



FLOTHRU

Organophilic water-based reservoir drill-in fluid

Mi SWACO
A Schlumberger Company

Current Status

Used in 500+ Wells and 25 Countries Worldwide

- Western Canada
- United States
- Russia
- Abu Dhabi
- West Africa
- Malaysia & many other countries worldwide



Client Value

- Higher return permeability through open hole gravel packs (OHGPs)
- Organophilic channels conducive for hydrocarbon production
- Lower flow-initiation and skin factor compared to conventional RDF's
- Improved hole cleaning compared to brine
- No chemical breakers needed – filter cake cleans up with hydrocarbon production
- Reduced initial water when wells are put to production
- Easy to engineer

Potential FloThru Applications

- Conventional Reservoirs
- Open Hole Completions
- Open Hole Gravel Packs
- Wells Where Water Production is High
- Where cleanup traditionally requires a breaker system
- Where confined filter cake inhibits production
- Temperature Stable Up to 130°C

Additives

Base Fluid

Fresh Water or Monovalent Brines

Three Main Components

1. *FloVis Plus – Clarified Xanthan Gum*
2. *ThruCarb – Hydrophobic Carbonate*
3. *ThruTrol – Hydrophobic Starch*



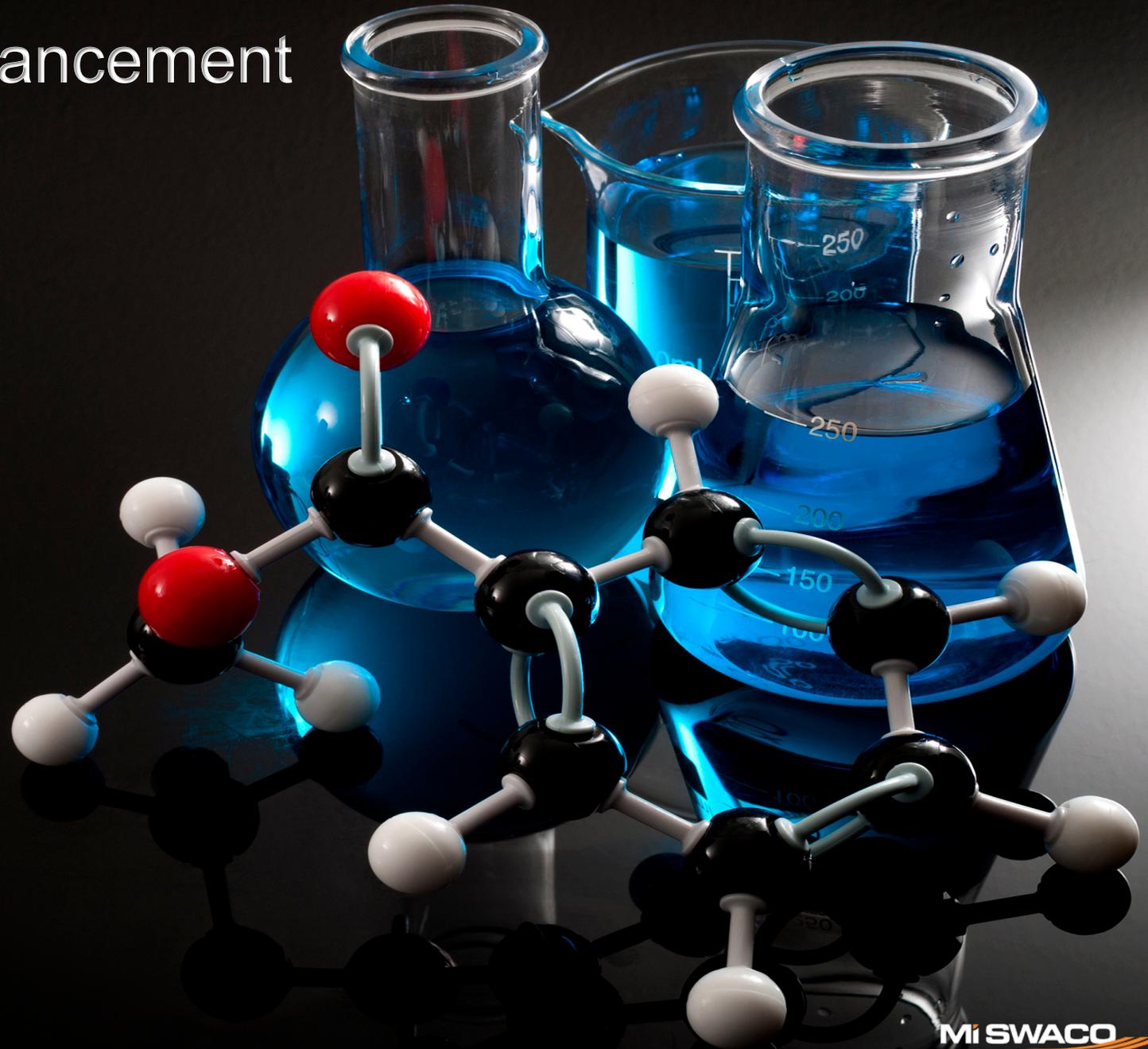
Inhibition & Lubricity Enhancement

Enhanced Inhibition

Kla-Stop – Amine Type Inhibitor

Enhanced Lubricity

RadiaGreen RA – Ester Based Lubricant

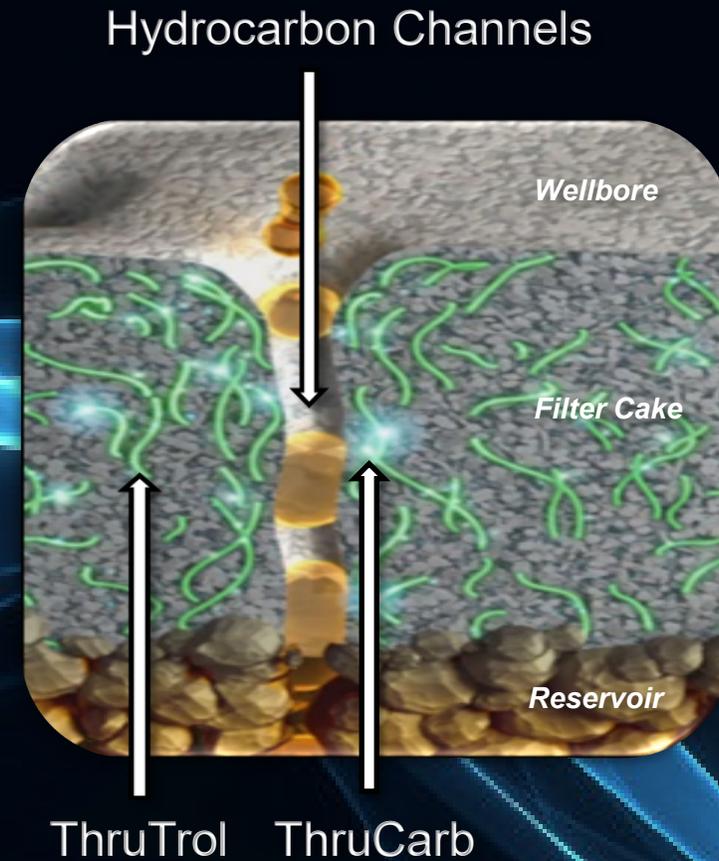


How it Works

ThruTrol + ThruCarb
= Organophilic Filter Cake

Organophilic Filter Cake Benefits

- Preferential Flow of Hydrocarbons – “Oil Wet Channels”
- Resists Water Flow into the Reservoir While Drilling
- Lower Flow Initiation Pressures



