BAKER HUGHES
a GE company

Case Histories of Well Interventions Enhanced by CT Engineering Software

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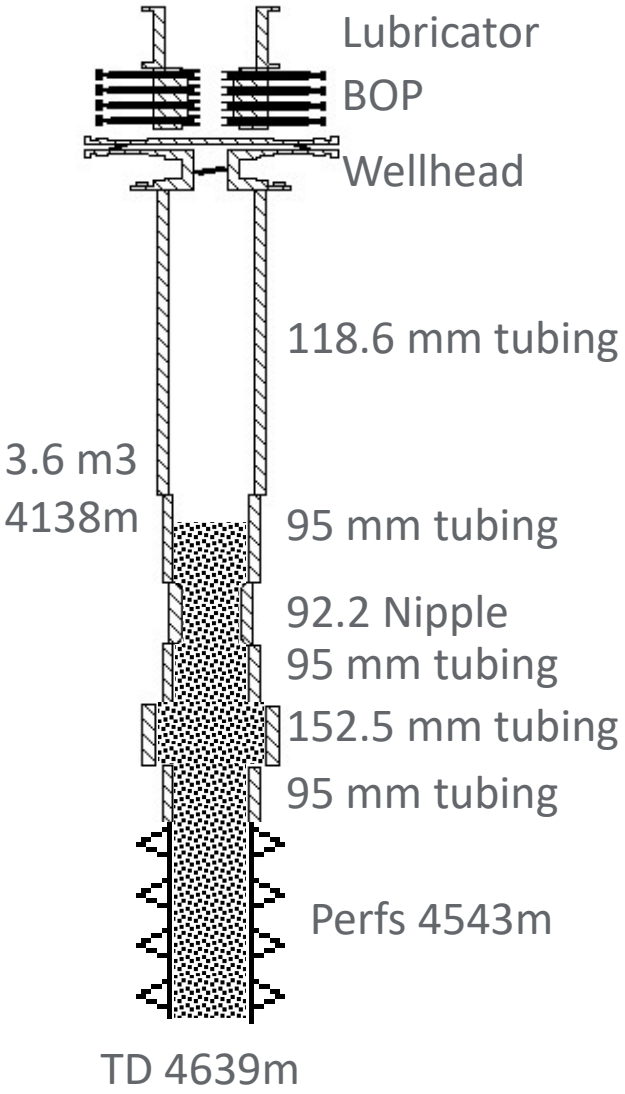
Case Studies

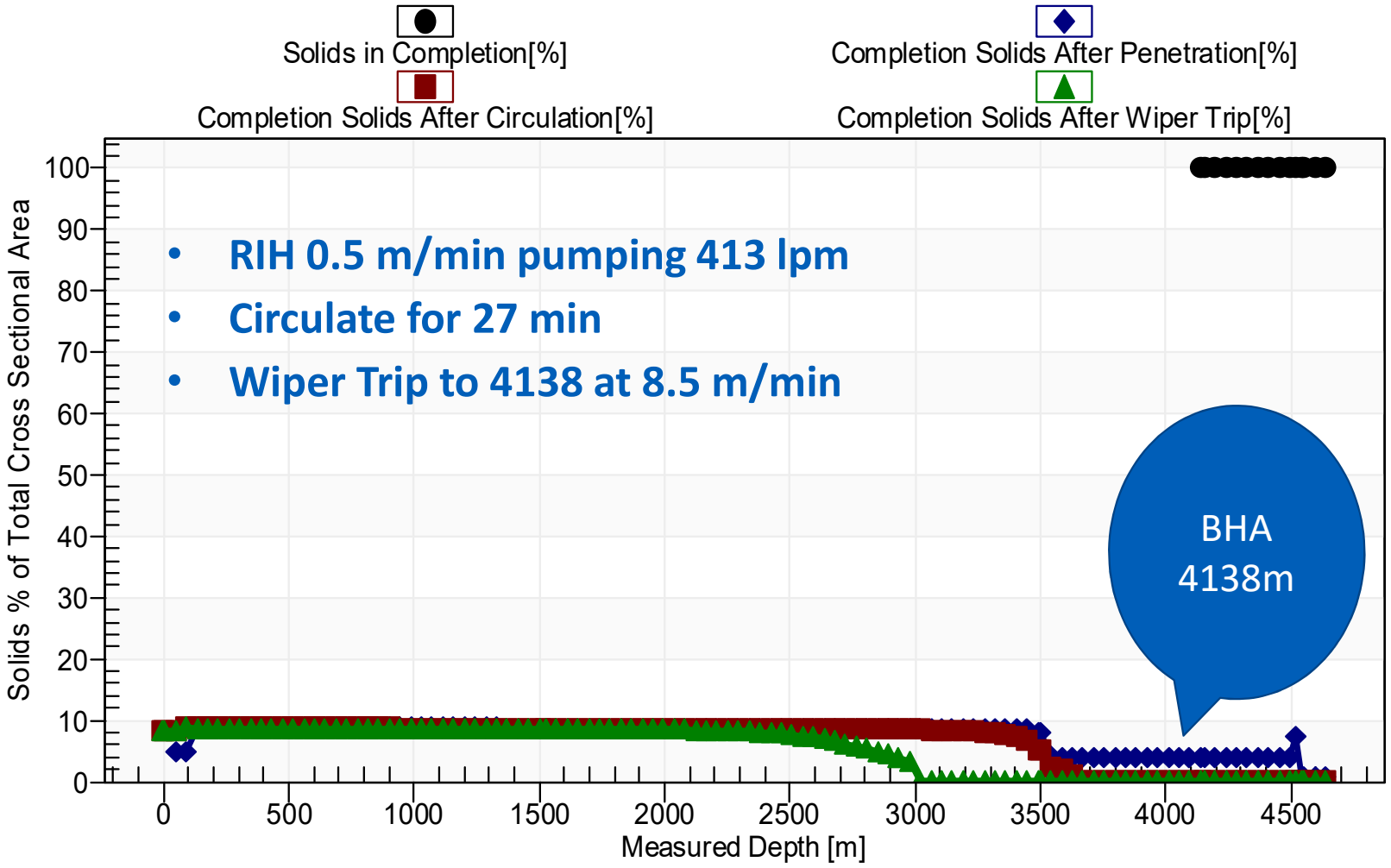
1) Bauxite Cleanout in a Vertical Well
2) Carbolite Cleanout in a 25 degree deviated well
3) Screen out after abrasive perforating
4) Pressure used in String Life calculations
5) Field versus Lab Ballooning
6) Overpull failures in the field

Case 1: Bauxite Cleanout in Vertical well

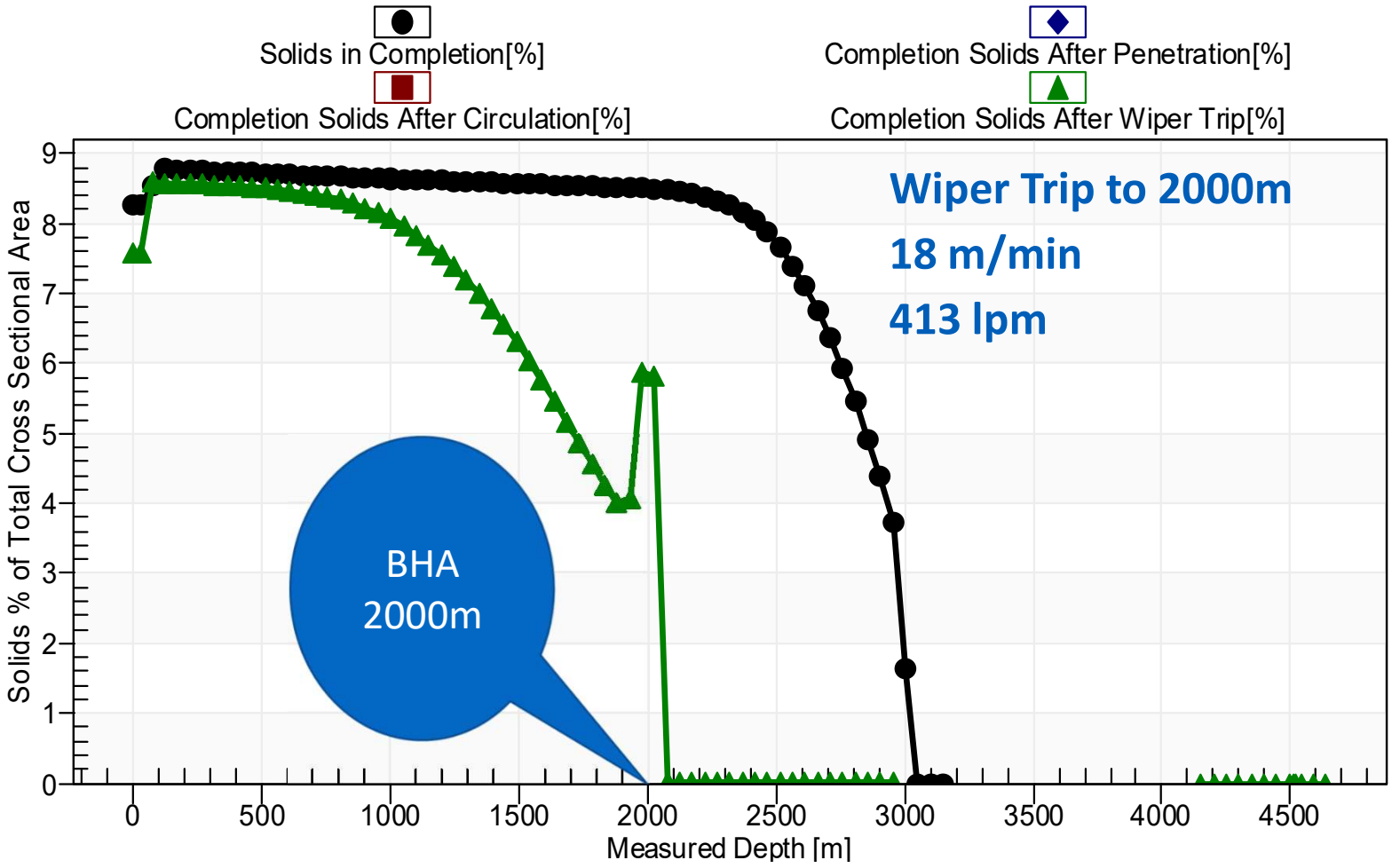


- **60.33 mm CT**
- **RIH 0.5 m/min pumping 413 lpm**
- **Circulate for 27 min**
- **Wiper Trip to 4138 at 8.5 m/min**
- **Wiper Trip to 2000m at 18 m/min**
- **Drop rate to 80 lpm**
- **Wiper Trip to surface at 20 m/min**

