

Integrated Asset Modeling Applied to Challenging Fields for Successful Reservoir Management

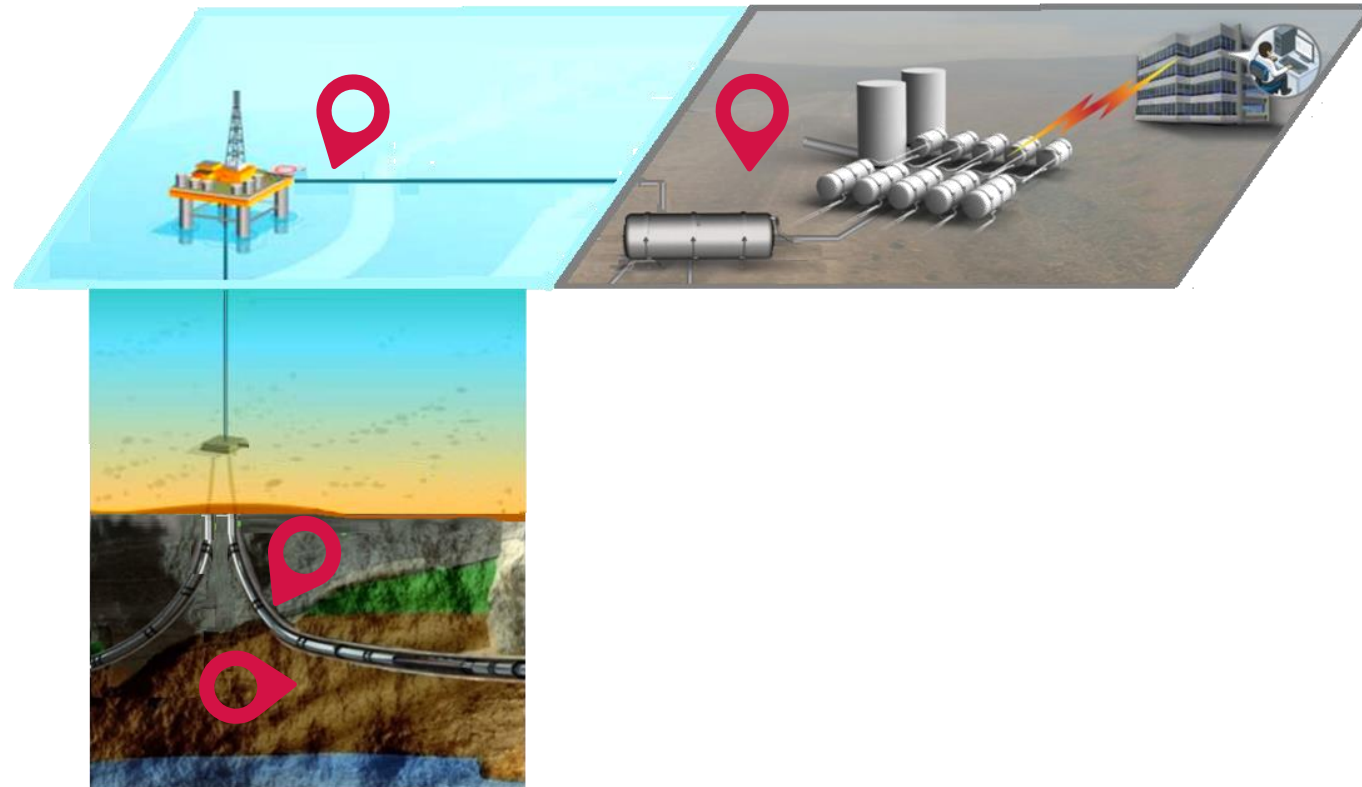
Emerson - Exploration and Production Software
Aurore Plougoulen

INTEGRATED ASSET MODELING: WHAT IS IT?



