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Better Safe than Sorry

Frac Shack a welcome addition to the oil patch

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Photograph by: Frac Shack is making well pads safer worksites for those who refuel the equipment that pumps fracturing fluid into the well during hydraulic fracturing. Refuelling that equipment is one of the most dangerous jobs on the well pad without Frac Shack.

A few years ago, Todd Van Vliet paid a visit to a well pad in the far northeast corner of British Columbia, almost at the Northwest Territories border. The co-president of Environmental Refuelling Systems had traveled so far north to witness a hydraulic fracturing operation in process, but he wasn't entirely happy with what he saw.

"They were standing in a corner of the pad waiting for the frack to begin," Van Vliet said of the crew waiting to refuel the pumps that push the fracturing fluids into the well.

"And they said quite proudly that they were told that they had the second most dangerous job on the pad," he continued. "And I was rather dumbfounded by that. And I asked them to explain. And they said, 'Well, what we have to do in order to fuel these pumpers is we have to go in there.' And they pointed down between a line of pumpers where the fuel tanks are for these frack pumpers.

"And when I learned that those things were operating at 15,000 pounds per square inch, about 250 decibels in between the pumpers while they're running, at 300 degrees Celsius, and that they often had to do the fueling job in the black of midnight, I realized that we had to find a better way for the guys to do that job."

That set the wheels in motion for a plan to develop a safe and efficient refueling system that would eventually be known as Frac Shack.

"The old system," Van Vliet explained, "is you pull up with a truck, some poor sod gets out his fuel house, turns on his pump, and then with that pump fully engaged and the hose full of fuel, he turns sideways and he sidles down between these pumpers. Because they're parked so close together that you can't get down by walking. You have to slide sideways."

One hand occupied with the fuel hose and one hand unscrewing the cap on the fuel tank, the worker must tuck his flashlight under his chin just to see what he is doing with those hands.

"And then you quickly put the fuel hose into the tank so that it doesn't splash out on you," Van Vliet continued. "And then you hope that the fuel kicks off before the thing overfills and splashes you in your face, which doesn't happen all the time. And you hope that nothing happens where any of those pipes that are coming out the back of the pumper overpressure and the pipes blow off, which does happen from time to time.

"And then when the tank is full - and you hope you've filled it up because you can't see whether it's full or not - you put the cap back on and you go to the next one, where you throw the hose underneath the truck and walk around it, trying not to get too much sand and gravel and dirt in the next fuel tank.

"And then you do that again and again and again for twelve hours. Because when you get to the end of the line, you have to start all over again because the first pumper's already just about out of fuel."

After that twelve-hour shift, that worker passes the hose to the next worker starting his twelve-hour shift.

Frac Shack changes that process considerably.

"The operator sits inside a heated or air conditioned shack and he watches a screen and he makes sure all the tanks get filled on time," said Van Vliet.

The technology, which took about a year to perfect, has really caught on with the service sector during its two and a half year history, but there is still work to be done to convince the natural gas producers.

"It's like asking people to give up the horse and buggy," Van Vliet quipped.

"When the automobile came along," he continued, "a lot of the people who really liked their horse and really liked their buggy were reluctant to give up the horse and buggy. And some people clung to that for a long time after the automobile was proven to be much more dependable.

"It's new. And it's different technology. And it's unfamiliar to some people. But once they see it and they work with it, we just had nothing but good reports coming back."

Environmental Refuelling Systems' first Frac Shack customer was a major producer operating in the Horn River Basin shale gas play of northeast B.C.

"[They] sent out a safety inspector before they would allow it to be mobilized into the field," Van Vliet recalled. "And after the inspector did the inspection, he turned to me and he said, 'Well, congratulations, you now have the best available practice in the industry.'

"So, people who have seen it and worked with it absolutely love it."

Still, the Horn River Basin has been a small market for Frac Shack so far, as has the Cardium play in central Alberta. Their biggest market has been the Duvernay shale gas play, which is also in Alberta.

"There are a number of companies that will not even allow a frack to happen on their property without having the Frac Shack there now," said Van Vliet.

"They absolutely love it," he added, discussing the response from the service sector.

"One of the crews from one of the service providers, they used to draw straws. Whoever got the short straw had to do the fueling. And one of our guys called me one day and he said, 'You should have seen the faces of these guys when we pulled onto site.' They all said, 'Thank god! Frac Shack is here.'"

Statistically, it is difficult to determine Frac Shack's impact in terms of lost time injuries, but Van Vliet said that health and safety professionals at the well sites are happy with the results to date.

However, the cost of this new technology might not fit every situation.

"The cost is an issue depending on how they currently do their fuelling," said Van Vliet. "For example, in some sites they currently do their fueling with a single truck and a driver. And we would cost more than having just a single truck and a driver onsite. But some sites have been doing their fueling with two trucks, two drivers and four hose handlers, because they have to maintain line of sight.

"There have been a number of overpressure issues where they had to pull the refueling guy out of the frack array because of danger on overpressure. So, they have six people and two trucks doing refueling. And we are way cheaper than that.

"So, it depends on the size of the frack and the type of refueling practices they currently do."

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