McLanahan Corporation Helps Taylor Frac Achieve Success in Frac Sand Development

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Robert Hargrave
Taylor Frac

In Wisconsin, press reports have called frac sand the "new gold rush," because of its critical importance in the process using hydraulic fracturing – or fracking – to extract oil and natural gas. The state's abundant deposits of coarse-grained quartz sand have been mined for more than 100 years, but today, oil and gas industries prize this sand that is found in the state's countryside.

Today, Taylor Frac, in Taylor, Wis., provides energy producers around the country with the area's high-quality silica sand. However, before beginning to process sand when it was founded in 2010, Taylor Frac had to find a site and meet the Environmental Protection Agency's tough regulations and permitting requirements.

Challenge

The 500-acre mine in Jackson County sits atop the Wonewoc Formation, a premier source of the most sought after frac sand. As the number of mines continues to multiply in this area, concerns about environmental preservation have grown, making compliance with regulations a major part of the permitting process. Mine siting is regulated at the local zoning level, and reclamation plans have to be in place before any mining begins.

"Some regulatory agencies are cracking down on allowing permitting," says Tom Olson, Plant Manager for Taylor Frac. "There are air and water issues that we addressed to make sure we were starting and operating the plant in an environmentally responsible way."

For water management, it was imperative that Taylor Frac have a system to capture and reuse an abundance of the process water without risking potential losses to groundwater or spillage of tailings out of an impoundment area. A closed-loop system was the answer. This system would allow them to process sand with minimal environmental impact. Taylor Frac was also clear on the fact that they needed to work with a company well-versed and experienced in frac sand processing solutions.

"We looked at a number of companies to help us build a reliable, environmentally friendly system," said Taylor Frac Operations Manager Robert Hargrave. "Some of them were just getting into the

business, but with McLanahan Corporation, we knew what we were getting. Trust is extremely important when it comes to processing frac sand, and we trusted McLanahan."

Solution

McLanahan came to Wisconsin and did an analysis of Taylor Frac's site, running simulations and testing the sand to determine the best wet processing system to meet their needs. Ultimately, a plant, which features Hydrocyclones, a dual Hydrosizer™ (or rising current classifier), Attrition Cells, Dewatering Screens, an Ultra Fines Recovery System and a Thickener, was selected.

This system separates the coarse frac sand and scrubs it to produce the primary frac sand material to be sent for drying and final sizing. The remaining sand is recovered and stockpiled, while the tailings containing the bulk of the process water are directed to the Thickener. Byproducts or unused materials are returned to a pit for reclamation.

Results

With this system, Taylor Frac operates at maximum capacity, usually about eight months a year from March through November. The mine processes approximately 250 tons per hour, 24 hours a day, seven days a week. Because of the notorious Wisconsin winters, it is crucial for the wet processing plant at Taylor Frac to process and stockpile sand for their dry finishing plant to ensure customer orders can be filled all year long.

"The dependability of the wash system is a must, and the McLanahan system has been great - really reliable and dependable," Hargrave said. "That's huge around here because you don't know how Mother Nature is going to treat you, so you have to be producing when the weather allows it."

Hargrave noted he appreciates the simplicity and ease of use in operating the system. "I can run it from my computer, since it's networked for us, and you can literally start the plant with two command buttons. First, push water. Second, push sand. After that, you're good to go! I can also change the sand gradation, or cut, to meet the market demand in a matter of seconds."

In addition to the power and flexibility of the system, Hargrave has also built a strong relationship with the McLanahan team.

"To get the plant up and running, the McLanahan reps were here helping us with the process," he said. "Then we learned the system on our own, but for any problems, McLanahan helped us with any issues."

Hargrave said that the McLanahan system is helping Taylor Frac serve today's frac sand market, but he's also excited about the opportunities the McLanahan system will give the company in the future as the market evolves.

"The frac market changes quite frequently," Hargrave said. "The McLanahan system gives you the flexibility to adjust your product according to what the market wants almost instantaneously. That was a pleasant surprise."

Olson stated that the McLanahan system has helped Taylor Frac meet its goal of mining in an environmentally responsible way.

"The system has been running just the way it's supposed to pretty much around the clock," Olson said. "We're getting the sand without harming the environment, and the community has been supportive of what we're doing."

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