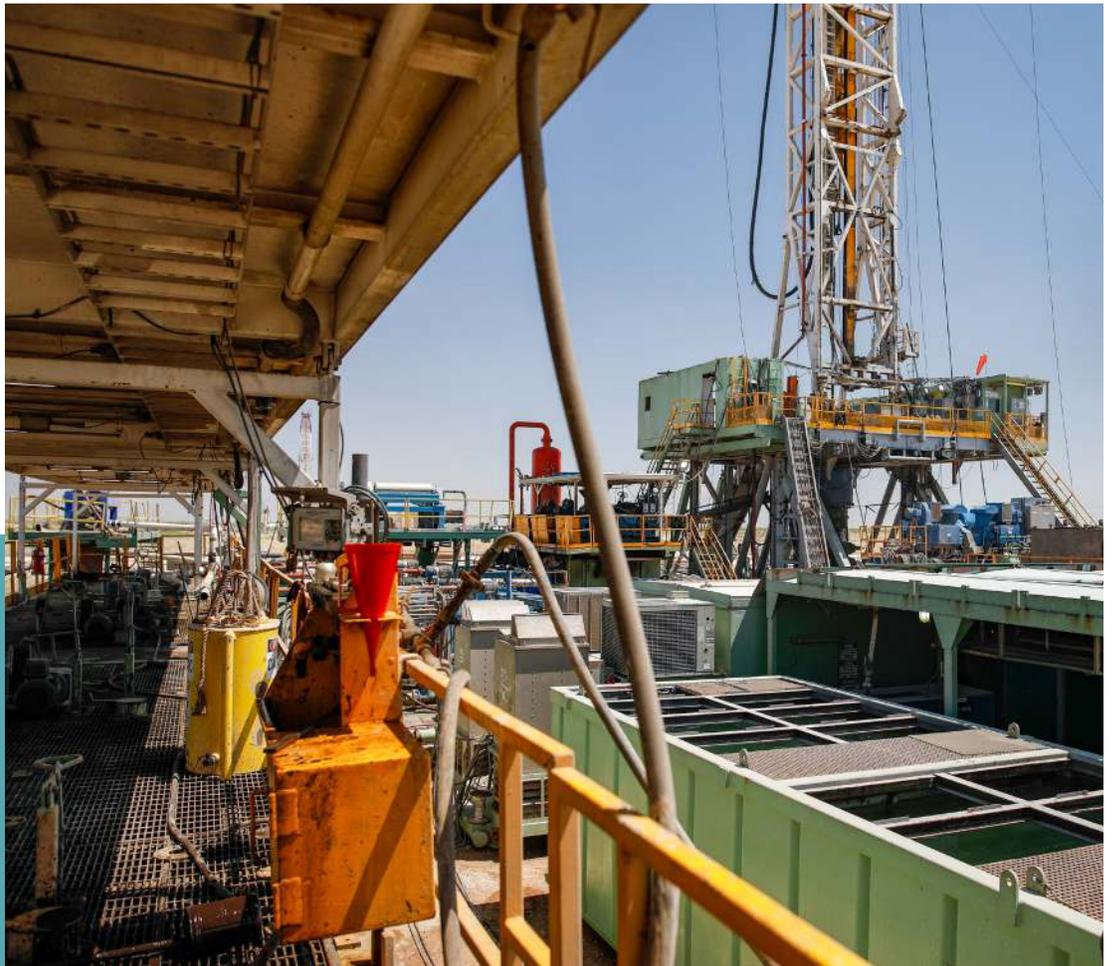


HOW MINERAL OWNERS CAN LEVERAGE DATA AT EVERY STAGE OF WELL CONSTRUCTION TO DRIVE PORTFOLIO SUCCESS

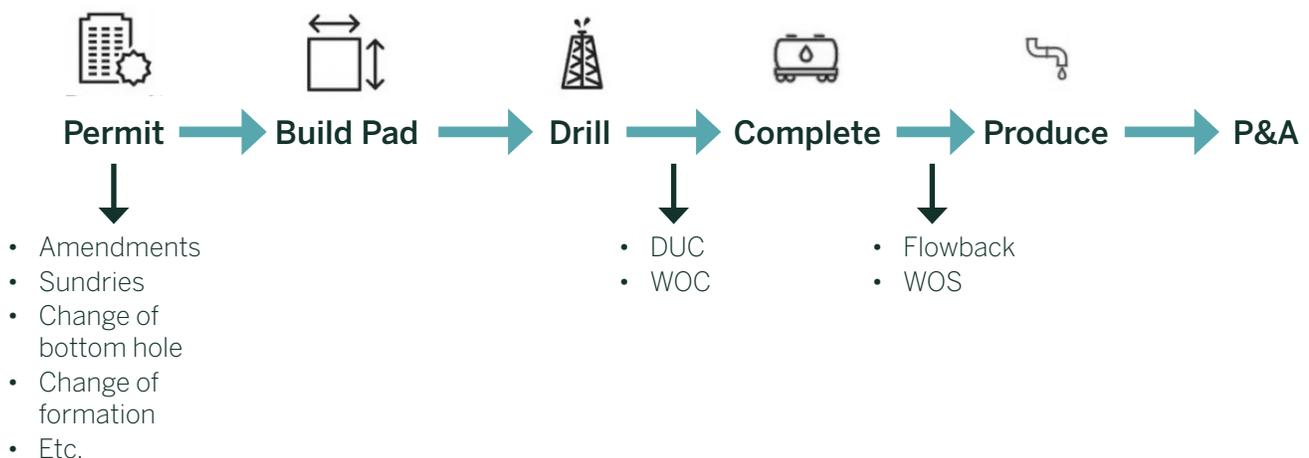


INTRODUCTION

Knowledge is power, and in the world of oil & gas investing, knowing when to buy and sell is king. Investors face a minefield of hidden risks, such as missing wells and funds held in suspense. If armed with the right knowledge, such investment pitfalls can be readily avoided. Most investors have access to many of the facts needed to make smarter investment decisions and prevent operator payment errors—including their own portfolio records and publicly available data for permitting and rig activity—yet information delays and siloed data often prevent them from connecting all the dots. Under such conditions, how can oil & gas investors transform scattered sources of information into actionable knowledge?

In this report, we explore the many ways Enverus can bring your proprietary data together with quality-controlled public data sets inside our leading mineral management platform. Plus, we study use cases that leverage data from across the well construction timeline—including permits, rigs, and post-drill data—to drive faster, more informed mineral management decisions.

Timeline



PUTTING A VALUE ON PERMIT AND RIG DATA

Whether you are looking to buy, hold unleased acreage, or own mineral interests in producing wells, knowing what is happening around a property is critical for capitalizing on emerging opportunities, timing asset divestiture, and identifying missing revenue. Because of the high cost involved in leasing properties (next only to drilling and completion), understanding the lease activity in your area of interest provides a broad indicator of movement. However, for mineral buyers, permit activity offers a treasure trove of information that provides the best leading indicator of where and when new wells will come online.

Permit Data Challenge

The wealth of information contained in a drilling permit include latitude and longitude of the surface location, as well as the target depth, location of the bottom hole, and target formation. Yet permits are not a simple matter of filing a single document with the state, they are living, breathing sources of information that add multiple layers of complexity for mineral buyers. While the original permit may be found via regulatory websites, multiple versions may exist with a host of revisions, scattering vital permitting data, including amendments, sundry notices, change of bottom hole location, and change of formation.

Adding complexity, a North and South well permit may be filed together or separately for drill units. This underscores the importance of accurate surface and rig locations in order for mineral owners in an area or potential buyers to know which acreage is actually being drilled.

Ensuring Data Integrity and Availability

Enverus Drillinginfo, the leading solution provider for permitting and well information, brings scattered sources of regulatory data together in one, quality-controlled platform that ensures the accuracy of permits from all producing states. Our data is updated daily (twice a day for Texas) with the most current permitting information and revisions with links to source documents. Combined with the industry's most complete rig coverage, Enverus delivers the reliable, up-to-date information investors need to understand what is happening around their properties.