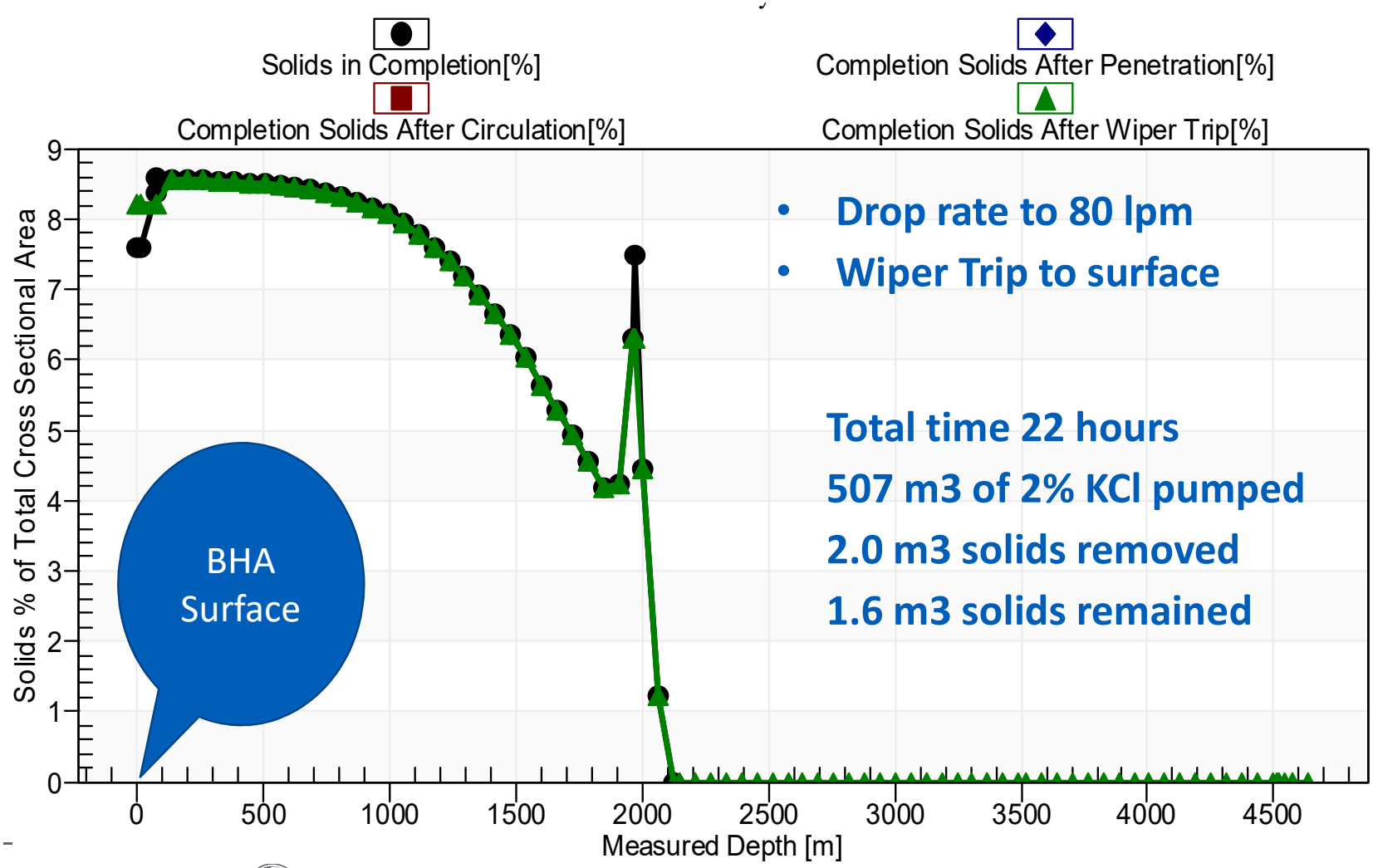
Case 1: Bauxite Cleanout, RIH, Circ, 1st Wiper



Case 1: Bauxite Cleanout, 2nd Wiper



Case 1: Bauxite Cleanout, 3rd Wiper



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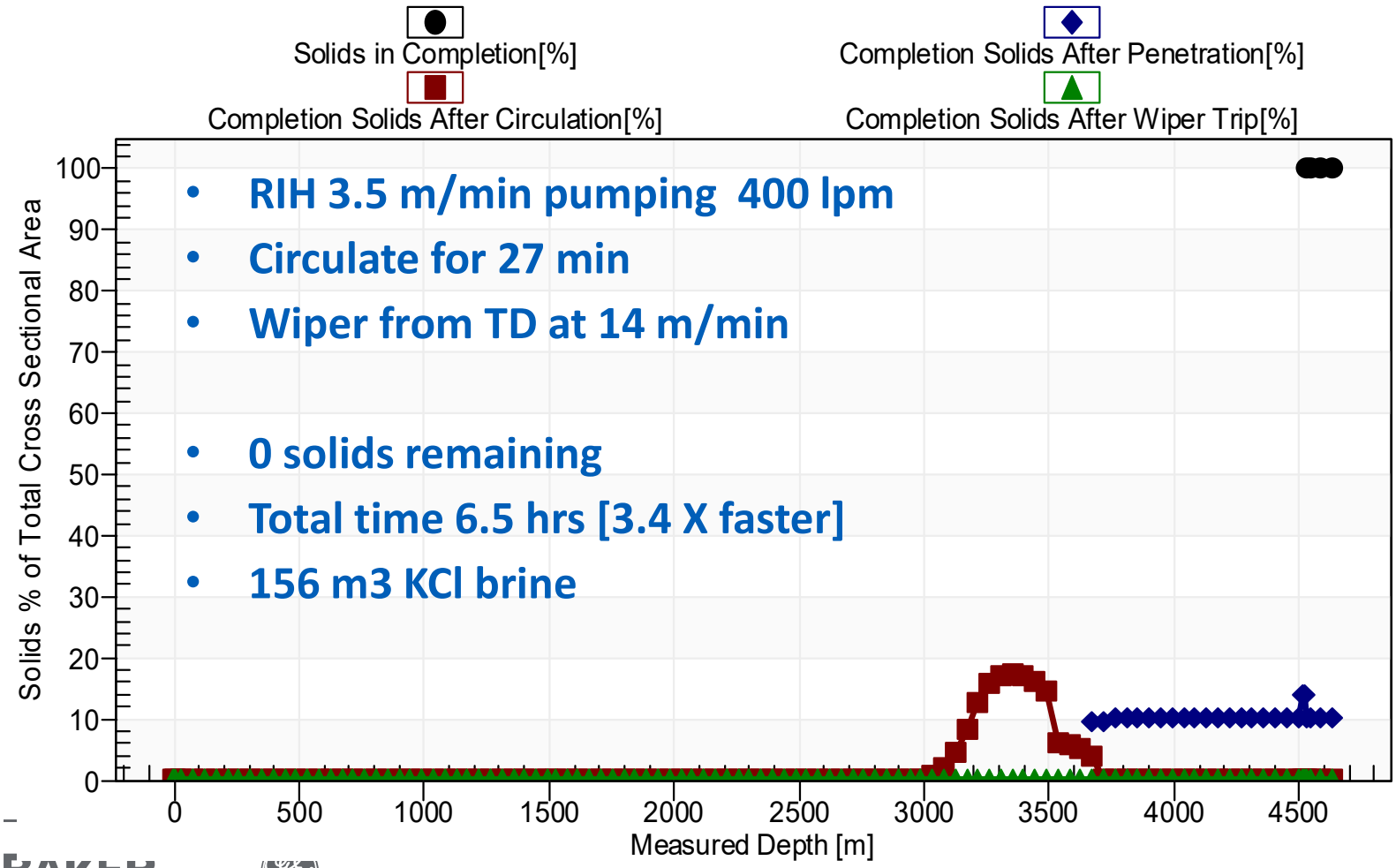
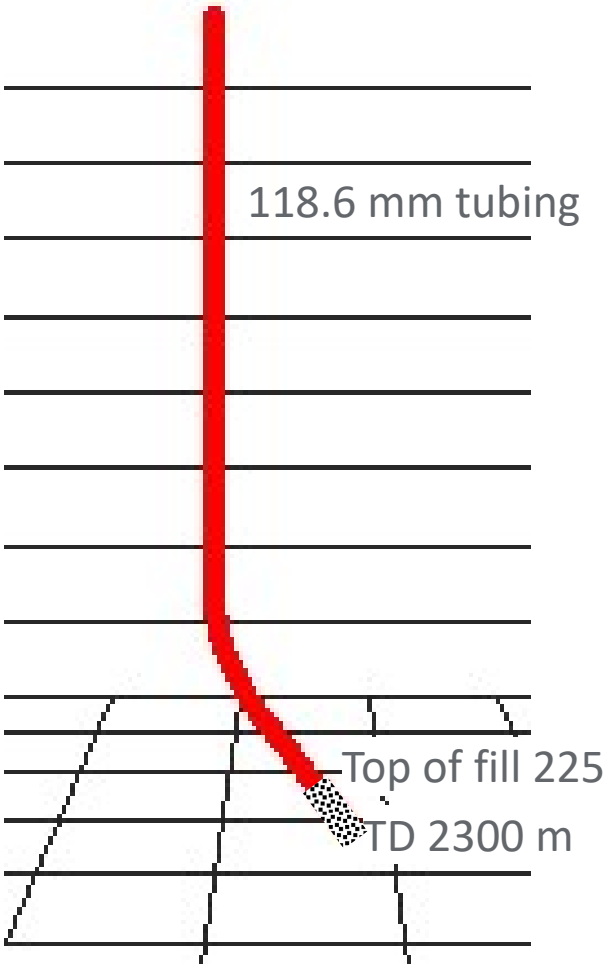
Case 1: Bauxite Cleanout, Engineered SW Design

- **RIH 3.5 m/min pumping 400 lpm**
- **Circulate for 27 min**
- **Wiper from TD at 14 m/min**

