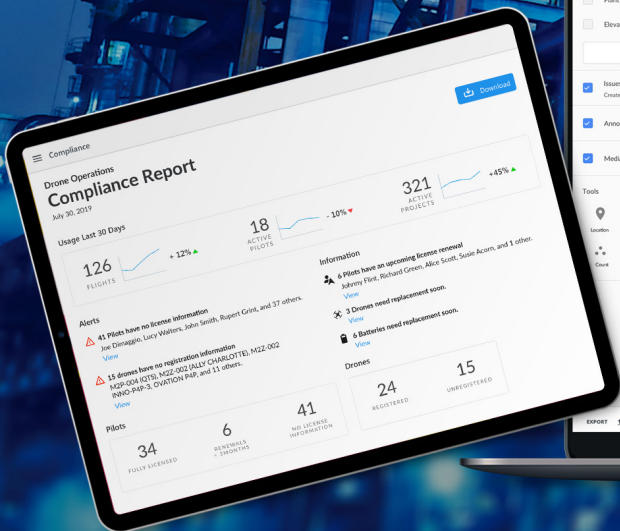
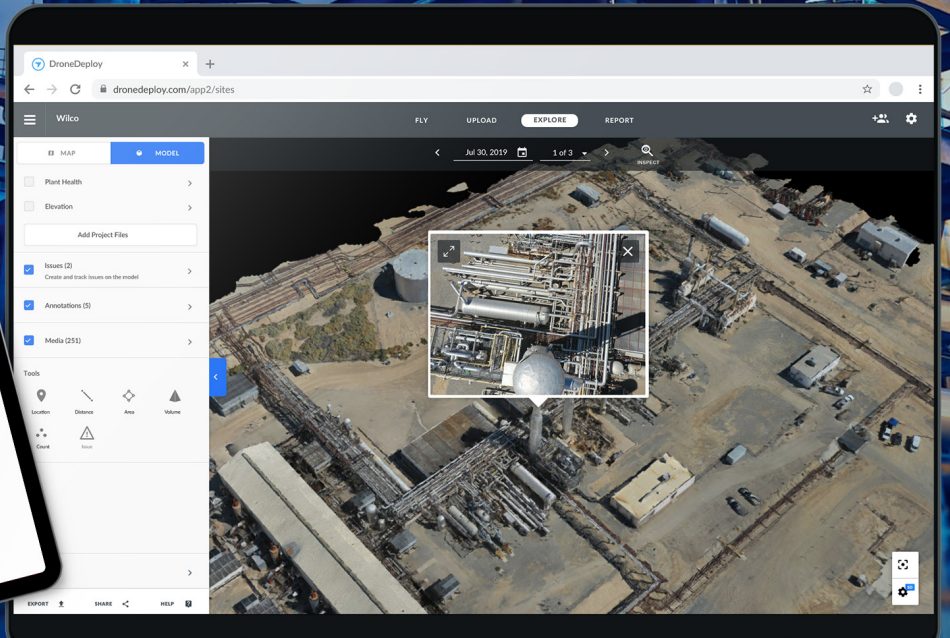




A Drone Data Solution for the Oil & Gas Industry



Introduction

There are common and shared challenges across the oil & gas industry. Companies are constantly seeking new and innovative ways to improve inspections, mitigate risk, and remain in compliance with any and all state and federal regulations. In recent years, forward-thinking oil & gas companies have been utilizing drone technology to improve their operational efficiencies and already drone data is transforming the industry. Insights gleaned from drone data have already saved companies millions of dollars in labor, remediation, and operations.

DroneDeploy provides practical, economical solutions for the entire oil & gas operation. Companies can discard reactive measures and adopt proactive approaches to leak detection and other maintenance and compliance processes by using drones and a drone data solution.

In this eBook we will examine:

- **What a drone data solution is**
- **The key workflows where a drone data solution provides value**
- **The benefits of a drone data solution deliver to oil & gas companies**
- **How today's oil & gas innovators are putting drones to work**
- **How to get started with DroneDeploy**

Let's dive in.

Drone Data Solution

For a wide array of industries, drones are able to capture an enormous amount of data from photos, videos, and panoramas to thermal imagery. But once all of this information has been captured – which can be hundreds to thousands of files – it is imperative companies use a software solution that can comprehend this information and make it digestible for your operations. That is where drone data solutions like DroneDeploy come into play. DroneDeploy, the complete drone solution, helps companies scale and interpret all drone data by helping you capture, process, analyze, and take action.