Generating Insight from Permits and Rigs

Users of MineralSoft, the Enverus mineral management solution, benefit from integrated access to Enverus Drillinginfo data from within the platform without an additional data subscription. The combination of purpose-built mineral management tools and live well data creates new opportunities for investors to transform raw data into actionable insights. For many MineralSoft users, insight into drilling activity begins with daily email alerts that provide the latest information relevant to their area of interest and assets, including newly filed permits and rig movement. From there, users can access detailed information on MineralSoft's interactive map, which puts wells, rigs, pipelines, and other assets in context with production and revenue.

Using MineralSoft, mineral buyers gain rapid insight into asset value and potential revenue. For example, by accessing permit data for drill units directly from the map, users can quickly determine lateral length, one of the most important indicators of revenue potential. In addition, by ensuring the accuracy of surface well location and rig position, it is possible to identify which well is being drilled for units with a North and South permit, enabling mineral owners in an area to proactively identify new wells they should be in pay on.

UNDERSTANDING THE POST-DRILL TIMELINE

From the moment a permit is filed, it can take anywhere from a few months to several years for a well to be drilled, completed, and in pay. While the permit itself is typically a reliable indicator that a well will be drilled, producers have up to two years to begin drilling. Shifting economic conditions often dictate timing, however, once a well pad is constructed the drilling process is likely imminent, with pad and wellbore taking up to three months.

Just because a rig has moved onto one of your properties does not necessarily mean a check stub is soon to follow, in fact it could be several years. Oil & gas investors who understand the post-drill process and business drivers will gain a clear view of when production and revenue will come online, providing a competitive edge and powering informed investment decisions.

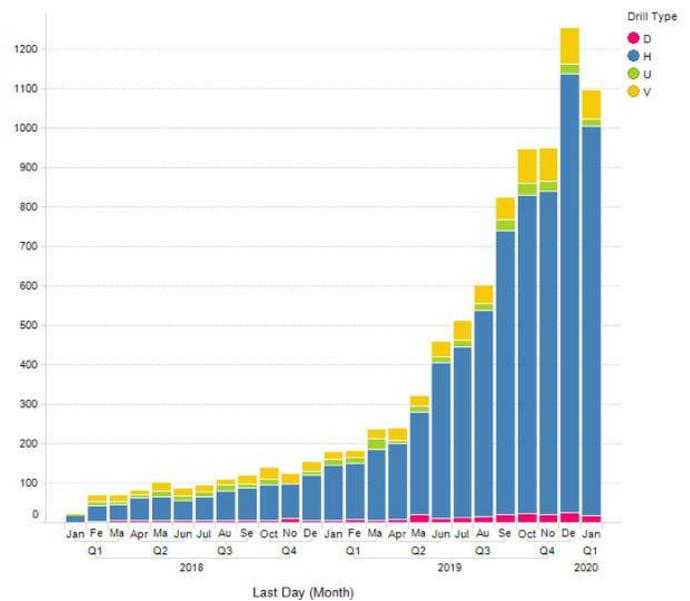
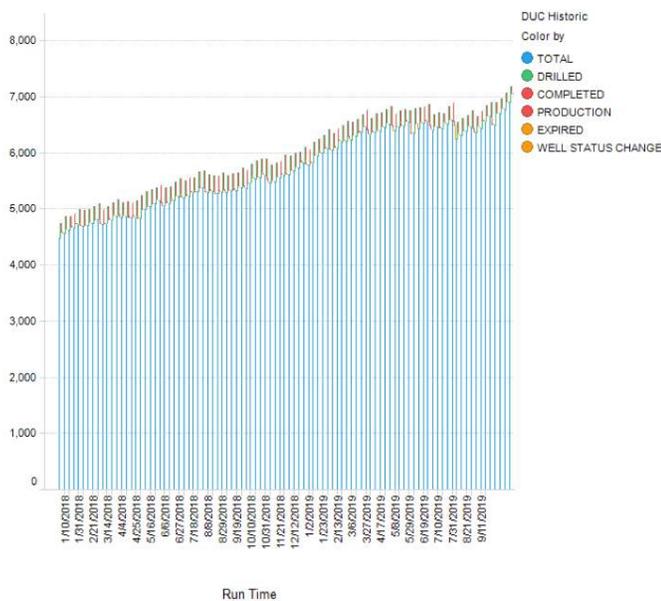
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Influences on Completion Timing

In the new era of factory drilling, producers systematically build out an extensive inventory of drilled wellsites. A myriad factors determine when the critical and capital-intensive completion process will begin, including rig and material availability (such as water for hydraulic fracturing), as well as commodity prices and market conditions.