Case 1: Bauxite Cleanout, Engineered SW Design

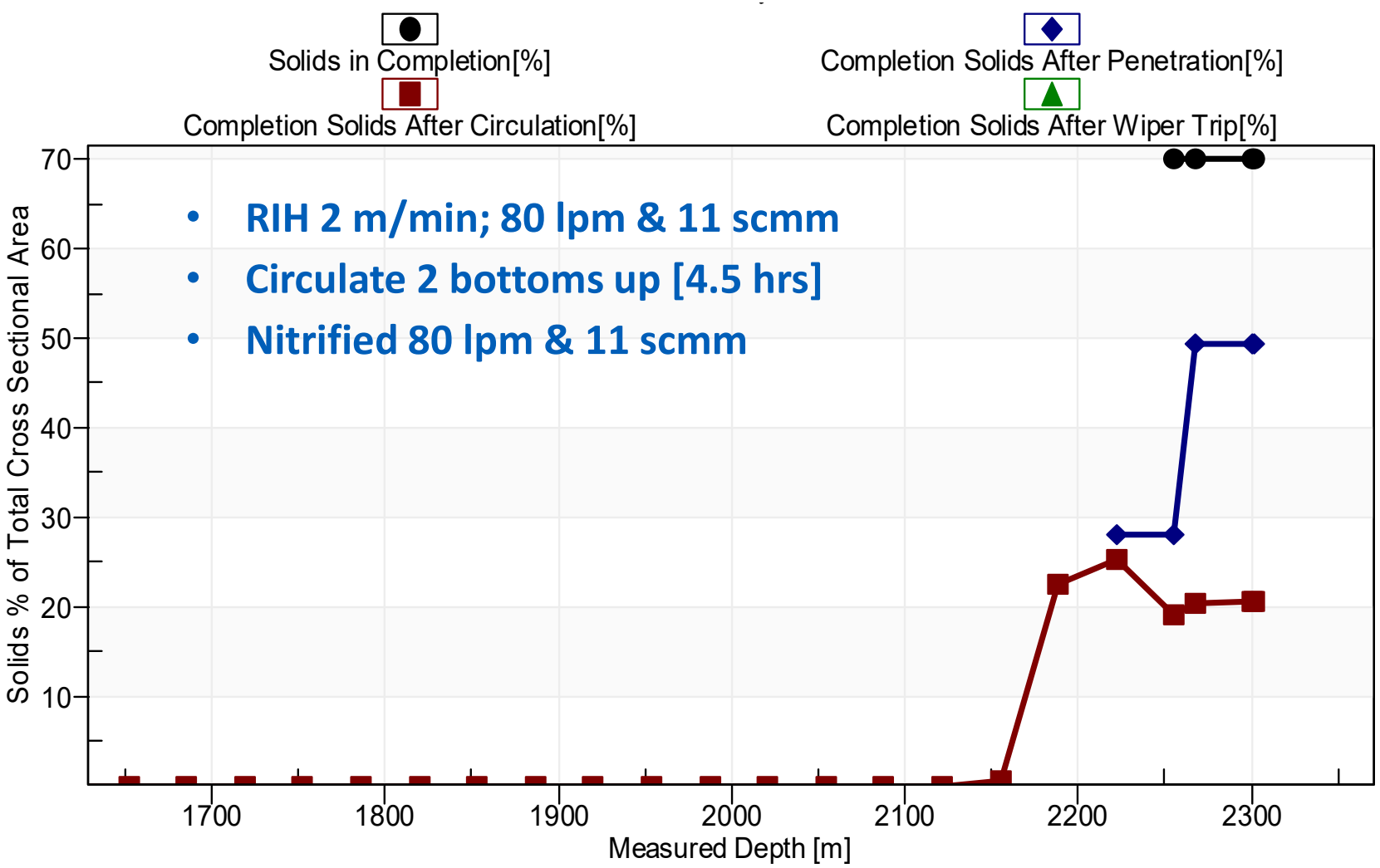


Case 2: Carbolite Cleanout in 25° deviated well

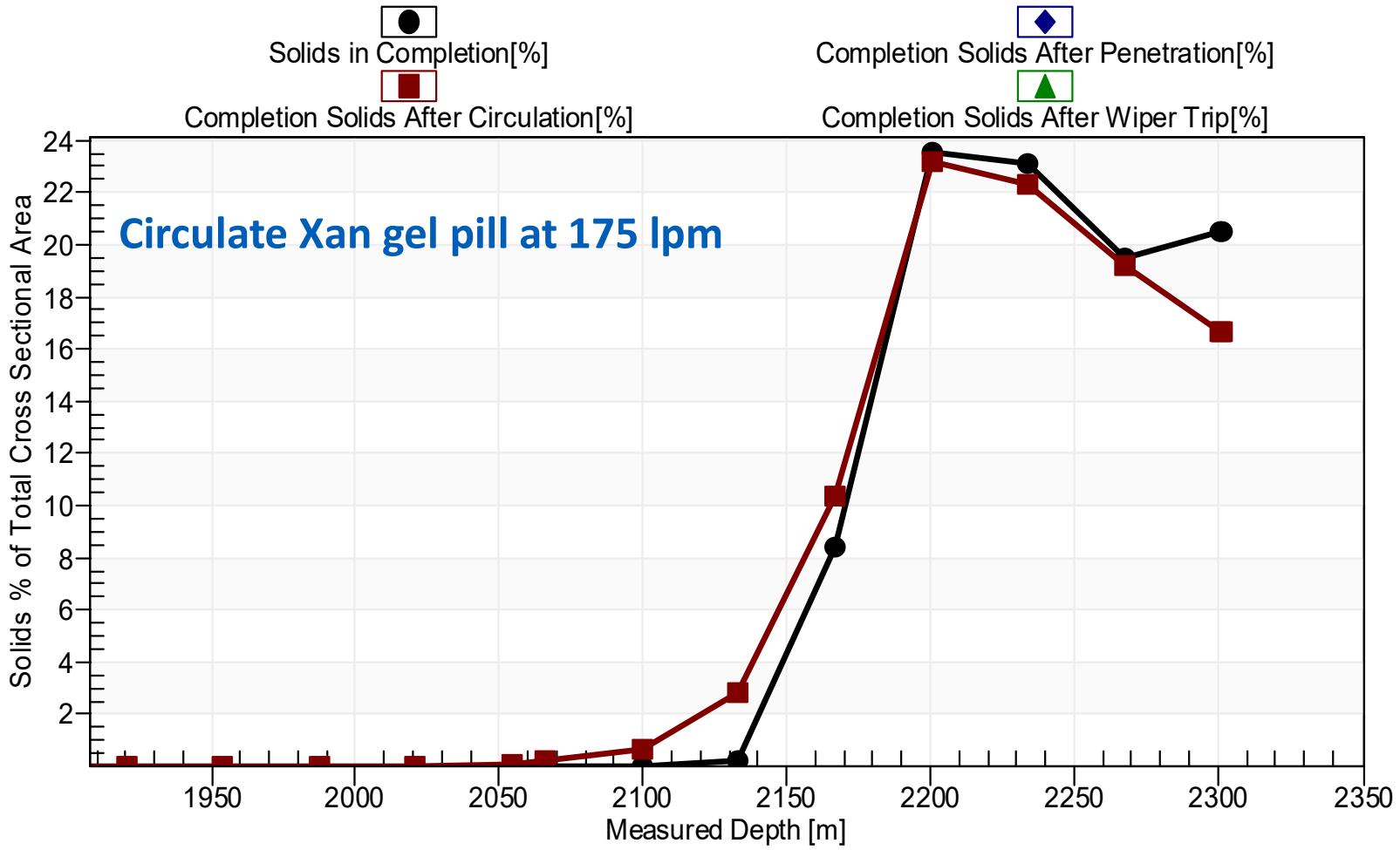


- **31.75 mm CT**
- **RIH 2 m/min; 80 lpm & 11 scmm**
- **Circulate 2 bottoms up [4.5 hrs]**
- **Pump Xan Pill [2.4 kg/m3]; 3.2m3**
- **Pump water at 175 lpm for 5 hrs**
- **Pull to 1900 m wait 1 hr**
- **RIH to confirm clean**

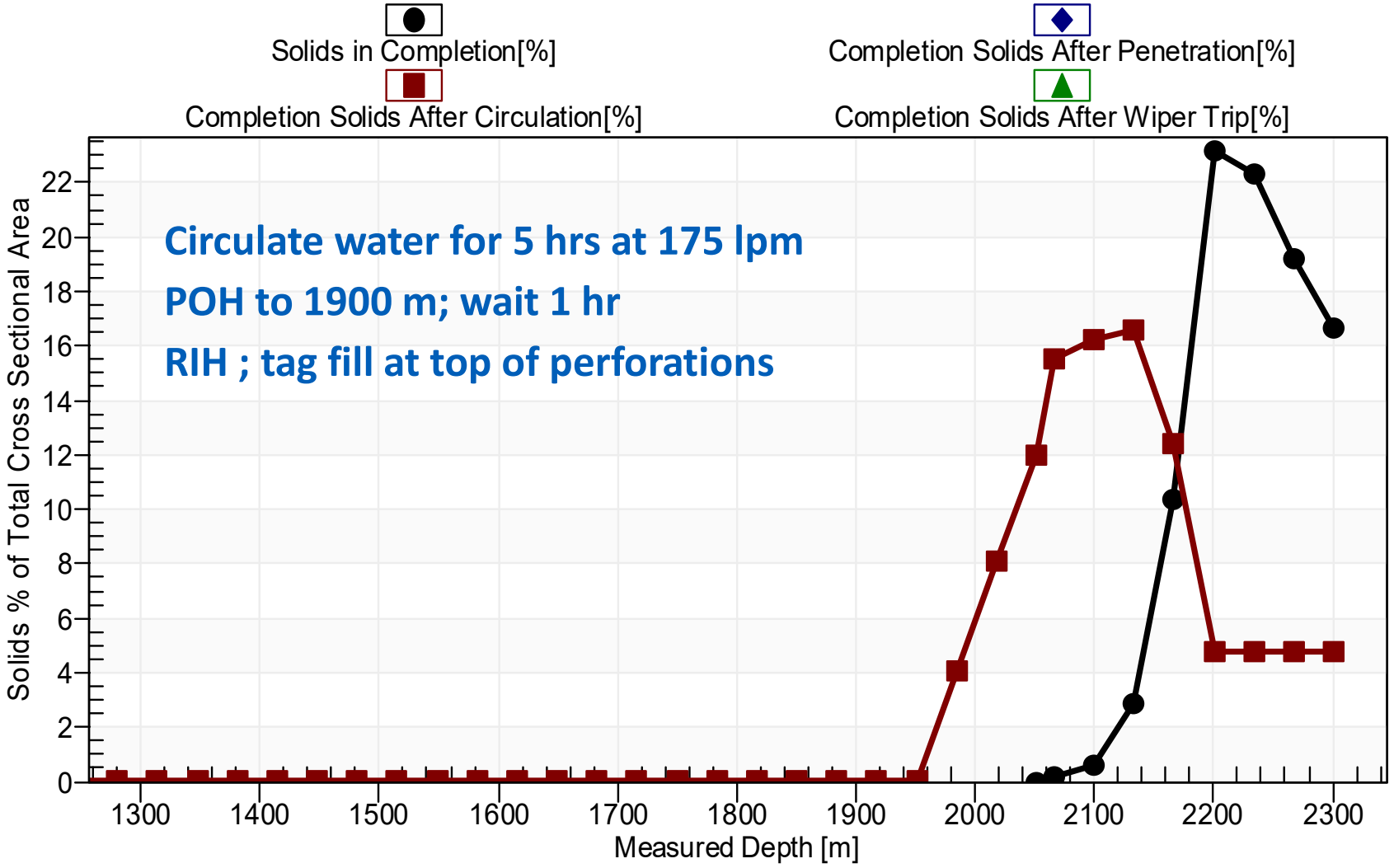
Case 2: Solids 25° Well: RIH and 2 bottoms up



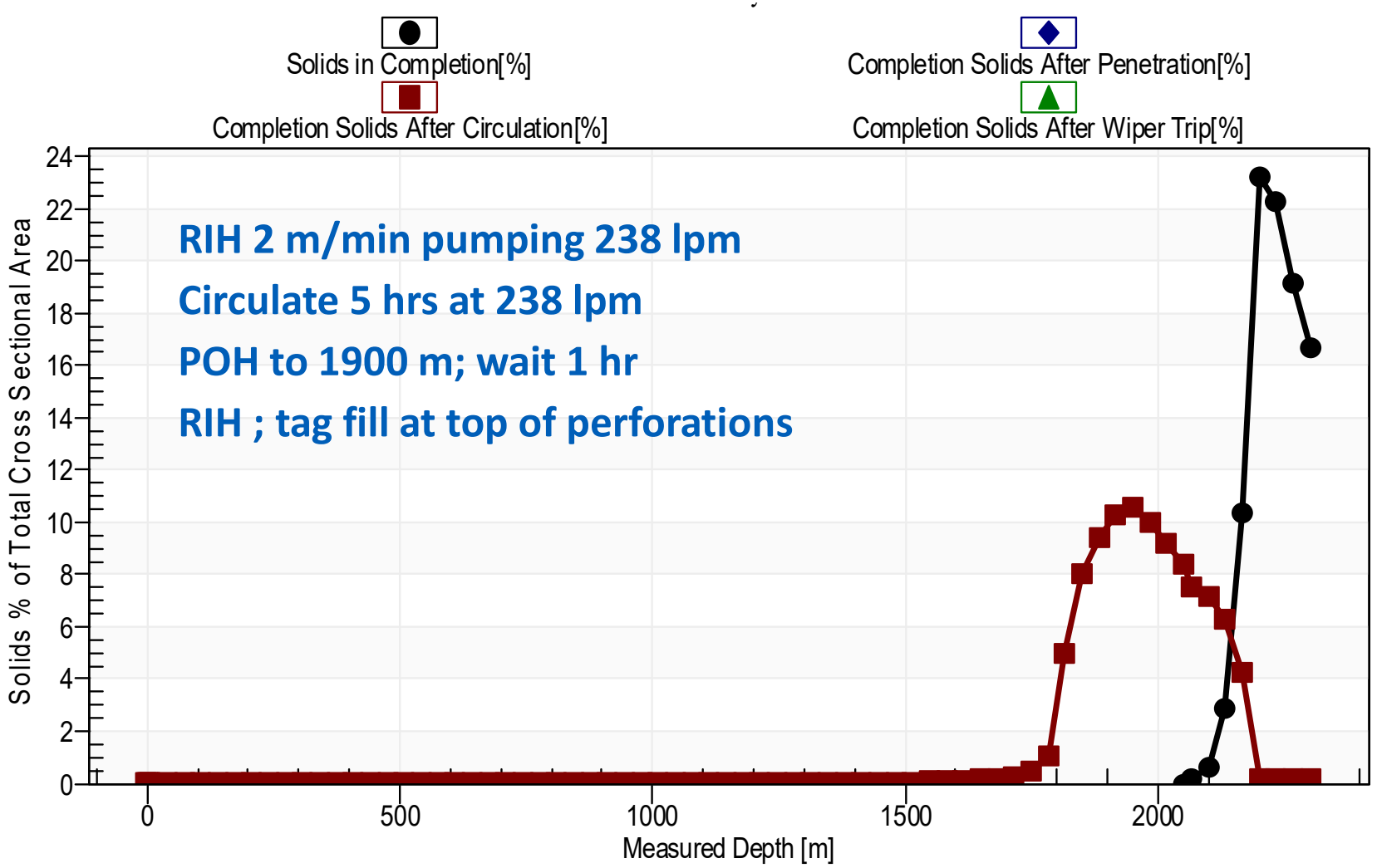
Case 2: Solids 25° Well: Xan Pill [2.4 kg/m3] ;3.2 m3



