



OPTIMIZING 2018 DRILLING BUDGETS WITH THE LATEST COMPLETIONS AND WELL PRODUCTION DATA

Precise information is critical when setting drilling budgets and production strategies.

With the need for operators to increase drilling efficiencies and demonstrate continued returns on investment, it's more important than ever to be armed with the right information when setting drilling budgets and production strategies.

What data comparisons, completion and production metrics can I use to improve my drilling operations and predict future production? How can I reduce non-productive drilling time? How can I ensure I get access to the right data quickly with the focus being on rigorous data analysis rather than data acquisition?

The workflow in this booklet looks at how DI WellCast alongside DI Web App generates well-level completion and production information via a single source platform to ensure that you get the most out of your 2018 drilling budgets and production strategies.

Learn more at drillinginfo.com

1. Accessing the full leasing picture

In order to assess completion metrics in your target zones, qualify production and put in place robust predictions as to how zones will produce in the future, the first step is to look at the general leasing picture and then layer in production information. To this end, users can create a land grid and add in activity heat maps (permitting activity over the last 30-180 days), generate saved areas of interest and import new shape files to target particular well and data sets.

In **Figure 1**, below, the user decides to look at leasing activity as an indicator of future production over the past 90 days in leasing hot spots in Lea and Reeves Counties in the Delaware and also adds in basic production, well and rig data. The user can also drill down further to source information on specific leases as well as generate maps showing the different grantees.

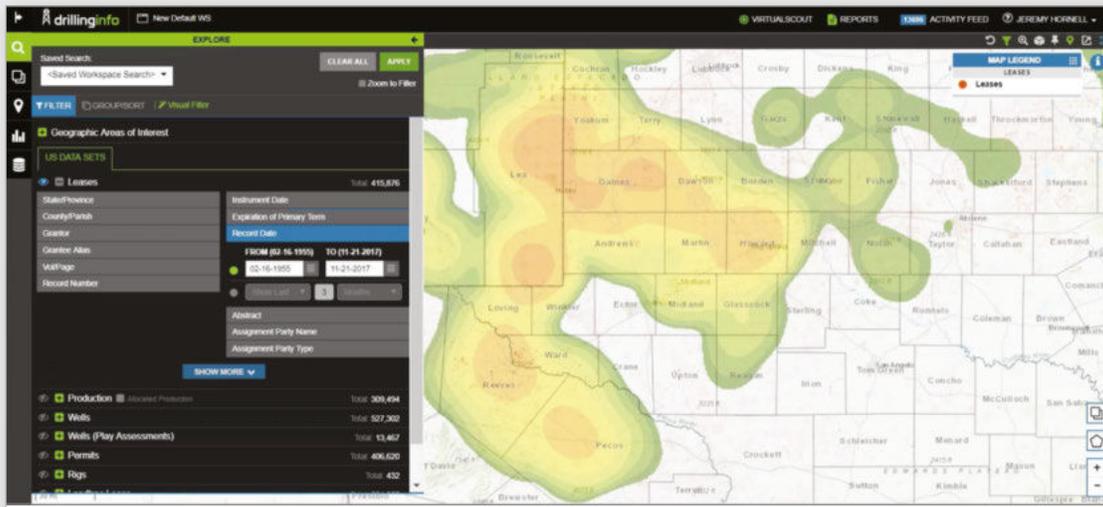


Figure 1

Figure 2, below, provides an overview of the companies picking up leases in Lea County with data on leases by count and net acreage. Users can also go direct to the DL Courthouse feature to access specific documents.

The result is a full representation of the leasing picture and the perfect platform to add in completion and production metrics.

