

nanO₂[®] Third Party Argentina Case Study



Objective

Reduce the emissions impact of the drilling rig operations, by improving the fuel efficiency of the power generation systems in Argentina.

Solution and Testing Procedure

The nanO₂ fuel enhancer was deployed on a drilling rig in Argentina to validate its effectiveness.

The accurate ratio of nanO₂ was added to the fuel each time the rig received a delivery using the manual dosing procedure. The manual dosing procedure was implemented as a fast, low-cost solution.

Using kilowatt per gallon (kWh/gal) as the standard key performance indicator (KPI) to evaluate the rig's efficiency, fuel usage and engine load were monitored. Engine energy and fuel consumption were recorded and reported on an hourly basis and captured via rig controls. The recorded data was analyzed to complete the kWh/Gal efficiency computation.

Results

Testing resulted in a 6.4% increase in fuel efficiency over the baseline, saving 1,284 gallons of diesel over the 36 days that used nanO₂. With individual engines being monitored, changes in efficiency due to changes in engine management are negated when comparing the two data sets.

The 1,284-gallon fuel savings equates to an estimated reduction of 13.15 metric tons of CO₂e*. This does not take into consideration the additional reduction in other types of emissions resulting from nanO₂ that have been observed but were not a part of this case study.

Conclusion

The nanO₂ fuel enhancer was effective in reducing emissions of the Argentina operations and increasing its fuel efficiencies. The rig successfully implemented the manual dosing procedure into daily operations to ensure continued savings and safe operations.

*Source: *Based on 2021 EPA GHG emission Factors. CO₂e (equivalent) is calculated by including the GWP of CH₄ and N₂O of diesel to standard CO₂ Diesel Fuel Emissions*

Case Study Details

Location: Argentina

Timeframe:

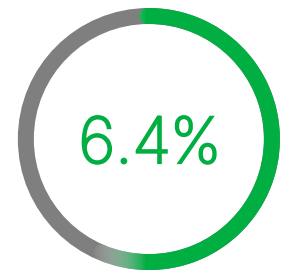
- Baseline: 20 Days
- nanO₂: 36 Days

Test KPI: kWh/gal

Rig Spec: Land Rig

Power Generation: CAT 3512

Results Overview



Increase in Fuel Efficiency



Metric Ton's of CO₂e* Saved