

# FIELD APPLICATION OF FOAMER FOR GAS LIFT ENHANCEMENT: LESSON LEARNT AND WAY FORWARD

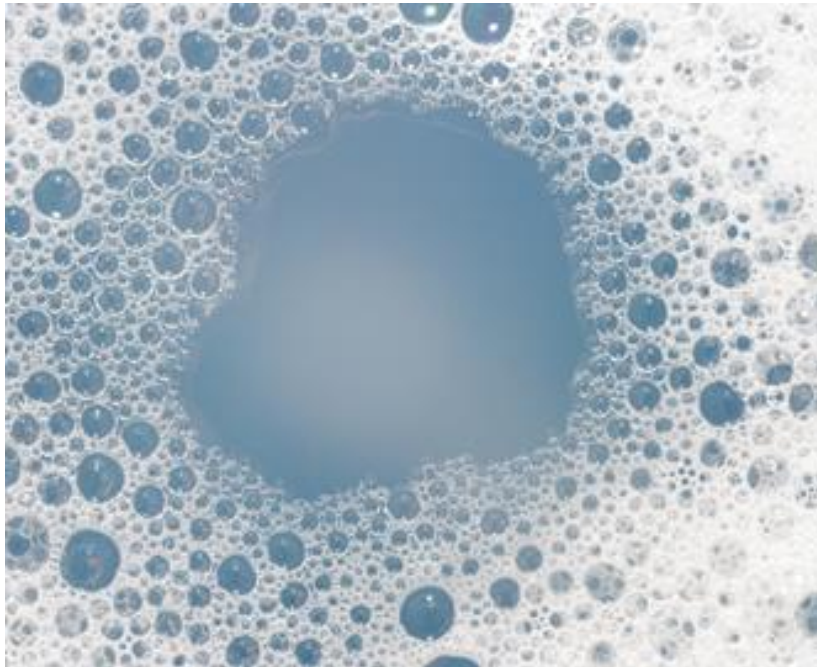
# Agenda:

- **Introduction: Concept of FGLE**
- **Setup and field test results**
- **Lesson learnt and way forward**

