

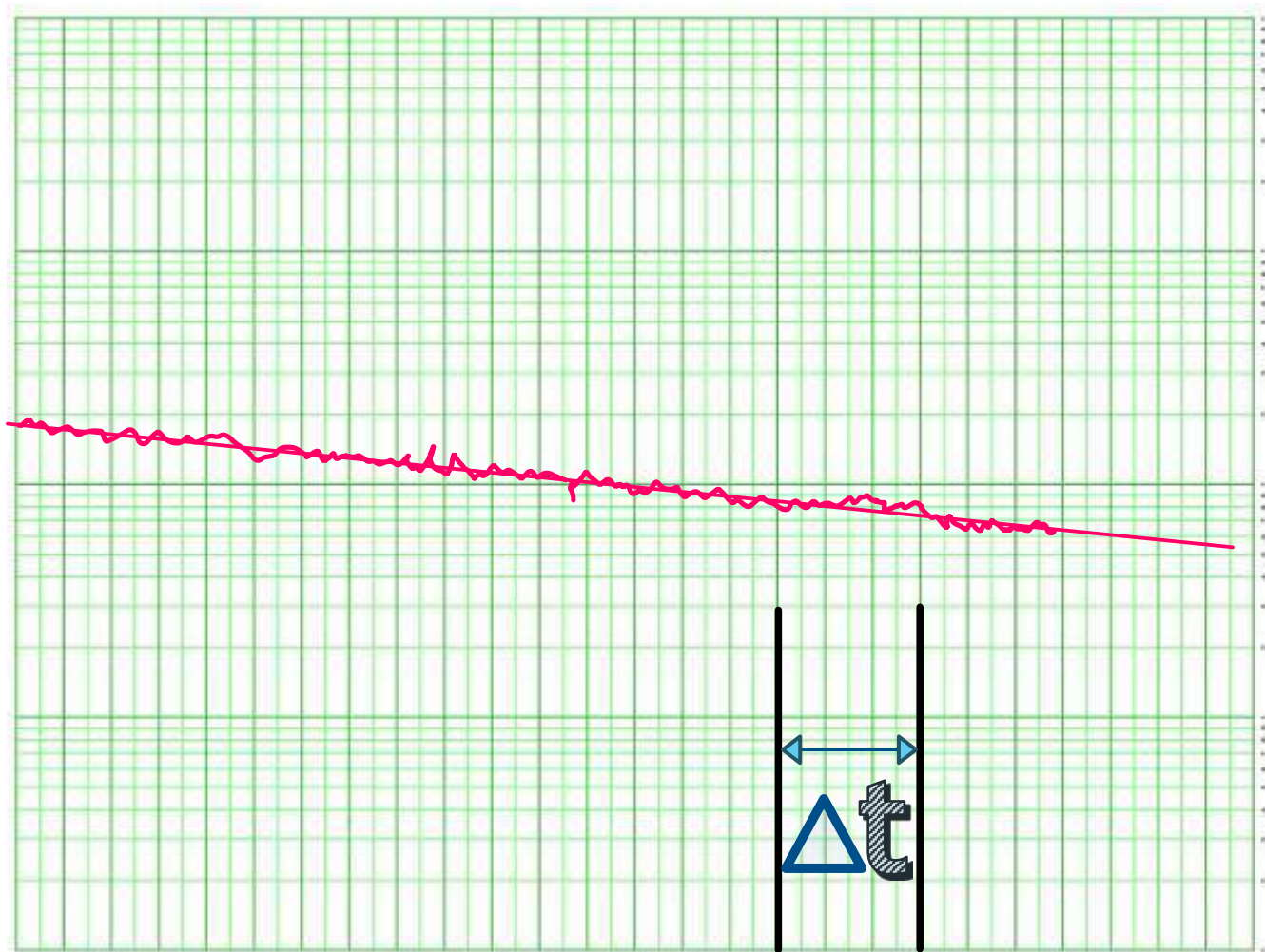


# Gas Interference in Lifted Wells – A New Approach to an Old Problem

Bob Berland, P.E.

