

CASE STUDY

CLEARVIEWTM



Canadian Energy
SERVICES

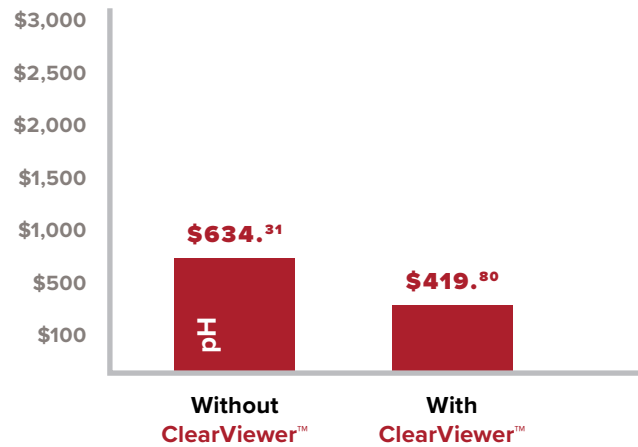
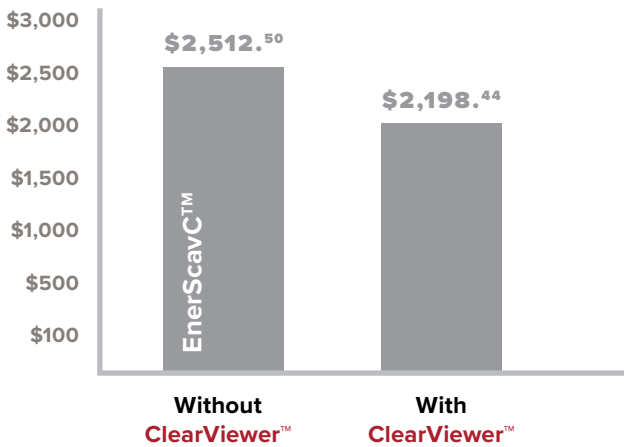
**CLEAR
VIEW-RTM**

CLEARVIEWER™

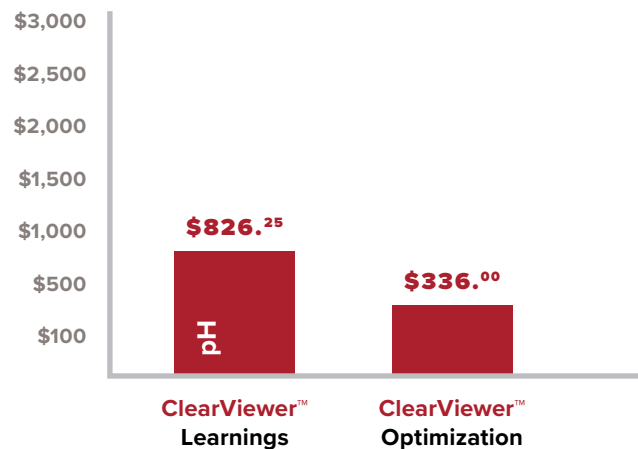
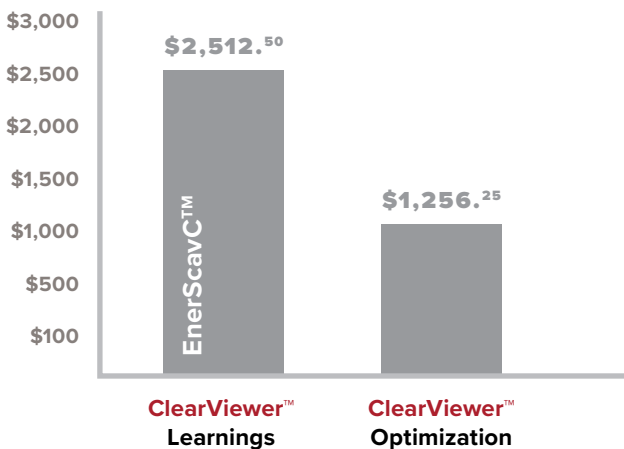
Real-Time Brine Monitoring

First trial of ClearViewer™. Implementing realtime data capture and continuously monitoring key properties of a 1300kg/m³ calcium chloride brine led to a reduction in oxygen scavenger spend and alkalinity control spending. This was done simply by continuous monitoring without much modification to the standard drilling fluid program. On the first well with ClearViewer™ the oxygen spend was reduced by 13%.