# Introduction: Concept of FGLE

## Foam Assisted Lift (FAL):

proven deliquification technology in gas wells



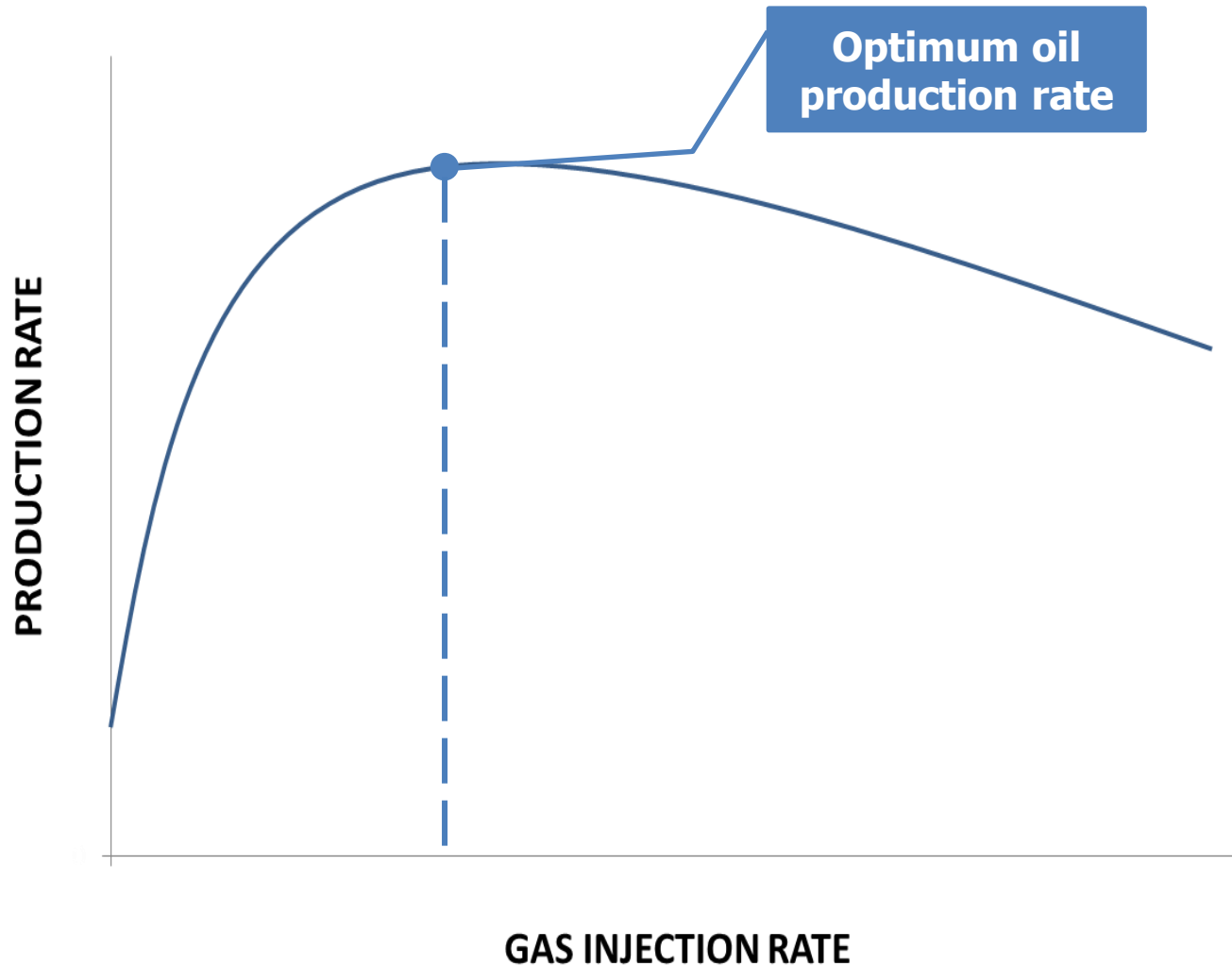
## Foamer For Gas Lift Enhancement

### (FGLE):

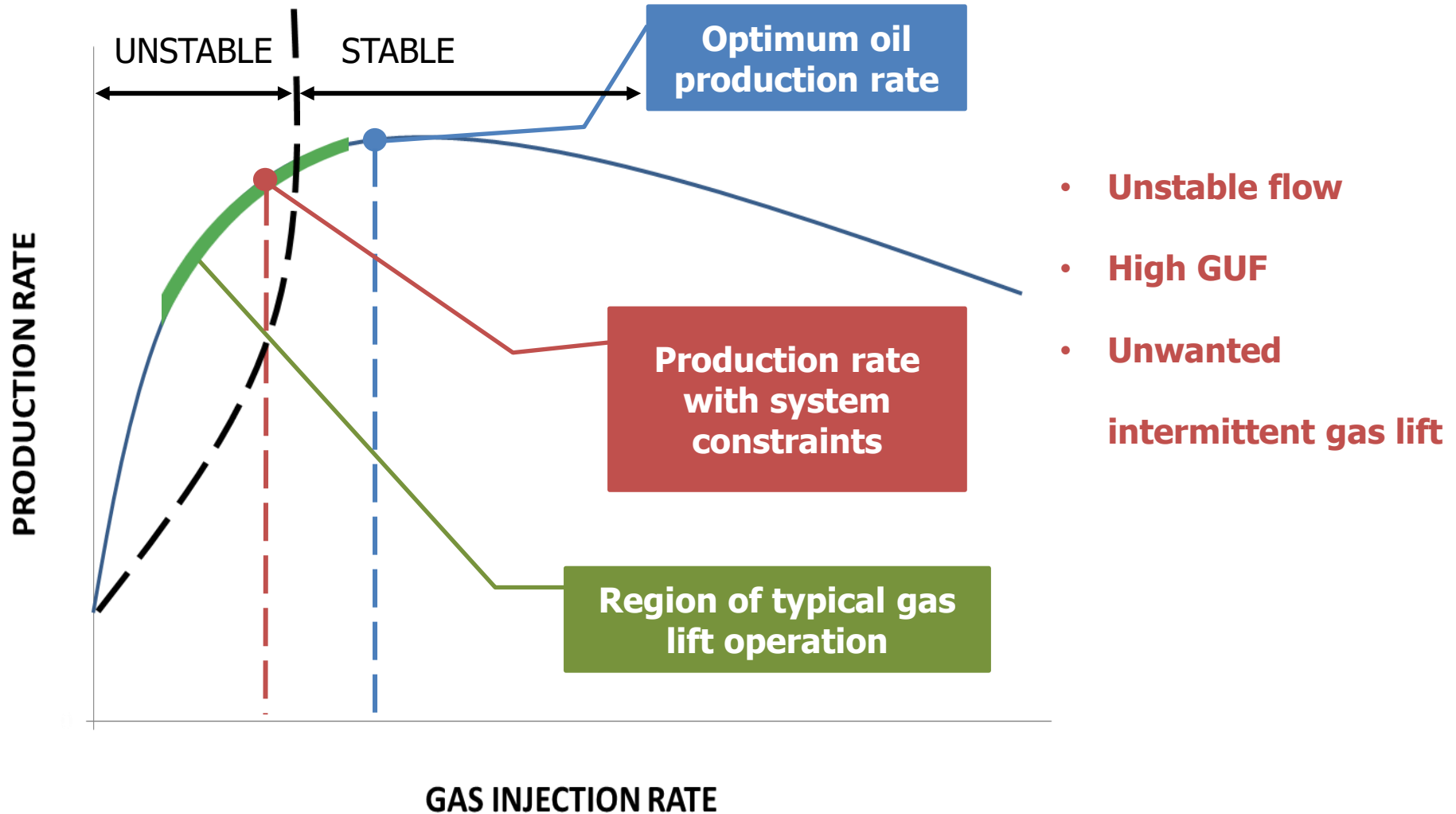
Foamer injected via gas lift to enhance the lifting efficiency in gas lifted oil wells



