

PROSPECTOR

GRT's wireless data collection system provides end users with remote monitoring for critical equipment from anywhere and anytime.



OPERATIONS SUPPORTED

- ▶ Drilling Rigs
- ▶ Coiled Tubing Rigs
- ▶ Production Sites
- ▶ Fracking Sites
- ▶ Midstream Sites
- ▶ Workover Rigs



Prospector is a wireless, sensor based, persistent monitoring and data mining system. It combines real-time critical monitoring of vital information such as fluid levels, temperatures, engines, safety equipment, drilling equipment, and compliance sensors, in one user friendly package. This information is collected and exported offsite to a centralized server where it is processed and viewed using a web-based interface.

Prospector integrates with existing site sensors and adds sensors that are missing, then transmits telemetry from pipeline, drilling sites, and production sites to a central server where it is viewed in the Prospector web interface and is constantly monitored to prevent future failures.

Because Prospector provides meticulous and relevant data tracking, key staff can detect early warnings, increase response time, mitigate risks to personnel and equipment, and generally lower non-productive time.

Reduce NPT and Costly Compliance Fines

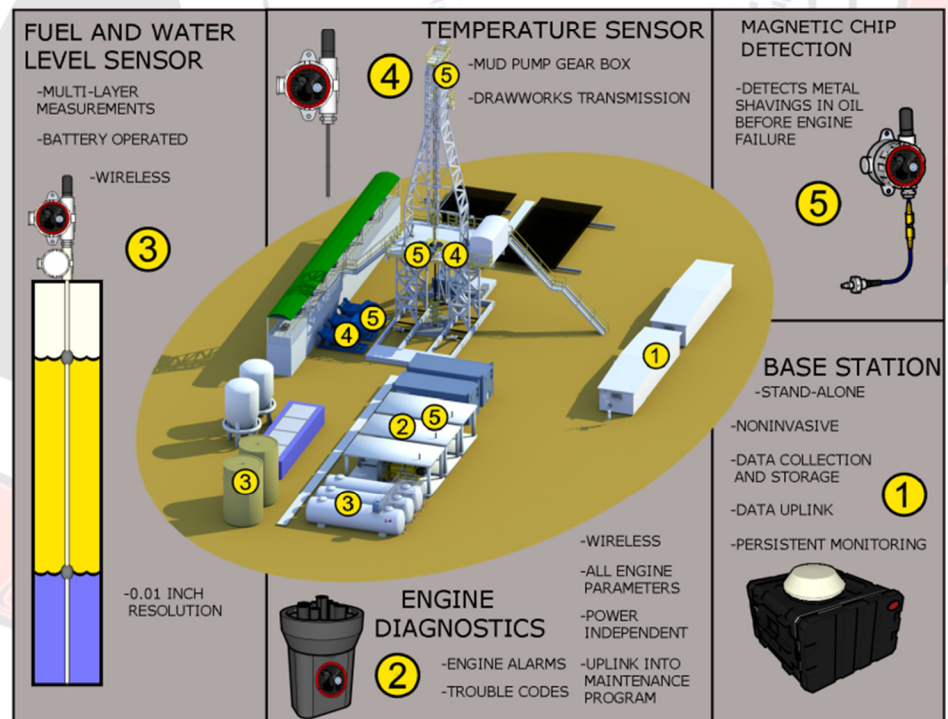
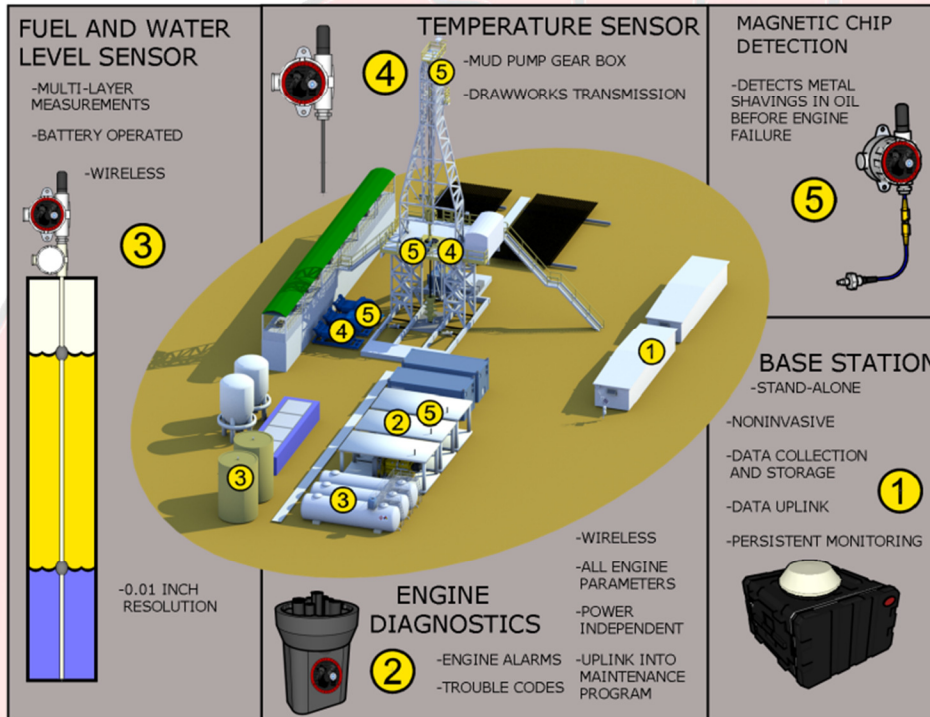
- ▶ Prospector reduces NPT (non-productive time) by adding wireless sensors to the major components of your drilling site, such as engines, draw-works and mud-pumps, to name just a few. By sensing breakdowns and alerting personnel to the imminent failures, Prospector reduces NPT by converting a potential replacement of equipment that can cost several hours or even days of downtime, to a simple repair that reduces the NPT or eliminating it altogether. This Increases job productivity and up time, maximizing profits and lowering overall costs.
- ▶ In addition to the reduction of NPT, Prospector focuses on the reduction of compliance fines in the production areas for *fluid leaks* and *fugitive vapors*. This is accomplished with our thief hatch, dump valve, leak sensor, flare solution and network backbone. This solution will integrate with existing SCADA systems and sensors. Once deployed, the Prospector will monitor 24/7 to catch, record, and alert personnel to any issues so that they can be corrected before fines are incurred.

