WellData Labs

CASE STUDIES

FROM OUR CUSTOMERS

Major mid-continent operator identifies costly disparity, corrects course part-way through frac

01

AT A GLANCE

Using the stage variance tool, we were able to identify and correct an issue that helped save nearly $400,000 on material costs."

Standardized Data

Gained Timely Insights

Saved Money

CHALLENGES

- Lack of access to relevant data during frac operations, which meant post-job analysis was delayed to the point that any findings had little impact
- No way to standardize data from multiple basins and service providers or to effectively use the data
- Difficulty ensuring data quality

PRODUCT

Well Data Labs' Stage Variance tool

SOLUTION

The operator outlined several use cases for its initial projects: They wanted a way to follow a job's progress and discuss any adjustments during the completion process. They also wanted the ability to review frac designs after the job was completed to use the frac summary data for additional analysis and data science projects.

In every instance, the Well Data Labs software met the teams' expectations and was moved into full roll-out to all crews. Well Data Labs **trained all necessary personnel,** helped the team **establish optimal workflows** for inputting data promptly, and **accomplished the analysis** the company had intended.

One of the company's lead completions engineers stated:

"The aspect of Well Data Labs that really made it work was the training and service they provided. They have domain experts who understand the nuances of completions engineering KPI's and how the data is used in daily workflows. There is also a full suite of tools that enable the software to integrate our frac data into other analytics tools like Spotfire."

KEY RESULTS

Ultimately, we got even more than expected when we tapped into the comparison tools in Well Data Labs."

- **Identified and corrected an issue that saved the company nearly $400,000 in material costs** (about 400 gallons of friction reducer per stage)**.** Because its data was being uploaded stage-by-stage into Well Data Labs as the job was being pumped, the team was able to quickly identify the source of a significant disparity in the amount of friction reducer being used on each pad and correct course with over 100 stages remaining.
- **Standardized data for use in other software applications.** This gave the company accurate frac summary data for use in multivariate analysis and data science projects as well as being able to integrate its frac data with additional datasets like geology, reservoir, drilling, and production data.

Major North American operator identifies opportunity to reduce costs during 2020 downturn

02

AT A GLANCE

The cost savings on this project will lead to significant cost savings on future pads."

Saved Money

Increased Production

Validated Decisions

CHALLENGES

- Cut costs during an industry downturn
- Decide between two frac diagnostics service: Well Data Labs' Sealed Wellbore Pressure Monitoring (SWPM) and the more expensive microseismic analysis
- Generate reliable insights on past and current projects and apply savings to the maximum number of pads available

PRODUCT

Sealed Wellbore Pressure Monitoring (SWPM) service

SOLUTION

Well Data Labs **worked closely with the operator to design a test** and ensure that operations were set up to optimize for data collection, staggering stages using different fluid compositions to help control for other confounding variables. Once the job began, the WDL team closely monitored the incoming data for issues.

The operator decided to run SWPM alongisde a microseismic array to **compare the two methods** to validate whether SWPM could provide actionable data on par with the industry standard—but much more expensive—microseismic analysis.

After fracturing operations on the treatment well wrapped up, the Well Data Labs team began its analysis using proprietary algorithms and **machine learning techniques** developed in conjunction with Devon Energy. In a matter of two weeks, the WDL team completed its analysis and presented the data, including an expert interpretation by one of its senior completion advisors, to the operator.

KEY RESULTS

I can attest that it was a great experience, seamless, never heard about any issues from the operational team."

- **Cost savings estimated at $0.8 - $1.2M per well.** SWPM data revealed an opportunity to use a low-cost fluid option that proved more favorable than high-priced alternatives, leading to significant cost savings on future pads.
- **Measurable production uplift in the first 60 days** based on completion design changes suggested by SWPM, expected to last for the life of the well.
- **Validation of SWPM as the fracture diagnostics method of choice.** The customer stated, "We feel comfortable using SWPM as a standalone fracture diagnostic on future projects."

East Texas operator found the cause of ongoing pressure anomalies before a failure occured

03

AT A GLANCE

Using Well Data Labs has provided actionable insights that will help us optimize proppant and friction reducer while maintaining a level of awareness to avoid costly screen-outs."

Optimized Chemical Usage

Improved Trouble Stage Diagnostics

Saved Money

CHALLENGES

- Cut costs during an industry downturn
- Gain a better understanding of how design parameters—such as proppant concentration—impacted the fracturing
- Maintain a greater level of awareness into pressure changes to prevent a costly screen-out

PRODUCT

Well Data Labs' Power-Ups™ Machine Learning tool

SOLUTION

In comparing and evaluating the time-series frac data for two wells, several treating pressure abnormalities began to emerge. Applying two Power-Ups—which are machine learning models within the Well Data Labs platform—the team **quickly flagged the events associated with abnormal pressure increases** and the proppant step concentrations.

When comparing the pressure event flags with the proppant step flags, they were **able to understand events that occurred in proximity to others**. The team found that in 70% of the proppant ramps, there was a corresponding pressure increase. In some cases, the increase was between 1,000 to 2,000 psi.

The team also analyzed the pressure behaviors at certain proppant concentrations. By looking at the event flags that were automatically picked by the Power-Ups, they were able to calculate a median concentration level. The team discovered that most of the pressure increases occurred when the proppant concentration was at the median of ~1.55 PPA.

These **insights allowed them to adjust accordingly and optimize chemicals** such as friction reducer to avoid the pressure increases.

KEY RESULTS

We're constantly looking for ways to improve ROI and keep our D&C costs down as much as possible. And part of that is avoiding major and costly problems associated with screen-outs. So, having the ability to analyze our completions data quickly is a huge benefit."

- **Identify problematic stages and the cause of ongoing pressure anomalies,** which could have led to a screen-out costing upwards of $150,000 per well to clean out.
- **Gain actionable insights** that helped teams optimize propane and friction reducer.
- **Ability to flag events faster, which freed up the teams time** to focus more on analysis.

Well Data Labs®

"I love you guys. We've worked with WDL for three years, and I love how the database functions. No matter what frac crew we're using, the data is in the same spot. It's QC'ed, and it's all consistent. We love the service you provide."

– Supermajor Completions Platform Customer

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"Every minute saved per stage reduces overall operation costs. Reducing 5-10 minutes of pumping time and fluid per stage in a pad with four to six wells (50 stages each) adds up to about $200,000 – $350,000 of savings per pad."

– E&P Completions Platform and SWPM Customer

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"I've used a lot of tools and they all work well for single well analysis, but Well Data Labs is much more effective at presenting data in a multi-faceted way (multi-pad, formation, etc.)."

– Supermajor Completions Platform Customer

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"The tool has been fantastic so far. Saved me a ton of time."

– Pad Efficiency Project Customer

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"I love the WDL interface, and having the data in one place makes all our lives so much easier."

– Supermajor Completions Platform Customer

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"The detailed notes and interpretations were of tremendous value, and the team's ability to relate the analysis to operational considerations and to weigh all options appropriately was a huge plus."

– Independent E&P Completions Platform & SWPM Customer

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"I think the application is very cool. I love the idea of being able to compare stages, and the way you guys have set it up is seamless."

– E&P Pad Efficiency Customer, Eagle Ford Shale

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"This is awesome. You've just ignited the very soul of all the engineers I work with. They would love to see something like this. We will be a Well Data Labs customer for a long time.

– E&P Completions Platform Customer, DJ Basin