# Introduction: Concept of FGLE



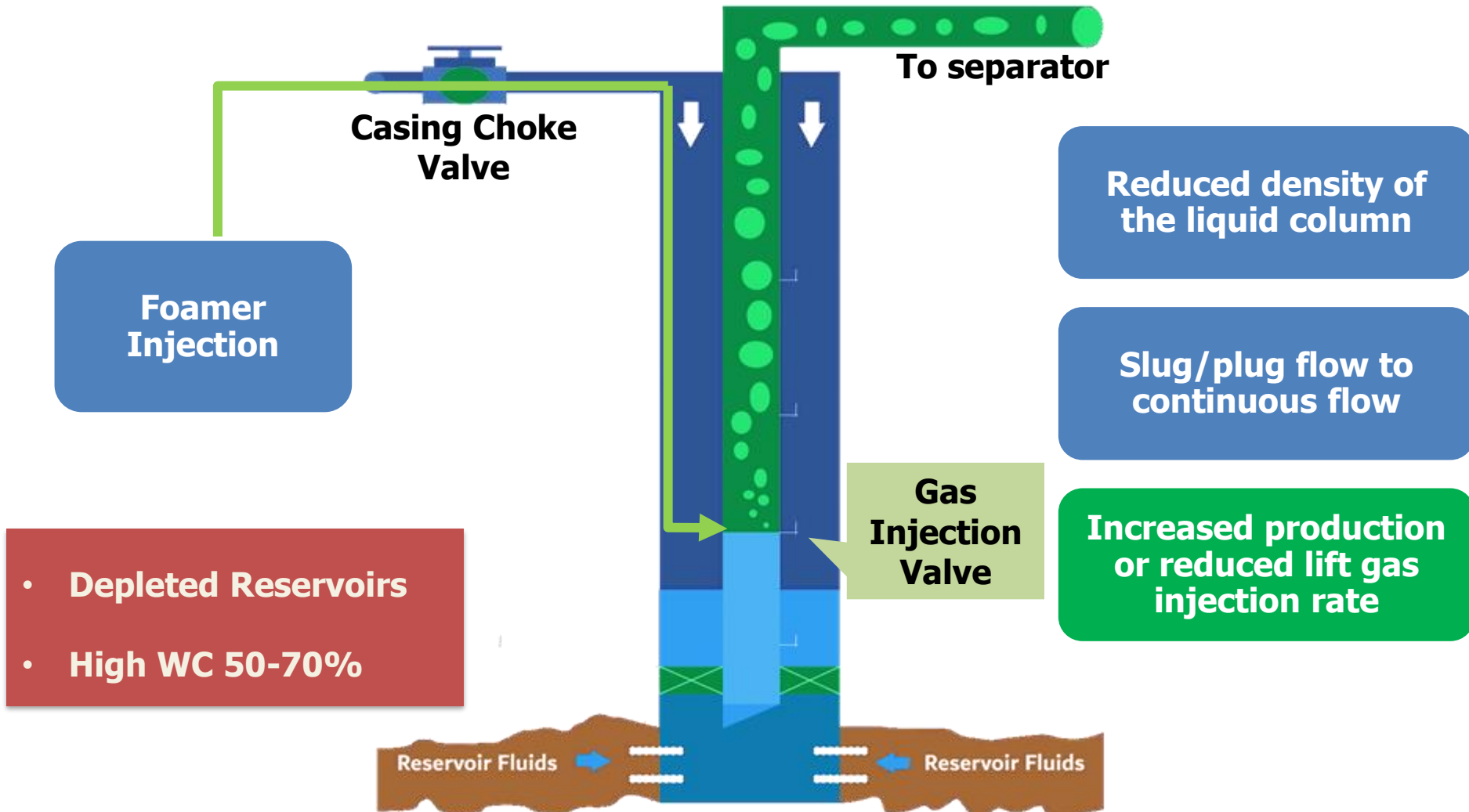
# Introduction: Concept of FGLE



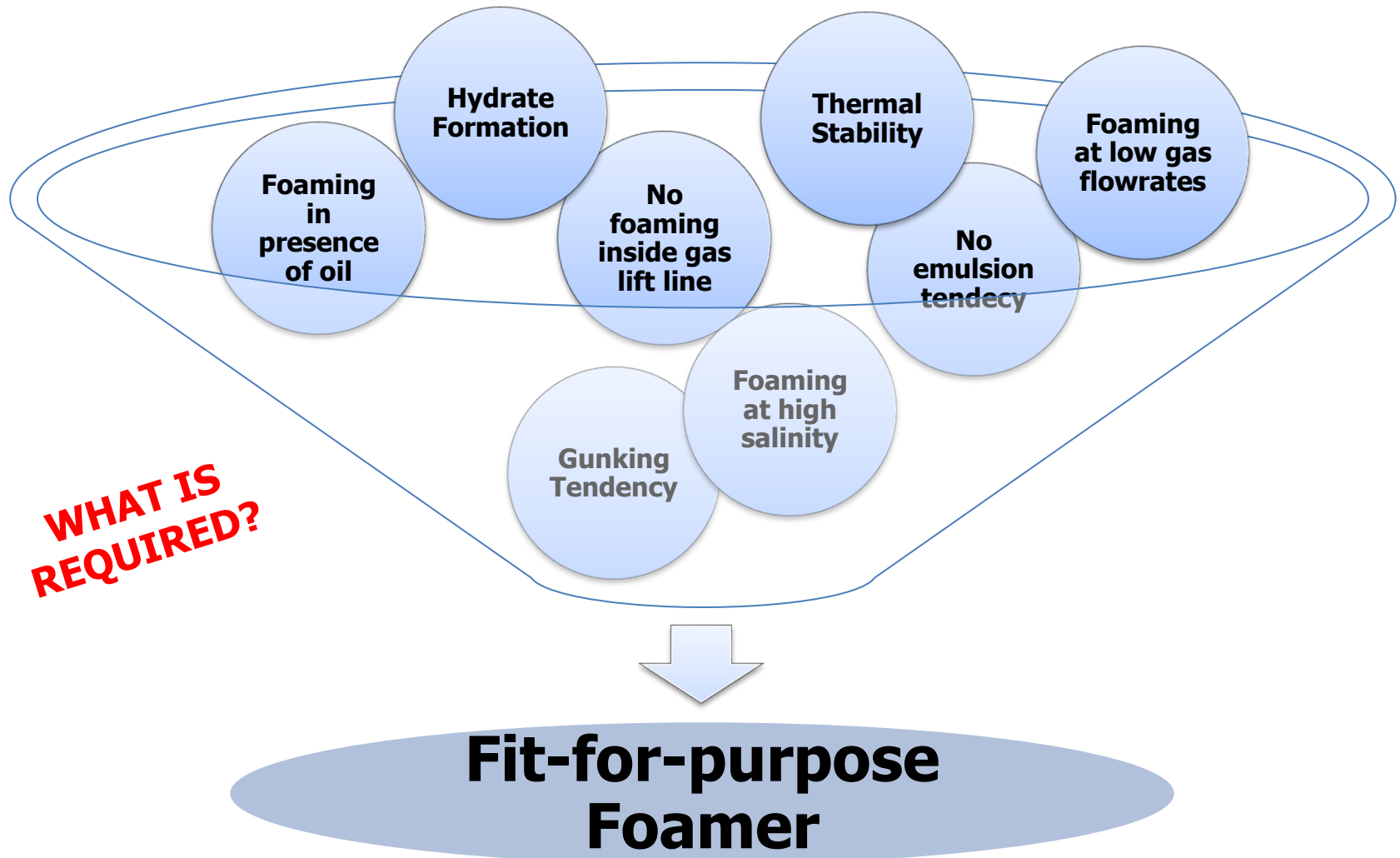




# Introduction: Concept of FGLE



# Setup and field test results



# Setup and field test results

