

# Workflow Optimization: Digital Tools

Mueez Mughal

Firebag Exploitation Team

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# Agenda

About Me



Background



PI Vision Dashboard



Produced Gas Dashboard



Emulsion Dashboard



Case Study



Future Plans & Learnings



# About Me

## Education

- University of British Columbia
- Mechanical Engineering, 2<sup>nd</sup> Year

## Position

- Firebag Exploitation Team
- Production Engineering Intern
- May 2025 – December 2025

## Outside of Work

- Hiking
- Solar Car Racing Team





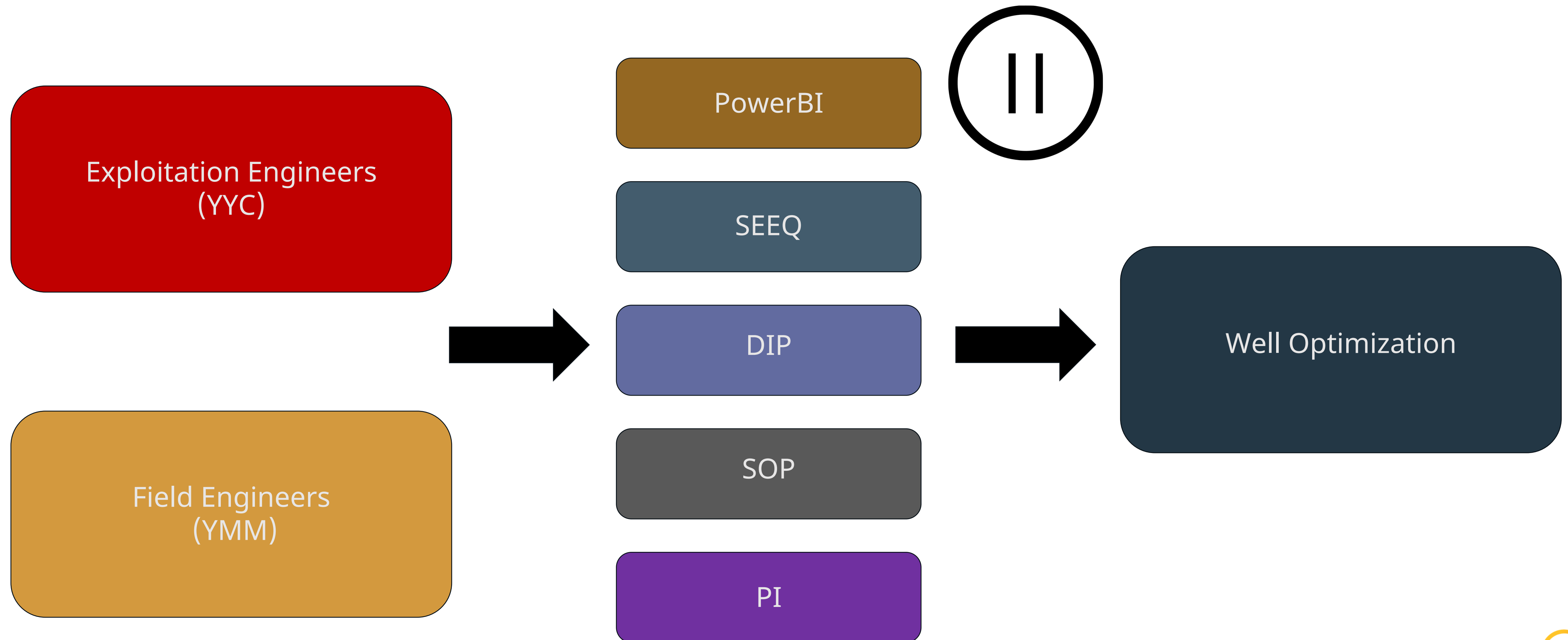
# Background





# Optimizing Firebag Subsurface: Tool-Induced Delays

The Exploit and Field Engineers have access to a wide variety of digital tools for operational efficiency. While these resources are designed to enhance efficiency and decision-making, the sheer number of platforms can lead to workflow delays and operational bottlenecks.