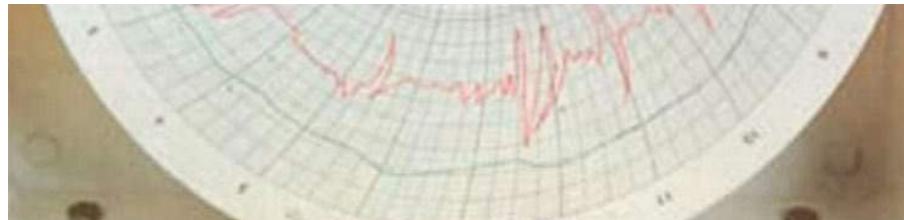
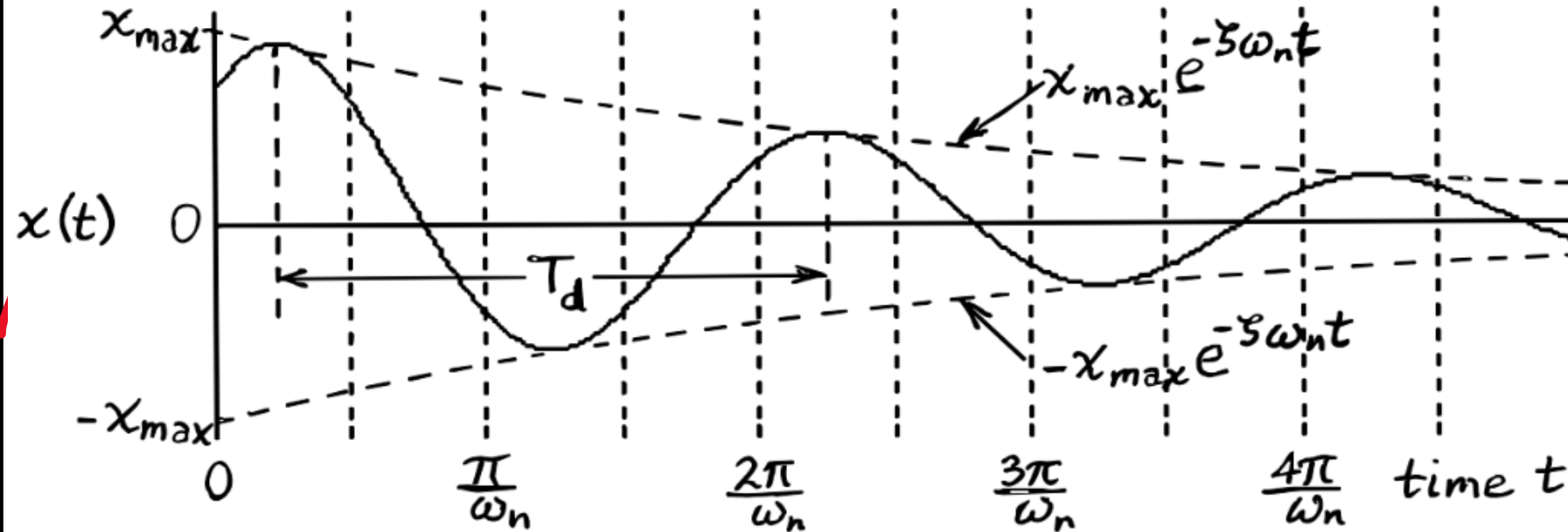
2023 International Sucker Rod Pumping Workshop  
Aug 28-31, 2023. Midland TX

Office - “What you see is what you get.”



Field - “What you get is not what you see... typically”

