$nanO_2$® West Texas Completions Case Study

Objective

To lower fuel consumption and associated emissions on a completions operation by improving the fuel efficiency of power generation.

Solution and Testing Procedure

The $nanO_2$ fuel enhancer was deployed on a completions operation in West Texas to validate $nanO_2$'s ability to improve fuel efficiency.

The precise ratio of $nanO_2$ was added to the fuel using the automated dosing unit providing a highly accurate, hands-free solution with fast implementation.

Using hydraulic horsepower hours per gallon (HHP*hr/gal) as a standard key performance indicator (KPI) to evaluate the operation's efficiency, fuel usage, time per stage and average hydraulic horsepower were monitored. Fuel usage was recorded daily from the flow meter, while hydraulic horsepower and time per stage were captured and reported by the operator. The hydraulic horsepower and time data was converted into hydraulic horsepower hours to provide an accurate measure of energy production from the engines per day. This HHP*hr data was then compared to the daily fuel consumption to yield the HHP*hr/gal KPI.

Results

Testing resulted in a 5.4% increase in fuel efficiency (HHP*hr/gal) over the baseline, saving an estimated 15,928 gallons of diesel over the 16 days that $nanO_2$ was used. The $nanO_2$ treated fuel was used for 109 stages over three wells.

The 15,928-gallons of fuel saved equates to an estimated overall reduction of 163.1 metric tons of CO_2e*, or an average of 10.2 metric tons per day. This does not take into consideration the additional reduction in other types of emissions resulting from $nanO_2$ that have been observed but were not a part of this case study.

Conclusion

The $nanO_2$ fuel enhancer was effective in increasing the fuel efficiency and reducing emissions of the completion operations in West Texas. The customer successfully implemented the automated dosing unit into daily operations to ensure continued savings.

Case Study Details

Location: WTX

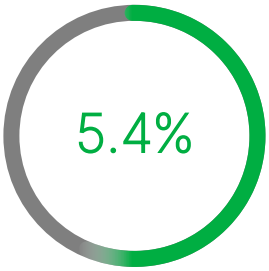
Timeframe:

- Baseline : 11/26/22 – 12/3/22
- $nanO_2$: 12/6/22 – 12/21/22

Test KPI: HHP*hr/Gal

Installation: Completions Fleet

Results Overview



Increase in Fuel Efficiency

Metric Ton's of CO_2e* Saved

Sources:

**Based on 2021 EPA GHG emission Factors. CO_2e (equivalent) is calculated by including the GWP of CH_4 and N_20 of diesel to standard CO_2 Diesel Fuel Emissions*