# Background

## What is PI Vision

- Real-Time Visualization
- User-Friendly
- Collaborative
- Accessible
- Extensively used at Suncor
  - Process Engineers for the Plants
  - Exploitation and Field Engineers for Production Optimization
  - Control Room Operators



REDACTED

Process Engineering Plant Dashboard

# Background

## Importance of Dashboards

### Rapid Bottleneck Identification

- Hard to identify location and cause of bottlenecking
- Streamline by making it take seconds

### Decision-Making

- Spot anomalies in real-time, act quicker, communicate effectively
- Pre-emptively solve problems before they arise

### Optimization

- Visualize interconnectedness of systems

### Personal Value

- Importance of data aggregation and analysis
- Meeting needs of all stakeholders involved
- Bridging production engineering with digital tools



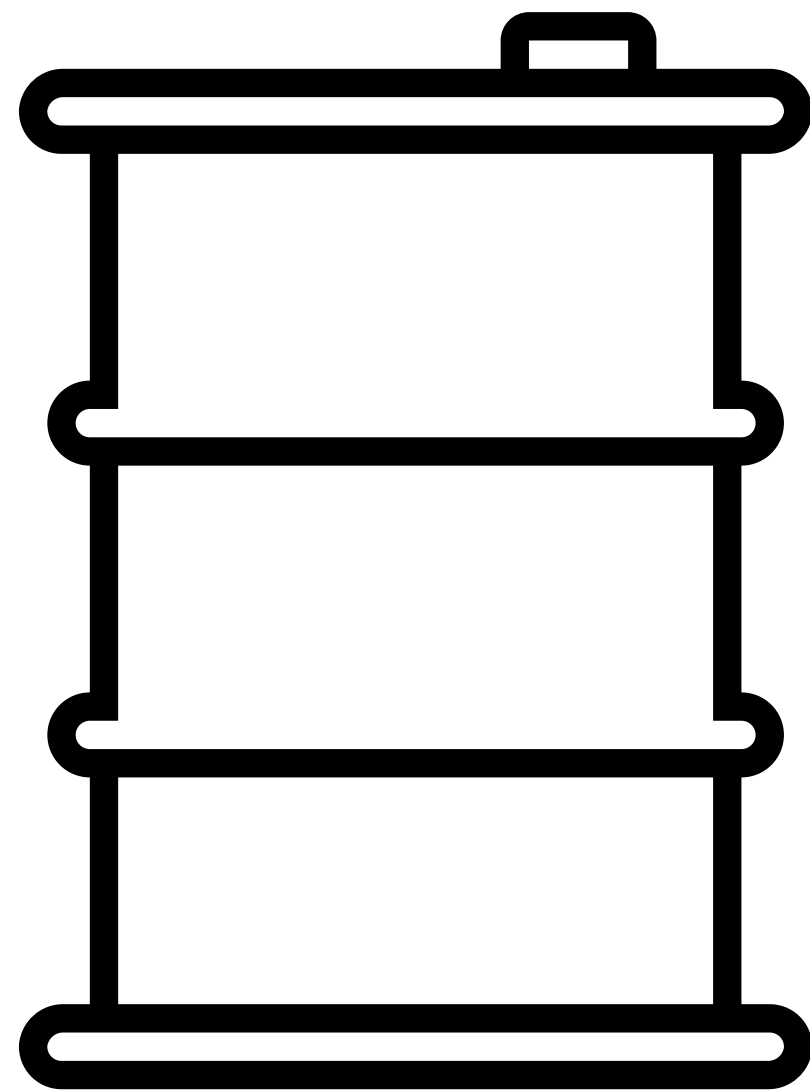
# PI Vision Dashboard





# Requirements

Ensuring these requirements are met with constant communication with both Field and Exploitation teams



