Noven IIoT Case Studies

The NOVEN Technology platform comprises:

- Dedicated proprietary & patented sensors. They are specifically designed for targeted industrial application

- Shared common electronic boards that digitize and pre-process the sensor signal

- Sensors' communication via Bluetooth to an onsite computer (Gateway) for data analysis and system diagnostics (EDGE Computing) using dedicated proprietary **Artificial Intelligence** Algorithm proprietary to Noven.

- The synthesis results (diagnostic of the *state of the system and immediate actions to be taken*) are then transmitted via Cell or Satellite coverage to the operator of the system, (oil field operator) who can take the necessary action with no need for more analysis.

- The whole platform is **fully automated**, **inexpensive**, **fast** and **efficient**

1. Monitor
Sensors capture and transmit data to Gateway

2. Diagnose
Artificial Intelligence Apps Detects issues, explain the cause of the anomaly

3. Guide
Cloud Platform visualize and reports to users

4. Act
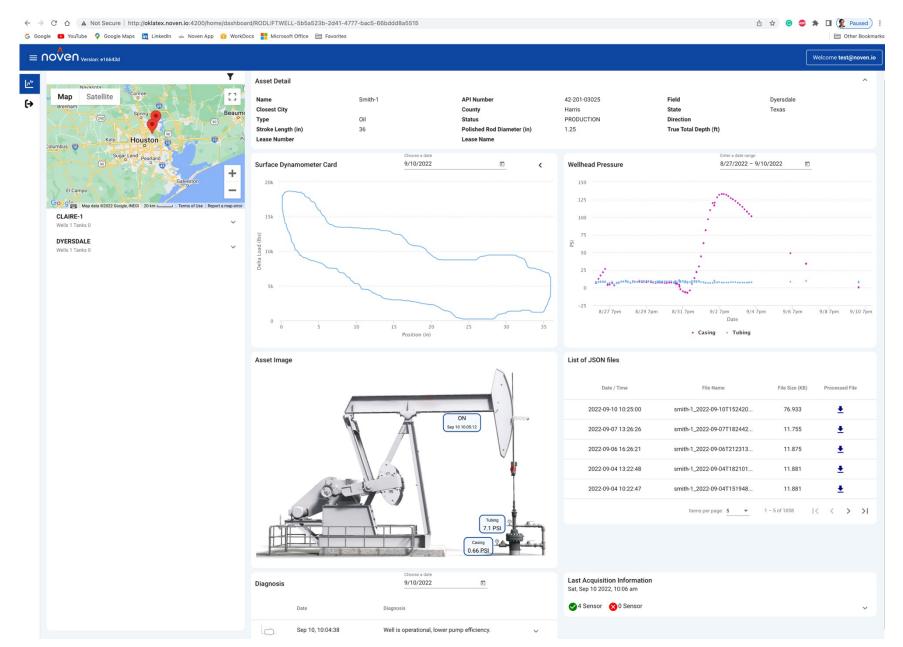Users perform intervention & improves the system performance, efficiency

Issues diagnosed from test wells

- Gas Interference
- Hole in the tubing
- Deep Parted Rod
- Productivity decline
- Undersized pump design
- Surface Separation Issue
- Downhole pump issue
- Mechanical Integrity
- Flow line issue
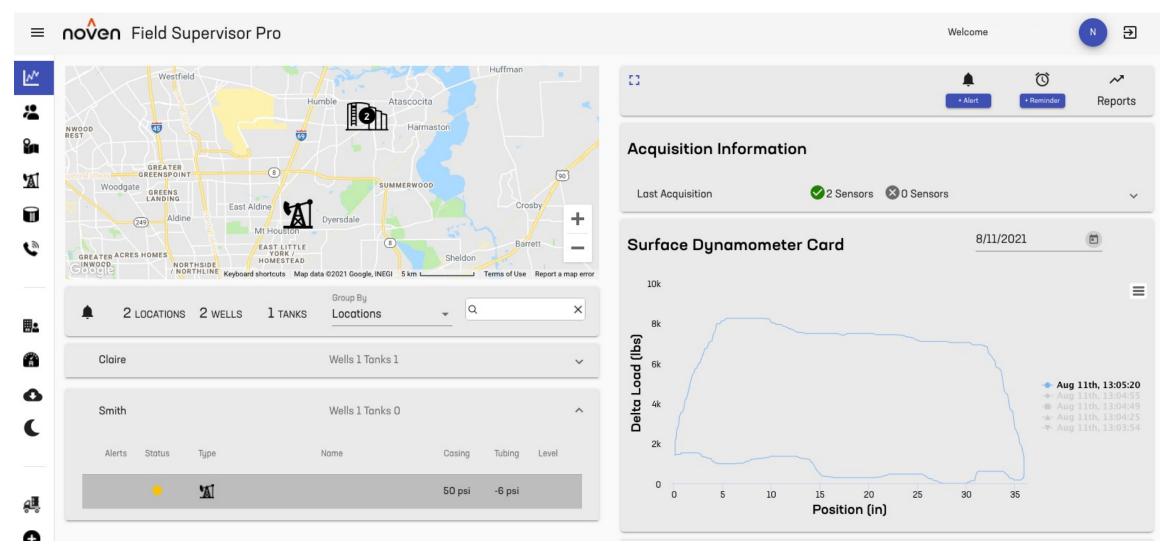- Well unintentionally shut-in
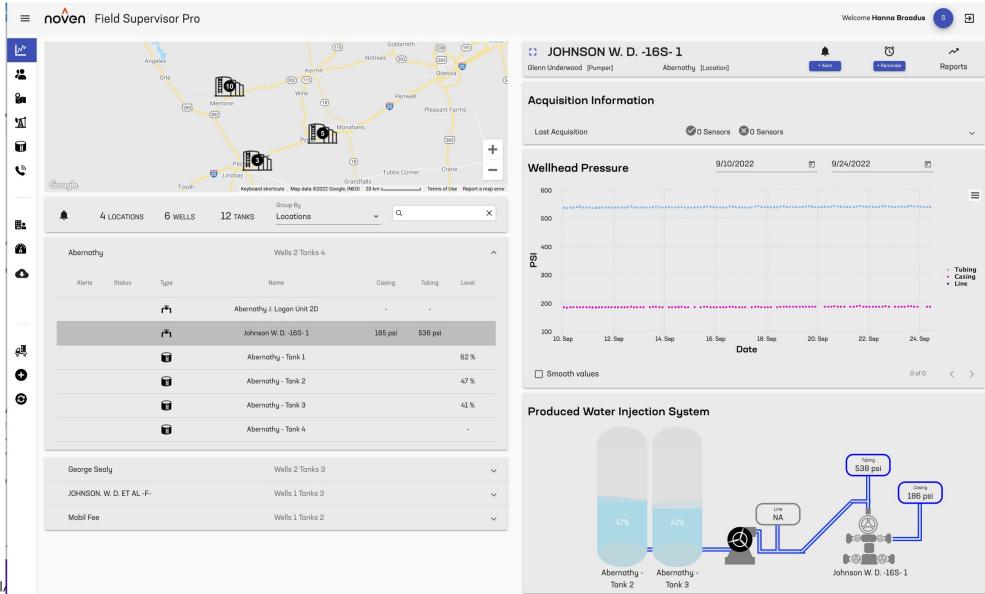

3

Noven Private Cloud - New User Interface

Sucker Rod Pumping Well View

Saltwater Injection Well

Tank Level Monitoring