

## Measure of Success

*Beyond Compliance and Detection Technologies created an integrated compressor optimization and fleet management solution that delivers a 5:1 benefit-to-cost return for Canada-based oil and gas company, Talisman Energy Inc.*

In the summer of 2008, the field operators at Talisman's Grande Prairie gas plants in west central Alberta conducted their daily gas compressor inspections in the standard way – they detached a clipboard beside the compressor unit, pulled out a pen, and wrote down the usual inspection parameters in the prescribed log sheet. Sometimes these log sheets would eventually make it to Talisman's engineers back at the office for operational assessment and throughput calculations and sometimes they wouldn't. Without this data the engineers had limited insight into how their compressors were running and the opportunities that were out there.

Talisman's Grande Prairie operations comprise of a natural gas gathering system that links major field stations with processing facilities in their midstream operating division. The midstream operations are responsible for over 250 MMSCFD of natural gas production. The engineers and operators overseeing this business unit have a common goal: to operate their assets as efficiently as possible and to identify and fix problems before they turn into emergencies resulting in lost production revenue, expensive downtime, or worse, a public safety hazard.

### The Challenge

Ian Gall was the rotating equipment engineer overseeing 150 gas compressors in Grande Prairie. When he first started in the position, Ian saw the shortcomings in their compressor fleet management system. "I realized that I knew very little about the company's assets in the field," says Ian, "We weren't measuring how the gas compressors were performing, so it was difficult to find and prioritize opportunities to optimize production. In fact, we often wouldn't identify an opportunity until something broke down."

### Fuel for Change

The solution was to automate the data collection and reporting process from the field stations and to implement a system to take this data and turn it into usable information for both field operations and the engineers. For some companies, moving from a paper-based system to an electronic data capture system can be a daunting process. When Talisman staff learned that Detection Technologies and Beyond Compliance were integrating their leading field monitoring technologies, they saw a unique opportunity to improve operational processes for their compressor fleet and reaping the benefits.

"The fleet consists of high volume compressors that are pulling a lot of gas through the system," John Peters explains, "If there's a problem, the engineers, operators and maintenance staff need to know as quickly as possible in order to fix it. The longer it takes to identify a problem, the more expensive it is down the road if you add up the costs of emergency repairs, downtime, and potential liability issues. By taking a more proactive and automated approach – as opposed to a reactive "fix it when it breaks" approach – a company can save hundreds of thousands of dollars. On the other side of the equation, if there is an opportunity to increase the throughput of the compressor they need to know that in order to exploit that opportunity when it presents itself."

## A Winning Partnership

Founded in 1998, Detechtion Technologies has been providing the top gas producers in North America with technology solutions to increase compressor performance and production profits. The company's flagship technology, *Enalysis*<sup>™</sup>, is a web-based solution, utilizing non-invasive technology to highlight;

- ✓ **Maintenance opportunities** not easily detected by traditional operating methods
- ✓ **Unseen production** opportunities
- ✓ **Reduction in fuel/power** consumption without interrupting current production levels
- ✓ **Avoidance** of catastrophic failure
- ✓ **Overall “informative” visibility** into your energy operation

Since 2000, Beyond Compliance has been delivering software-based solutions for managing operational compliance and production field data in the energy, utilities, and transportation industries. The company's handheld data collection devices and electronic field data capture software, *FieldTRAK*<sup>®</sup>, have helped hundreds of field operators to replace cumbersome paper-based asset management systems with more automated processes.

The two Calgary-based companies have joined forces to create *Enalysis Plus*, an enhanced solution using *Enalysis* software as the core with the added 'Plus' of *FieldTRAK*'s field data management modules. The integrated solution extends Detechtion Technologies' diagnostic reporting capabilities by incorporating Beyond Compliance's workflow automation tools.

When Talisman appointed a new president and CEO in 2007, it marked the shift towards one of Talisman's corporate goals: to become a leading unconventional gas player in North America. To achieve this, and still maintain profitable long-term growth, the company needed to identify wasteful processes and take a more “lean” approach to their operations. Following this mandate, Talisman staff recognized the value of *Enalysis Plus* and put the technology to the test on the most problematic compressors in their midstream operations.

## Customized Workflow

The project implementation managers at Detechtion Technologies and Beyond Compliance met the front line staff in Talisman's midstream operations to evaluate their field needs. Together, they came up with a customized workflow solution for monitoring the Grande Prairie compressors.