Intuitive Navigation



Essential Production and Reservoir Data



Map Overview



Trends & Charts



Status Indicators



Drill-Down



Easily Extensible



# Produced Gas Dashboard

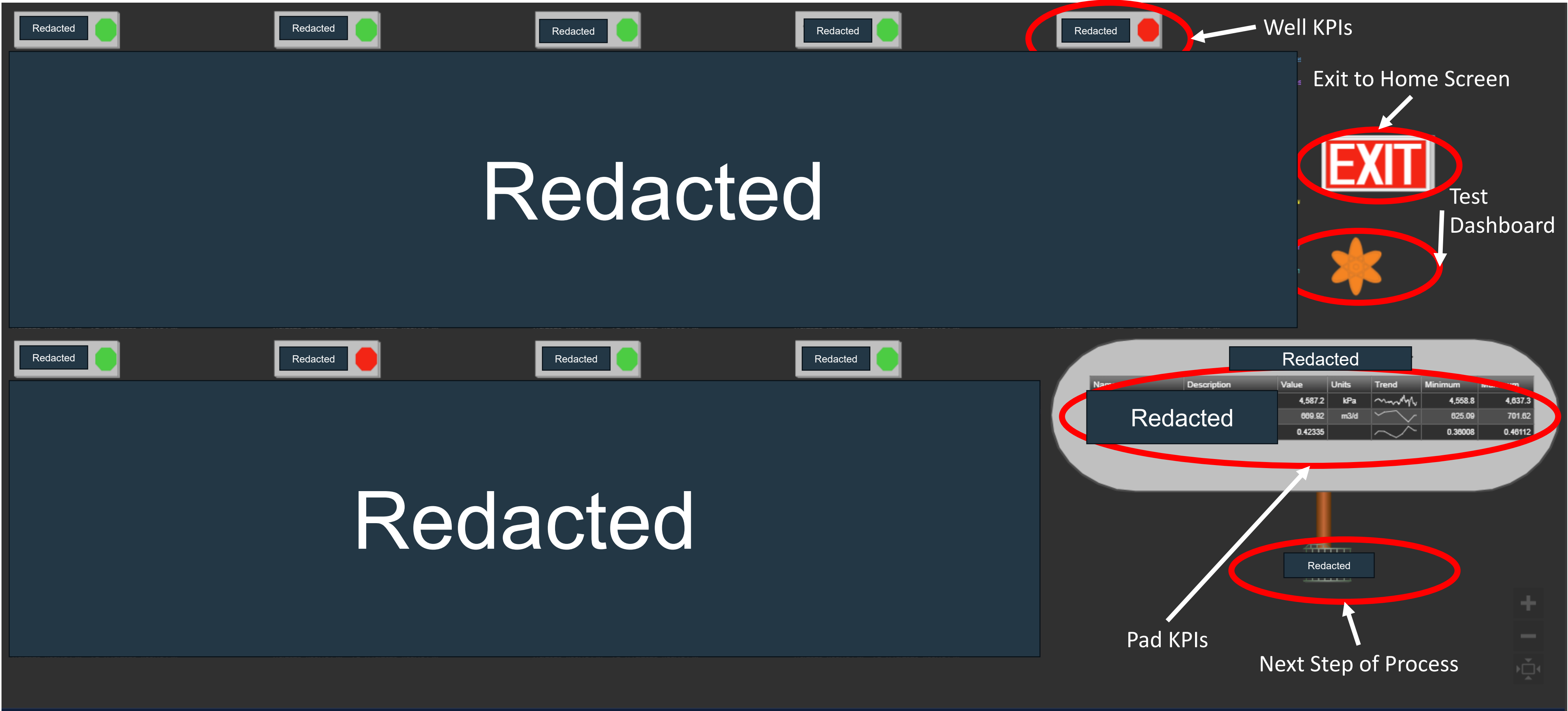
