



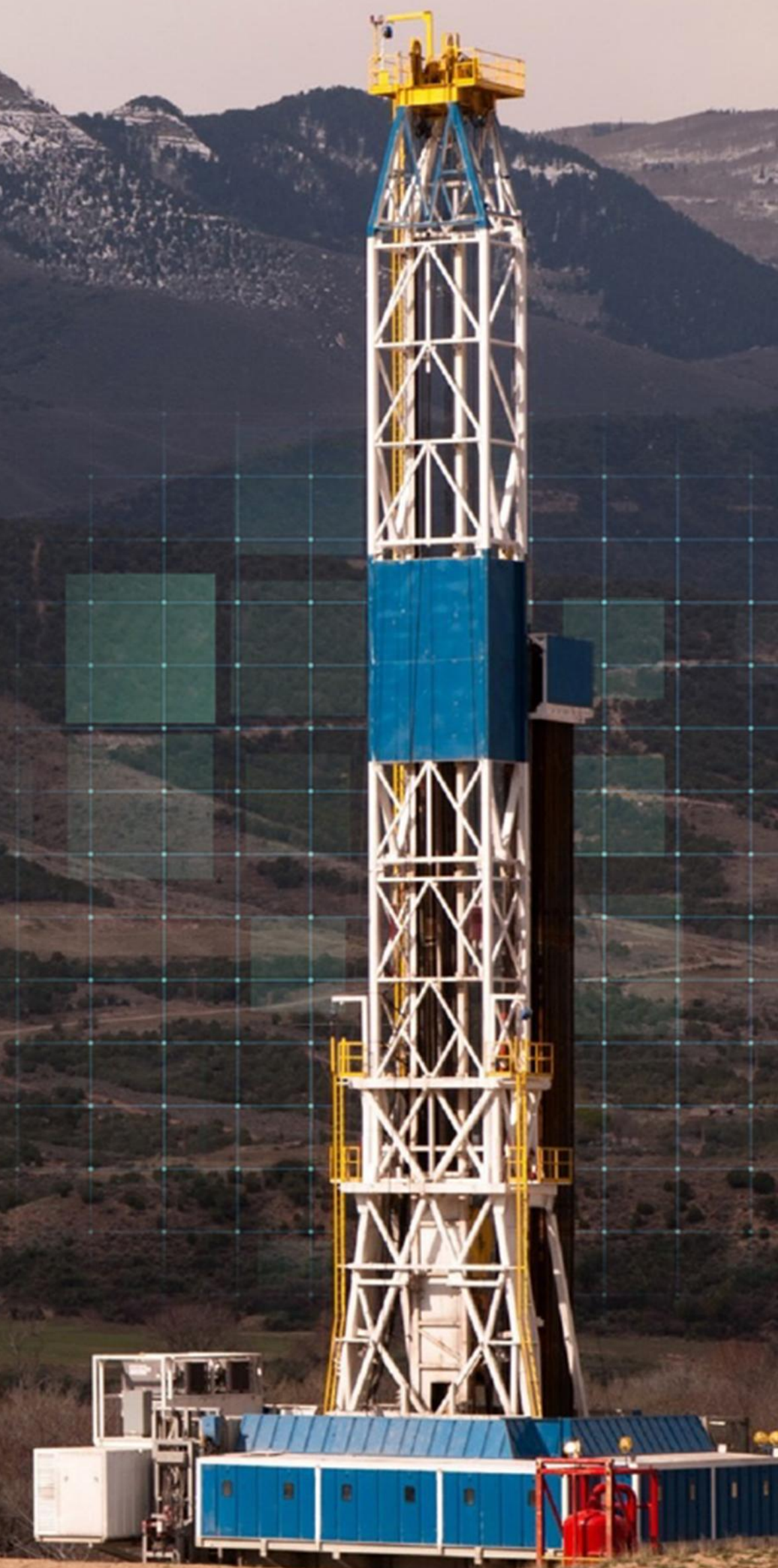
MODUS

MANAGED PRESSURE WELLS SOLUTION



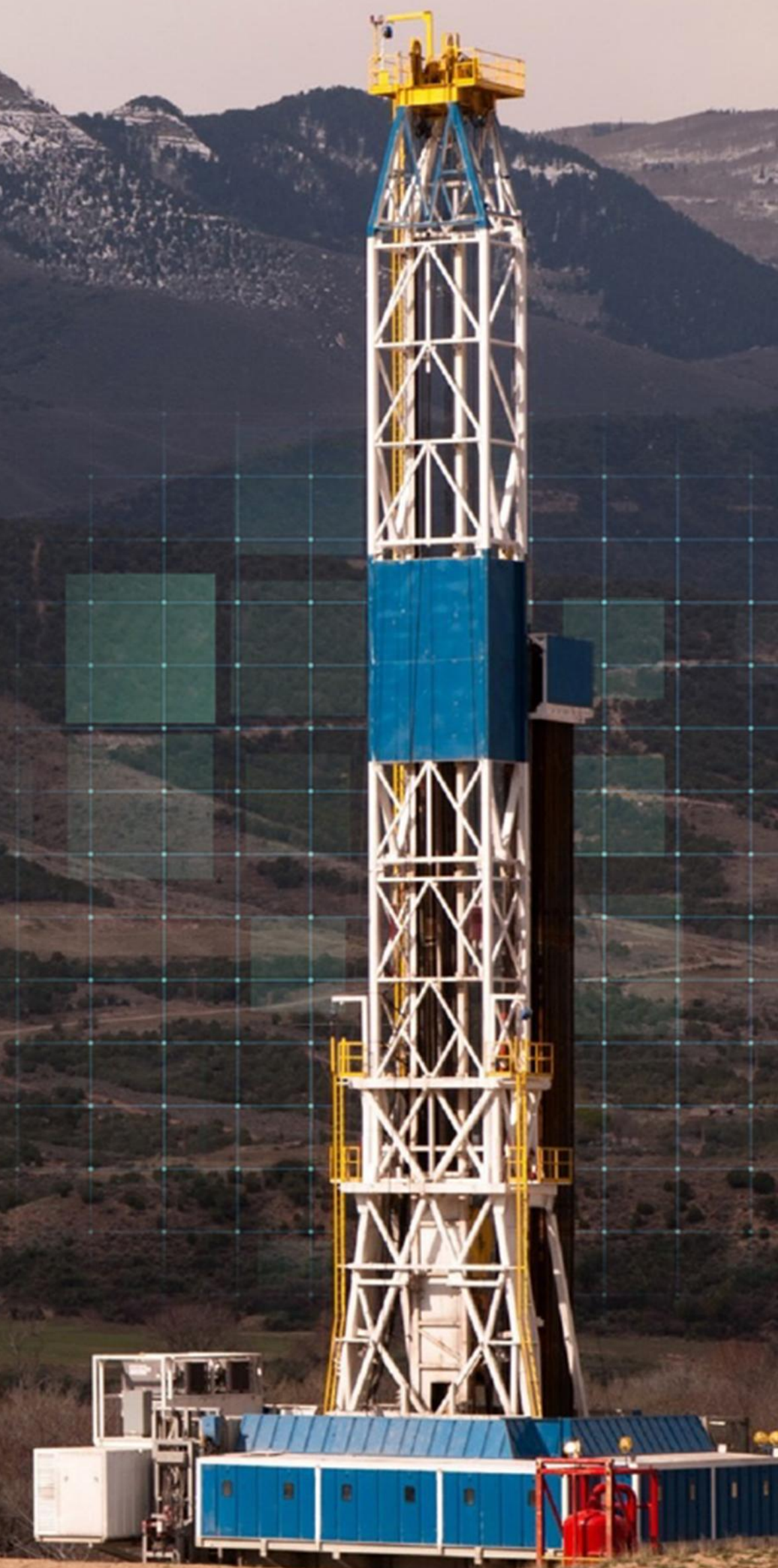


You need to get your well drilled efficiently





**You need to get your well drilled efficiently
but you have challenges meeting your objectives**





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Incidents related to downhole pressures

- Kicks and losses
- Wellbore collapse
- Tight hole conditions
- Stuck pipe
- Fluid losses
- Reservoir damage

Resolve these issues and more...