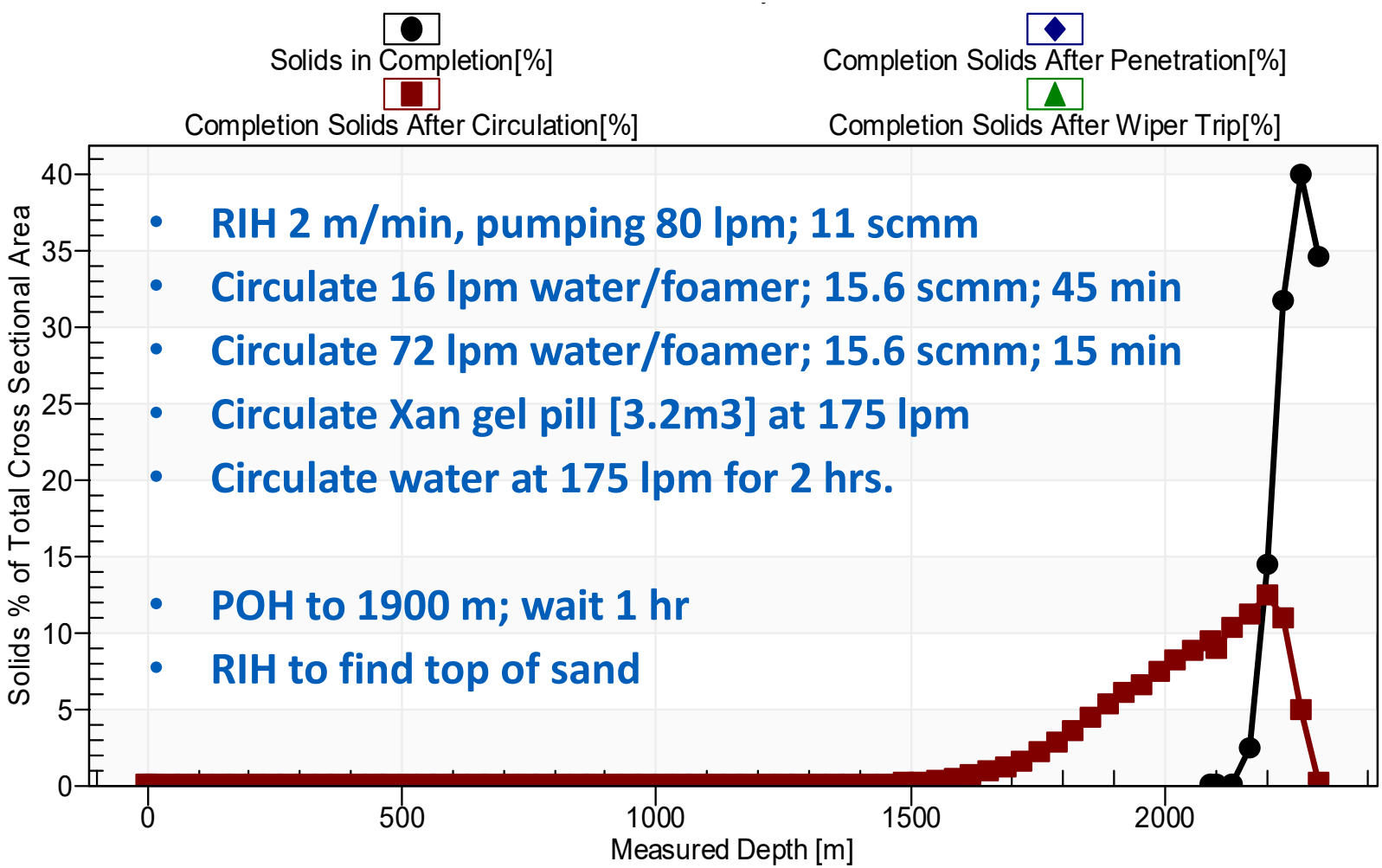
Case 2: Solids 25° Well: Circulate water for 5 hrs.



Case 2: Solids 25º Well: Plan B Higher Circ rate



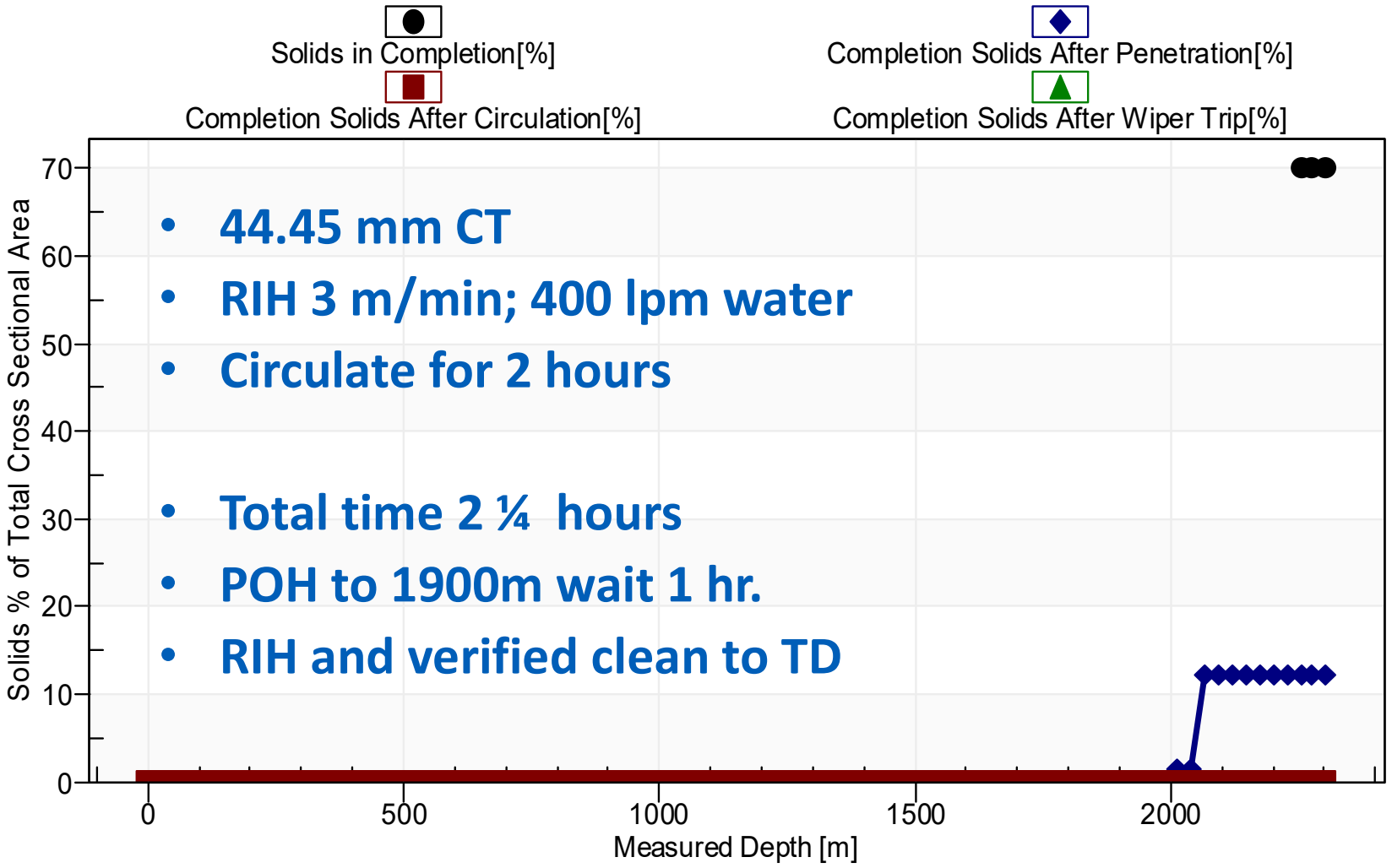
Case 2: Solids 25º Well: Plan C the kitchen sink



Case 2: Solids 25^{o} Well: SW Engineered Design

- **44.45 mm CT**
- **RIH 3 m/min; 400 lpm water**
- **Circulate for 2 hours**

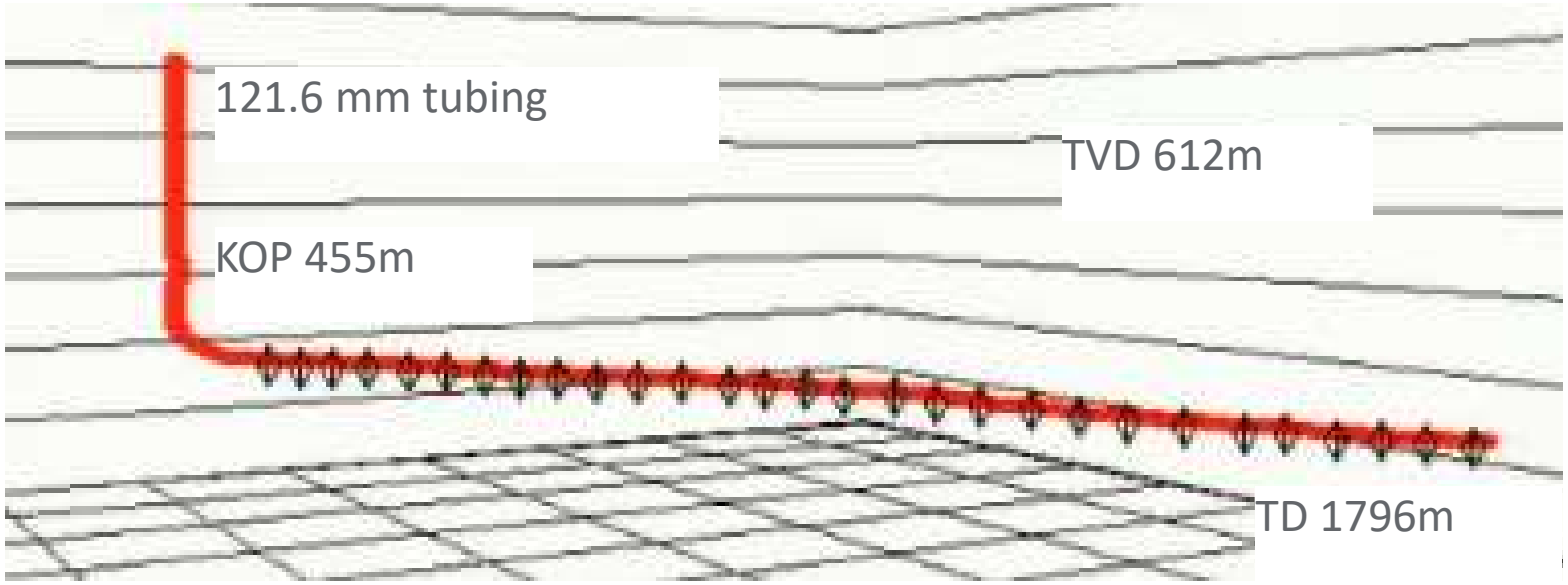
Case 2: Solids 25º Well: SW Engineered Design