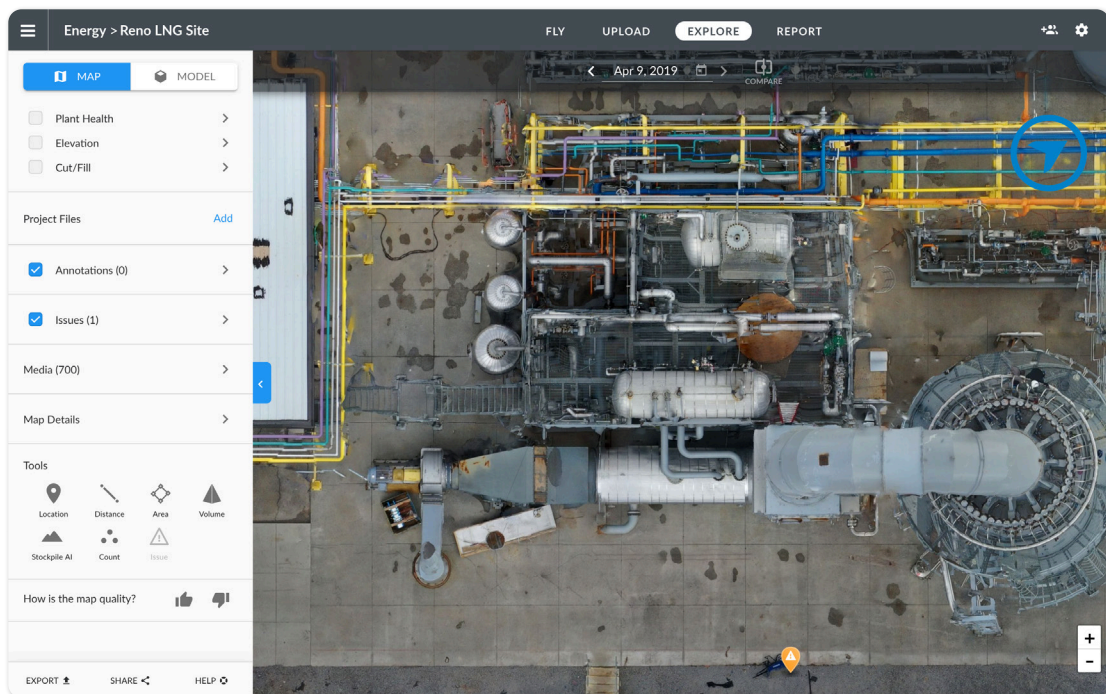


Figure 1. Capture, process, analyze and take action with DroneDeploy

Key Use Cases

DroneDeploy enables field teams to gather extensive data about their operations and assets. An increasing number of oil & gas companies use drone data solutions to perform inspections on pipelines, oil wells, and facilities – all while keeping their team safe and in compliance with local, state, and federal regulations.

Pipeline Inspection and Monitoring

Inspectors in the field or engineers in a remote location can leverage a drone data solution to get real-time information about the health of their site. Having one person on site who can create a map, take photos or videos, and then share this information with their team in the office, helps to keep everyone on the same page by using one source of truth. Then if any problem areas are discovered, the office team can communicate with the ground crew to visually check the area and remedy any issues.

To detect potential underground leaks, the DroneDeploy app enables your drone to take photos along pipeline routes. The app then combines these images, creating high-resolution plant health maps that identify plant kill-off zones, which may indicate a leak.

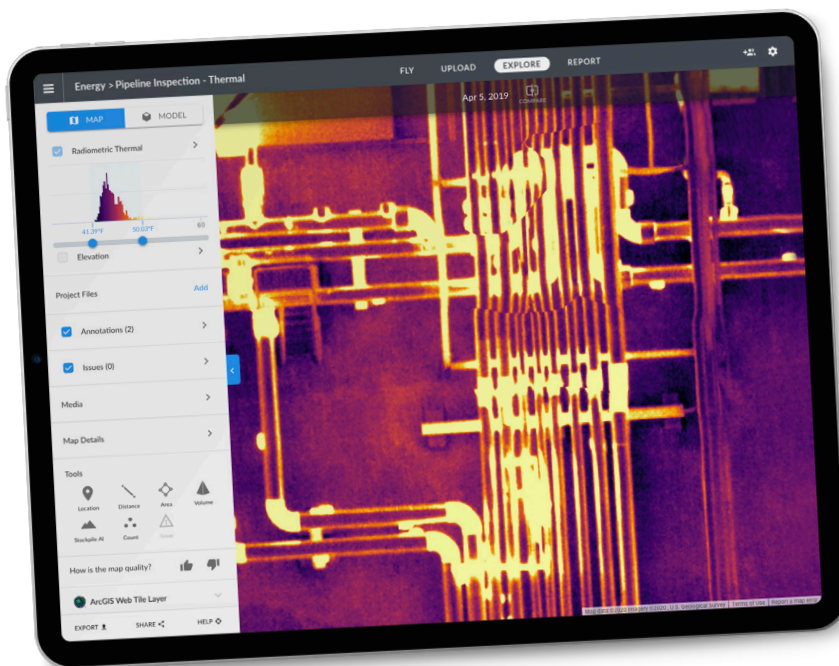


Figure 2. Thermal imagery of pipeline routes reveal hotspots, which may indicate potential defects in pipeline insulation or leaks invisible to the human eye.