Gas Rate



Time

# Two-Phase Fluid Flow, U. of Tulsa TUFFP Facility

Artificial Lift  
R&D Council



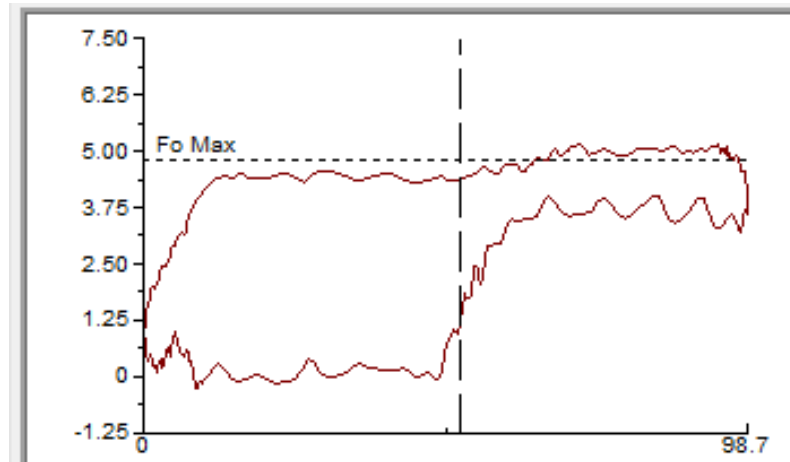
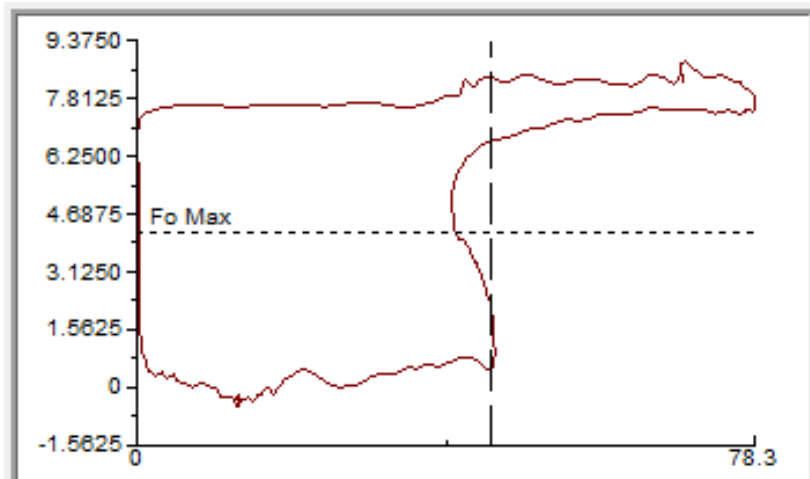
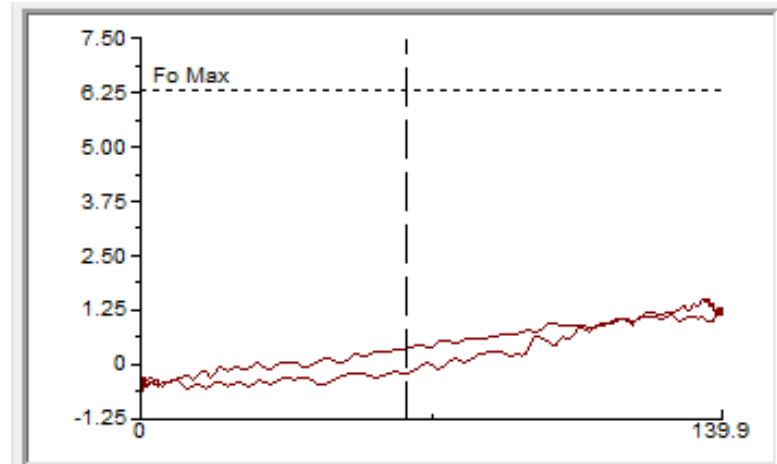
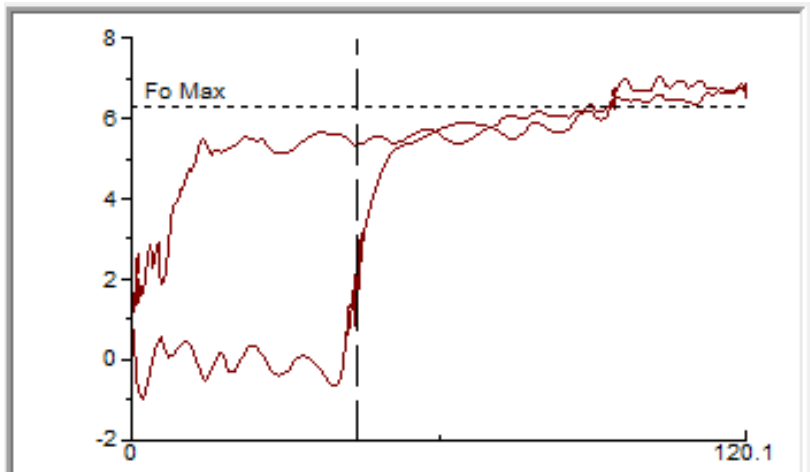