- 44.45 mm CT
- RIH 3 m/min; 400 lpm water
- Circulate for 2 hours

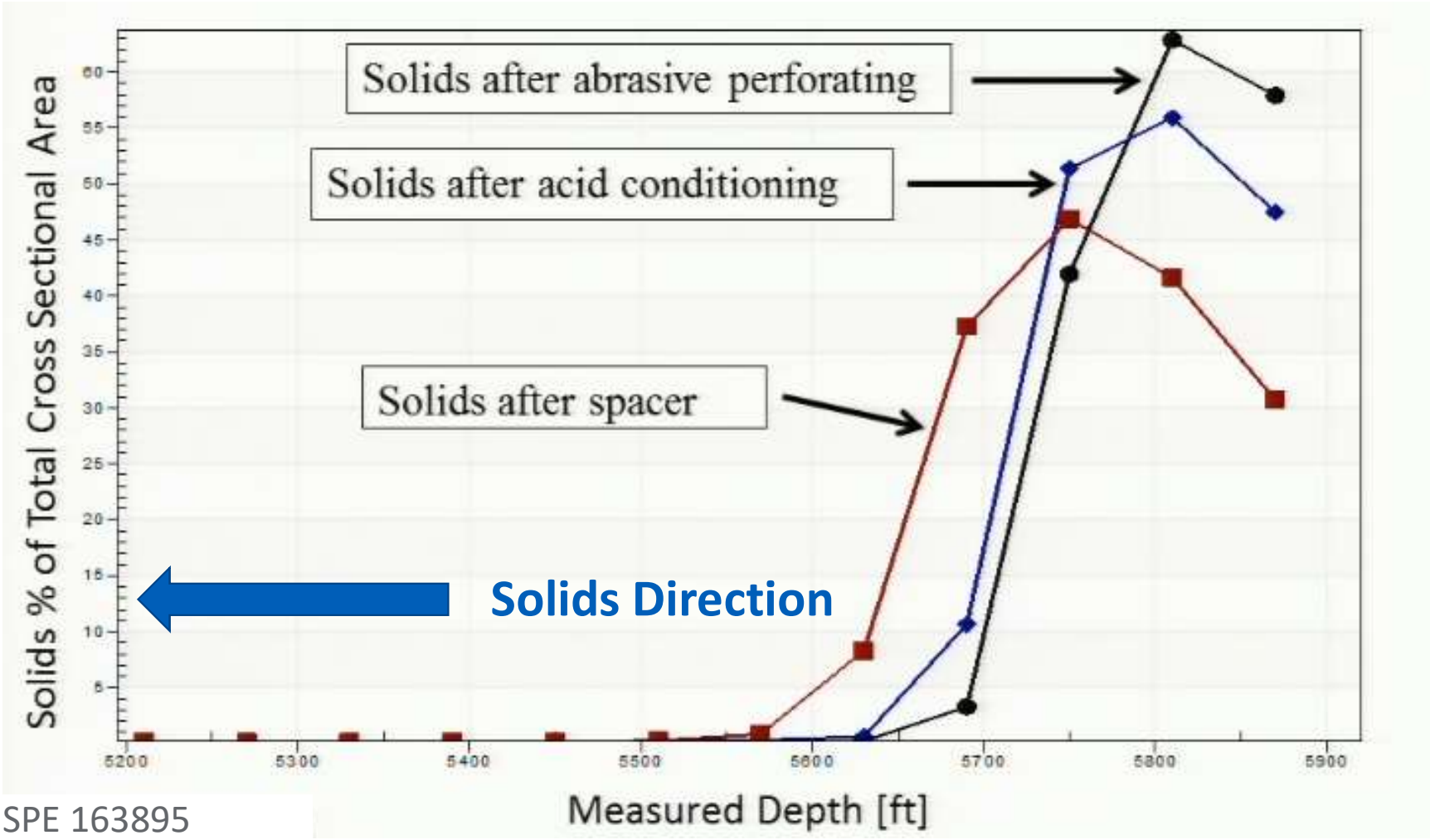
- Total time 2 ¼ hours
- POH to 1900m wait 1 hr.
- RIH and verified clean to TD

Case 3: Screen out after abrasive perforating



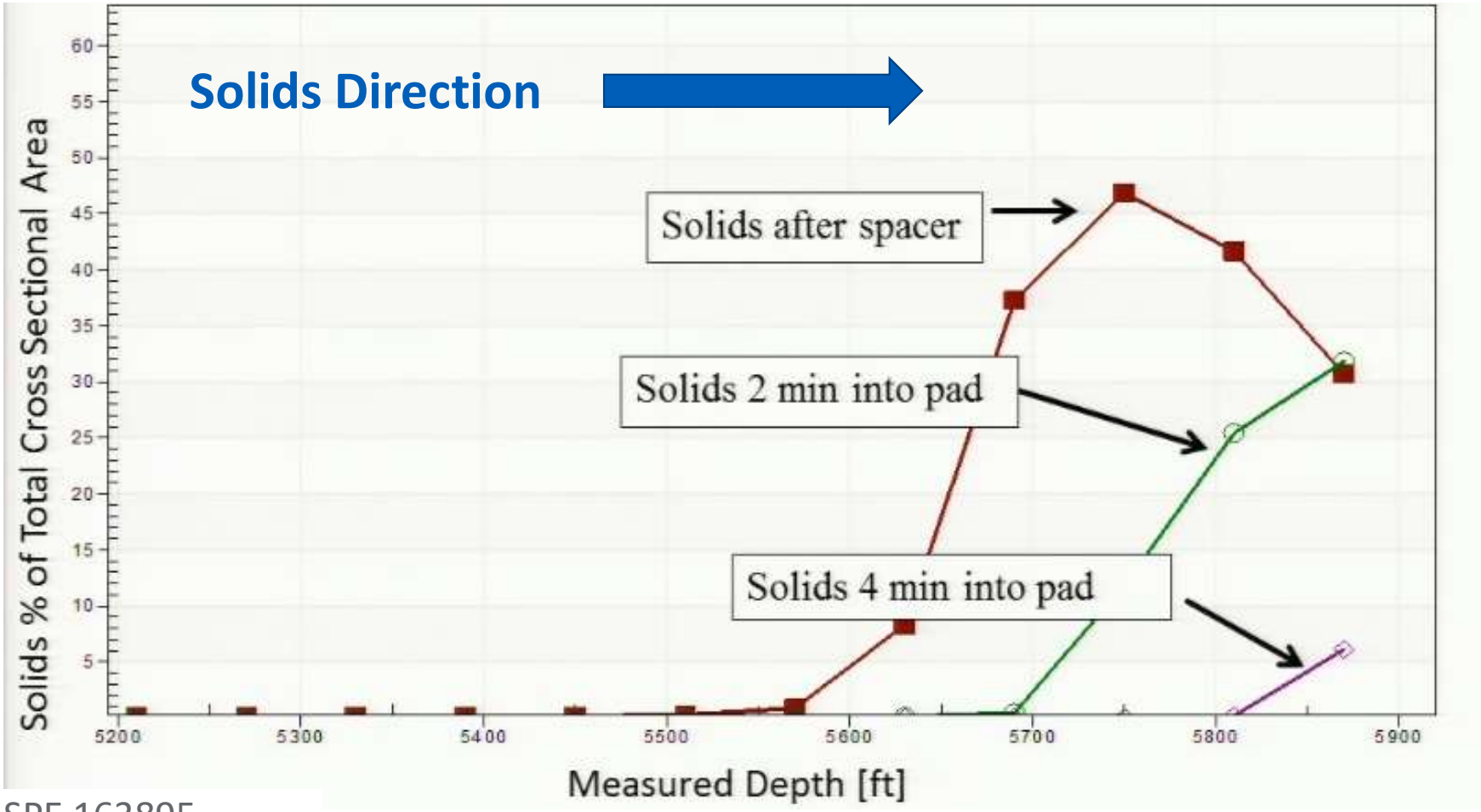
- **46 stages**
- **Abrasive Perforating; 477 lpm**
- **50.8 mm CT**