Your benefits while managing pressure

- Simplify well architecture
- Reduce emissions
- Enhance production
- Reduce OPEX



We understand your challenges

14,000+

JOBS*

5 Million+

OPERATING HOURS*

30+

1ST TIME CUSTOMERS

* Weatherford Internal Data





2,000,000+

FEET DRILLED DURING TECHNOLOGY DEVELOPMENT



MODUS MANAGED PRESSURE WELLS SOLUTION

MODUS

MANAGED PRESSURE WELLS SOLUTION



EXPERTS WHO UNDERSTAND
YOUR ENVIRONMENT



DIGITAL SERVICES FOR
YOUR OPERATION



COMPLETE SOLUTIONS FOR
YOUR WELL

Your standard for exceptional performance



IMPROVED PRESSURE MANAGEMENT

■ Well Process Safety

- Dual choke redundancy: better control / safety
- Integrated system over pressure protection

■ Formation Integrity

- Pressure window visibility: establishing limits
- Surge / swab compensation: optimizing tripping speeds
- Reducing reservoir damage: lighter mud weights





IMPROVED WELL MONITORING

- Continuous mass balance monitoring
- Kick / Loss monitoring
- Fast detection and reaction
- Reduced environmental risk
- Reduced lost in hole
- Improved hole cleaning
- Better hole stability





DIGITAL DATA CAPTURE

- Visualization and trending for continuous performance management
- Data is stored, and supported data can be transferred via WITS
- Real-time data transfer to third parties



MODUS EQUIPMENT

System includes:

- Detection Manifold
- Choke Manifold (dual e-chokes)
- Control Unit
- HMI Software
- Shipping Container

Modular System:

- Container holds 3 equipment skids
- Adapt to individual rig sites
- Individual skids placed where needed



Choke Manifold



Control Unit



Detection Manifold



HMI Software



Shipping Container



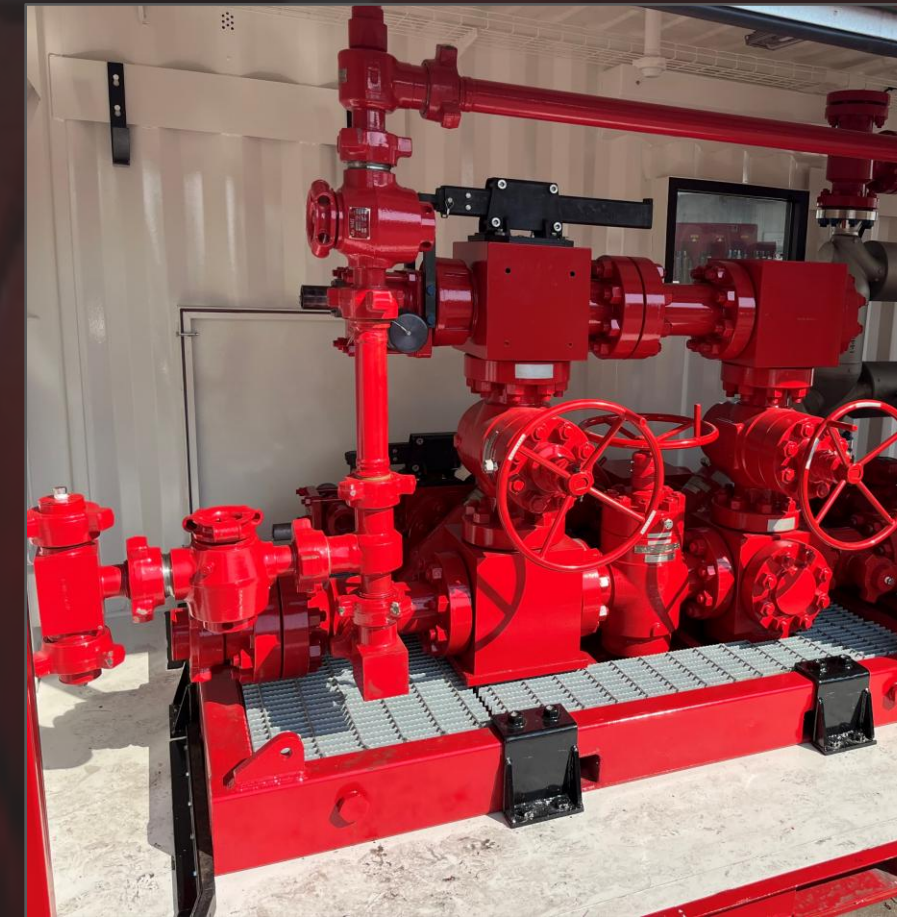
MODUS DETECTION

- Coriolis Meter – 4"
 - 1,440 psi @ 250°F
- -20°F – 250°F temp range
 - Covers 95% of applications
- Pressure Relief valve (2")
- Zone 1 IECEx rated
- 4" Bypass line