CONTACT A REPRESENTATIVE TODAY:

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PROSPECTOR CONFIGURATIONS AND LAYOUTS

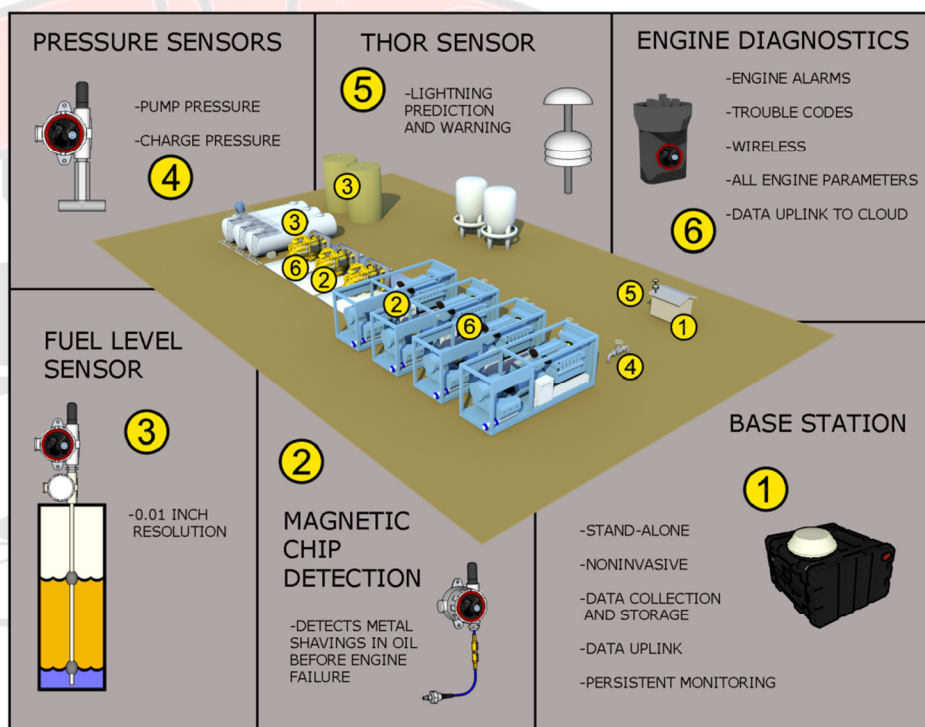


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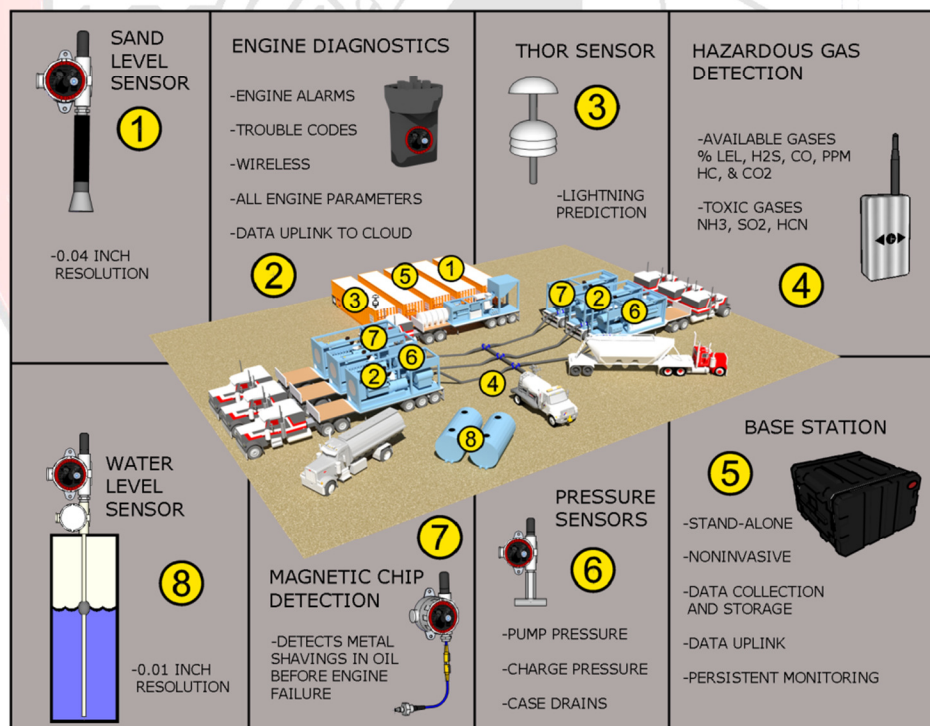
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MIDSTREAM