## CANDIDATE WELL CHOICE CRITERIA

WC 60/70 %

deepest gas lift injection valve

production from single or few levels

low wax deposition rate

## MONITORING TOOLS

Manometer

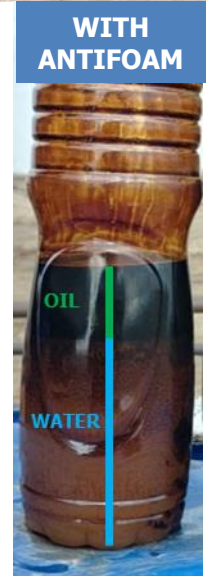
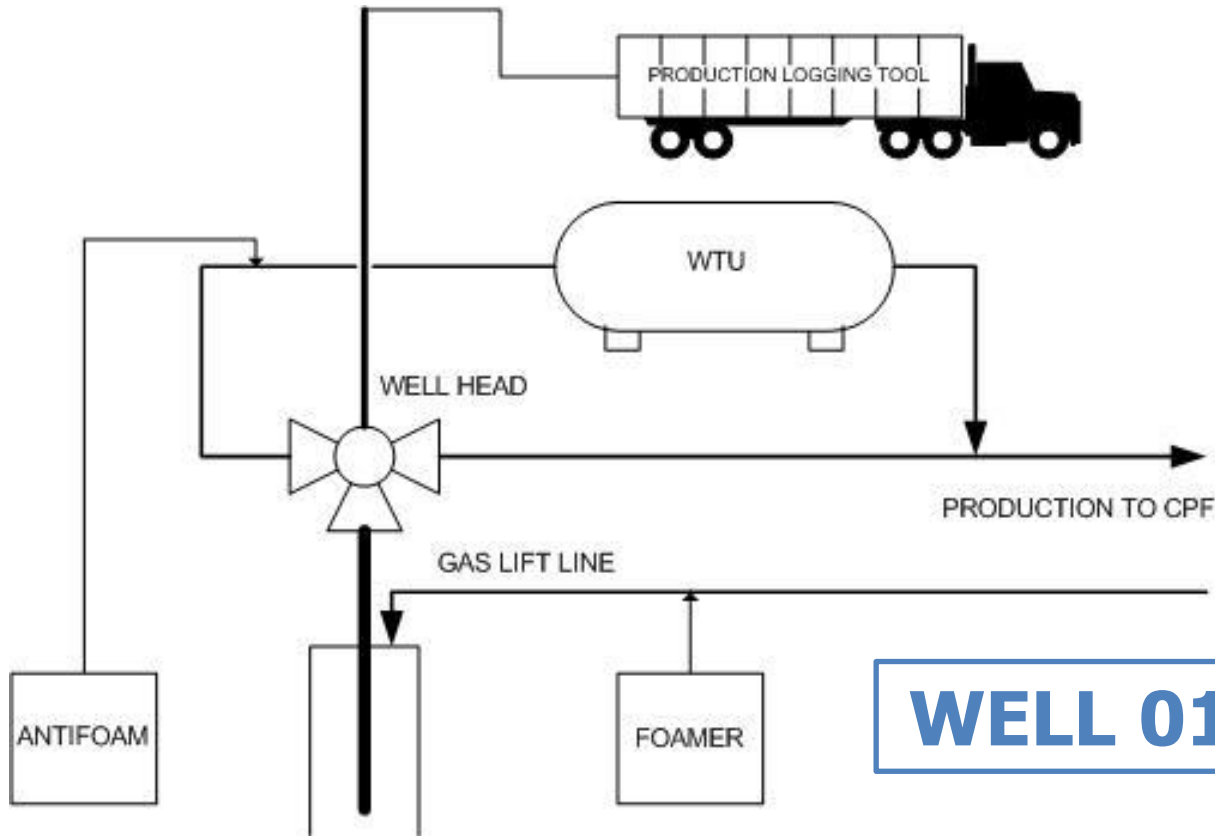
PLT