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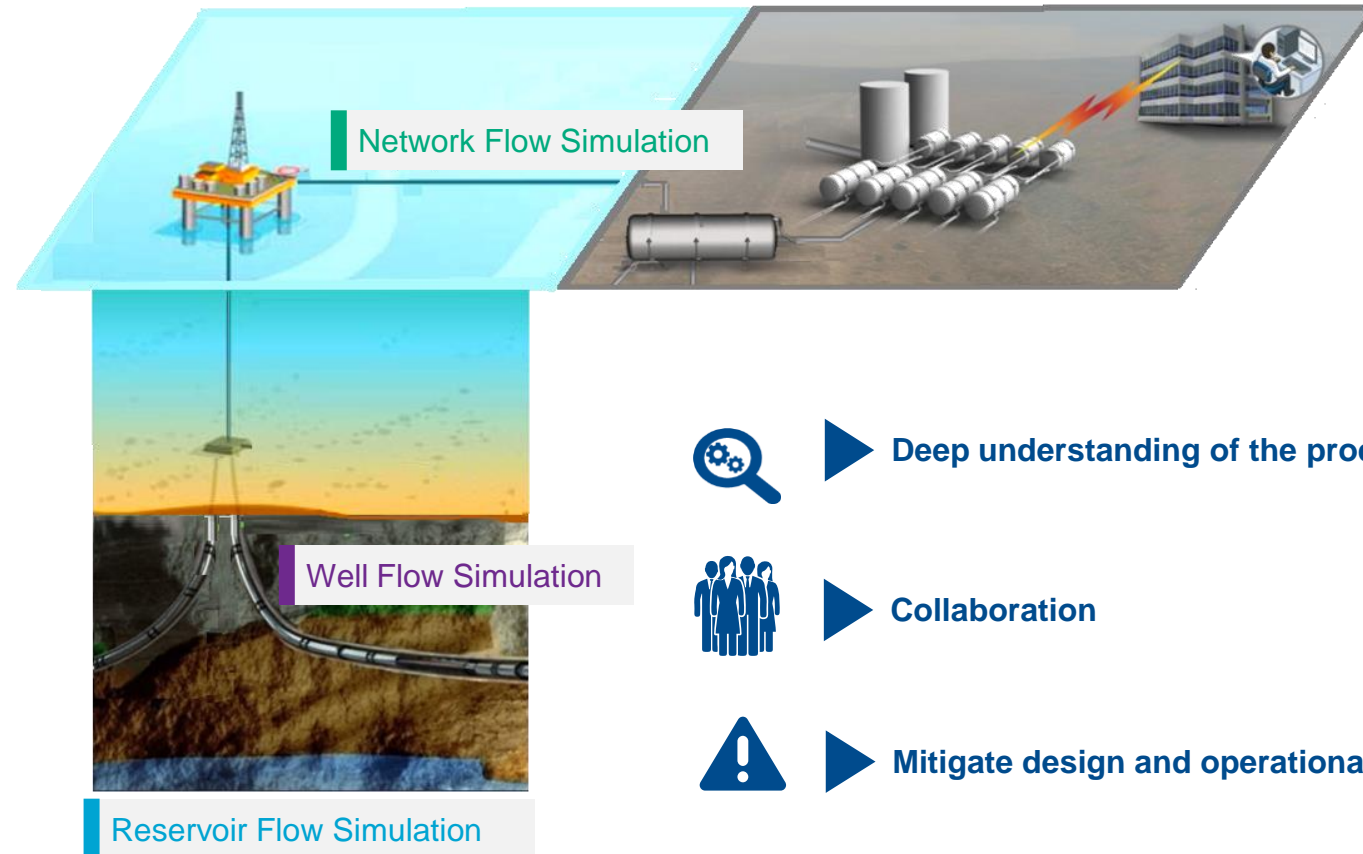
A **key element of successful production** is continuous modeling of flow from subsurface through the production network to processing facilities



INTEGRATED ASSET MODELING: WHAT IS IT?