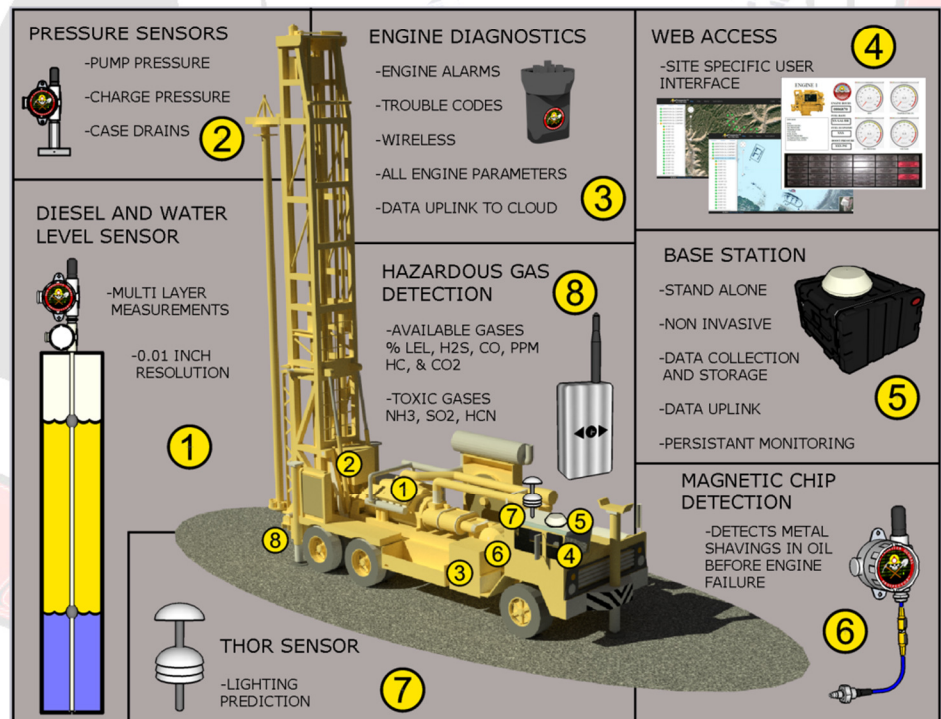
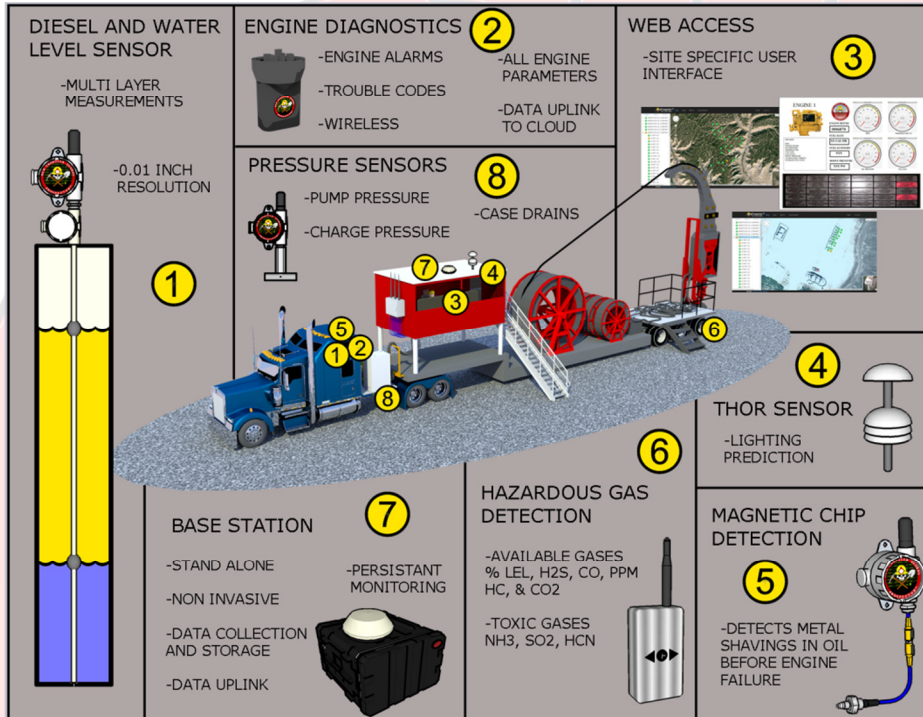
FRACKING



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AVAILABLE SENSORS

Engine Data Transmitter: Engines are one of the most expensive pieces of equipment on the drilling rig. They are certainly one of the hardest to replace if damaged. With the Prospector systems in place to monitor a site's engines, problems are detected long before they become critical. *Triggered alarms are immediately sent out to all interested parties via e-mail.* Other collected data that is mined from the engines are transmitted to the cloud/internet where they are processed by our maintenance program. Once processed, our intuitive software will send out any necessary alarms and reports, thereby providing guidance for your maintenance crew. This wireless self-contained engine Electronic Control Unit (ECU) interface allows the monitoring of engine parameters in real-time onsite.

- ▶ Engine Diagnostics
 - Engine Alarms
 - Maintenance Alarms
 - Configurable Reports
- ▶ Predictive Failure Alerts Engine parameters
 - RPM
 - Oil level
 - Temperature
 - Fuel rate burn
 - Coolant Level
 - Magnetic chip detection
- ▶ ***Non Invasive**

Level Sensors: Tank levels are critical elements of a drilling rig that often go unmonitored. Oil/Water separation, overfills, theft, spillage/ground contamination, and dry tanks are easily mitigated by active monitoring. The Prospector level sensor is a self-powered wireless sensor with the ability simultaneously to measure oil and water levels in the same tank. The multi-substrate sensor can detect fluid levels in:

- ▶ Diesel fuel tanks
- ▶ Crude oil tanks
- ▶ Water tanks
- ▶ Overflow tanks
- ▶ Diesel fuel
- ▶ Crude Oil vs Water
- ▶ Water Overflows