# What is a rod (or tubing) pump?

- ▶ Positive Displacement
- ▶ Piston acting
- ▶ Fluid State - incompressible fluid
- ▶ Pac Man

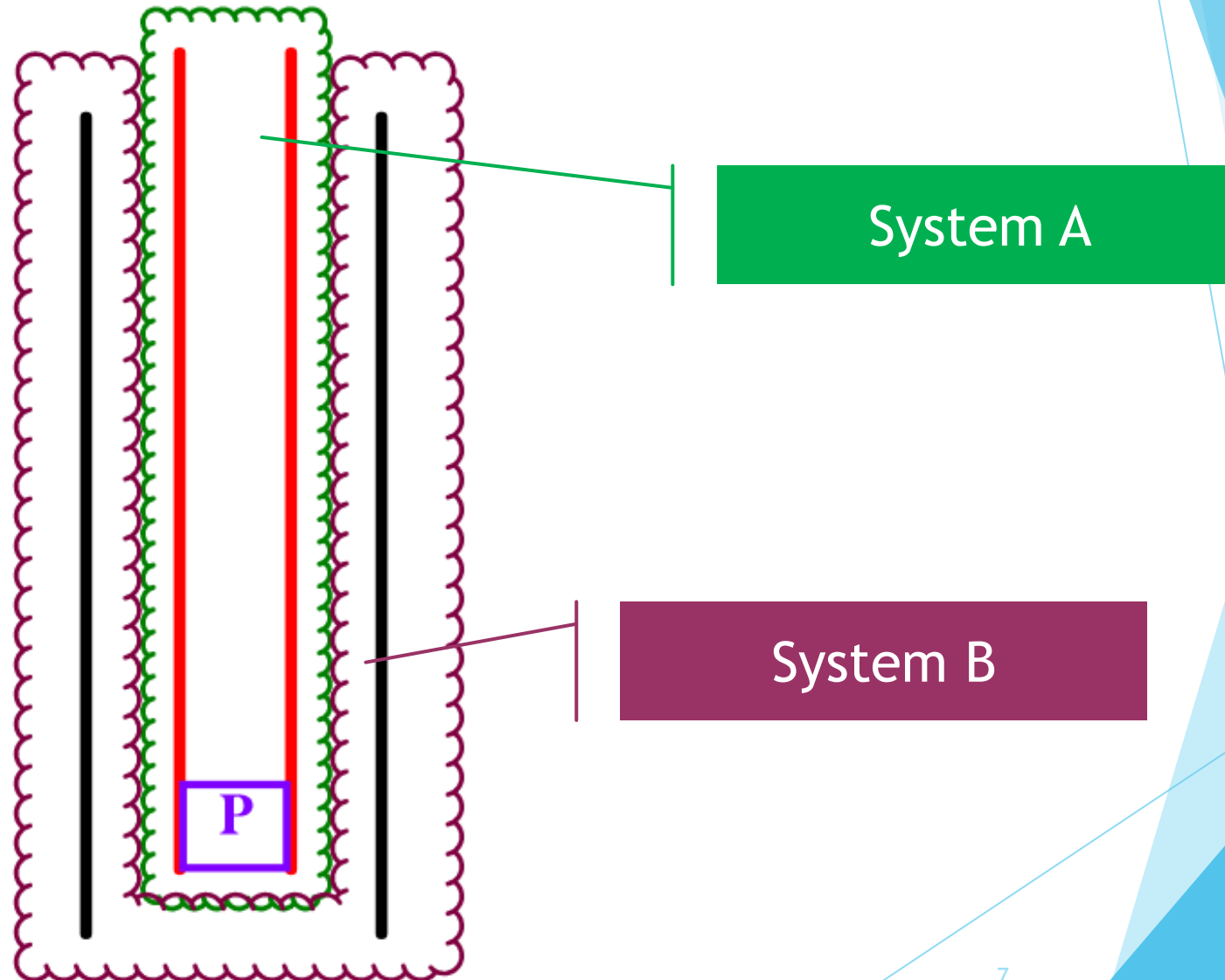
“A pump is not a compressor.”

