



Case study

Marquis: Solving the crude oil logistics puzzle



MARQUIS





Until 2012, Marquis had been maintaining a stable trade in agricultural products, ethanol production, and grain and ethanol transportation throughout the world. Organized as a group of logistics businesses, Marquis has expertise in truck, and rail operations.

Then, Marquis saw an opportunity to establish themselves as a key player in crude oil logistics. The development of oil and gas production from the Bakken

formation in North Dakota required transport to move the product to refineries on the lower Mississippi River. Marquis determined the optimal point-to-point route for moving Bakken crude by train to a storage terminal in Missouri and from there, by barge to refineries near Memphis and New Orleans.

According to Bart Pieper, Marquis Management’s director of business and technology: “The complexity wasn’t that great at first. We were seeing about three unit trains a month.” This meant that their whiteboard and spreadsheet scheduling solution was sufficient for tracking their assets. However that would soon change.



fast facts

Business:	Crude oil logistics and trading services provider
Market:	Delivery from the Bakken formation, North Dakota to Southern points
Storage terminal location:	Hayti, Missouri
Storage capacity:	550,000 barrels



Explosive business growth

Almost simultaneously with Marquis' expansion into crude oil transport, the full potential of Bakken crude oil production began to reveal itself. In the span of six months, their terminal in Missouri went from receiving three trains a month to 30 – a whopping 1,000 percent increase in operations. As a result, the complexity of their decision-making – not only for scheduling but also for long-term business strategy – overwhelmed their existing solution's ability to manage it. Whiteboard and spreadsheet scheduling could no longer meet their rapidly growing needs.

Marquis' efforts to deal with this increased volume in business was further hampered by the fact that they only had two tracks and two tanks in Missouri, and they could expand neither their track nor tank space fast enough.

Pieper said that this “created an incredible amount of bottlenecks.” It took their planners hours to determine whether they could receive an additional train or fulfill an additional contract. As a result, they were unable to capitalize on all of the opportunities presented to them.

On top of this, Marquis faced higher-level problems such as reducing costs and optimizing turn times for their existing assets. Their tank cars from the Bakken and barges from the lower Mississippi were continually cycling and meeting at the terminal in Missouri, where storage was limited to 550,000 barrels – the equivalent of about three trains. But barges have more capacity than trains, so it was a challenge to match the cycling rate or to optimize tank levels, especially given the changeable nature of the supply from the Bakken.





The search

Pieper was tasked with finding a logistics solution that would grow and diversify with Marquis. “There were several companies that were able to manage rail operations,” he explained, “and there were companies that could manage barge operations.” However when Marquis asked those companies whether they could do both, they replied that they would have to build a custom solution.

“At that point,” said Pieper, “we had no idea what we would be getting. And a big part of that was not having the guarantee that any of those custom systems could propagate our changes.”





The 100%-fit solution

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“Quintiq was able to show us that they had a solution that could take all the new information that came in on a day-to-day basis,” Pieper said, “and flow it through our entire system and tell us whether we could keep the terminal optimized. They were able to understand the issues we were having and explain them back to us. And that was really what sold our management team.”

To keep up with demand, Marquis also required a solution that could be implemented almost overnight. Quintiq was able to migrate Marquis onto the new system and achieve operability in less than two weeks. It then took the software several months to reach full operational capacity.

The visually-oriented and intuitive software from Quintiq gives Marquis a granular view on the cycling of all their trains and barges – what their schedules are and how those schedules affect tank levels. The software also addresses deeper issues, capturing loading and unloading times as well as the total time tank cars or barges spend at the terminal. By improving their planning and significantly cutting the demurrage fees for idle vessels, Marquis achieved one of their most important goals – reducing costs.

Furthermore, the software’s ability to generate what-if scenarios and evaluate them against business KPIs enables Marquis to bid on contracts that hinge on short-term market situations. They are now able to utilize their tank cars and barges more efficiently because of the software’s optimization capabilities.



Fueling further growth

Quintiq goes beyond solving logistics puzzles. Marquis is now able to quantify the implications of their business strategy, such as predicting the bottom line consequences of diversifying into other fuels. Supported by an intelligent, responsive 100%-fit solution, Marquis will continue to derive value from their material and human assets to meet increasing demand and remain profitable in a rapidly changing environment.





About Quintiq

Every business has its supply chain planning puzzles. Some of those puzzles are large. Some are complex. Some seem impossible to solve. Since 1997, Quintiq has been solving each of those puzzles using a single supply chain planning and optimization software platform. Today, approximately 12,000 users in over 80 countries rely on Quintiq software to plan and optimize employees, logistics and production. Quintiq has headquarters in the Netherlands and the USA, and offices around the world. For more information, visit **www.quintiq.com**.



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