



## 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



# Noven Private Cloud - New User Interface



Not Secure | http://oklatex.noven.io:4200/home/dashboard/RODLIFTWELL-5b5a523b-2d41-4777-bac5-66bddd8a5515

Google YouTube Google Maps LinkedIn Noven App WorkDocs Microsoft Office Favorites

noven Version: e16643d Welcome test@noven.io

Map Satellite

CLAIRE-1  
Wells 1 Tanks 0

DYERSDALE  
Wells 1 Tanks 0

### Asset Detail

Name	Smith-1	API Number	42-201-03025	Field	Dyersdale
Closest City		County	Harris	State	Texas
Type	Oil	Status	PRODUCTION	Direction	
Stroke Length (in)	36	Polished Rod Diameter (in)	1.25	True Total Depth (ft)	
Lease Number		Lease Name			

### Surface Dynamometer Card

Choose a date: 9/10/2022

Delta Load (lbs)

Position (in)

### Wellhead Pressure

Enter a date range: 8/27/2022 - 9/10/2022

PSI

Date

• Casing • Tubing

### Asset Image

ON  
Sep 10 10:05:12

Tubing  
7.1 PSI

Casing  
0.66 PSI

### List of JSON files

Date / Time	File Name	File Size (KB)	Processed File
2022-09-10 10:25:00	smith-1_2022-09-10T152420...	76.933	↓
2022-09-07 13:26:26	smith-1_2022-09-07T182442...	11.755	↓
2022-09-06 16:26:21	smith-1_2022-09-06T212313...	11.875	↓
2022-09-04 13:22:48	smith-1_2022-09-04T182101...	11.881	↓
2022-09-04 10:22:47	smith-1_2022-09-04T151948...	11.881	↓

Items per page: 5 1 - 5 of 1058

### Diagnosis

Choose a date: 9/10/2022

Date	Diagnosis
Sep 10, 10:04:38	Well is operational, lower pump efficiency.

### Last Acquisition Information

Sat, Sep 10 2022, 10:06 am

✓ 4 Sensor ✗ 0 Sensor

# Sucker Rod Pumping Well View

noven Field Supervisor Pro Welcome N

**Acquisition Information**  
Last Acquisition ✓ 2 Sensors ✗ 0 Sensors

**Surface Dynamometer Card** 8/11/2021

2 LOCATIONS 2 WELLS 1 TANKS  
Group By: Locations

Claire	Wells 1 Tanks 1
Smith	Wells 1 Tanks 0

Alerts	Status	Type	Name	Casing	Tubing	Level
	●			50 psi	-6 psi	

Delta Load (lbs) vs Position (in)

- Aug 11th, 13:05:20
- Aug 11th, 13:04:55
- Aug 11th, 13:04:49
- Aug 11th, 13:04:25
- Aug 11th, 13:03:54

# Saltwater Injection Well

noven Field Supervisor Pro
Welcome **Hanna Broodus**

4 LOCATIONS 6 WELLS 12 TANKS

Group By: Locations

Location	Wells	Tanks
Abernathy	2	4
George Sealy	2	3
JOHNSON. W. D. ET AL -F-	1	3
Mobil Fee	1	2

### JOHNSON W. D. -16S- 1

Glenn Underwood [Pumper]    Abernathy [Location]

+ Alert    + Reminder    Reports

#### Acquisition Information

Last Acquisition: ✔ 0 Sensors ✘ 0 Sensors

#### Wellhead Pressure

9/10/2022    9/24/2022

PSI vs Date

Legend: Tubing (538 PSI), Casing (186 PSI), Line

#### Produced Water Injection System

# Tank Level Monitoring



noven Field Supervisor Pro
Welcome **Hanna Broadus**

4 LOCATIONS   6 WELLS   12 TANKS

Group By: Locations

- Abernathy Wells 2 Tanks 4
- George Sealy Wells 2 Tanks 3
- JOHNSON. W. D. ET AL -F- Wells 1 Tanks 3
- Mobil Fee Wells 1 Tanks 2
 

Alerts	Status	Type	Name	Casing	Tubing	Level
			Mobil Fee Unit 1 D	-	-	
			Mobil Fee Blue Tank			62 %
			Mobil Fee Yellow Tank			60 %

### MOBIL FEE BLUE TANK

Glenn Underwood [Pumper]   Mobil Fee [Location]

Alerts:  Alert    Reminder   Reports

#### Acquisition Information

Last Acquisition:  0 Sensors    0 Sensors

#### Tank Level

9/17/2022   9/24/2022

62 %

312 bbl

Last reading: Saturday, Sep 24th, 10:30:19 am

Mobil Fee Water Tanks:

1 - 1 of 1