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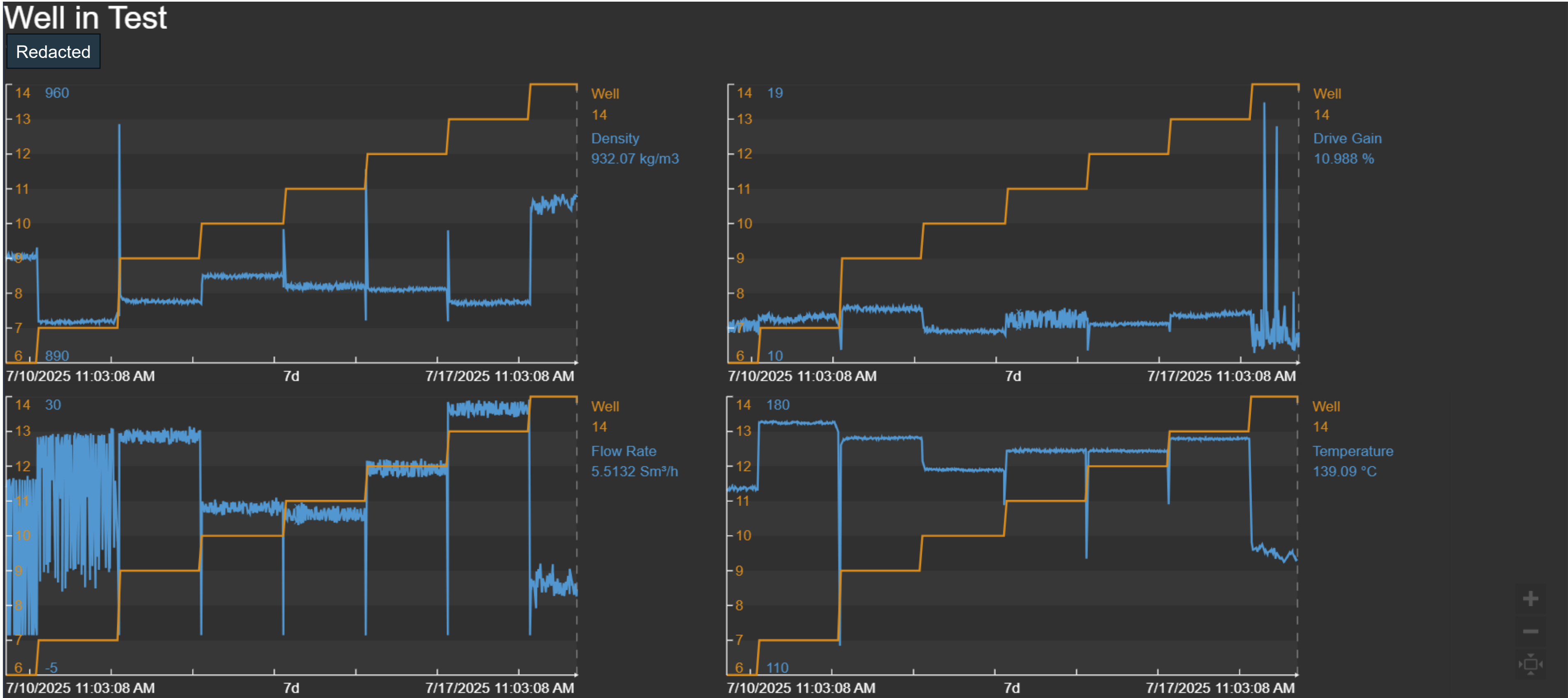
# Interactive Displays





# Test Dashboard

Developed a test dashboard that provides real-time visibility into Pad test meter readings, identifies the well currently under test, and displays its results