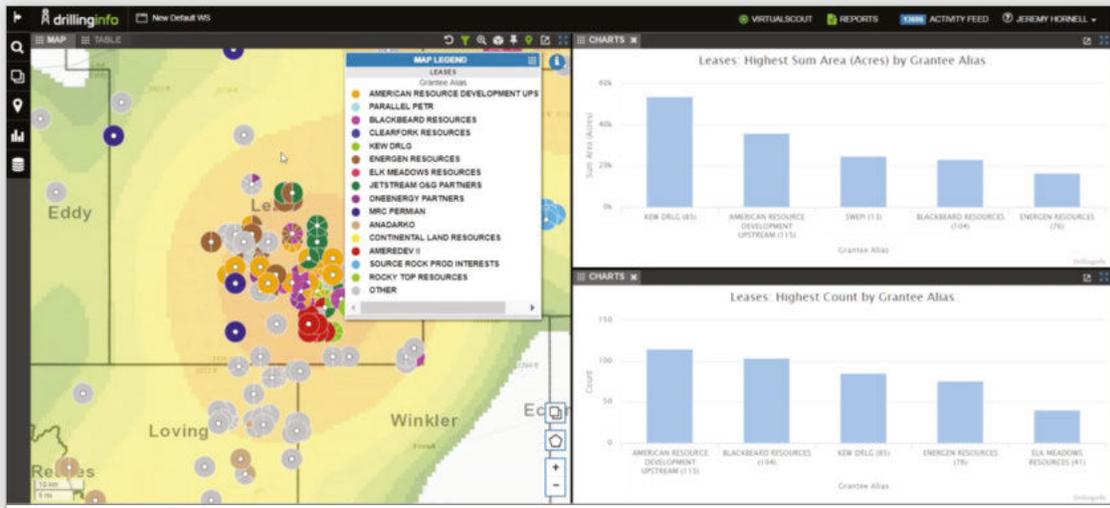


Figure 2

2. Layering in production & geology data

Having examined what is taking place in the potential play (in this case Lea County), the user can now add in production and well data sets. He or she can visualize what completions have historically looked like compared to modern completion standards over the past five years.

Colored production maps (with lighter colors representing older production and darker more recent) can be generated outlining first production dates and the user can pull out active wells (in this case oil wells in Lea County) for enhanced analysis.

Of particular interest here is the 'geology zone' feature which allows the user to identify what zones wells of interest are being drilled into, determines the landing path of each well, and highlights which wells are 60% in zone or greater. In this case, Bone Spring Second Sand and Wolfcamp A are the primary formations within the target area (see **Figure 3**, below). Filters can also be customized to spud dates to determine date ranges and newer wells.

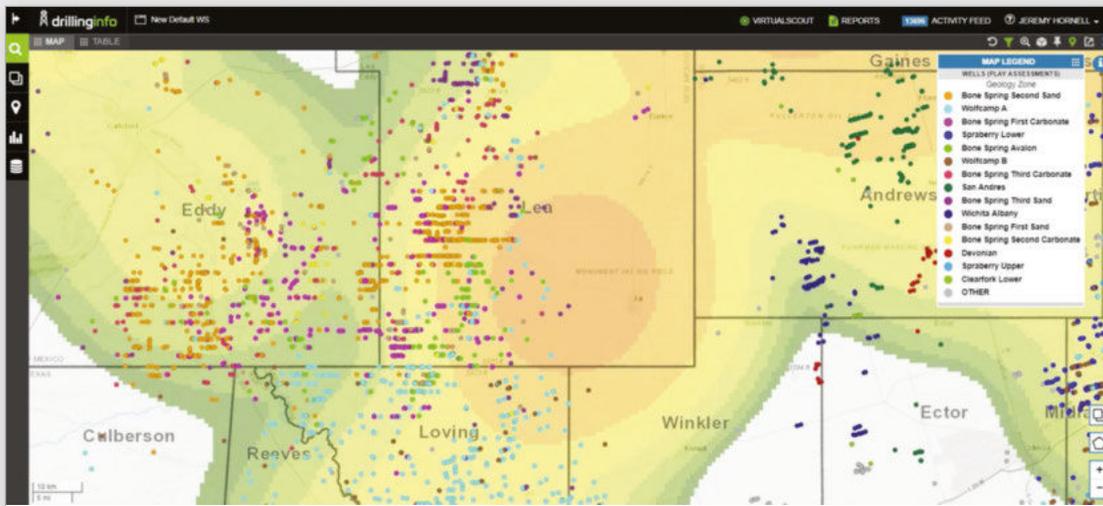


Figure 3

3. Examining completion metrics

The workflow now provides charting tools, allowing users to see many of the completion metrics for each well. Data collected includes horizontal wellbore length; percentage in geology zone; average distance from top of zone; TVD; proppant per horizontal foot; production metrics in regard to peak, first 6, 12 and 24 months; and much more.

The user can also access detailed information on the full well lifecycle for each individual well. **Figure 4**, below, illustrates individual treatment jobs, including total proppant and fluids, for specific well completions. The user can also examine wellbores for each individual well, well design, trajectories, casing and liner information, and review well logs – vital data for informed drilling decisions.

Focusing on a group of wells predominantly in Lea County and the Wolfcamp A formation (a total of 180 wells), variations in horizontal wellbore length, proppant per perforated foot, and total proppant versus total fluid can all be examined against production impact.