Equipping a drone with an infrared camera provides an additional way to inspect pipelines: thermal imagery of pipeline routes reveal hotspots, which may indicate potential defects in pipeline insulation or leaks invisible to the human eye.

Oil Well and Tank Inspection

Oil & gas companies also use DroneDeploy to photograph oil wells and facilities throughout the drilling process. Once the well is operating, drone data helps to efficiently monitor operations. For example, a drone data solution provides a close-up look at a flare stack while it is still operational.

DroneDeploy provides oil & gas companies with a real-time solution as compared to the traditional approach: shutting down the flare system and assigning an inspector to climb the stack to examine it. In this case, a drone inspection saves weeks of physical inspection preparation and avoids significant loss of productivity and revenue due to an operational shutdown.

Safety and Compliance

Oil & gas companies have to regularly communicate with government agencies to ensure that they are abiding by compliance procedures and local and federal regulations. In the past, government agencies would need to send personnel on-site to do inspections or the oil & gas company has to fill out copious amounts of documentation to send to agencies on a regular basis. With drone data, companies can now regularly share photos, videos, maps, and reports with agencies to help build trust and create transparency between companies and agencies.

Drone data solutions allow oil & gas companies to capture drone data in real-time to help companies prevent health, safety, and environmental (HSE) events, allowing them to address operational issues without sending employees into dangerous zones. Using one solution allows companies to communicate with other stakeholders in the office or in agencies by sharing site data or reports.

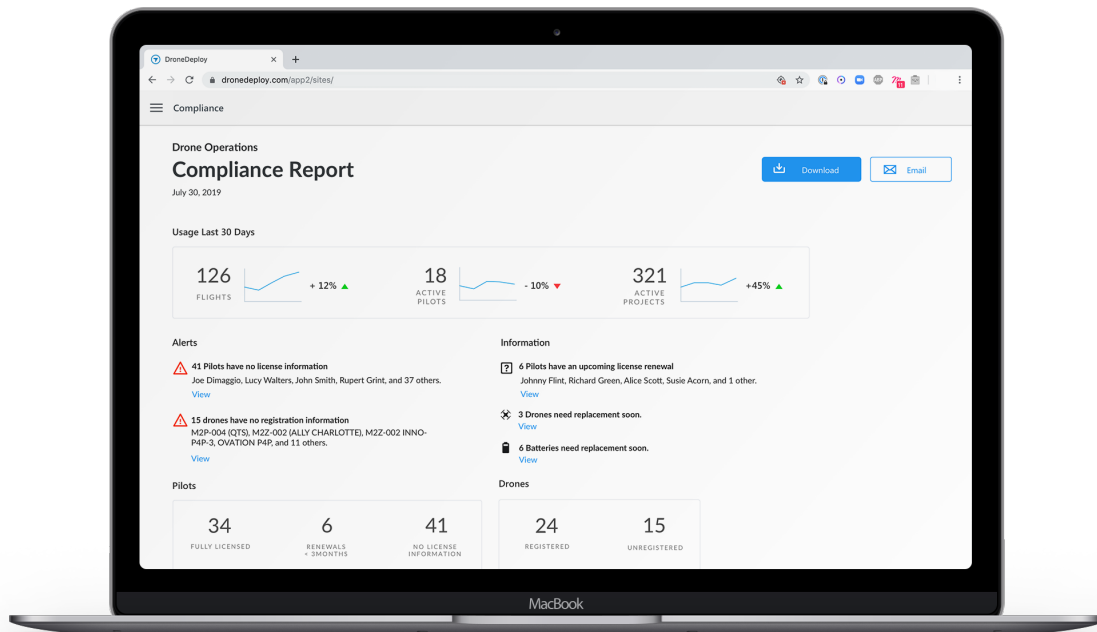


Figure 3. Using one solution allows companies to communicate with other stakeholders in the office or in agencies by sharing site data or reports.

Benefits of Drone Data

Drone data provides oil & gas companies with many benefits, including cost savings, improved communication, a safer work environment, and more accurate site data.



Cost-saving Inspections

Inspecting oil & gas infrastructure and gathering critical data with drones costs substantially less than conventional inspection methods requiring ground crews or manned flights, like a helicopter or airplane. By using a drone data solution, oil & gas companies can quickly make decisions using real-time maps, like DroneDeploy's Live Map, or by collaborating on maps and models to do remote inspections. Companies no longer need to fly out teams of people to remote areas to inspect a facility or shut down production completely; now can catch issues early and proactively fix issues through drone data.