PAD #1



PAD #2

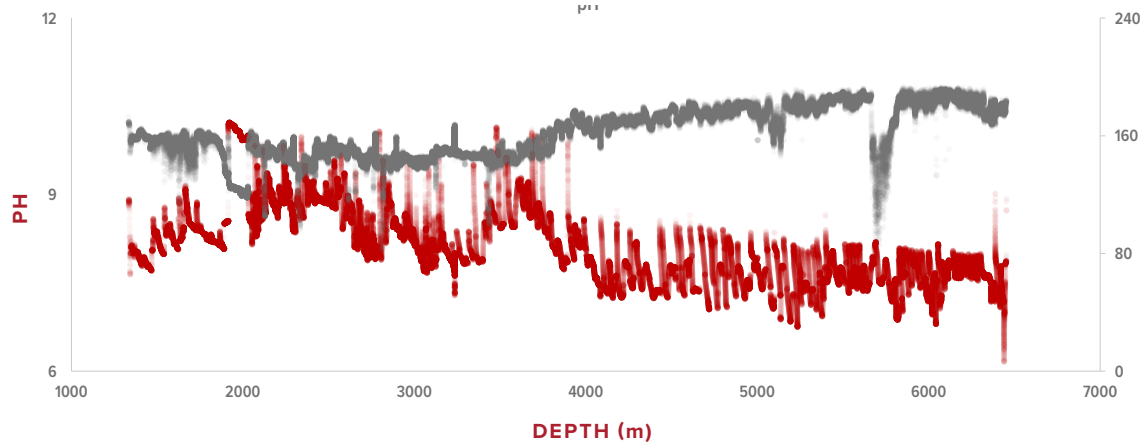


Through tank optimization and treating a trend instead of the peaks and valleys normally associated with limited oxygen readings the oxygen scavenger usage was also reduced on the most recent well by 50%.

CLEARVIEWER™

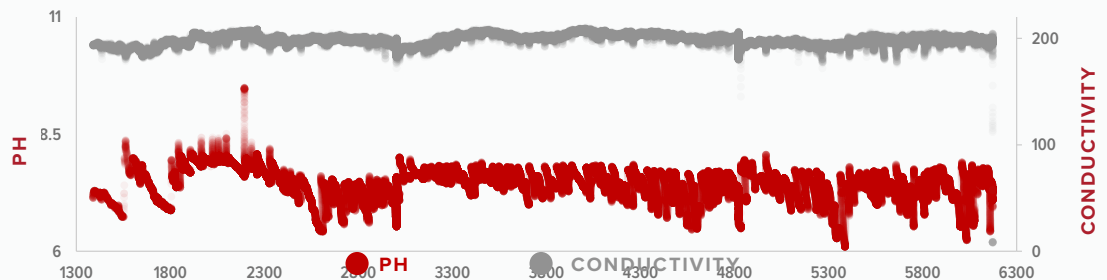
pH vs Conductivity

When evaluating the large data set that would've been otherwise unknown without ClearViewer™ more optimizations were discovered. When using caustic as the alkalinity source momentary spikes in pH were observed. However, dips in conductivity immediately followed. The sodium ion was stealing chlorides from the system resulting in a reduction of density. This resulted in an increased usage of calcium chloride.



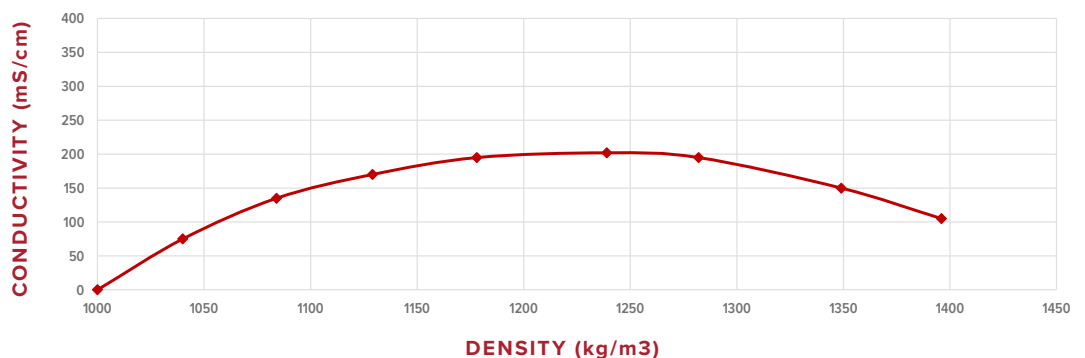
pH vs Conductivity

When we pushed this knowledge onto the longer duration wells the improvements were immediately visible. By switching to utilizing Lime as the alkalinity source we were able to reduce the spend on salt by 59%.

