



**Skymira:** Case Study Series

**Case Study:**  
**Compressco, Inc.**

Integrated Solution for:  
Equipment Monitoring, Failure Code Identification and  
GPS positioning.

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### Background

Compressco, a TETRA Technologies Company (NYSE:TTI), is a leading manufacturer of Production Enhancement Solutions for Marginal and Low Pressure Oil and Gas Wells. The firm manufactures, leases and services its GasJack™ technology designed to increase production and total recoverable reserves of natural oil and gas wells.

*Compressco's business model is one of leasing and servicing GasJack™ units. Most of the placements are in extremely remote areas.*

When oil and gas wells are first drilled, the innate well pressure is sufficiently strong. However, as the well is drained over time, the pressure decreases to a point where daily production becomes marginal and in some cases unprofitable. The GasJack™ is a mobile compressor, about the size of a road construction power generator. These units are placed alongside the marginal wells where they add pressure, increasing the daily production rates. The technology allows the producer to extend the life and viability of these valuable resources.

Compressco's business model is one of leasing and servicing the GasJack™ units. Most of the placements are in extremely remote areas. The fields where these units operate include Mexico, and covers an area of the US from Texas up through Alaska. Units are also used in offshore locations. Compressco deploys a team of technicians on a regular basis to service the units and to make repairs when required. Customer contracts typically include an uptime guarantee. At the time the Skymira solutions were implemented, Compressco had several thousand GasJacks™ in operation and over 180 full time technicians servicing them.

### Challenges

Compressco realized their manual process of identifying machines that were down or requiring maintenance was a significant impediment to increasing technician efficiency. There was also possible financial risk in having machines down for too long.

The challenges identified as having the greatest near-term impact included:

- Work orders were not correlated to the actual performance or condition of the machines requiring repair.
- Parts inventory was not correlated to the items most frequently used in ongoing maintenance and break-fix operations.
- GasJacks™ could go down in remote areas. Compressco would not be aware of the situation unless called by the people on-site, or discovered by a technician on a routine maintenance call. The downtime resulted in lost customer productivity and charge-backs.

- The specific reason for a machine's failure was not known until the technician arrived on site. There was no way to assure the proper parts were on the technician's truck, nor whether the technician's skill set best matched the nature of the repair.
- Compressco's current method of verifying the exact location of their units was paper based records of last known location. They needed real-time GPS tracking to assure maximum use of resources.
- Without a centralized database, mining all of this information -- service records, technician time sheets, unit failure codes, etc -- was difficult. The firm wanted to begin to determine avenues to greater efficiencies and effectiveness.

With such a range of challenges, Compressco determined they would focus on three critical areas of development: real-time equipment monitoring, failure code identification and GPS positioning.

### **Skymira TailorFit™ Solution**

By the time Skymira arrived on the scene, the Compressco implementation team had already met with several potential providers. Upon review, they realized all had proposed "canned solutions", none of which could fully address all requirements for the project. The team wanted to avoid dealing with multiple suppliers. They also wanted a solution that would integrate with the way they were doing business, having the least amount of impact on operations. For example, they wanted machine data in specific formats, as well as complete integration with existing enterprise systems.

Most frustrating, however, was that all the proposals Compressco had received for equipment monitoring required at least two hardware devices at a cost that exceeded \$1,000 per unit – Compressco insisted the solution be based on a single device, priced under \$1,000.

***" Skymira understood our requirements and had a process in place to make tailoring the solution part of the contract "***

According to Chris Anderson and Larry Brickman, Compressco's project leaders, "Skymira got it right away. "They asked the right questions and understood our requirements. They also had a process in place to offer us exactly what we wanted, but without the long lead-times one-off custom work requires. In the end, they made tailoring the solution part of the contract -- everything in one place, easy and convenient."

And when it came to the hurdle of a single hardware unit for equipment monitoring -- “They came through on that too. Skymira called in one of its key partners, SkyWave, and all three parties worked together to come up with an entirely new piece of hardware. SkyWave even delivered the new hardware in half the promised time.”

### **Project Scope & Implementation**

Following Compressco’s need to focus on three primary development areas, Skymira offered a plan separated into three phases. When creating the plan, Skymira also took into consideration Compressco’s need to allow their technicians complete access to this critical equipment data. A year prior, Skymira had streamlined paperwork by implementing work order automation, including computers in each technician’s vehicle. Ultimately Compressco would tie specific machine performance and resulting failure codes to the technician work orders as well as the parts inventory on their vehicles.

#### e-Pumper Project Snapshot

Requirements: Equipment monitoring, GPS tracking, terminal to be remotely configurable, Near-global footprint, web-based SCADA management interface, web-based mapping for GPS tracking, information alerts in XML format via FTP server.

Hardware: Skywave DMR800, Intrinsically Safe, C1, D2

Carrier: Inmarsat ISATM2M

Skymira Services: Equipment Monitoring, GPS Tracking, Enterprise systems integration

Implementation phases: Phase I: Real-time Equipment Monitoring, Phase II: Failure Code Identification, Phase III: GPS positioning

From the Project start, Compressco had emphasized the need for a rapid install of the new monitoring hardware. Work commenced immediately after final design was approved and Skywave Hardware started to arrive. As part of the design process, Compressco determined the location for placement of the DMR800 units on the compressor units. As units were being installed, some environmental issues arose in the field. Certain field locations, exhibiting higher well pressure than most of the wells, were prone to vibration levels far in excess of the DMR800 design parameters. Skymira and Skywave immediately dispatched teams to the identified field locations and, together with Compressco, determined the specific cause of failure and a solution for a retro-fit. With DMR800’s ease of installation, Compressco was able to train their own technicians to do the equipment monitoring installation, making the switch cost effective.

