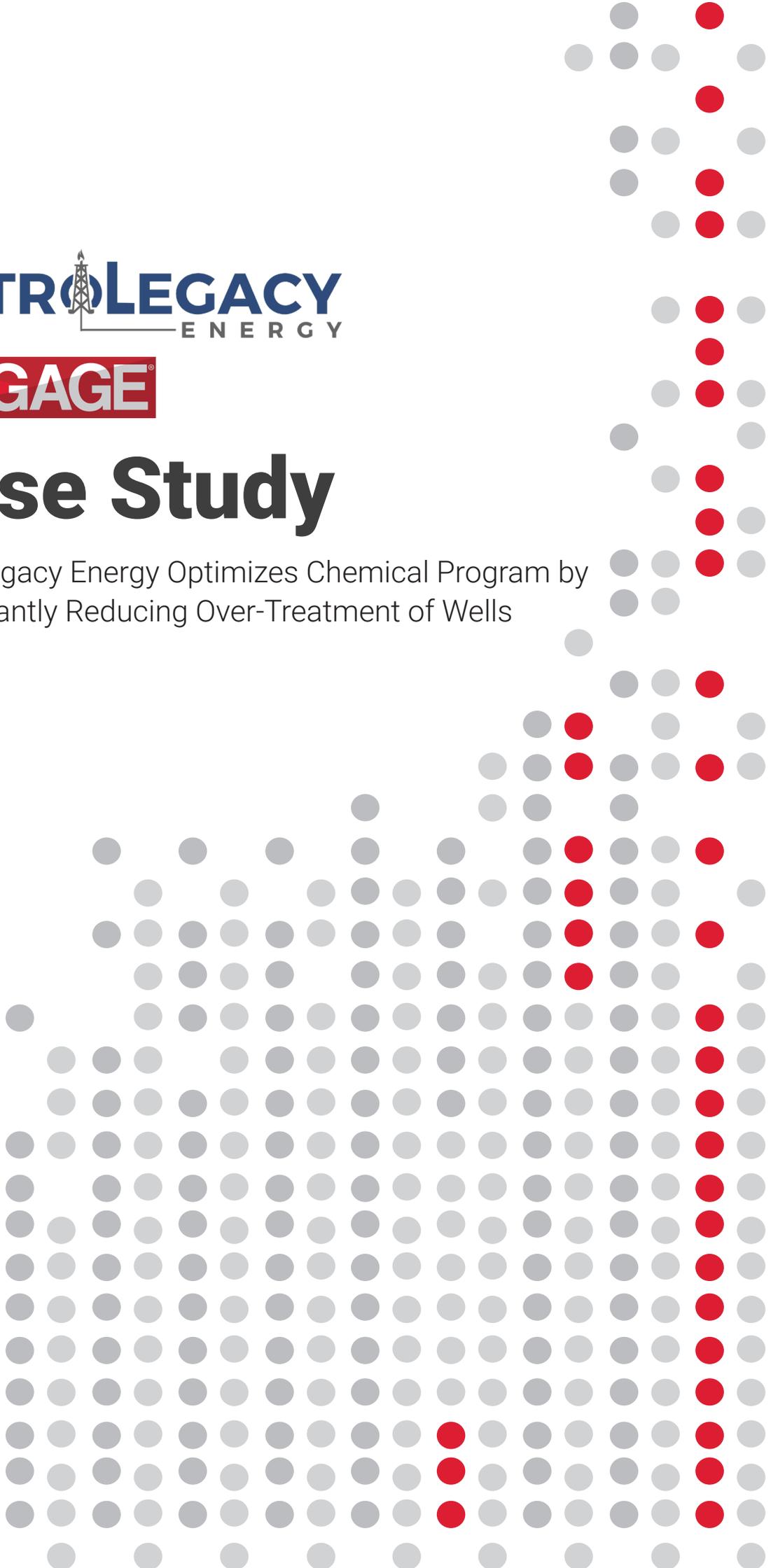




Case Study

PetroLegacy Energy Optimizes Chemical Program by Significantly Reducing Over-Treatment of Wells



In December 2020 PetroLegacy Energy and ENGAGE announced a partnership to explore how PetroLegacy's production chemical application program could be proactively executed and decrease their administrative burden. Over the past several months, a data analytics and reporting initiative was created. This enabled PetroLegacy to measure the chemical "variance" as the primary performance indicator. Variance is defined as the difference between Actual gallons of chemical delivered and the Target gallons required based on production volumes.

Historically, the service provider received month-end production data to calculate Target chemical deliveries for the next 4 weeks. Delivery volumes were sometimes based on out-of-date production data, often exacerbated by wells that were offline for routine maintenance or repairs. Also, PetroLegacy only had after-the-fact visibility provided through the service provider's monthly treatment report. This monthly workflow made it difficult to effectively execute the program.