Engineers at Detechtion Technologies conducted a comprehensive audit of the field equipment which was engineered into a secure database on *Enalysis* servers to serve as the model for all the calculations and reports. In *Enalysis Plus*, the operator at the compressor site then enters operating data into customized checklists on Beyond Compliance's handheld devices. When the operator is in range of a wireless internet connection, he or she can synchronize the data with the *Enalysis* Servers over the web. The *Enalysis* program instantaneously rationalizes the raw data, incorporates it into a user accessible fleet-management database, and produces a detailed diagnostic *Enalysis* report.

The *Enalysis* report provides the operator with immediate feedback on the operating health of the compressor, complete with recommendations for both maintenance and production opportunities. The report is also emailed automatically to the people who need to make operational decisions – foremen, superintendants, engineers, and senior management. John Peters at Detechtion points out: “The report helps the user to quickly see which compressors are operating inefficiently and which ones are most at risk– it really helps to prioritize any work done on their compressor fleet.”

Included with *Enalysis*, Detechtion also provides the services of an in-house engineer who is responsible for ensuring the client realizes the full value of the *Enalysis* solution. This engineer is the direct and single-source point of contact between Detechtion and the client and supplements the 70 or so automated recommendations generated by *Enalysis*'s sophisticated compressor modeling algorithms. Says Ian Gall at Talisman: “Having one of Detechtion's engineers to help us analyze the data was one of the key reasons for the system's success inside our operations.”

## The 'Plus'

Using the technology and expertise from Beyond Compliance, the *Enalysis* workflow was enhanced with three core modules from Beyond Compliance's *FieldTRAK* system:

- 1) site-specific field inspection forms,
- 2) an electronic Compliance Calendar for scheduling inspection events, and
- 3) a corrective action tracking system that allows operations and engineering along with the EAM from Detection to assign tasks to resolve field deficiencies.

The combined *FieldTRAK* modules (the 'Plus') greatly improve maintenance response time by automating the decision-making logic behind the field operations.

## Proven Results

In August 2008, the *Enalysis Plus* system was fully implemented on 19 compressors at the Musreau gas plant and Chime field station. The *Enalysis* team trained Talisman's field operators and engineers on how to use the handheld devices, and how to enter and extract critical data using the web interface.

Early on in the project, the *Enalysis* diagnostic reports predicted a valve failure in one of their compressor units more than three months in advance of the actual failure. When the maintenance team replaced the failed valve, the company increased gas production by 5.2 MMSCFD at lower suction pressures, and increased fuel efficiency by 15%.

Impressed by the software's predictive capabilities, Talisman management decided to implement the *Enalysis Plus* system on another 16 compressors in their midstream operations in early 2009. Once again, *Enalysis* proved itself by identifying valve damage on a compressor at their Cutbank facility – two months before onsite mechanical inspection was scheduled to take place. After the valve repair, Talisman saved the equivalent of 25 days of fuel gas over the rest of the year to operate the unit.

At the Chime field station, Detection's EAM made recommendations to safely increase the compressor utilization rates by closing pockets and loading the compressor, which resulted in an impressive 1.1 MMSCFD increase in gas production at 40 psig lower suction pressure.

## Return on Investment

By April 2009, Talisman had implemented the *Enalysis* system on 35 compressors in the Grande Prairie area. Over the course of 9 months, the combined benefits from production gains, fuel gas savings, and failure avoidance – compared with the *Enalysis* start-up costs and monthly support fees – **delivered an average benefit-to-cost ratio of 5:1** for the Grande Prairie group.

Ian Gall states the benefits of *Enalysis Plus* from an engineering perspective: "The system helps us to evaluate the performance of our assets at any given time. We can now measure parameters, such as throughput efficiency and energy efficiency, which we previously couldn't measure before. Detection's *Enalysis* tool provided us the baseline parameters to measure against. Beyond Compliance's data management system allowed us to collect the data accurately and quickly. Before *Enalysis*, it would have normally taken six months to a year to manually analyze compressor fleet performance. With the *Enalysis Plus* system, we now get fleet updates on a weekly basis. In the end, we can manage our assets much more effectively."

*Enalysis Plus* turns raw field data into meaningful information that operators, engineers, and senior management can use to make important and timely operational decisions. For Talisman, the technology provided the tools to identify unseen production potential, avoid catastrophic asset failure, and increase operational efficiency. The company not only received a significant return on their investment – they also achieved a new level of confidence and reliability in their natural gas operations.