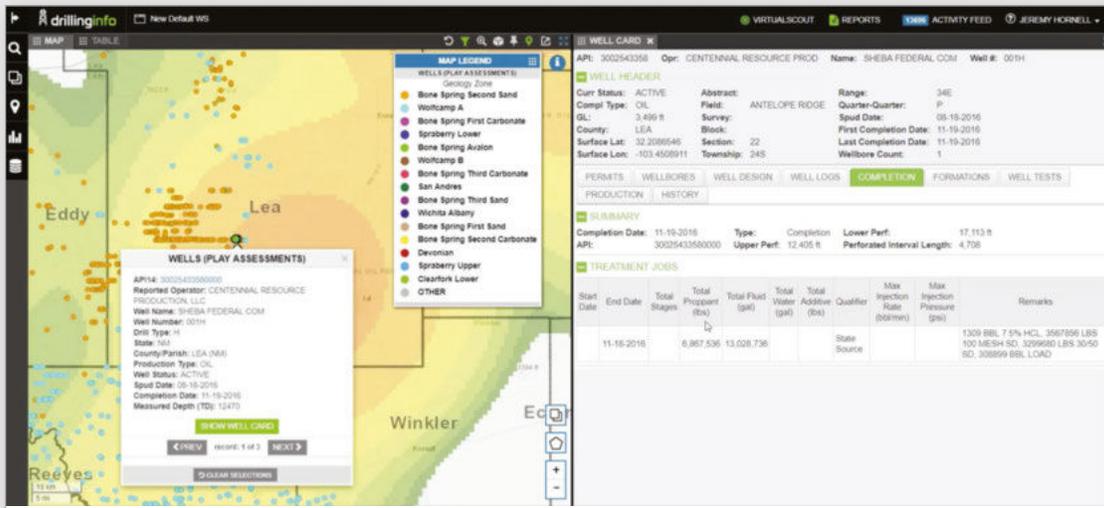


Figure 4

In this way, the user can gain detailed information on how particular operators are completing their wells and what completions look like year-on-year. Individual type curves for particular operators can also be generated. **Figure 5**, below, shows a vintage type curve for one operator going back to 2008, where one can see a steady improvement in completions from 2012 onwards.

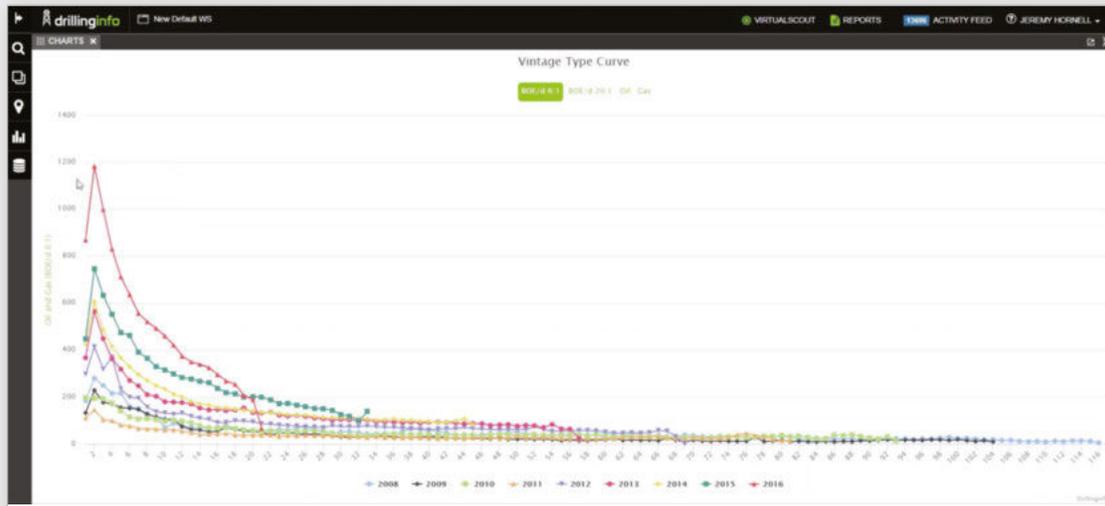


Figure 5

4. Well-level economics

It is at this stage that DI WellCast comes into its own – predicting well-level production and economics in a matter of minutes. With DI WellCast, the user can layer existing production and how it will decline (the PDP) along with the production from the incremental drilling volumes generated (the PUD) - all through the simple click of a button.

In this example, all 180 wells are fed into DI WellCast with PDP economics then generated per operator that includes information on average oil & gas EUR, remaining oil & gas recoverables and other metrics. **Figure 6**, below, illustrates the PDP economics for EOG’s 89 wells in the area that can be broken down to a well-by-well level (bottom right) and production forecasts (bottom).

