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EXPLORATION & PRODUCTION

READY FOR A REBOUND: Infrastructure improvements, higher efficiencies and lower costs combined with prime acreage in the heart of the Bakken put Hess Corp. in good position in the low-price environment.
PHOTO: HESS CORP.

Leaning In The Right DIRECTION

Hess Corp. uses lean manufacturing principles to weather the low-oil-price storm and looks to emerge even stronger when it's over.

By Patrick C. Miller

EXPLORING THE SPACE: Hess Corp. has focused on continuing well completions because it has more drill spacing units than other operators and has executed completions at less than $3 million per well.
PHOTO: HESS CORP.

Even before oil prices took a nosedive that sent shock waves through the U.S. oil and gas industry, Hess Corp. was on the road to improving efficiencies and cutting costs in its Bakken operations.

The early pessimistic outlook for the Bakken has given way to the view that producers such as Hess in the Williston Basin of western North Dakota will rebound in an even-stronger, more-competitive position as infrastructure catches up to production, efficiencies improve and cost savings are realized.

"That's the way that we're looking at it," says Gerbert Schoonman, vice president at Hess responsible for the company's Bakken assets. "We are in a fortunate situation in that we've got a very strong position in what we call the heart of the Bakken."

For Hess, lower prices haven't meant a retreat from the Bakken, but instead a concentration of activity among its 610,000 net acres in the areas where the best rock for drilling exists.

"Hess has got more locations than anybody else in DSUs (drill spacing units) in the heart of the Bakken," Schoonman notes. "As a consequence, we didn't reduce very drastically. We only went down from 17 rigs to eight rigs."

While some producers elected to back off on well completions, Hess did not. The company doesn't want to risk losing the gains it made after it began implementing lean manufacturing methods in 2009, an approach emphasizing the introduction of process improvements while eliminating waste.

"The reason Hess decided to execute on continuing their completions was we want to maintain a capability within our teams and have a steady stream of completions that were executed at less than $3 million per well," says Schoonman. "The cost of completions has come down even more since the start of the year because we've be-

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Gerbert Schoonman, Vice President of Onshore Bakken

come more efficient at it and better.”

As an example of how lean has benefitted Hess, Schoonman says it once took them an average of 40 to 45 days to drill a well in the Bakken from spud to rig release.

“At the end of the fourth quarter last year, we were already down to an average of 19.5 days,” he notes. “It didn’t stop there because we were able to migrate the rigs we were using and the people operating them. We’re now seeing very significant numbers of wells already at less than 15 days from spud to rig release.”

Alf Tischler, Hess manager of completion operations, goes as far as to say that the current low-price environment hasn’t had a great impact on how the company operates in the Bakken because it has simply continued to use the lean principles that have been so successful in ramping up efficiency and cutting costs for Hess over the past four years.

“It really doesn’t change what we were doing,” he explains. “I think we were better situated than most companies because we started on our cost cutting earlier than everybody else did. Listening to presentations from other companies, there was not a lot of focus on cost. Nobody talked about economics; it was all on IP.”

Leaner Approach

Lean manufacturing, built upon principles introduced by W. Edwards Deming, was developed by Bell Labs after World War II and put into practice by Japanese automaker Toyota, which has used it to great success. The process relies on the implementation of standards that not only improve efficiency and lower costs, but also creates a safer work environment and protects the environment.

“On the completions side for 2015, we’ve seen $80 million in effectiveness and efficiency savings because of standardization work,” Tischler says. “Almost 50 percent of the cost savings this year come from efficiency improvements—and they’re sustainable.”

Providing another example of how lean has benefited Hess, Tischler says that in early 2012, the company spent an average

SAFETY FIRST: The lean manufacturing principles under which Hess operates emphasize safety, which has enabled the company to reduce its reportable incidents far below the industry average.
PHOTO: HESS CORP.

of $13.4 million to drill and complete a well in the Bakken. Those costs have since come down to $6.8 million per well, and continue to decrease, according to Tischler.

“For those improvements, there is no magic wand,” Schoonman stresses. “We look at how the individual well is being drilled, how it’s being completed and every single piece. The people who run the rigs themselves determine how they can make each step of the process more efficient and more effective while using less time to carry out a particular activity. When you go through the entire assembly line of a well, you make it better every single time.”

And that, says Schoonman, has led to accomplishments that can’t simply be discarded because of a downturn in oil prices.

“We wanted to make sure that we preserve the lean capability that we’ve built up in all of our employees,” he says. “This is not something that comes all of a sudden. We spent the last four or five years training, educating and honing those skills in all of our employees. The last

DATA-DRIVEN DECISIONS: By basing its decisions on reliable data, Hess operates many of the top-producing wells in the Bakken and leads the industry in North Dakota in production volume per well.
PHOTO: HESS CORP.

thing that you want is suddenly losing all those skills and capabilities."