Case 3: Solids Profile during Abrasive Jetting Process



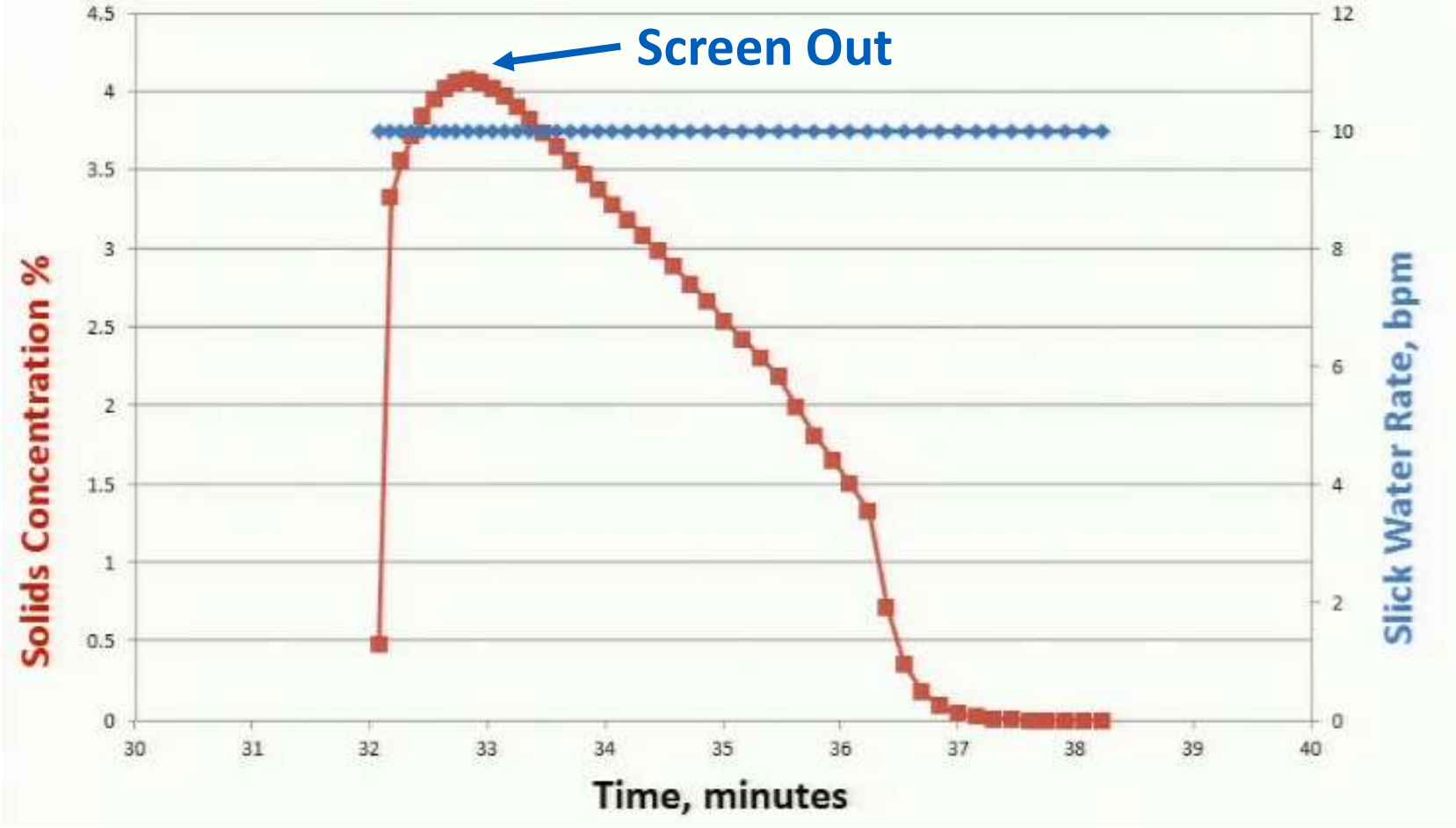
SPE 163895

Case 3: Solids Profile during During the pad 1.59 m3/min



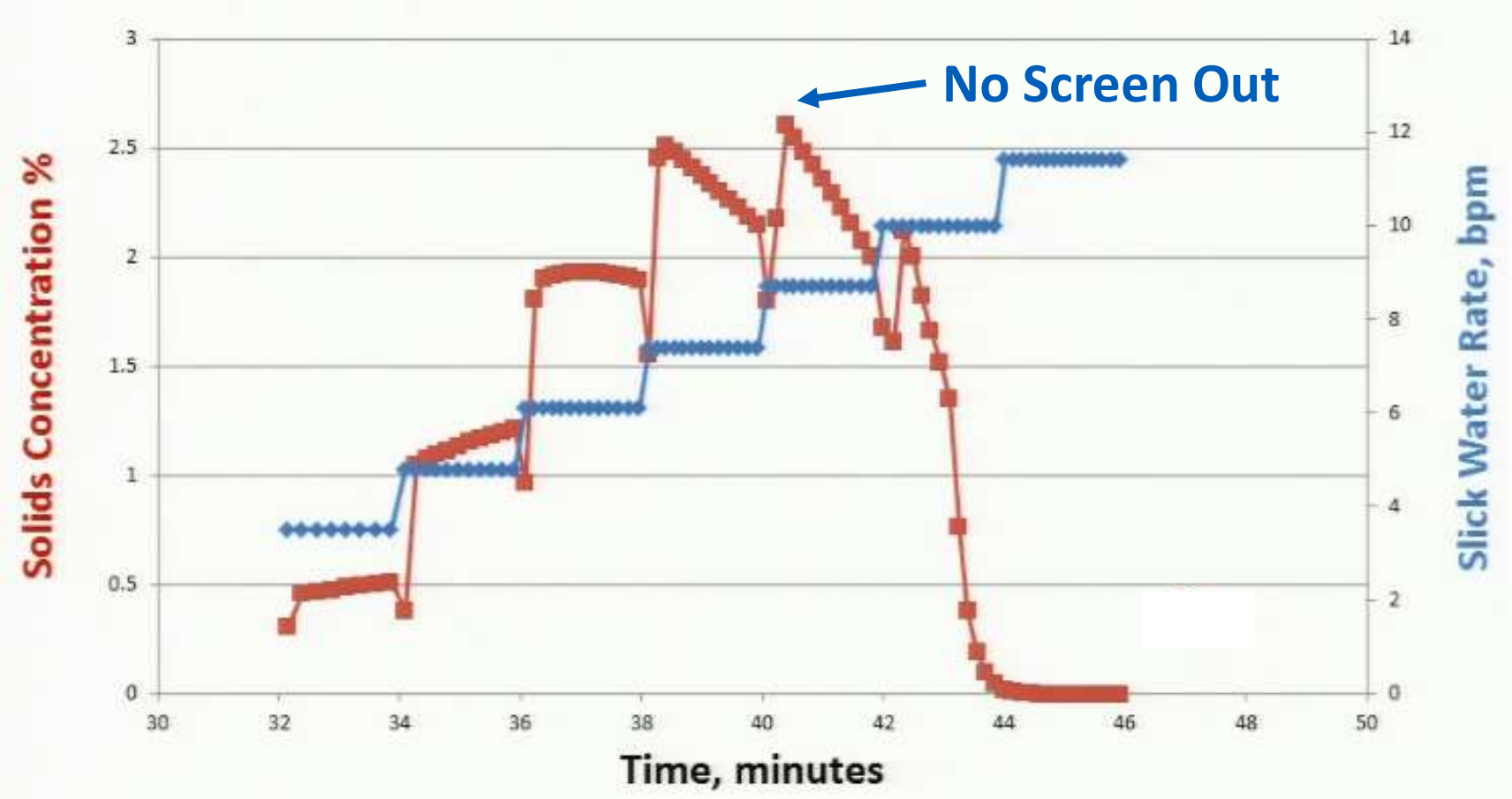
SPE 163895

Case 3: Solids Concentration at the fracture face
Start Pad at 1.59m3/min



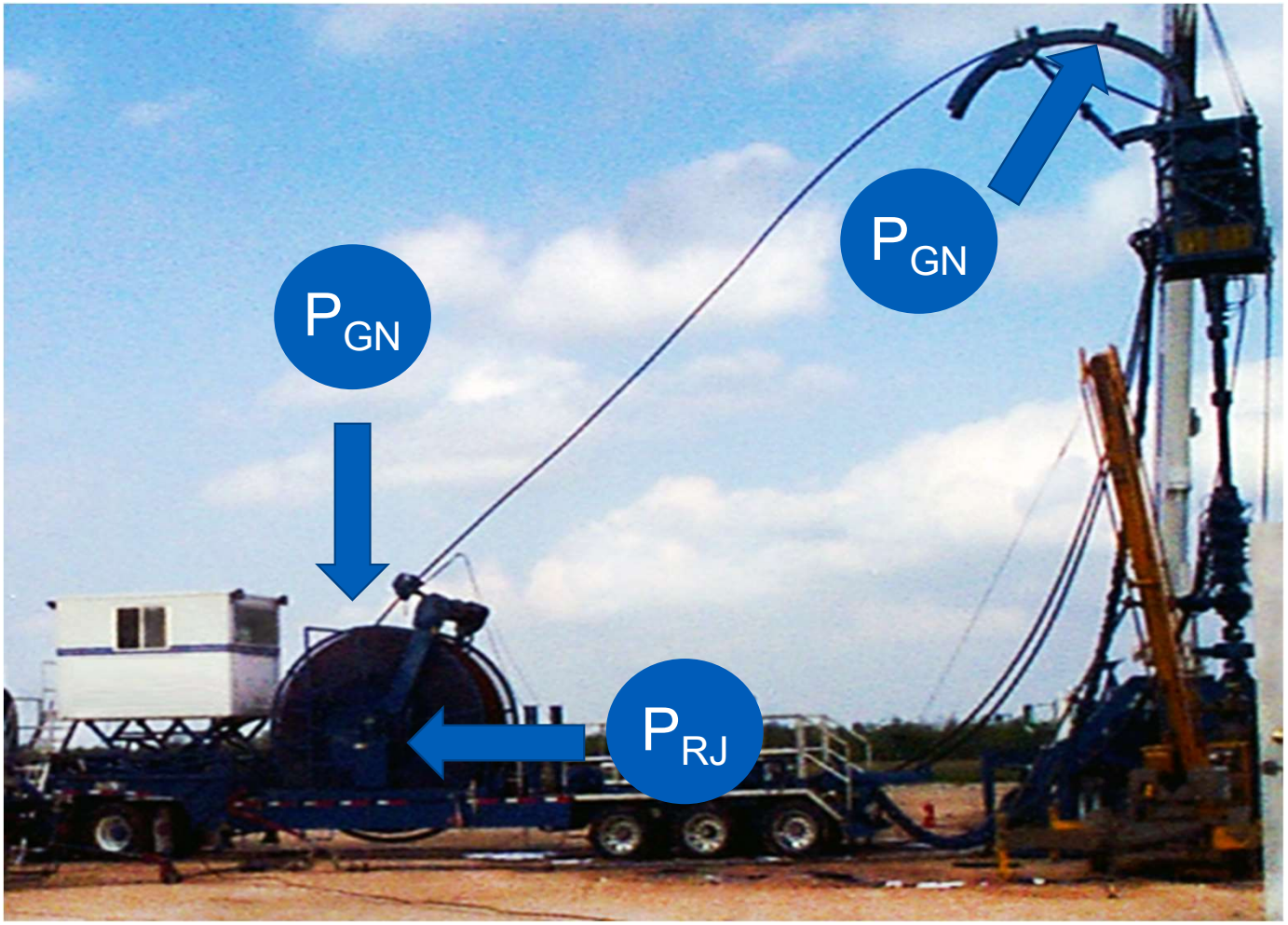
SPE 163895

Case 3: Solids Concentration at the fracture face
Start Pad at 0.56 m3; ramp to 1.9 m3 in 20 min.