MODUS CHOKE MANIFOLD

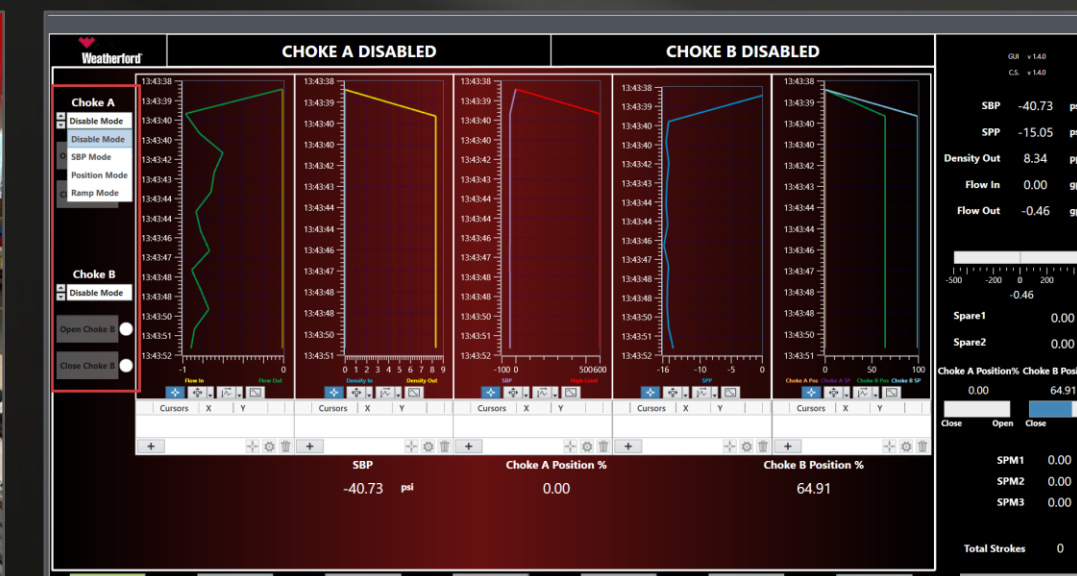
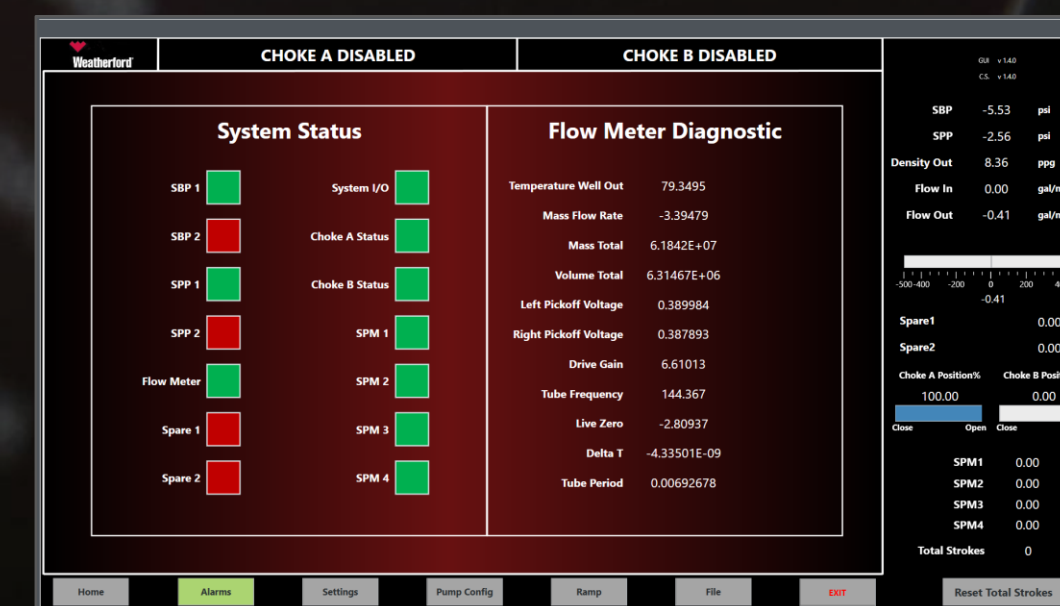
- Dual Chokes
 - Independent electrical controls
 - Choke size – 3" inner diameter trim
 - 4-1/16" connections
 - 5,000 psi rating
 - -20 to 250° F
- 4" bypass line
- Mechanical pressure relief valve – 2"
- 4 pressure transducers (2 surface back pressure, 2 standpipe)