Integrated asset modeling is used to model the complete oil or gas production system including the reservoir, the wells and the surface network

A **key element of successful production** is continuous modeling of flow from subsurface through the production network to processing facilities



▶ Deep understanding of the production system



▶ Collaboration



▶ Mitigate design and operational risks

INTEGRATED ASSET MODELING: APPLICATION TO CHALLENGING FIELDS

Subsea oil field development solution

Challenge

- 3 different reservoirs
- **What is the optimum development scenario?**
- Tight schedule and limited resources

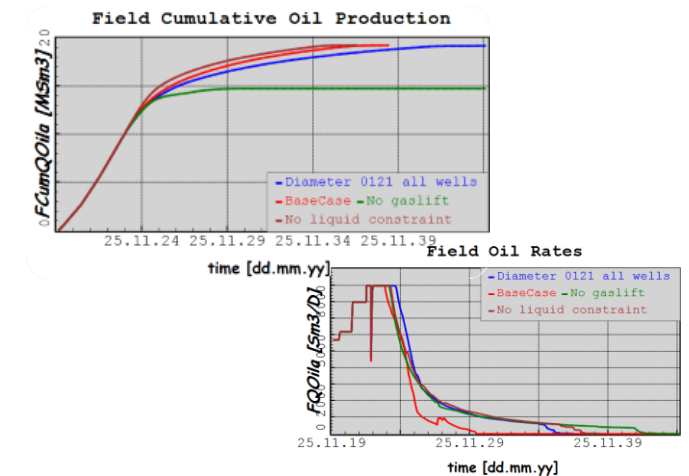
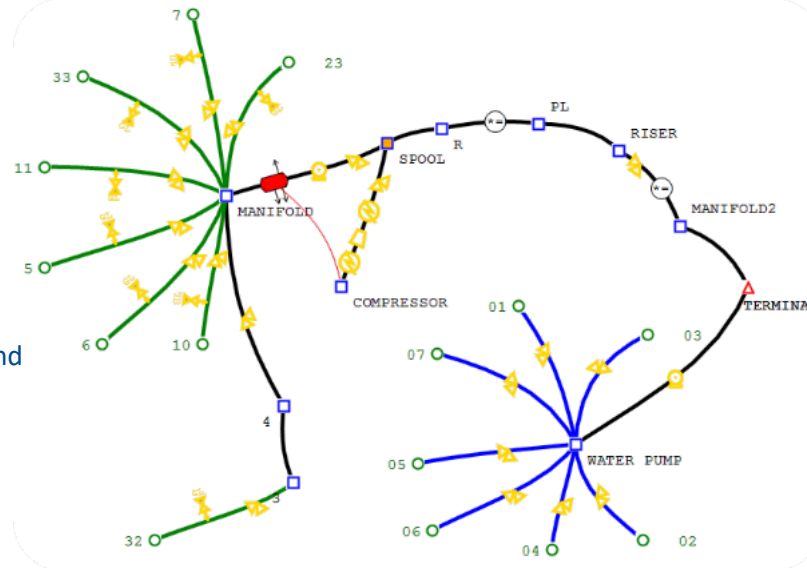
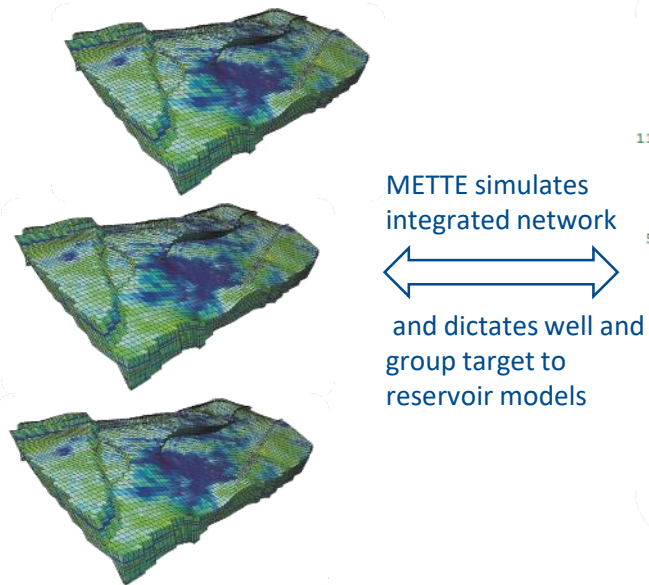
Solution