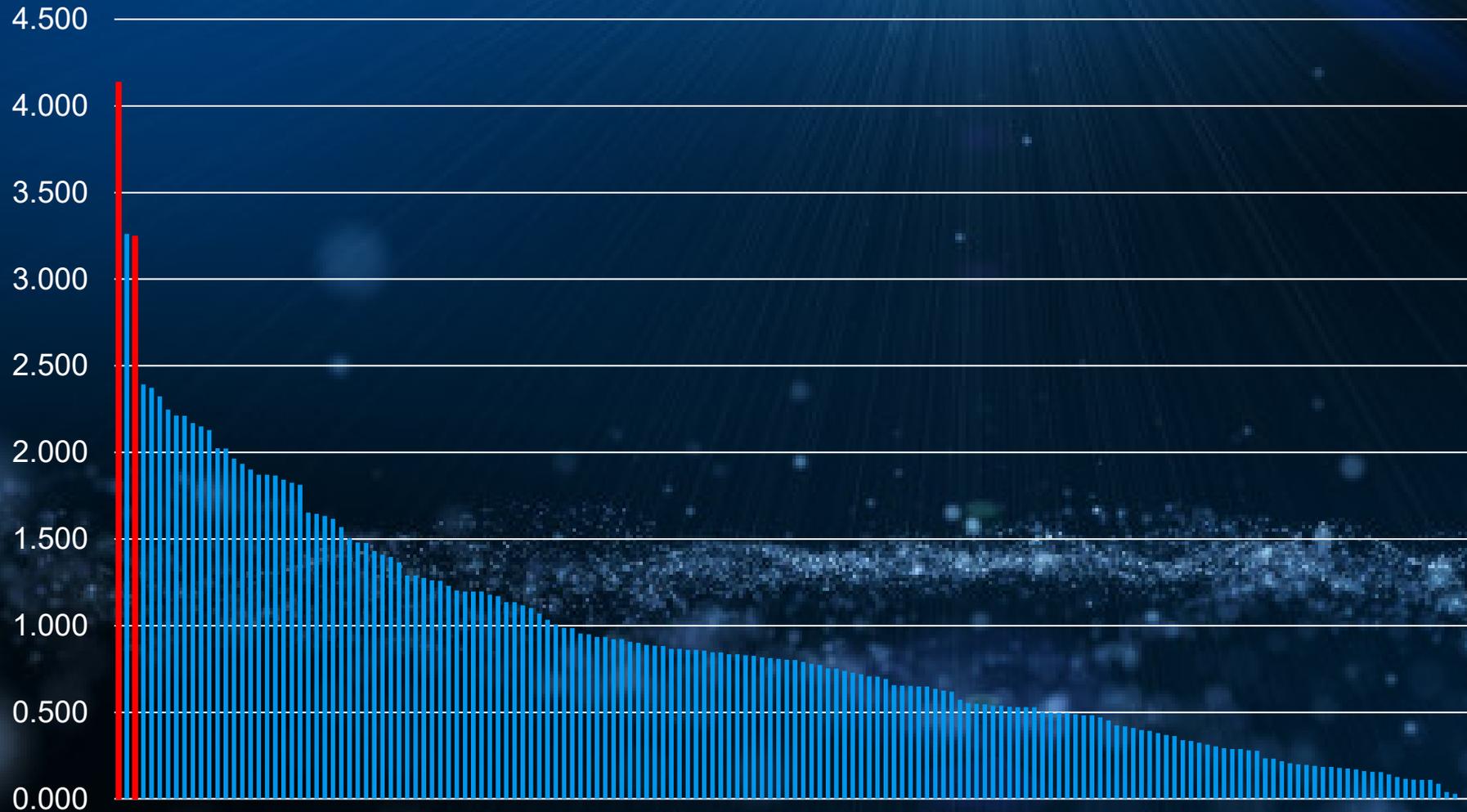
Efficient Filter Cake Removal

- “SMART” Filter Cake Technology
- No Chemical Breaker Needed
- Breaks down over time with hydrocarbon production