# Emulsion Dashboard

REDACTED



# Emulsion Dashboard

REDACTED

# Challenges

Many Challenges Arose During the Construction of the Dashboards

**Piping &  
Instrumentation  
Diagrams**

**Balancing  
Needs**

**Simple vs  
Complex**

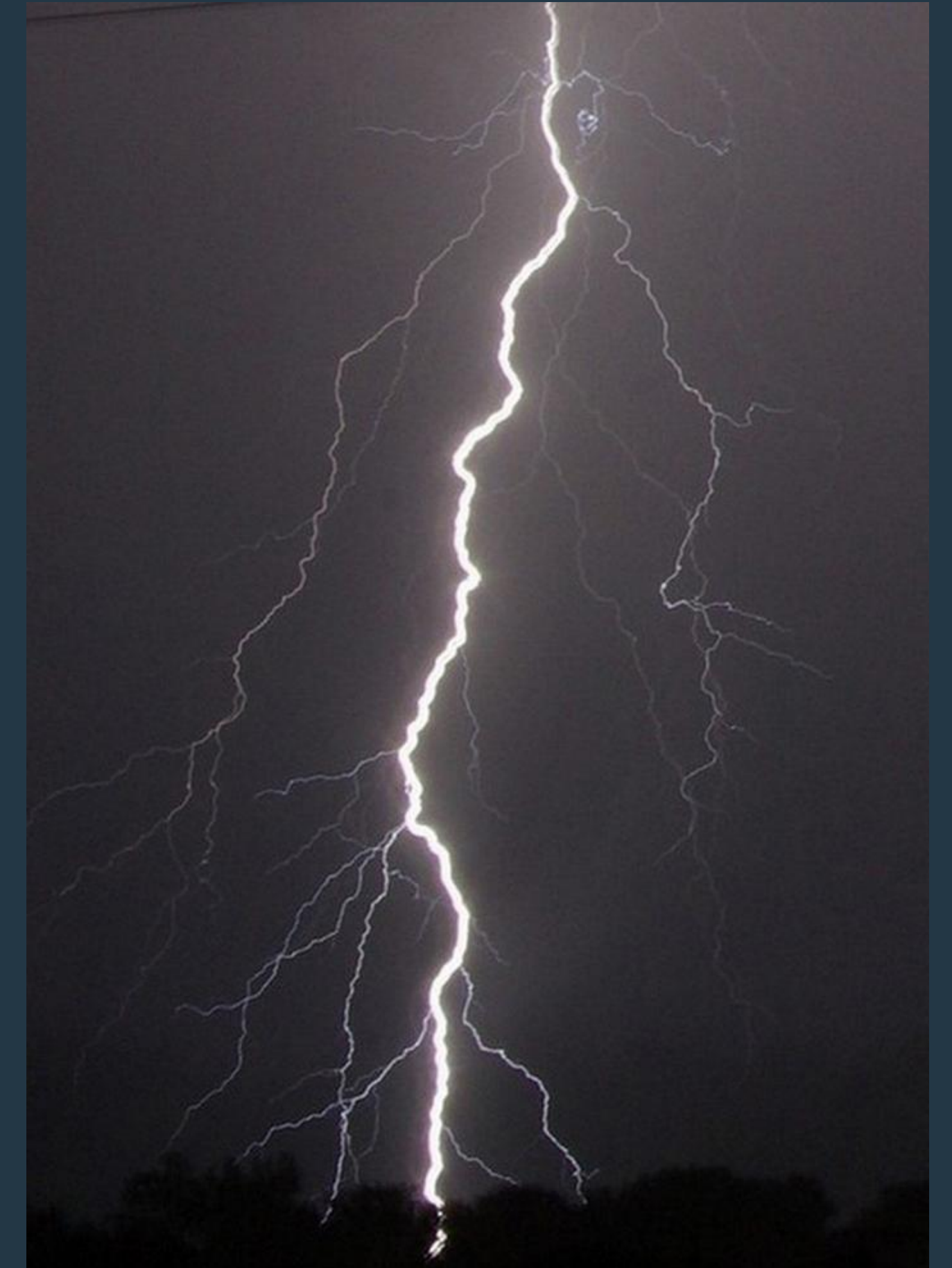


# Case Study

August 3<sup>rd</sup> Lightning Strike

# Context

On August 3<sup>rd</sup> there was a lightning strike at Firebag which blacked out the facility. Pumps in wells turned off. When we were bringing everything back online there was trouble when we started ramping up back to 7000 m<sup>3</sup>/hr