# Beauty may be in the eye of the beholder, but ugly?...





# System Boundaries

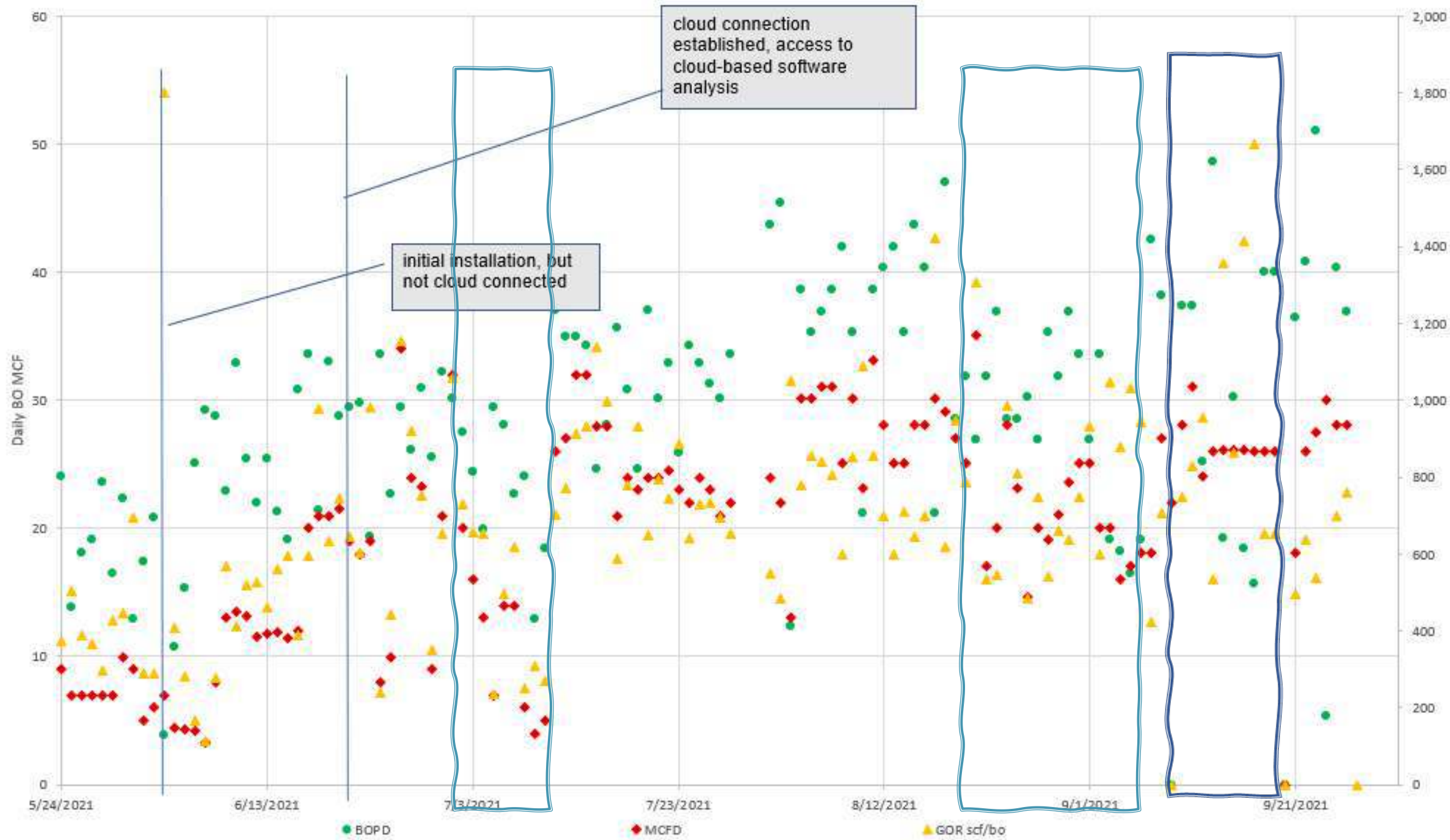




# Proof of Concept Field Trial: North Plains Resources LLC

- **Duration:** ~4 months
- **Location:** North Dakota Bakken
- **Pump type:** Rod on 912 W'Ford pumping unit w Well Pilot POC
- **Initial Average BOPD:** 20
- **Well type:** Horizontal  
~10,000' TVD, ~20,000' MD







# Acknowledgements, Thank You & Questions

- ▶ Dr Cem Sarica, University of Tulsa TUFFP, video
- ▶ North Plains Resources, field trial of prototype



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