Production in Marten Hill Clearwater Formation

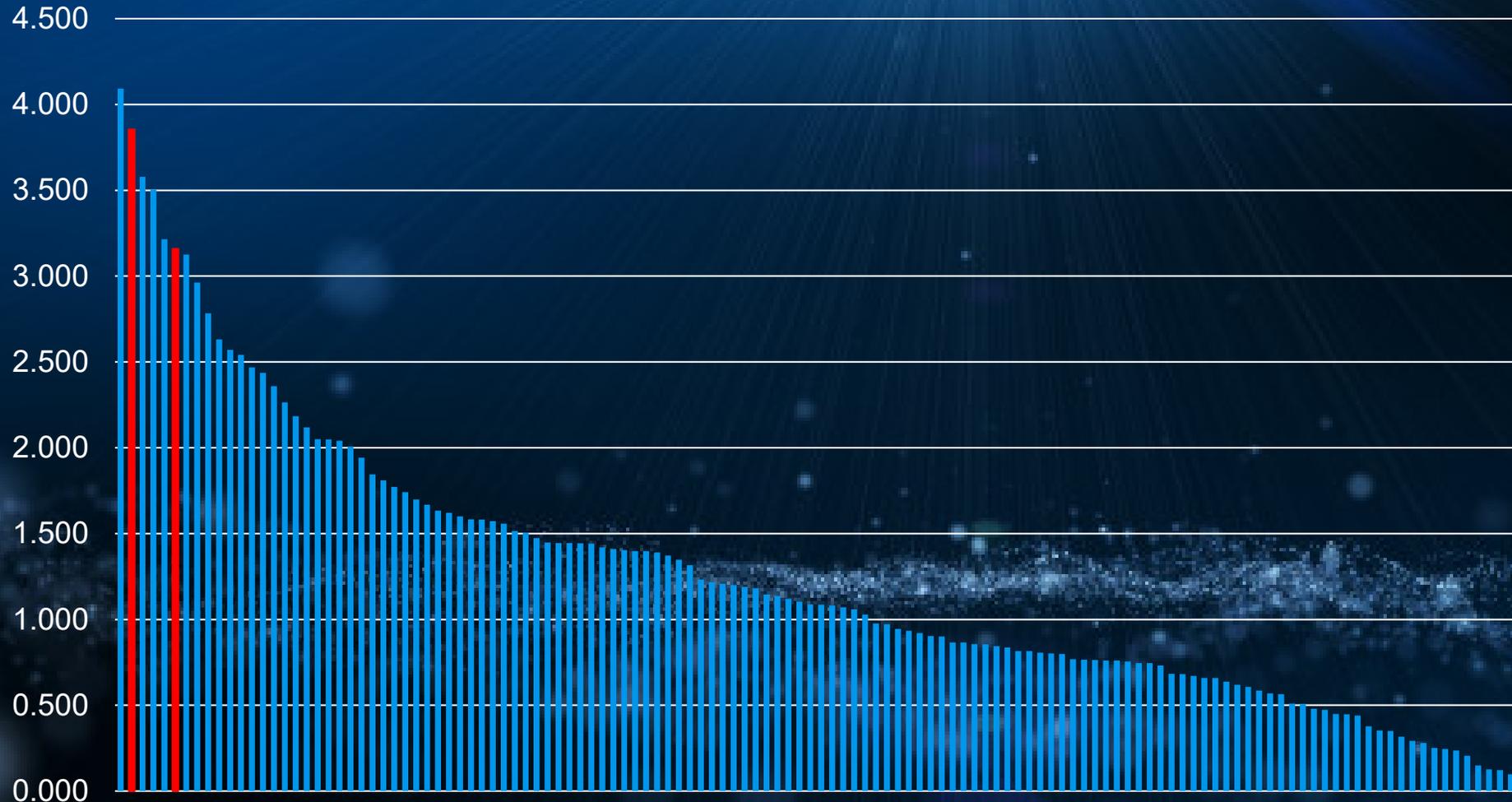
First Month Hourly Oil (m³/hr)



- ❖ Comparing the first month average production rate of wells drilled in the Marten Hills - Clearwater formation.
- ❖ Reviewed 166 well production data. Of the top three wells, two were drilled with the FloThru system.

