

Case History: Ft. Lupton, Colorado



**FERGUSON
BEAUREGARD™**
New Intelligence In Problem Solving™
A DOVER COMPANY



Making a home on the range

Making a Home On The Range

The Denver-Julesberg Basin's Wattenberg field, centered near Ft. Lupton, CO, a few miles northeast of Denver, has become one of the top natural-gas producing areas in the country, while one of the leading exploration companies in the area has more than 3,600 wells operating in the Wattenberg field alone. Despite producing for more than 30 years, the Wattenberg field still has the capacity to meet seasonal energy demands for 1.4 million Front Range homes.

There's no doubt that advances in drilling and natural gas-gathering technology have helped keep the Wattenberg field and D-J Basin one of the most productive areas in the country, especially considering that the natural gas in the field is held captive by the low porosity and low permeability inherent in tight-sand formations, which can be problematic to access and hard to keep producing at top levels.

That's where Ferguson Beauregard enters the picture. In order to maximize the production of these wells, some companies operating in the area have begun using Ferguson Beauregard plunger-lift technology. These plunger-lift systems have been designed to increase and optimize production in wells that have marginal flow characteristics. Plunger lift does this by providing a mechanical interface between the produced liquids and the natural gas. Using the well's own energy for lift, the liquids are pushed to the surface by the free-traveling plunger, eliminating liquid fallback and allowing the gas to speed to the surface.

For over 25 years Ferguson Beauregard has been at the forefront of the industry search for innovative solutions to production problems. From self-contained plunger lift systems and electronic controllers to fully integrated, remotely managed production systems, our goal is to deliver immediate results for you.

FB Experience Can Benefit You Five Ways:

1. Innovations in oil and gas production technology
2. Flexibility to develop customized solutions for specific needs
3. Practicality to build systems that offer immediate return on investment
4. Foresight to recommend systems that are easy to maintain and update
5. Commitment to share knowledge and continue research and development.

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With Shared Flow Control, the controller allocates gas appropriately depending on which well is running. In a traditional setup, the four wells would run into one separator with the operation of the wells roughly synchronized, such as run for six hours, then off for 18, or run for 20 hours, then off for four. With Shared Flow Control (SFC), if the well has the potential to run for 6 hours, 13 minutes and 28 seconds, that's what it will do, and

when its done, the SFC will ask the next well if it's ready to run, and if it's not, it will move on to the well after that.

The SFC is able to do this because it uses computers and algorithms to set up the run schedule, taking the decision-making process out of the hands of sometimes-fallible humans. A technician will still need to visit the well site periodically to perform basic maintenance, but the techs won't be programming the wells and telling them when to run.

Because Ferguson Beaugard knows best the abilities and benefits that technology like Shared Flow Control can offer exploration companies, FB gets into the ground floor of these projects. Not content with just selling their customers the equipment to monitor their wells, designers and engineers with Ferguson Beaugard roll up their sleeves and actually involve themselves in the design of the project, namely how the batteries would best be laid out and the structure of the piping systems. This will help Ferguson Beaugard personnel work closer with the customer to optimize the state-of-the-art FB data collection, product measurement and data transmission technologies to meet the specific objectives of the customer.

Once the batteries are designed for optimum effectiveness, efficiency and return, another Ferguson Beaugard innovation that is aiding the efficiency of operations in the area is deployed: the use of wireless communications through its iNodes family of smart sensors. The iNodes sensors have been designed to aid in production monitoring and optimization through the use of next-generation distributed computing. iNodes are designed to install without trenching; monitor tank levels, pressure and flow continuously; point out exception conditions and issue alarms; and deliver summarized production data via satellite.

Instead of hard-wiring wells for communication that may be miles apart, wireless RTUs have the capability to "talk" to each other as long as they have line of sight. In areas where line of sight is not possible, operating companies install communication towers at strategic points to enable uninterrupted communication.

iNodes technology can also ease the cost and concern associated with monitoring the collection areas at well sites. At these sites, there are usually three distinct collection areas, one for the water that is produced, one to gather any oil that comes to the surface, and the third, a pipeline that sends the natural gas to a compression station. The water and oil generated is routed to holding tanks that are emptied when full. In the old days, these tanks and holding areas were monitored by someone who would drive out to the site and visually inspect the area, determining at that time if the tanks needed to be emptied. The inspector would also check the piping leading to the storage tanks for leaks. That could be problematic if a site visit wasn't scheduled for several weeks, which could allow a leaking tank to foul the environment unchecked until the next inspection cycle began.

With the advent of FB's iNodes technology, however, the days of hit-and-miss site checks and leaking tanks have passed. iNodes technology has the capability to detect a leak as small as 1/100th of an inch a day of fluid, allowing the storage tanks to be monitored remotely. Should a leak be detected, the iNodes unit will alert the operator, preventing what could turn into a major environmental incident.



iNodes measurement devices are also being used to monitor the pilot flames that help trigger and complete the gas-venting process. When natural gas rises to the surface, a small portion of it is trapped just below ground and needs to be "vented" off. In this process, when the pressure of the trapped gas reaches a predetermined point, it is released to the atmosphere and burned off by the pilot flame. With the Bureau of Land Management taking

a bigger interest in the amount of natural gas that may escape into the atmosphere without being burned off, this ability to remotely monitor the pilot flames is yet another added benefit of Ferguson Beaugard's iNodes technology.

Drawn together, the use of all advances in Ferguson Beaugard technology have helped operators in the D-J Basin and Wattenberg field improve production, efficiencies, worker productivity, accuracy of flow measurement and the monitoring of emission releases.