Knowing that the oil and gas industry is cyclic and that it's a matter of time before crude prices trend upward, Schoonman says Hess plans to be in a position to capitalize on what it's built in the Bakken.

"We want to make sure that we are immediately ready to pick up our activity levels and maintain those efficiency gains that we fought so hard for," he explains. "I don't want to go back to wells that take 35 to 40 days to complete. I can't afford that. The wells will need to be at the same performance level we're drilling and completing right now."

Tischler—a native of Austria who's been with Hess since 2011—spends every other week in the Bakken where he's in charge of fracking, flow-back operations and rod pump installation and maintenance. His time in the field is another lean principle in action.

"We actually don't manage out of the office," he says. "We go to the field to understand what's going on and talk to people."

The purpose is to get groups of people—and that includes Hess vendors—to discuss how they can do their jobs more efficiently, more effectively and more safely.

"You create an army of problem solvers out there, and all of a sudden you see effectiveness and efficiency improvements all over the field so fast that you can't even catch up with the savings," Tischler says. "It spreads across the field and all of a sudden you go from a $5,000 saving per well to a half million to a million dollars. That's an exciting thing."

Leading, Not Following

Another lean principle is collecting and using data to prove an idea works rather than relying on hunches, potentially misleading statistics or the old "because I say so" approach. Whether it's changing the location of flow-back tanks by 10 feet or trying a new fracking technique, Tischler says the decision must be validated by good data.

"I'm willing to change," Tischler says, "Show me the data; give me a reason. We don't make those tough decisions based on what everyone else is doing."

For example, Tischler said that although plug-and-perf has become a favored fracking technique with some Bakken producers, data he's seen indicates that sliding sleeves work best for Hess' operations.

"I'm not saying that plug-and-perf is bad," he says. "I'm just saying what works for Hess is sliding sleeves right now because that's what the data show us."

To emphasize his point, Tischler notes that data from the North Dakota Industrial Commission shows that Hess operates many of the top producing wells in the state.

"What's even more exciting is that we are the leader in the Bakken on production volumes per well if you average out all the wells," he says. "It's because of the standardized approach and utilizing data to understand how to drill and how to complete our wells."

Or, to put it more concisely, Schoonman says, "What Hess always tries to do is drill the most valuable well in the Bakken."

The drive for the most valuable well continues for Hess through pilot projects to determine optimum well spacing.

"Our current design for our wells is that we assume seven wells in the Bakken and six in the Three Forks," Schoonman explains. "We are running spacing pilots right now where we

AN AUTOMATED FUTURE: Hess believes that automated controls are the solution to remotely operate thousands of wells in the Bakken.
PHOTO: HESS CORP.

will actually have nine wells in the middle Bakken and eight in the Three Forks. Some of the wells have been brought on stream and actually their performance is pretty good."

For Schoonman, maintaining the lean capabilities of his Bakken teams has been a key objective during the oil price decline.

"That's why we wanted to keep our momentum and why we didn't want to go for a complete start-stop methodology that you would see other places," he explains.

Although Tischler speaks with passion about the lean process and all that it's helped Hess achieve, he admits, "I hate the word. For me, it's really common sense work by keeping people safe and having respect for them."

That respect not only includes making use of employees and vendors intellect and ideas, but also keeping them safe on the job. As Tischler emphasizes, safety isn't merely a priority at Hess. It forms the very foundation of the lean approach.

"I know it's working because we reduced our costs by 48 percent and we reduced our total reportable incident rate by more than half," he says. "Our most recent North Dakota reports show we're at .3 and, according to the American Petroleum Institute, the U.S. Onshore rate is .65."

With Hess, safety isn't just lip service.

"Many of the companies that work with us are actually surprised when they're introduced to Hess," Schoonman says. "They find out this is not just talk, but that it really means something to us."

Tischler also notes that a safe work environment is an important part of retaining good employees.

"Once you create a safe place to work, people won't follow the almighty dollar because you give them something valuable," he says. "You assure them that they will go home to their loved ones and spend time with them. That's what it's about."

A year ago, Hess projected its crude production in the Bakken would reach 150,000 barrels per day by 2018. Schoonman says it's still a goal the company expects to achieve, but because of the drop-in prices, it may take a few more years to get there.

Looking to the future, Schoonman believes that automated controls to enable the remote operation of perhaps thousands of producing wells is a technology Hess will pursue.

"The old operating model of just driving around to see if you can find a problem has been there for years, but it's not the kind of methodology I'd like to use going forward," he says. "I want to make sure that those signals are coming up in an automated way that we only have to respond and drive those valuable miles for reasons that are, in essence, predefined."

Wherever the future leads, Schoonman is confident that lean will be part of the principles that guide Hess in the Bakken.

"The development of a play like the Bakken is just the beginning," he notes. "After that, you have to operate it for many years. There's lots and lots of money to be gained by optimizing operating costs, and that's certainly high on our agenda. Lean is actually going to be expanded into the full extent of our operation."

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