Temperature Sensor: Temperature can be an indicator of many things. Good or bad conditions can easily be determined by persistent thermocouple monitoring. Prospector incorporates this principle using a simple algorithm to help the customer determine the current condition and potential abuse of costly equipment. Self-powered wireless thermocouple sensors are used to monitor the following:

- ▶ Mud pump gear box
- ▶ Draw works gear box
- ▶ Top-drive
- ▶ Hydraulic reservoirs

Magnetic Chip Detector: Used in the aviation industry for many years to prevent in-flight catastrophes, this simple sensor is installed in the oil pan or fluid reservoir of your equipment. When metal is detected, an alarm is triggered notifying the appropriate individuals and thus preventing costly damage. Installation include:

- ▶ Engine oil pan
- ▶ Mud pump gear box
- ▶ Draw works gear box
- ▶ Hydraulic reservoirs
- ▶ Top-drive

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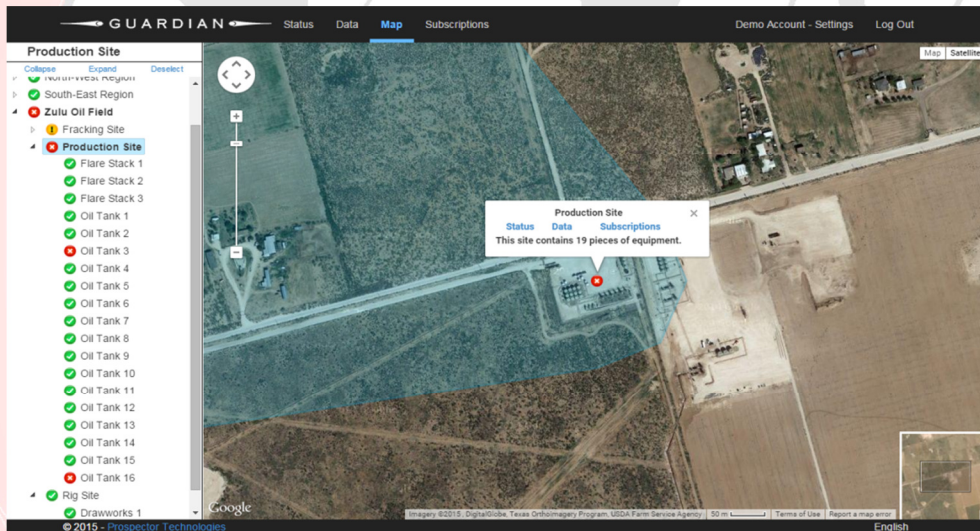
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WEB INTERFACE

The Prospector web interface is the primary method used to access the aggregated live data. This user-friendly, web-based interface provides real-time intuitive access to the status of your valuable assets.

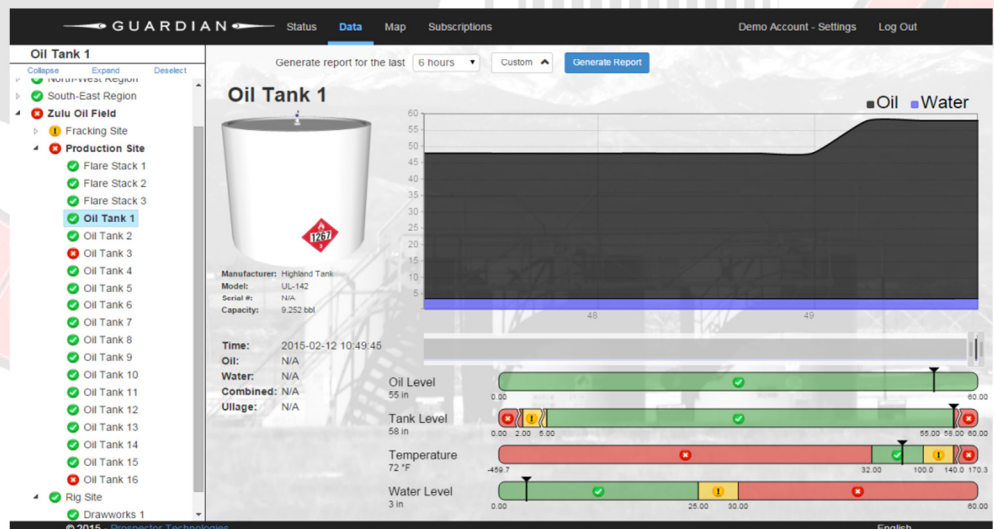
The graphical user interface (**GUI**) supports the following:

- ▶ **Alarms**
 - Immediate notification of alarm conditions
 - E-mail alerts
 - maintenance notifications
- ▶ **Reports**
 - 12-hour or 6-hour daily reports sent to your inbox daily
 - Customizable data views
 - Maintenance schedules



MAPVIEW

PRODUCTION VIEW

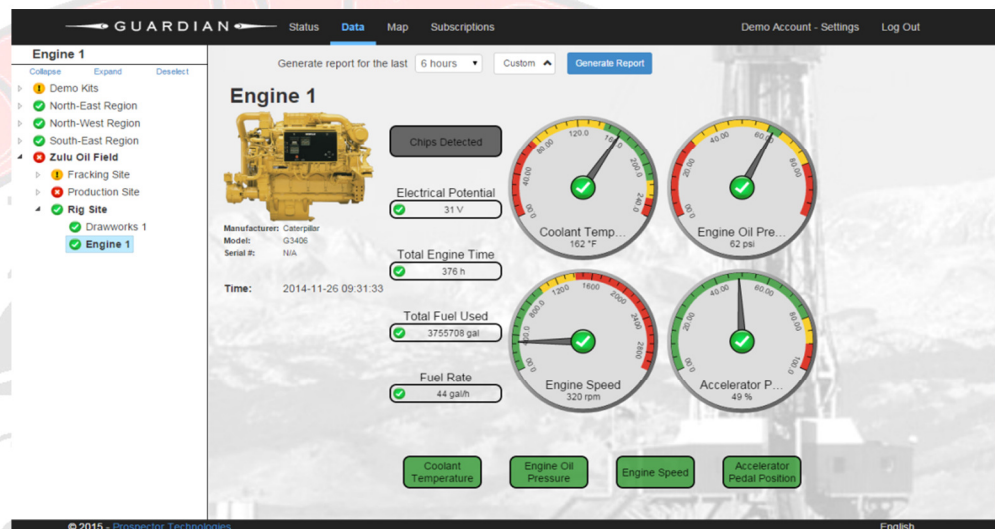


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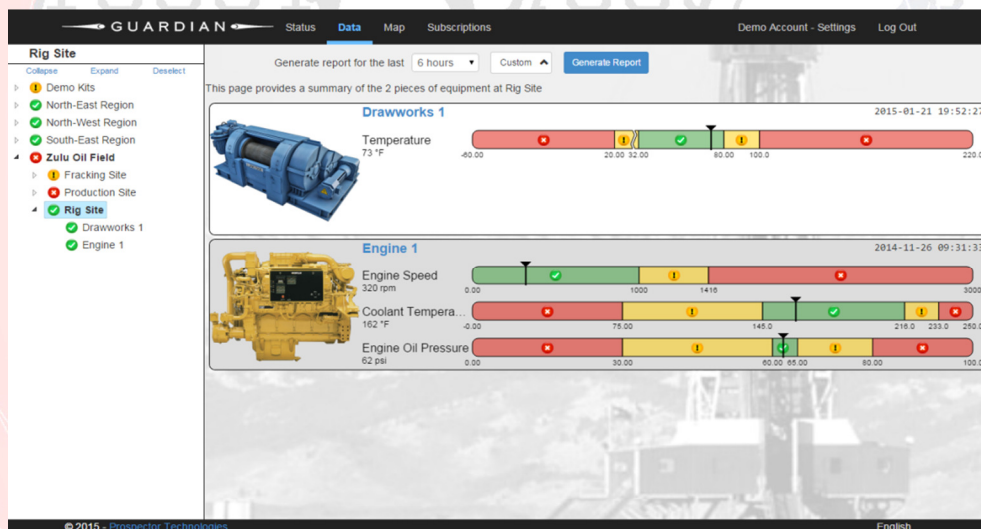
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ENGINE VIEW



EQUIPMENT VIEW



The Value of real-time decision making is undeniable. At the heart of this challenge is the need for reducing the time required to discover and solve a problem, to increase efficiency, and lower costs and fines. The key to solving these issues is enabling real-time decision making by connecting the people making those decisions together with the data that they need to do so.