- Integrated production modeling: ECLIPSE™** reservoir models connected to **METTE™****
- Effective screening of development scenarios: artificial lift, pressure boosting, separator capacity at oil platform
- Assessment of production capacity, insulation requirements, power requirements

* Mark of Schlumberger ** Mark of Emerson

Results

- A comprehensive integrated flow assurance solution, including integrated production optimization
- Concept dependent production profile
- Informed infrastructure design decision
- Technical and economical project viability input



INTEGRATED ASSET MODELING: APPLICATION TO CHALLENGING FIELD

Large onshore field under production

Challenge

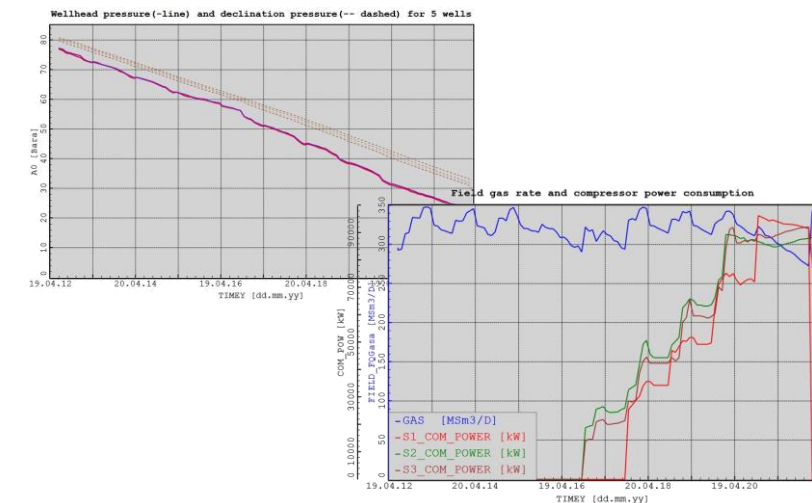
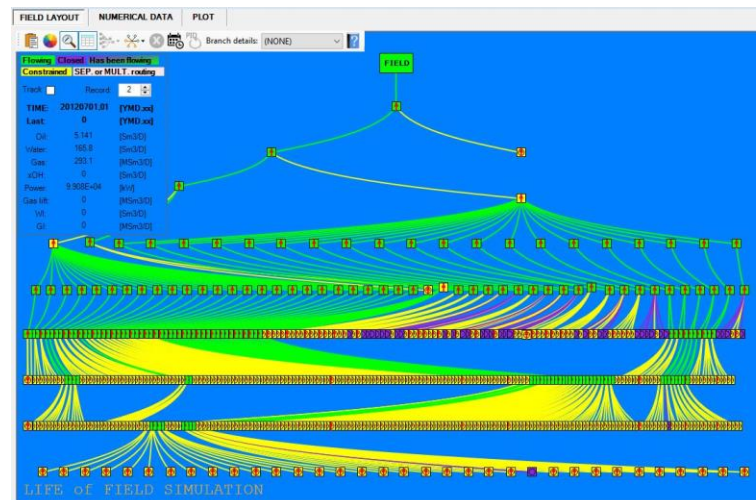
- 400+ gas producing wells sharing common production system
- **How to operate the field keeping the well flowing?**

Solution

- Integrated production modeling with **METTE™**
- Production forecast taking into account the interdependencies between the 400+ wells

Results

- A comprehensive integrated flow assurance solution, including integrated production optimization
- Timing and quantification of the future compression needs
- Technical and economical project viability ensured



INTEGRATED ASSET MODELING: A NATURAL FIT WITHIN THE EMERSON ECOSYSTEM

The diagram illustrates the Emerson ecosystem for integrated asset modeling, showing a workflow from subsurface imaging to safety and performance control, all connected to a central asset reliability hub.