Sampling

WTU



# Setup and field test results



Tubing Choke	Casing Choke	Total Liquid (m <sup>3</sup> /d)	BSW (%)	Oil (m <sup>3</sup> /d)	GOR (m <sup>3</sup> /m <sup>3</sup> )
40/64"	11/64"	29,1	69,9	8,8	2000

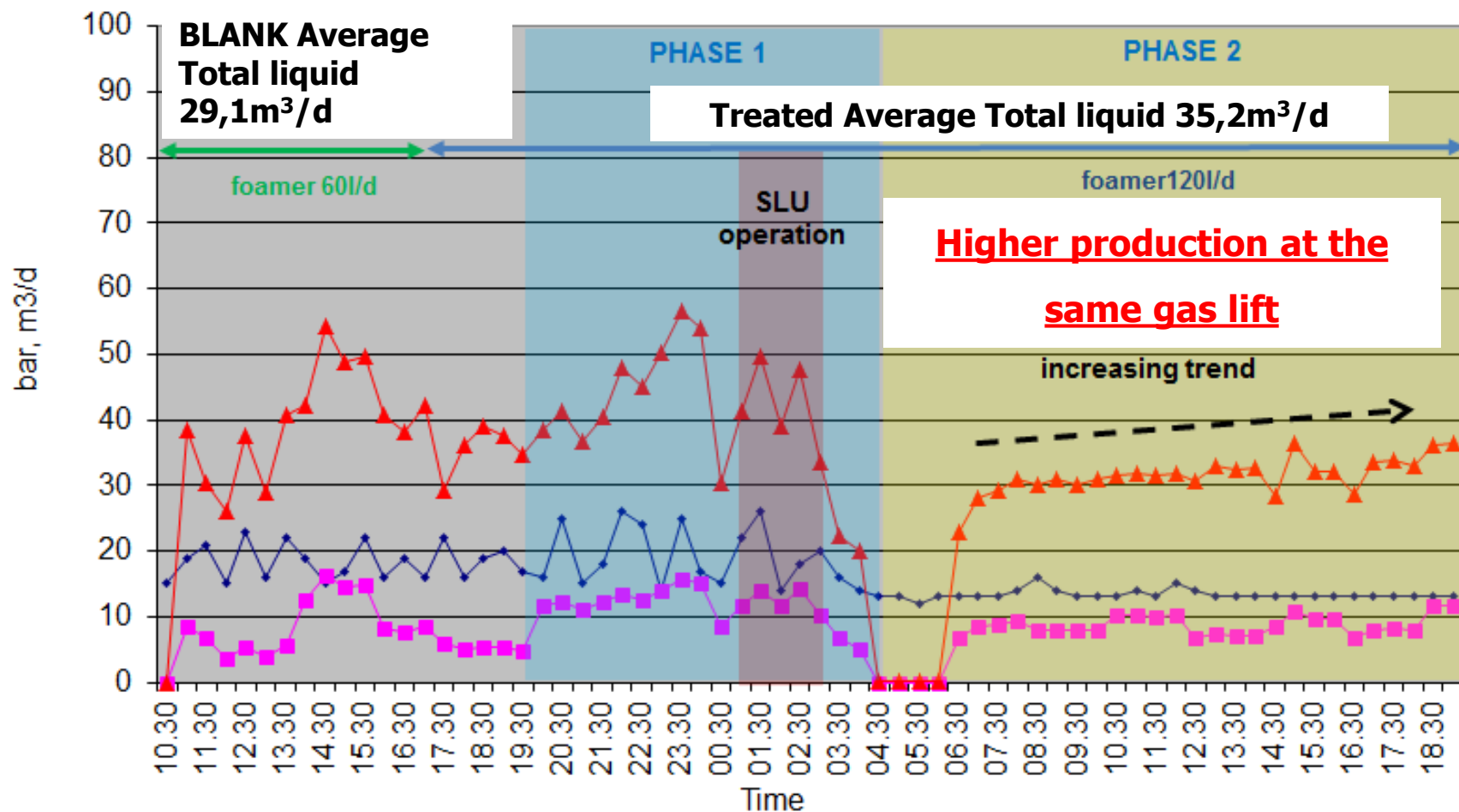