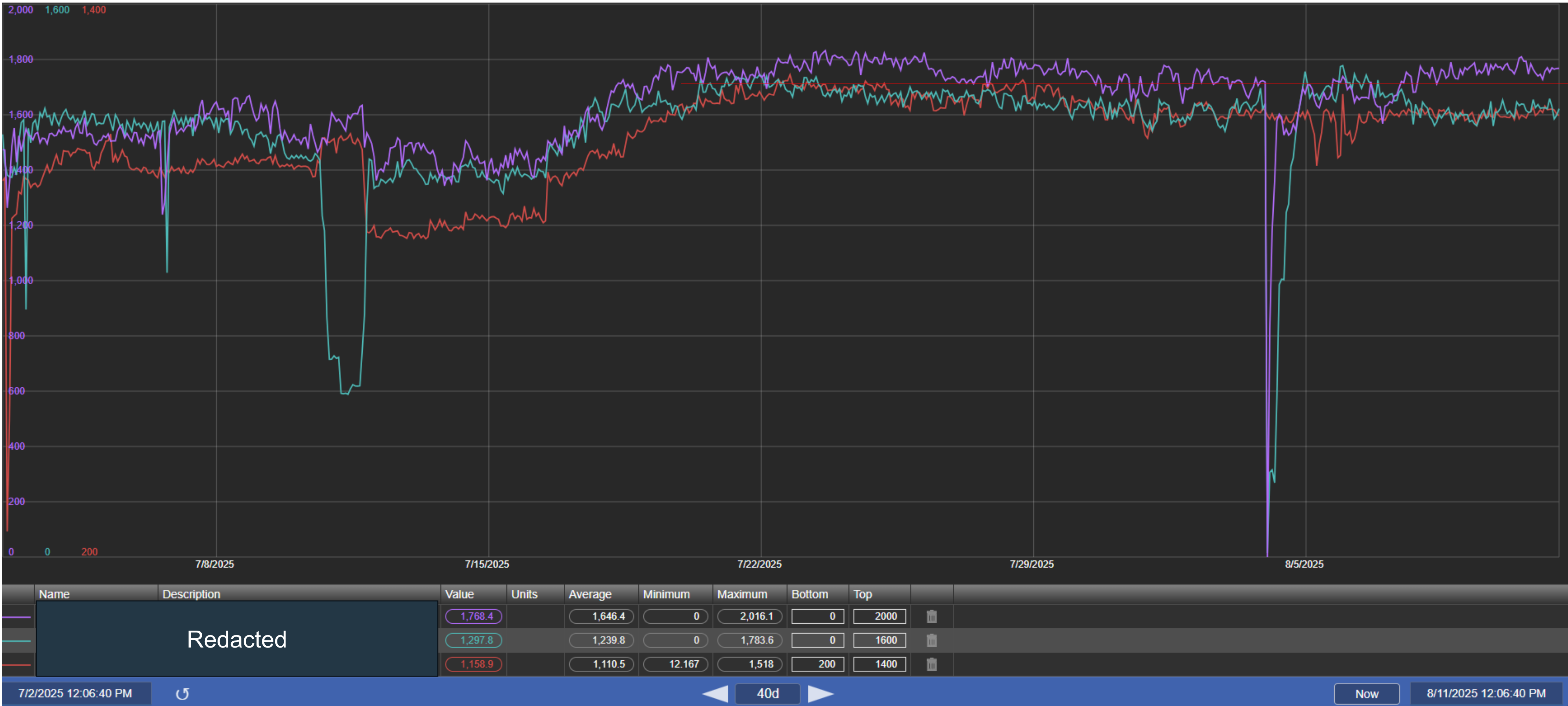
# Case Study

Plant A was not ramped up fully as there was a discrepancy between the booster pumps and emulsion in rates