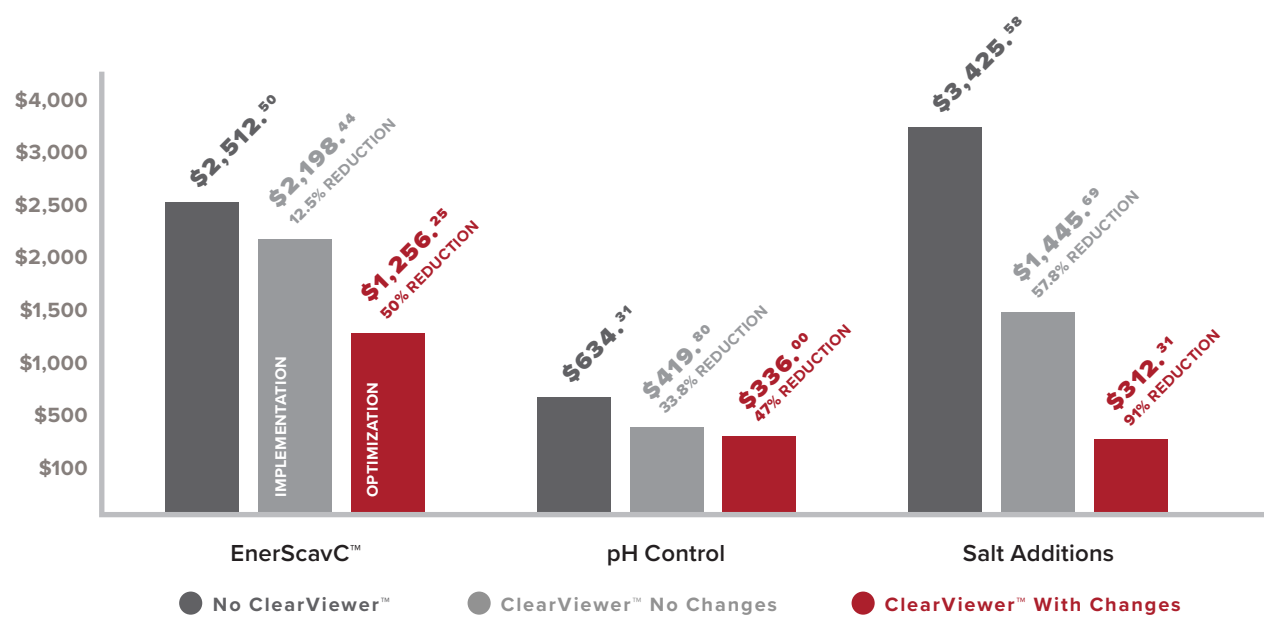


Salt Curve (Calcium Chlorides)

Once the brine reaches a certain salt saturation the spacing between ions becomes tighter causing a dip in conductivity. This is illustrated in this chart.

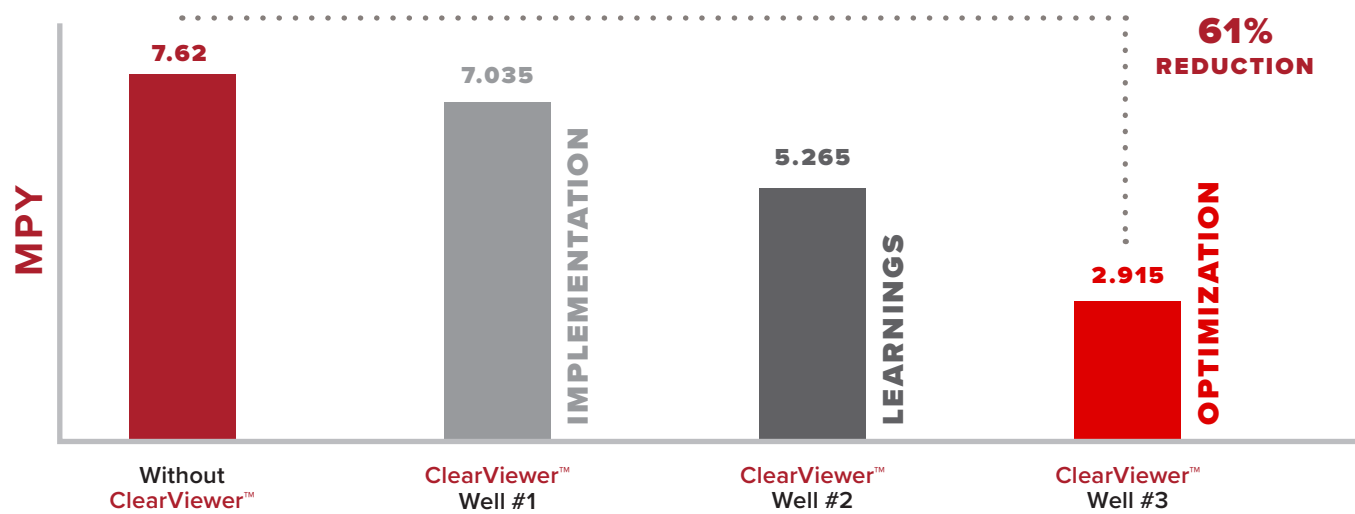


COST PER DAY



CORROSION RATE

These changes directly correlate to properties that impact the corrosion potential onsite. With these reductions in spend it may be normal to question whether the corrosion rate got worse. One thing is certain. The longer ClearViewer™ is in use the more effectively we can utilize product additions which have led to lower corrosion rates over time.



Canadian Energy Services

CESENERGYSOLUTIONS.COM | (403) 269-2800

14th Floor - 332 6 Ave SW