## Customer Results

***"Positive results showed up immediately. Equipment monitoring together with the previous work order automation and parts inventory implementations, brought the whole picture together for Compressco."***

The positive results of the equipment monitoring showed up almost immediately. Combined with the previous work order automation and parts inventory implementations, it really brought the whole picture together for Compressco.

Operations now knows at any point in time how many units are up and running. With a contractual obligation for 95% uptime, they now have a much better way of assuring conformance. They can verify a downtime situation the minute it happens as well as monitor the level of service and average response time for repairs. The system is tied into a call center where reaction time has increased dramatically. Service Operations can also capture the machine's failure code, analyze the data and correlate the problem to the parts that will most likely be needed -- verifying if those parts are on the technician's truck, and if not, dispatching another tech who has the parts and/or the specific experience.

Compressco has also been able to institute new policies designed to decrease costs. For example, technicians now must receive authorization before using previously identified high cost parts. Perhaps the crowning achievement came during an extensive analysis of parts usage. With access to a complete database of information, Compressco was able to trim parts inventory costs by an astounding \$200,000 per month. The results were timely -- given today's economic environment those savings are helping the company stay on its growth track.

When Skymira recently spoke with the Compressco team, they emphasized they were just starting to scratch the surface of results the new system would be able to deliver. In time they will be able to even better control inventory by identifying expensive parts displaying higher failure rates and re-engineer them to save money. They also believe they will be able to increase the efficiencies of their techs through identifying 'outliers' that perform at exceptional levels and leveraging their skills across the entire group.

Out in the field, Compressco's clients and peers have tuned into the implementations. It's become quite the story in the market. Technicians report they often hear the words -- "Wow. Laptops, satellites, no paperwork."

### **About Compressco**

Compressco, a TETRA Technologies Company (NYSE:TTI) headquartered in Oklahoma City, Oklahoma is a leading manufacturer of Production Enhancement Solutions for Marginal and Low Pressure Oil and Gas Wells. Utilizing the GasJack™ technology, the company's Production Enhancement Solutions can dramatically increase the daily production and total recoverable reserves allowing the customer to substantially increase both cash flows and the net present value of their producing reserves of natural oil and gas.

Marginal wells currently represent more than 64% of all domestic natural gas wells, but account for less than 10% of total domestic production. With demand for natural gas outstripping domestic supply, technologies to enhance production and profitability of marginal wells have become increasingly necessary. The GasJack™ fills this niche allowing the producer to extend the life and viability of this valuable resource.

### **About Skymira, LLC**

Skymira delivers the industry's first truly tailored remote information solutions for seamless management of remote operations through a complete set of state-of-the-art satellite and cellular technologies. Designed to unlock the value in corporate remote information, Skymira TailorFit™ solutions are the perfect combination of technology, services and client-insight, tailored to the exact fit each business requires.

Providing proven cost-savings through timely access to a company's remote assets and information, Skymira supports a variety of functions, from streamlining paperwork to GPS fleet tracking and remote equipment monitoring, in the transportation, maritime, oil/ gas, construction, utilities, mining and forestry industries. Its partners are leading manufacturers and network operators including: Inmarsat, SkyTerra, Skywave, Iridium, EMS Satcom, Hughes, Thrane & Thrane, Wideye, and Sierra Wireless, among others.

Skymira was recently awarded the elite status of being one of the Inc. 500 fastest growing companies for 2009. The firm was founded in 1998, and is based in Milford, Connecticut. Information about the company can be found at [www.skymira.com](http://www.skymira.com)

**About the Author**

Roy Lund is sales director at Skymira and has a comprehensive background in information technology development for remote information management solutions. He is responsible for business development and customer project implementation at Skymira. Lund’s career spans over twenty- seven years, working at firms from Fortune 500 to the leading names in the maritime industry.

Prior to joining Skymira, Lund managed vessel and shore IT development at Kirby Corporation, deploying Kirby’s first vessel satellite communications system and providing support for over seven hundred vessel crewmembers on two hundred and twenty tugboats. During his tenure at Kirby, Lund was also responsible for delivering the first back office system for Kirby. Prior to that, he oversaw the satellite and touch screen technology implementations at Hollywood Marine, prior to its acquisition by Kirby. Lund also was Vice President at Boatracs, Inc, a satellite system provider, where he was responsible for new product development, global customer sales/service and strategic software planning. At the Variable Annuity Life Insurance Company, he provided IT leadership for the company’s regional offices, agent support systems and executive information systems. During his tenure at Variable, Lund also played an integral role in delivering the first back office system to the Fortune 500 firm.

Lund holds a B.A. degree in business administration from the University of Missouri at Kansas City. Roy can be contacted at [Lund.r@skymira.com](mailto:Lund.r@skymira.com)

**Skymira TailorFit™ Remote Information Solutions**

**The perfect combination of technology, services and client-insight,  
tailored to the exact fit each business requires.**

Every Skymira TailorFit™ Solution begins with insight into the exact needs and the way our clients do business. As a leading provider of satellite and cellular communication products from major manufacturers, Skymira combines the technology that’s best for each application with highly effective ready-to-use applications and the right communication, implementation and support services. Each solution is then ‘fit’ to the way the business operates, guaranteeing faster uptime, concrete results and greater returns on investment.