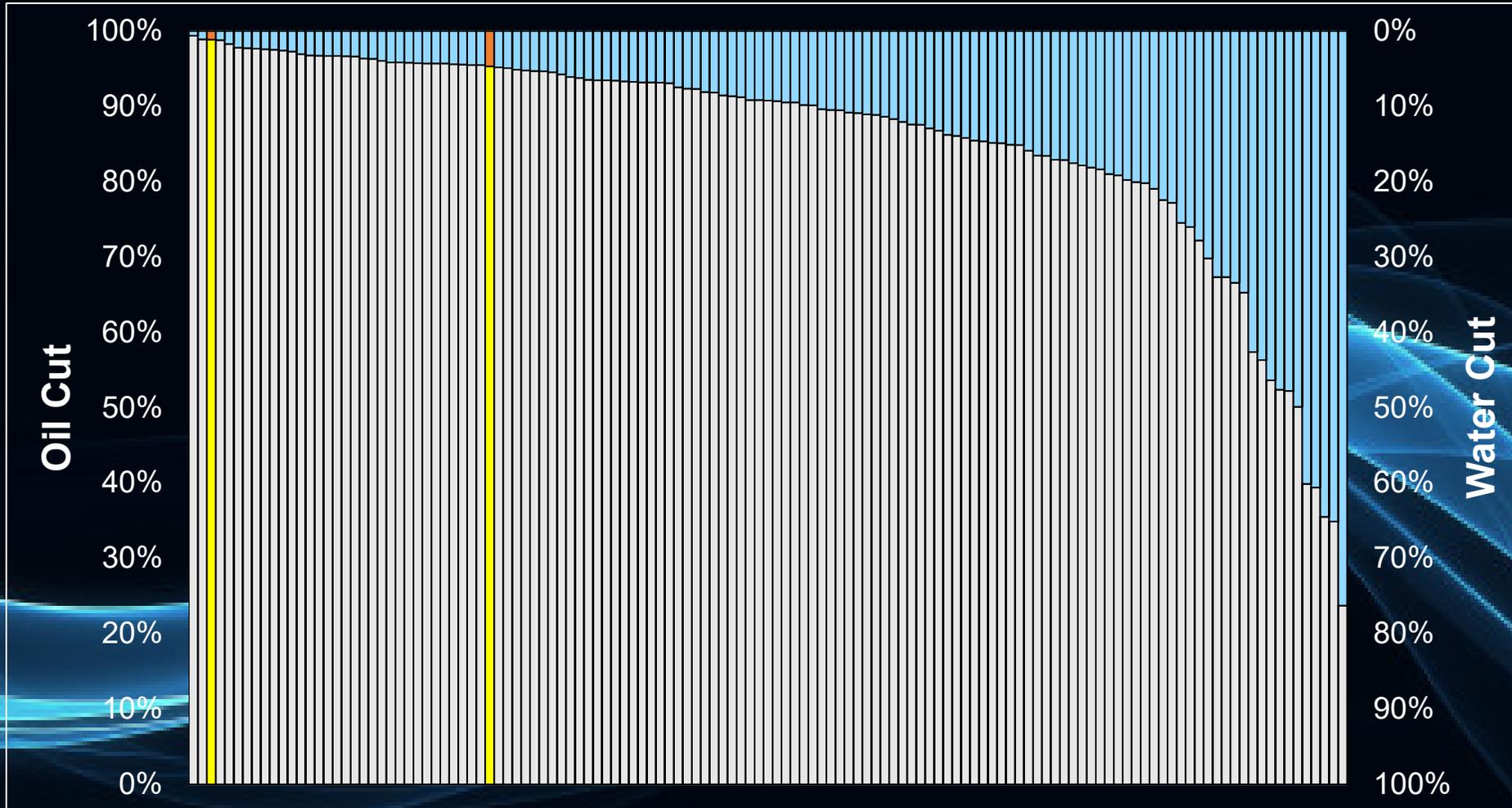
Production in Marten Hill Clearwater Formation