# Case Study

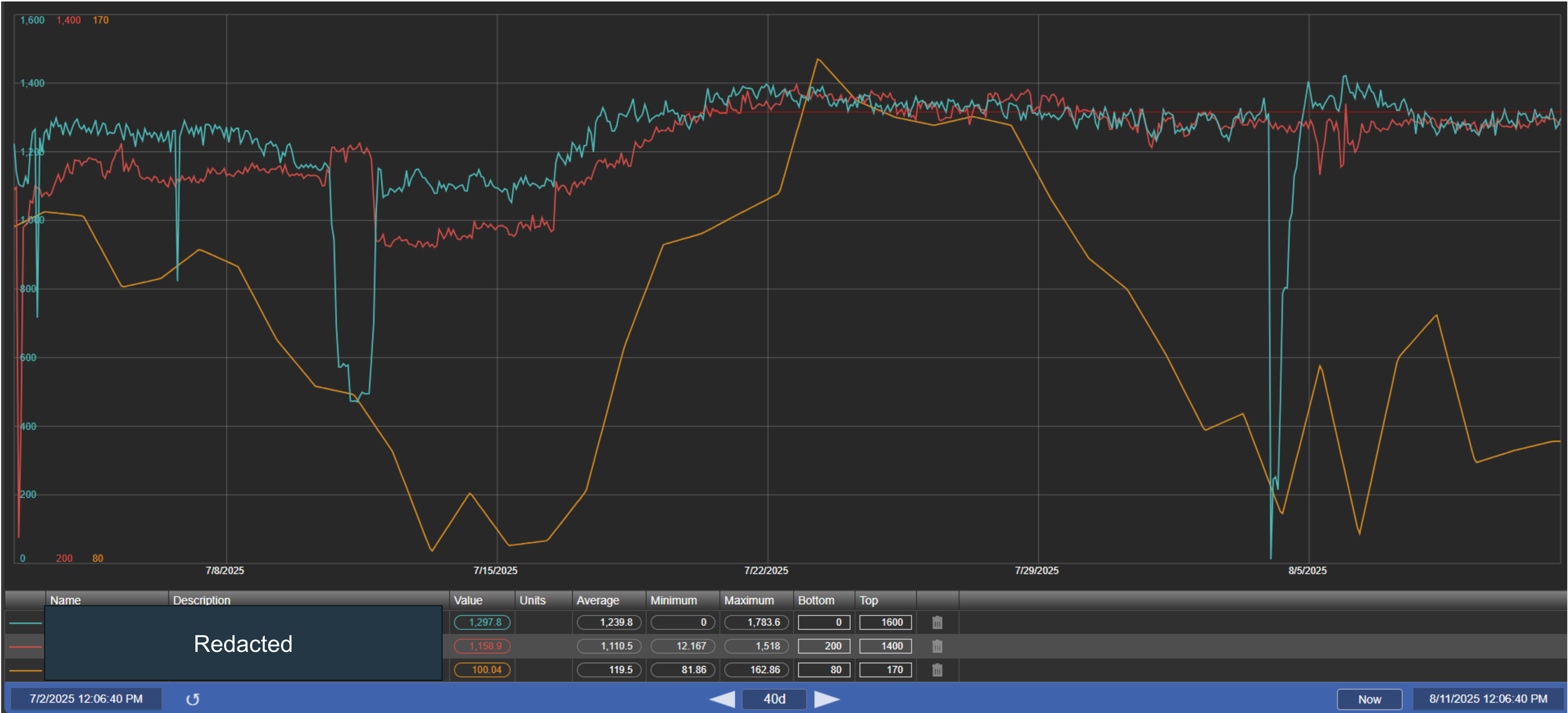
Going backwards through the nodes we can see that the ABC Group Separator was not ramping back up