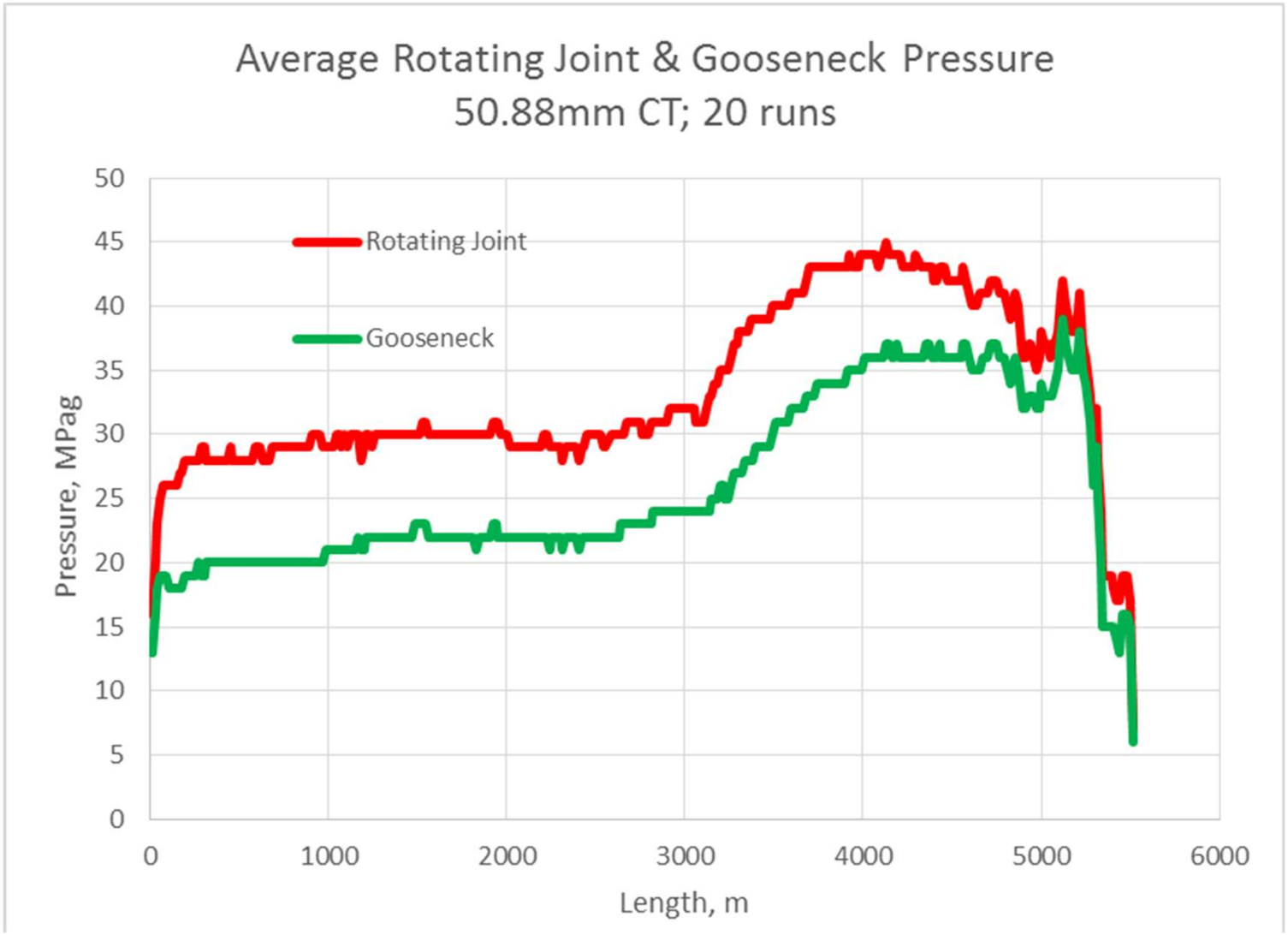


SPE 163895

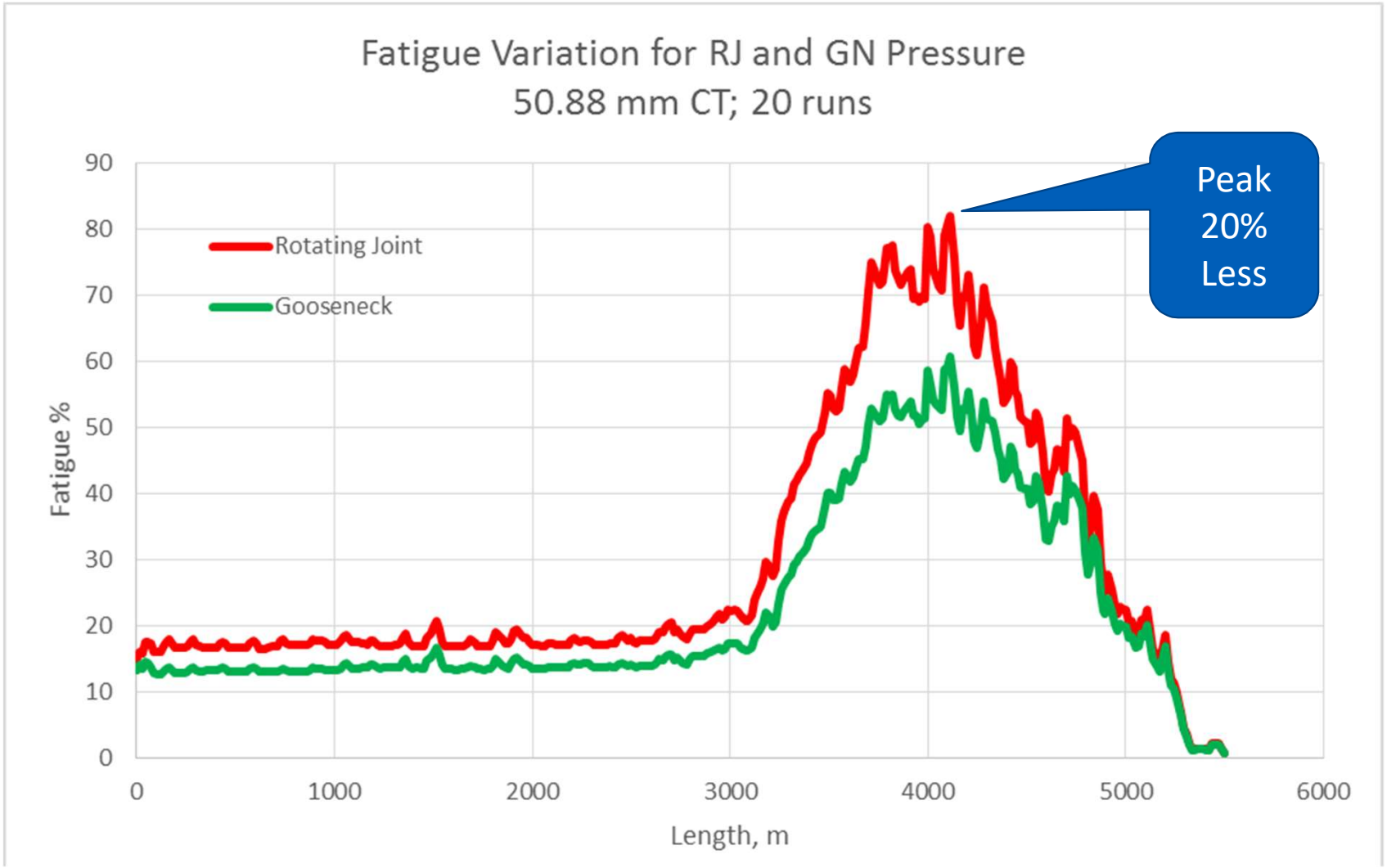
Case 4: Pressure used in fatigue calculations



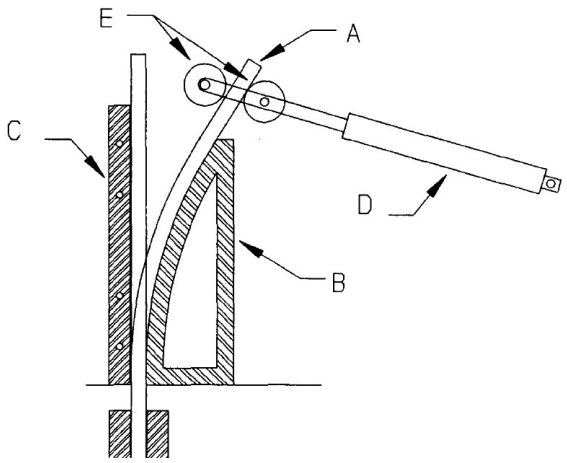
Case 4: Pressure used in Sting Life calculations



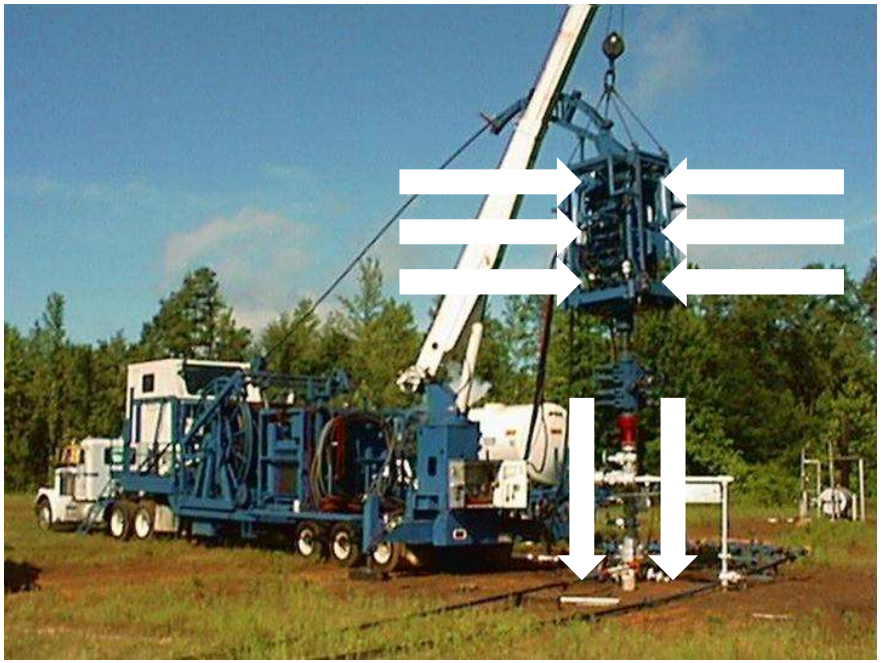
Case 4: Pressure used in String Life calculations