The partnership created a digital workflow that integrated multiple sources of information including PetroLegacy Operations Reports, daily well production, and ENGAGE digital tickets. Every Monday, a chemical Treatment Report is sent to the chemical service provider to accurately plan deliveries for the upcoming week. It includes (for each scheduled treatment) the 30-day average daily well production, well status, current chemical concentration in Parts Per Million (PPM) based on the last treatment, and the required application to maintain target PPM. A dashboard was created to compare actual versus estimated treatments, measure variance, track cost savings, and improve execution over time.



ENGAGE is a cloud-based field management platform that digitalizes workflows end to end. Streamlining operator and vendor communications and processes allows more accurate accounting, reporting and planning and improves visibility into operations for all parties. ENGAGE is the leading solution for the oilfield, managing over 100 different service types.

“We immediately today can see how effective our chemical treatment was yesterday, that’s powerful.”

JASON CHURCHILL
CEO at PetroLegacy Energy



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Results:

PetroLegacy and ENGAGE tracked the impact of this initiative by looking at eight weeks of chemical treatment data prior to implementing the digital workflow and compared it with eight weeks of data after implementation. Below are the results:

- Prior to implementation, variance averaged 21.4% and ranged from 2.6% to 38.8%.
- Post implementation, during the pilot study, variance averaged 1.1% and ranged from 0.7% to 4.4%.

8 Weeks	Target Volume Gallons	Actual Gallons	Excess Gallons	Variance
Prior	929	1128	199	21.4%
Post	719	727	8	1.1%

- Production chemicals are priced by volume delivered, so reducing the variance directly impacted the monthly chemical expense.

Next Steps:

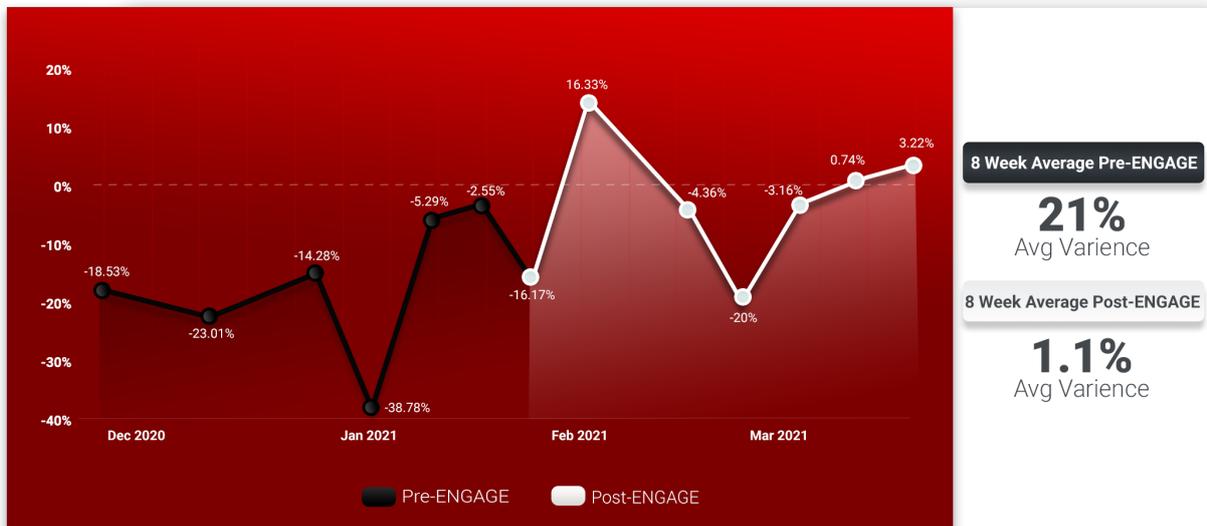
ENGAGE, PetroLegacy, and the service provider continue to use this process because of the positive impact it has had on executing PetroLegacy's chemical application program.

PetroLegacy and their service provider are exploring an alternative formulation to reduce the cost created when rounding up small volume treatments. Following the 8-week pilot study, monthly variance stabilized at approximately 13.2%. The inability to maintain lower variances was explored and it was discovered that more treatments fell into the trap of rounding up to the next ½ gallon than during the pilot period. This means that the targeted treatment gallons were always rounded up to the next ½ gallon when the supplier planned actual treatment gallons. Intentionally overtreating, while prudent, proves quite costly on low-rate stripper production. Carefully solving this overspending will become necessary.

The partnership is now moving into its next phase to automate the data aggregation and analysis of well production and chemical ticket data. The digital workflow & dashboard, while effective, are something to be revisited. Creating a seamlessly automated treatment & reconciliation report, alerts, and integrating with production surveillance, would further reduce the workload for PetroLegacy and its service provider(s).



PetroLegacy Energy is a privately held exploration and production company based in Austin, Texas. PetroLegacy Energy II, LLC was formed in September 2016 with an equity commitment from EnCap Investments, L.P. The Company is actively pursuing the acquisition and development of oil and gas properties in the Lower 48 through a multiple basin approach with a concentration on the Permian Basin and the Eagle Ford Shale trend. PetroLegacy currently operates in the Midland Basin where it holds a substantial acreage position primarily in Martin County.



Source: PetroLegacy Production Data & ENGAGE Chemical Ticket Data