# Setup and field test results: Test 1

Well01 Performance with foamer

—●— THP  
bar

—■— Oil  
m<sup>3</sup>/d

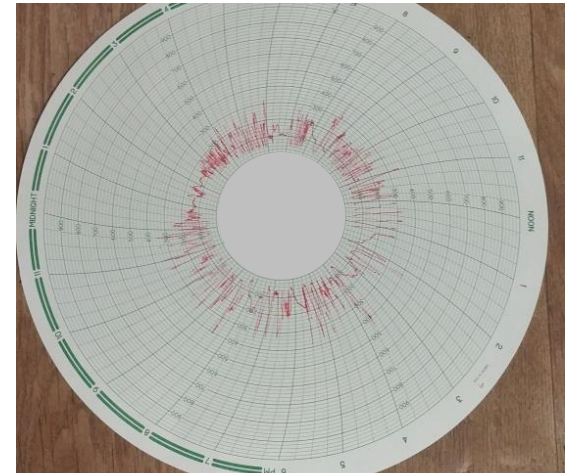
—▲— Total Liq  
m<sup>3</sup>/d



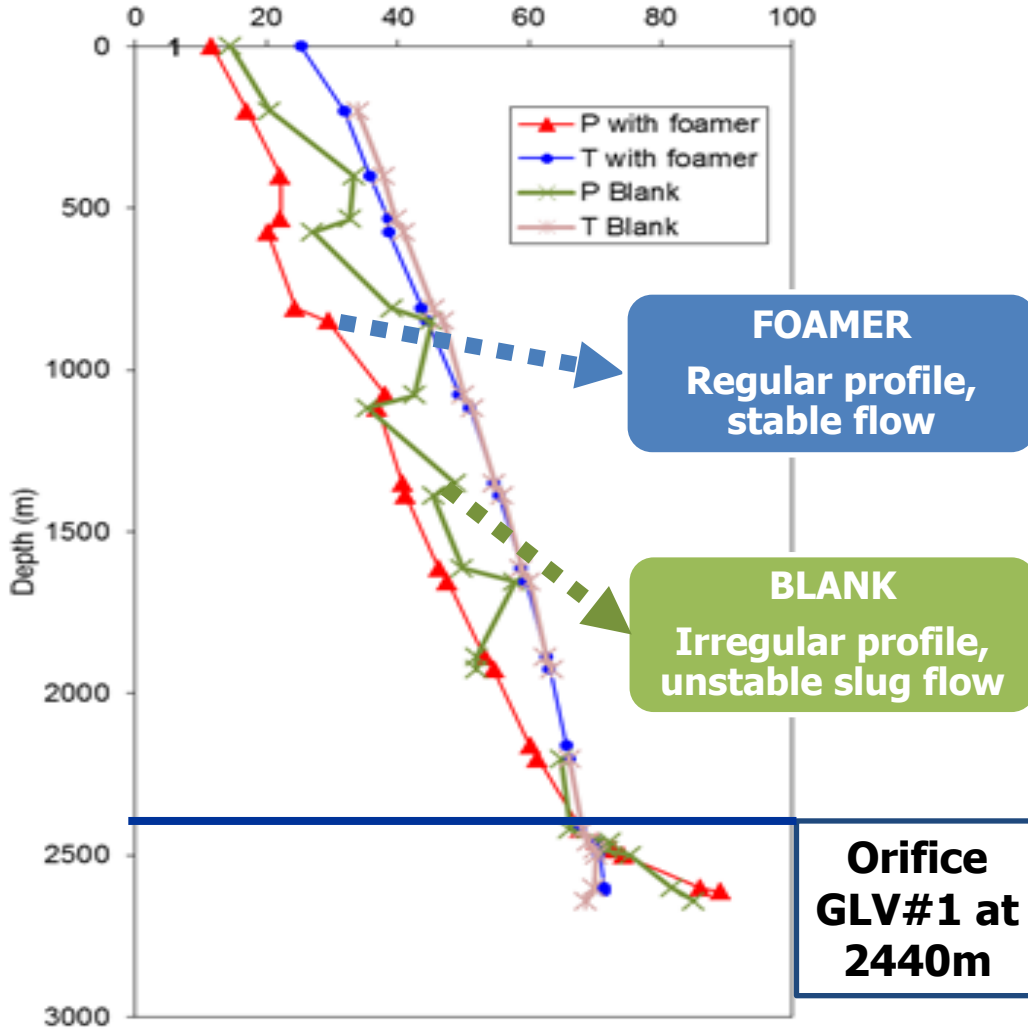
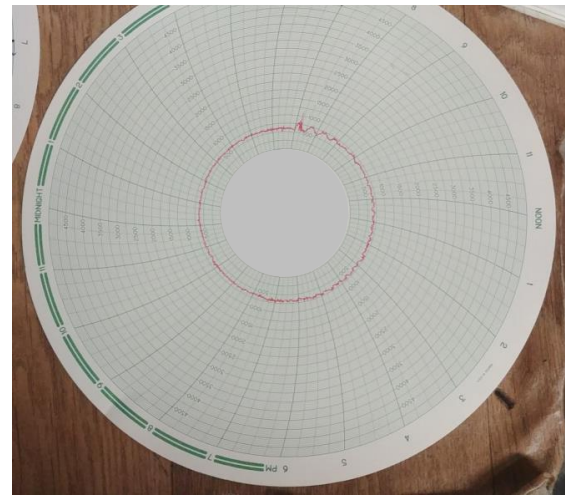