A well that is waiting on completion (WOC) is one category of wells in an operator's inventory of drilled sites. In this case, the drill rig has moved off-property and the well will be completed as soon as the completion rig, frac unit, and necessary materials become available. Timing is a matter of days or weeks. In contrast, a drilled but uncomplete (DUC) well's completion is postponed until economic conditions are appropriate. This can include the price of crude, natural gas, and NGL, as well as an operator's cash flow. U.S. DUC inventory has risen sharply in the past two years and are valued differently than WOCs.

Even after completion, many factors can delay mineral revenue, including flowback, the process of removing frac fluids from the well anywhere from 30 to 90 days post-completion. Wells that are waiting on services (WOS) have been completed but remain shut-in while the necessary gathering infrastructure is built out.



2018 and 2019 DUC Charts from Enverus Drillinginfo

Post-Drill Data and Analytics

Whether leasing, buying, or selling, a clear understanding of time to first production is critical for mineral investors. The MineralSoft platform provides multiple tools to assist mineral owners that leverage Enverus Drillinginfo data. This includes making completion data and well status easily available directly on the MineralSoft map, which can help you assess the acquisition and opportunity costs of a property and manage risks. At a glance, users can see permitting, rig activity, completion, and production status in one view, delivering the data and insights that drive A&D decision-making and help mineral owners proactively prevent underpayments.

In addition, MineralSoft users can access a variety of analytical tools that provide deep insight into where and when wells come online the fastest, which can provide valuable input into investment decisions. For example, basin level analytics show that Mid-Continent wells come online twice as fast as those in the DJ Basin where long delays persist between permit and spud. Key performance indicators are also provided for operators, enabling MineralSoft users to quickly identify top performing basins and the producers who are able to bring production online the fastest.

THE POWER OF ENVERUS DRILLINGINFO AND MINERALSOFT

From wells and production to land and revenue, Mineral owners rely on many sources of data spanning the well life cycle to manage their business. Working directly with public datasets and manually processing information inject multiple risks, including incomplete or inaccurate information and data bottlenecks that delay mission critical mineral management decisions.

Enverus Drillinginfo provides mineral managers with a solid data foundation on which to base tactical and strategic decisions, offering broad coverage, daily updates, and quality control by energy professionals.

Our data delivers even higher value when brought together with purpose-built technology and a mineral owner's proprietary information inside MineralSoft.

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Data in Context with Mineral Management Workflows

When it comes to understanding A&D opportunities and maximizing portfolio performance, mineral owners need a wide range of up-to-date data across the well construction timeline. The power of the MineralSoft platform is the integrated capability to surface Enverus Drillinginfo data in context with mineral management workflows across reporting and analytics.

The MineralSoft map delivers permit, rig, and completion data in one, powerful view with mapping tools to filter and perform ad hoc queries. Each well spot on the map also enables users to “Open in Enverus Drillinginfo,” which provides additional detail on well events, well tests, pricing, and even mineral appraisals that can assist in identifying wells you should be in pay on.

One of the most valuable Enverus-powered features of the MineralSoft map is the Trajectory Tool. Rather than relying on the surface and bottom hole locations reported in a permit, the Trajectory Tool enables users to see the progression of a wellbore through nearby acreage. Because long laterals are often steered around other wellbores to their target, knowing the actual position of the wellbore can help mineral owners ensure they are paid correctly.



MineralSoft Trajectory Tool

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Additional Data Available with MineralSoft

Enverus Drillinginfo data is available to all MineralSoft users, including data that is directly integrated into our mineral management platform. In addition, users benefit from a number of standalone datasets that are available at no additional cost. This valuable data gives mineral owners further insight into their properties and prospects.

Dataset	Description
Drill Spacing Units	Library of 300,000 drill units drawn for all major basins. Shape files can be downloaded and imported into MineralSoft.
Mineral Appraisals	Library of mineral appraisal and ownership data. Perform ad hoc queries, locate your and other owner decimals.
Courthouse Records	Access all available digital courthouse records. Fill in gaps in your land records, review division orders, understand assignments and pooling agreements.