Subsurface Imaging & Modeling

Engineering & Design

Production Management

Asset Reliability

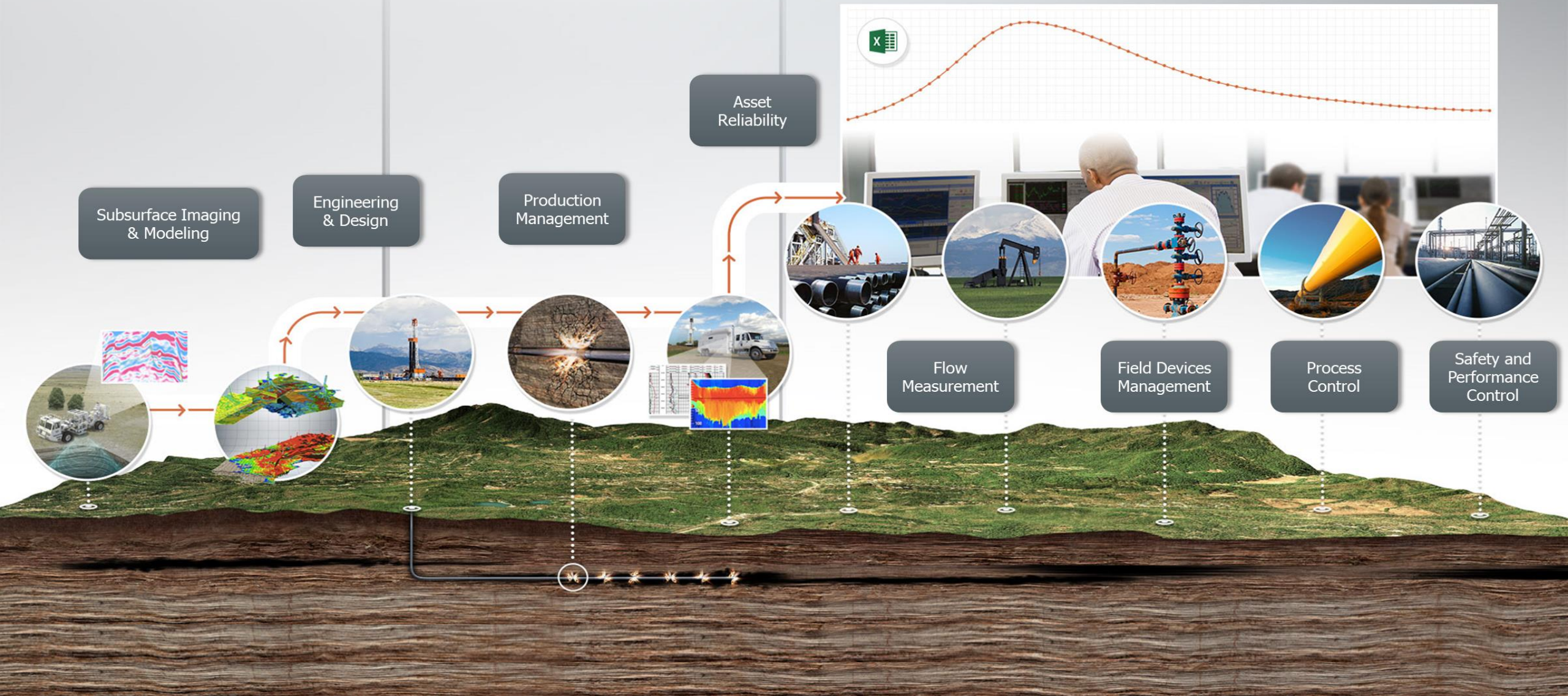
Flow Measurement

Field Devices Management

Process Control

Safety and Performance Control

The diagram features a central horizontal timeline with circular icons representing various stages of the asset lifecycle. Above the timeline, a large graph shows a bell curve, likely representing asset performance or reliability over time. Below the timeline, a 3D cross-section of the earth shows a wellbore and reservoir, with data points and arrows indicating the flow of information and materials between the surface operations and the subsurface.



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Questions?
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