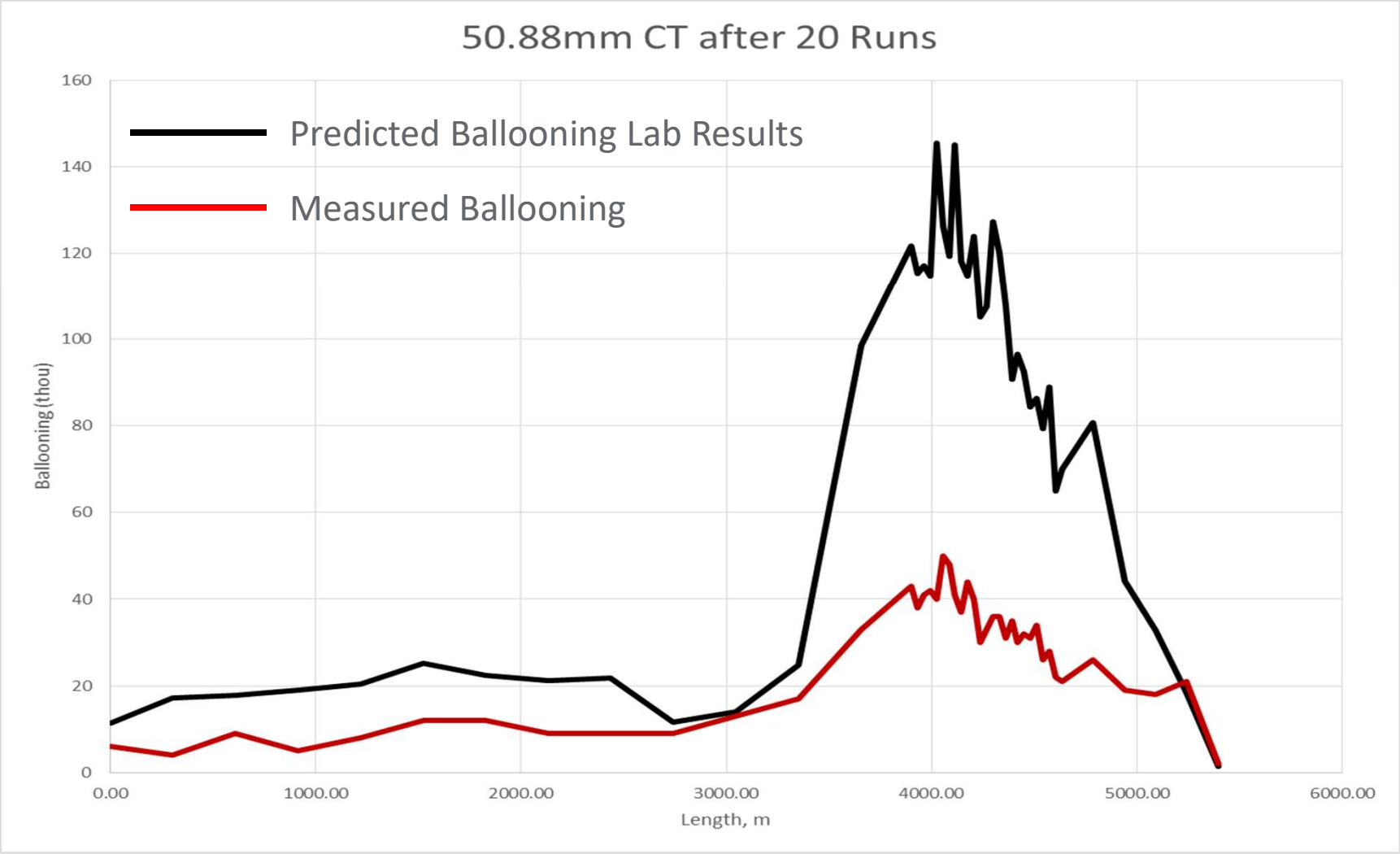
Case 5: Field versus Lab Ballooning



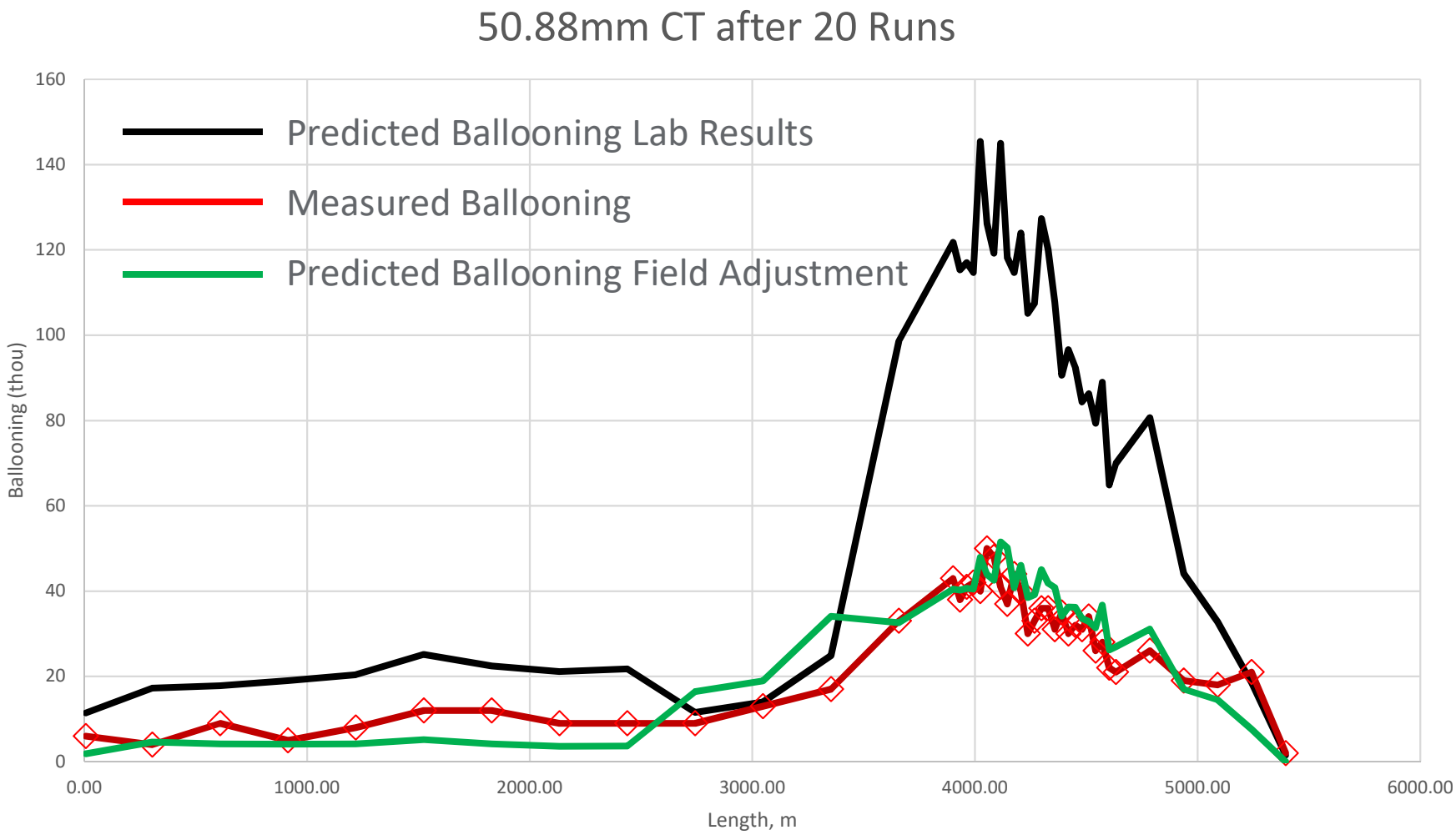
SPE 26539



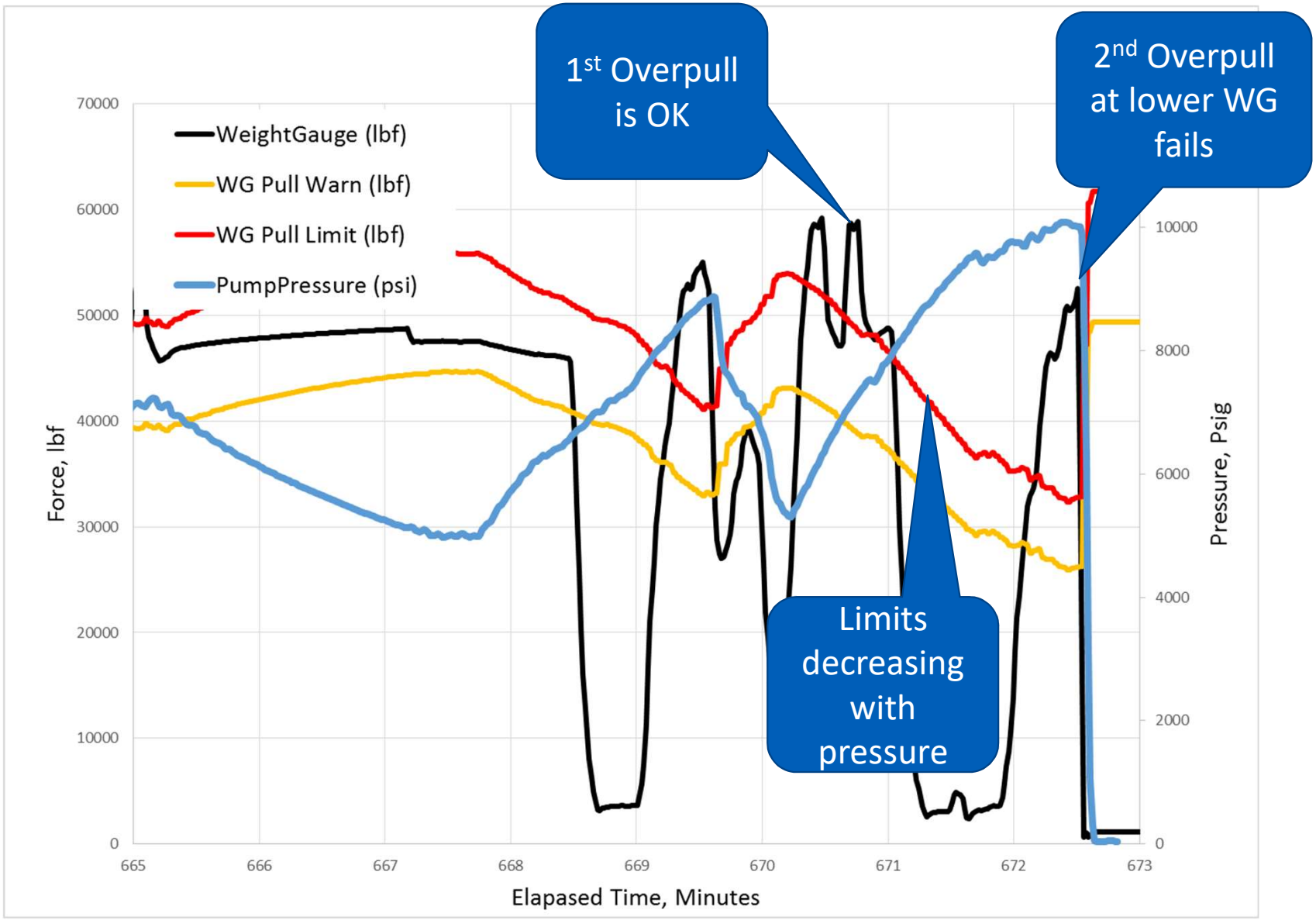
Case 5: Field versus Lab Ballooning



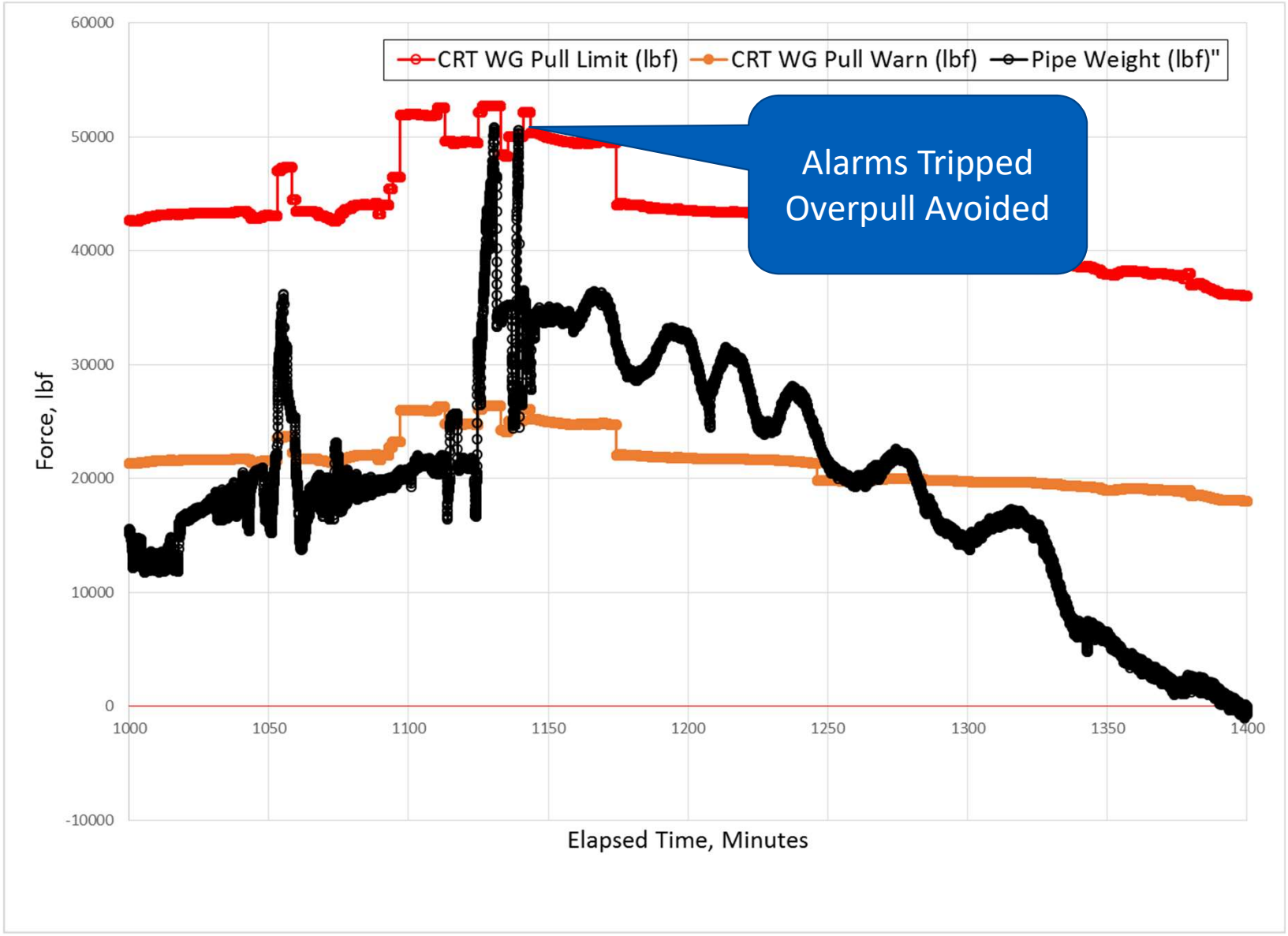
Case 5: Field versus Lab Ballooning



Case 6: Field Overpull ; 50.8mm CT at 2507 m



Case 6: Field Overpull ; 50.8mm CT at 4464 m



Questions?

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