# Setup and field test results: Test 1

## THP BLANK



## THP with FOAMER



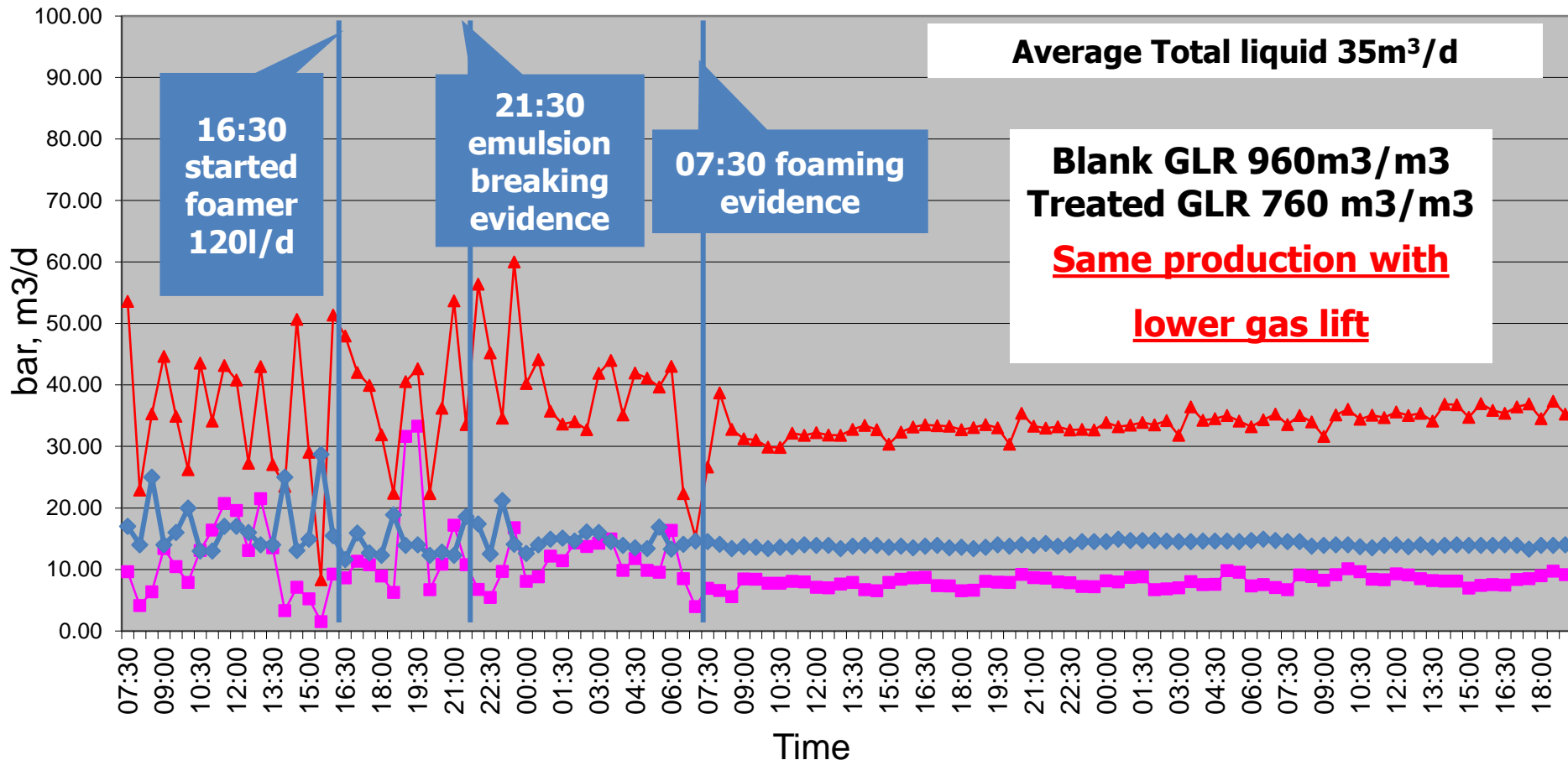
# Setup and field test results: Test 2

Well 01  
performance

Oil  
m<sup>3</sup>/d

Total Liq  
m<sup>3</sup>/d

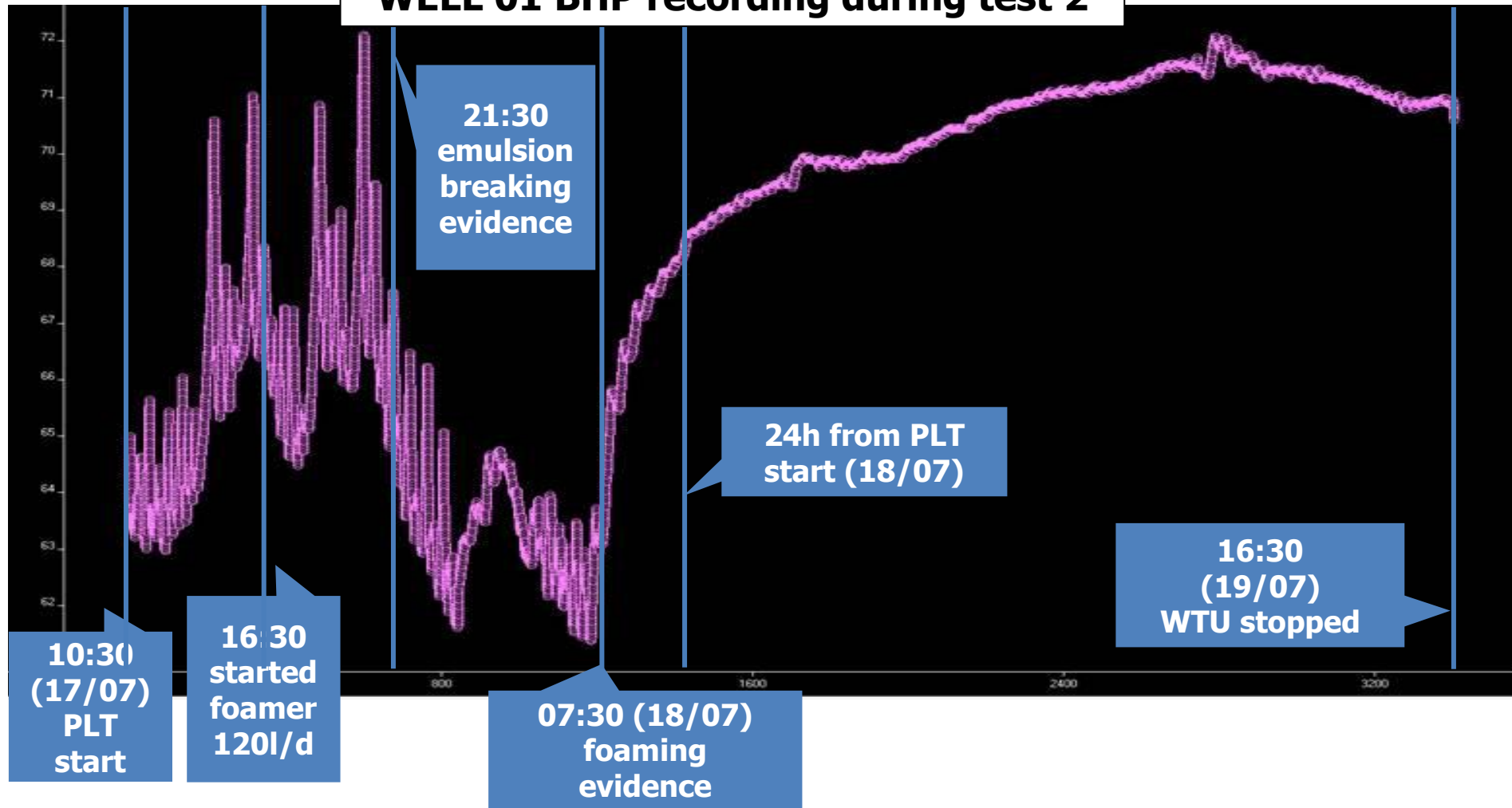
THP  
bar





# Setup and field test results: Test 2

WELL 01 BHP recording during test 2





# Lessons Learnt

- **Lesson learnt n°1: injection via gas lift needs a dedicated analysis**
  - ✓ **Many wells were tested but not all tests were successful because the foamer didn't reach the tubing efficiently;**
  - ✓ **Injection via gas lift success depends on many factor (completion, kill fluid level, gas injection valve position...)**
- **Lesson learnt n°2: A deeper investigation is needed about how much FGLE performance benefits from**
  - ✓ **BHP stabilization**
  - ✓ **Viscosity reduction**

# Conclusion and way forward

- **Foamer for gas lift enhancement was able to optimize lifting by flow regime stabilization:**
  - ✓ **Higher production is achieved with the same gas lift**
  - ✓ **Lower gas lift at the same production**
- **Way forward:**
  - ✓ **Deeper analysis of chemical injection via gas lift system**
  - ✓ **Tests on a longer period**
  - ✓ **Test on other wells with different characteristics**
  - ✓ **Treatment economics evaluation**



**Thank you for the attention**

**Any question?**