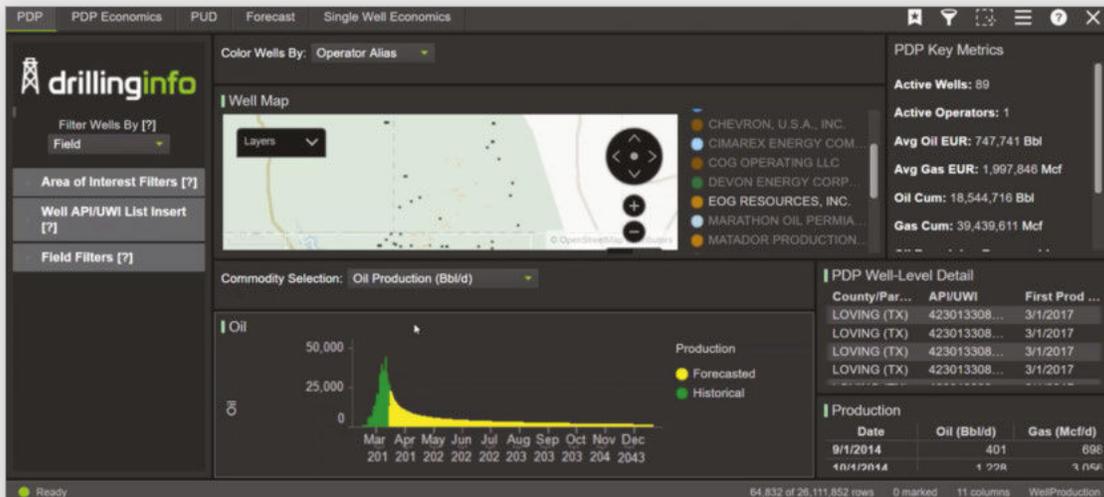


Figure 6

The PDP economics page in **Figure 7**, below, based on a commodity price of \$57 per barrel provides total revenue, OPEX costs, royalty and federal tax information for the target group of wells. A decline curve also presents month-to-month total revenues, royalty burden information and other variables for this group of wells based on current production, while at the same time fitting a natural decline based on the variables provided.



Figure 7

5. The future – calculating PUD

Through the PUD tab, users can then start to put together a future production decline curve for the area based on current wells and also create a future well schedule. This includes IP rates, initial decline variables and average perforation interval. **Figure 8**, directly below, shows a decline curve for the group of wells in question alongside a well completion schedule based on acreage, number of completions a month, and drillable locations (among other variables).



Figure 8

Finally, **Figure 9**, below, illustrates a forecast model going out to 2045 which shows production forecasts based on the well schedule and current production based on the decline curve fitted to it.

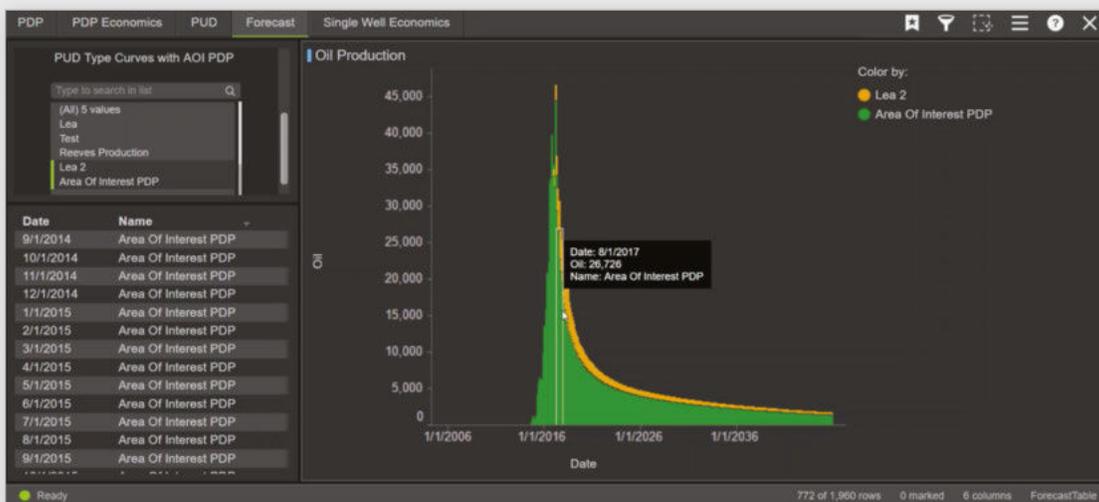


Figure 9

Maximizing 2018 drilling budgets helps to ensure future success.

From visualizing the leasing picture to analyzing completion and production trends and tailoring these for well-level economics and future forecasts, Drillinginfo has turned a highly resource-intensive process into one performed in minutes.

And the result for operators will be crucial, value-enhancing information that maximizes 2018 drilling budgets and ensures successful future field development programs.

By monitoring the market, Drillinginfo continuously delivers innovative energy solutions that enable our customers to sustain a competitive advantage in any environment. Drillinginfo customers constantly perform above their competitors because they are more efficient and more proactive than the competition.

[Learn more at drillinginfo.com](http://drillinginfo.com)

Updated Q1 2018