Safer Work Environments

Manual infrastructure inspections are often dangerous. Inspectors at facilities must climb up and down ladders and along catwalks – sometimes even using cranes, harnesses, and rappelling equipment to reach assets. Inspectors also often work in close proximity to harmful chemicals and dangerous machinery.

DroneDeploy can help perform inspections without risking employee safety. They're especially useful for inspections after blowouts or natural disasters – or when sending a ground crew to a site that may be difficult, costly, or unsafe.



Faster, More Accurate Data Collection

Drones provide a flexible avenue for a wide range of cameras and sensors. They can collect data needed for any inspection use case, and using a drone data solution, like DroneDeploy, gives a field team real-time information to make quick decisions on site. This drastically reduces downtime, catches issues faster, and helps keep operations running at peak efficiency.

By using a drone data solution, businesses can easily integrate imagery and other data from all of their drone flights to get a full picture of their site. Companies can also use topographical and geological data gathered by drones to create models that help identify promising oil & gas drill sites.



Superior Communication

The remote nature of oil & gas work often requires operators to communicate with workers on sites around the world. This can present a challenge to managers and engineers working from the headquarters and collaborating with the boots on the ground.

But a complete drone data solution can make things easier. Using DroneDeploy makes it easy for the back office to mark up maps with annotations and comments so that inspectors and processing engineers can check on pressure points, leaks, or other potential issues. Workers on the ground can fly drones on their site and upload the data to the cloud where back-office managers can review and coordinate any further inspection or follow-ups — all without ever leaving their desk.

Real-World Results: Customer Case Studies

Drones solutions are solutions that are already successful in today's working world, particularly so in the oil & gas industry. Here are two real-world examples of DroneDeploy customers using aerial insights to solve problems in the field:

California Resources Corporation (CRC) saved \$205,000 by improving inspections and communication with DroneDeploy

CRC used DroneDeploy to monitor anomalies that would otherwise be missed by performing inspections manually. Humans cannot always detect the minute cracks that can appear on the ground surface location, so CRC had a major need for some type of device in lieu of the human eye. The tiltmeter they were using, however, was exorbitantly priced, sometimes costing as much as \$7,000 each. Another drawback of the tiltmeter was that it had to be dug deep underground for installation, adding several unnecessary hours to the production schedule.

The drones could be deployed to run regular flights and detect any anomalies; CRC could then be alerted to any irregularities. By using drones and thermal imagery, not only could they detect such instances accurately, they could act faster, saving both time and money. [Read Full Case Study](#)

“Drones and DroneDeploy have saved CRC over \$205,000 in the first half of the year with an expected realized saving to be around \$500,000 by the end of 2019. All attributed to inspections, surveillance, mapping, and reliability.”

Maurilio Espinoza,
Process Excellence Lead,
California Resources Corporation



in realized savings over previous process



time reduction for all inspection workflows



of drone flights logged through DroneDeploy

Figure 4. By using drones and thermal imagery, not only could CRC detect such instances accurately, they could act faster, saving both time and money.

Conclusion

A complete drone data solution provides extremely precise aerial intelligence that simplifies and improves a wide range of oil & gas workflows. Whether inspecting hundreds of miles of oil pipelines for leaks, helping employees keep operations in compliance with regulations or enabling companies to construct infrastructure more efficiently, agile and flexible drones have quickly become a go-to tool for operators around the world.

A drone data solution automates inspection workflows, making them faster, safer, and less expensive. They enable oil & gas companies to spend fewer resources on surveying and monitoring, so employees are able to focus their time and efforts on proactively fixing issues, not reactively.

A drone data solution gets oil & gas companies closer to fully automating manual tasks in the oil & gas industry, such as inspection, helping them to make better decisions, reduce costs, and operate more efficiently.

Getting Started with DroneDeploy

Getting started with drones can seem challenging at first. But it doesn't have to be.

DroneDeploy has worked with thousands of businesses to bring drones to their job sites, farms, mines, and properties. We know how to assist your team in getting a successful operation off the ground. Our solution is easy to use, and a one-stop-shop, so you can start monitoring your sites today, by flying, processing, analyzing, and acting on drone data.

Want to learn how DroneDeploy can help your business? Visit <https://www.dronedeploy.com/solutions/energy/> to learn more or request a consultation with one of our team members.



DroneDeploy is the leading drone software solution trusted by over 5,000 companies across a variety of industries, including construction, energy, agriculture, and mining. From drone fleet management to data analysis, DroneDeploy makes aerial data accessible and productive for everyone. Simple by design, DroneDeploy enables professional mapping, 3D modeling, and reporting from any drone on any device.