6 Month Hourly Oil (m³/hr)



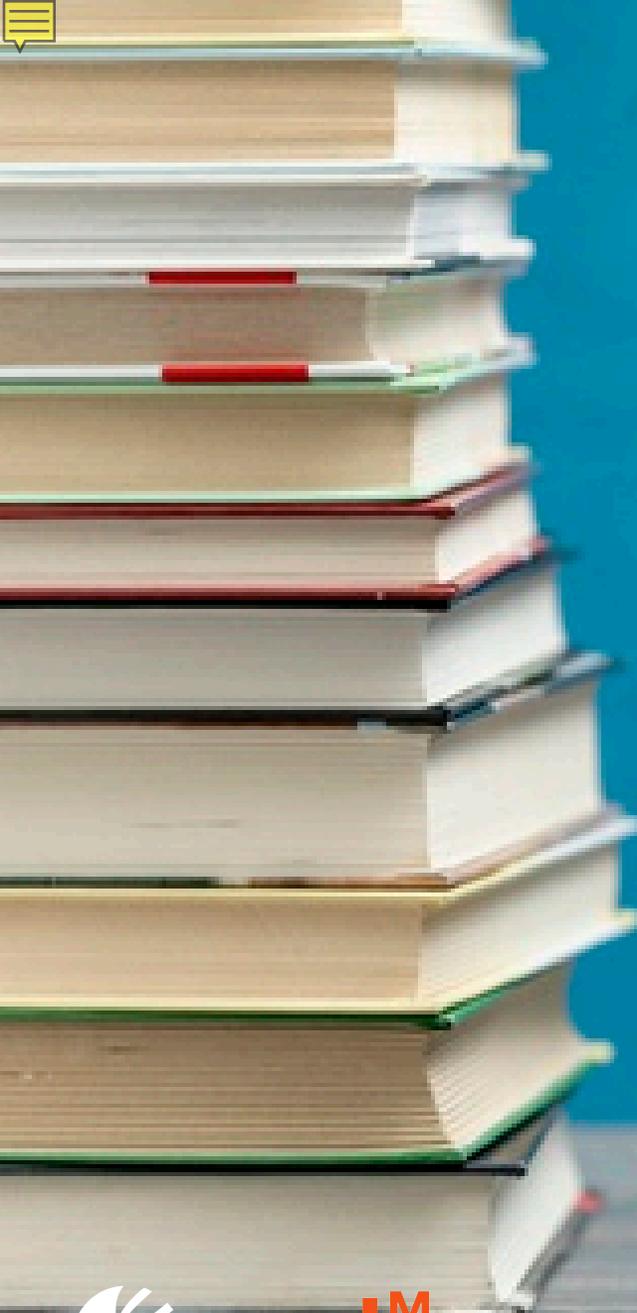
- ❖ Comparing the sixth month average production rate of wells drilled in the Marten Hills - Clearwater formation.
- ❖ Reviewed 129 wells production data. Two of the top six wells were drilled with the FloThru system.

Production in Marten Hill Clearwater Formation



Comparing the Oil to Water production after six months:

The average oil cut was 85% throughout the Clearwater. The two FloThru wells produced 98.9% and 95.3% oil.



Technical Publications

- *Active Filter Cake Technology- Eliminating the Need for Post Completion Cleanup – SPE 94726*
- *A Specially Designed Organophilic Chloride-Free Reservoir Drill-In Fluid Meets the Challenges of the First Horizontal Well in Mozambique – SPE 151837*
- *The Use of Smart-Filter-Cake Reservoir Drilling Fluid in The Wilmington Field – AADE 2009 NTCE-15-02*
- *Successful Implementation of Horizontal Open Hole Gravel Packing in the Stybarrow Field, Offshore Western Australia - SPE 116434*
- *Skin Free Production Through a New Gravel Pack Completion for Gas – SPE 122135*
- *Monobore Well Design Using Technology to Improve Well Execution Efficiency – SPE 154013*

Contact Info & Questions



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