MODUS CONTROL SYSTEM

- Dedicated Software
 - Condition visualization and trending
 - Warnings and notification in software display
- WITS data transmission
- Control modes
- 2 Computers (redundancy)
- Zone 2, IECEx rated





REAL RESULT: UTICA SHALE

9 DAYS

AHEAD OF 15 DAY PLAN

60%

WELL DELIVERY
IMPROVEMENT

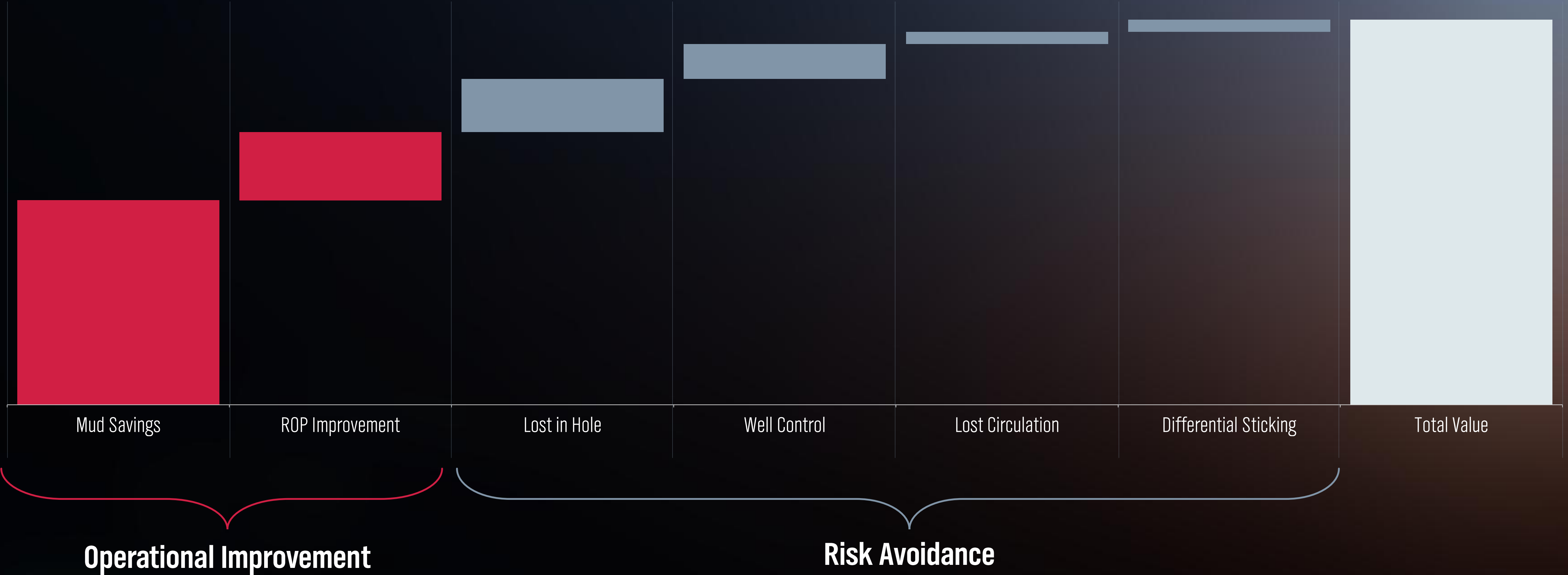
18%

ROP
INCREASE

18,000 FEET LATERAL DRILLED IN A SINGLE TRIP



PERFORMANCE DRIVEN VALUE



Managed Pressure System Capabilities

Feature	RCD Only	PressurePro	Modus	Victus
Pressure Management Decision and Control		Human Intervention for Decision and Control	Human Decision with Automated Control	Automated Decision and Control
Flow Diversion / Closed Loop	✓	✓	✓	✓
Pressure Control		✓	✓	✓
Return Flow Measurement			✓	✓
Digital Data and Visualization			✓	✓
Real Time Hydraulic Modeling			✓*	✓
Intelligent Control				✓

* - Modeling from real time data on secondary computer with Centro



Learn more

See how the Modus solution can help you deliver high-quality wells with fewer surprises.