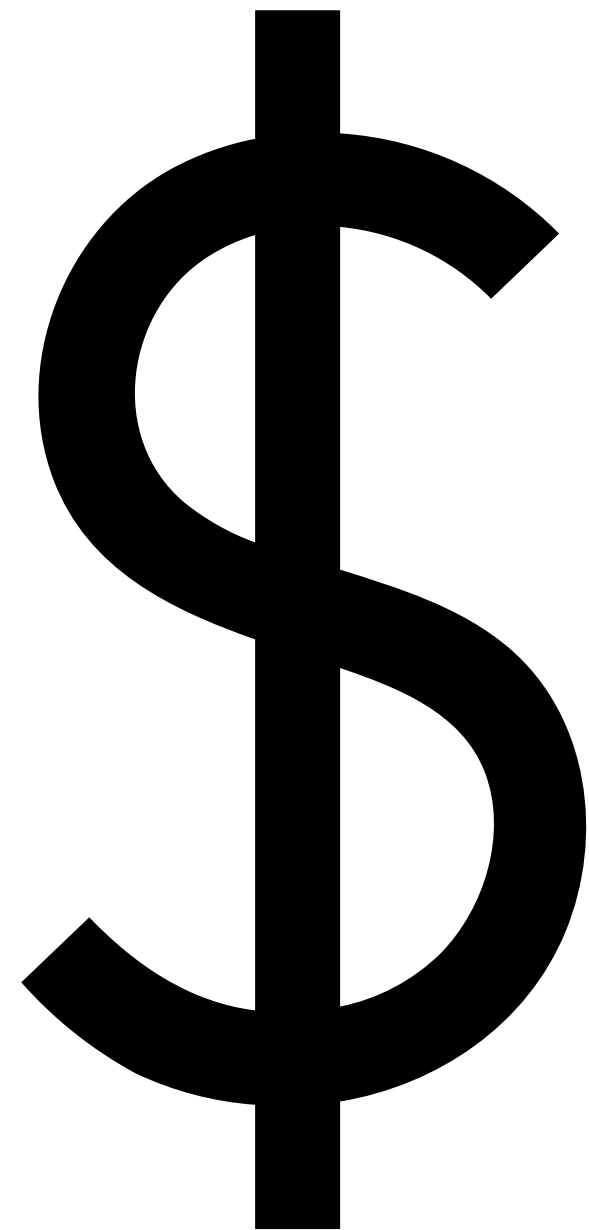
# Case Study

Delving deeper, we see PAD ABC is not back up to its full potential and down ~50 m3/hr



# Results

The display helped us identify exactly where the bottleneck was without going through the lengthy process of identifying the problem



- Took 5 minutes to locate 50 m<sup>3</sup>/hr of emulsion
- Drilled into the wells using PAD dashboards and discovered problem wells were
  - WP A
  - WP B
  - WP C
  - WP D
  - WP E
  - WP F
- Speeding these wells back up brings us back ~45 m<sup>3</sup>/hr of emulsion
  - 280 bbl/hr
  - 18000 \$/hr



**18000 \$/hr located in 5 minutes**

# Future Plans & Learnings



# Future Plans & Learnings

- Add PAD displays to emulsion dashboard
- Add emulsion KPIs to field assets
- Continue improving dashboards based on user feedback
- Document dashboard creation for easy repeatability
- Data visualization tools
  - Specifically, the industry standard tool PI
- Gather requirements and incorporate feedback from diverse stakeholders
- Data analysis and presentation
- P&IDs

**Thank you**

