

Direct DriveHead's Smart Pumper automation and monitoring technology is used to manage well operations in real-time.

# Pumping Well

Oil and gas companies realize greater control over wells by using Direct DriveHead's innovative Smart Pumper technology.

[ BY JANICE HOPPE ]

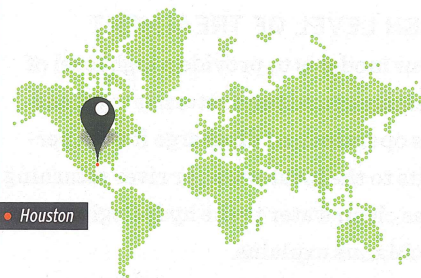
Direct DriveHead is working to revolutionize the oil and gas industry with its Smart Pumper automation and monitoring technology that is used to manage well operations in real-time. "The Smart

Pumper is going to be a technology disrupter," President Greg Boyles says. "It will force the consolidation of a lot of bits and pieces that add to the operational costs, which are presently available through other service companies and [it

## PROFILE

**Direct DriveHead** | www.directdrivehead.com | Headquarters: Houston | Employees: 50

Specialty: Automated precision pump technology



• Houston

"I am a bottom-up developer from the oilfield who knows what he needs and built what he needed."

// GREG BOYLES, president

will] drive down the cost of automation and home off data management overall."

The Houston-based company began its quest in 2004 as a result of a joint venture relationship in Trinidad involving 110 wells in an onshore heavy oil field. To reduce maintenance costs, the company's engineers first developed the Direct Drive DriveHead, a device to operate and control progressive cavity pumps to eliminate problems associated with conventional belt and pulley-type drive head systems.

"Subsequent to the patented improvements we made, we realized automated pump control was needed that could provide precision pump control based on real-time fluid level to a target level we wanted to achieve and maintain overtime," Boyles says. "Turns out, this too became a patentable process."

The first concepts for the Smart Pumper were laid out in the 1980s, but Boyles said the team soon realized that commercial production would be too expensive for low volume wells and as a result, the development was put on hold. By 2007, advancements in chip and sensor technology prompted Direct DriveHead's development team to revisit the concept.



Direct DriveHead began testing concepts in 2007, built a commercial version of the device in 2010 and took it to market in 2012. "My first love is oil and gas exploration and development, and the benefits of production," Boyles explains. "I needed to build the Smart Pumper because I couldn't buy it off the shelf. What was available to us, from those who offered monitoring and their version of automation, was inadequate and built from the top-down. I am a bottom-up developer from the oilfield who knows what he needs and built what he needed."

### SMART FIELDS

The Smart Pumper is now being used by 40 companies and Boyles believes the technology will take the oil and gas industry to a whole new level. The machine is a powerful PLC that serves users as a master control to any variable frequency drive for regulating electric motor speed, hydraulic motors and hydraulic valves. "The device really comes into play once the well is drilled," Boyles explains. "It provides two-way communication from the well site, GPS coordinates and allows us the capability to control multiple devices, as well as monitor all of the sensors and meters we need at a well site."

The biggest problem facing oil and gas companies is providing engineers with usable data. "The data IT gives us is already history and what we needed in the field was the Smart Pumper hardware to make real-time decisions," Boyles explains. "Production engineers can go online to change operational controls and parameters, but more importantly, as they look at the data reported, they can also see what's taken place and the log shows them all the things Smart Pumper implemented in real-time while they sleep."

The device is supported worldwide through individual countries' 4G networks. "It also does not require any one data software package, which can save millions of dollars in terms of setting up the device to communicate with a company's server," Boyles notes.

### CONTROLLING THE FUTURE

Gaither Petroleum Corp., based in Houston, operates 32 Smart Pumper devices and all of its operations are now completely automated, which requires less manpower and provides greater control, President and

CEO Duane Gaither says. "Right now, the possibilities with this technology are virtually endless," he adds. "Instead of being gathered once or twice a year, useful information that engineers need to manage the wells will be gathered continuously and provide continual optimization of the well."

Using the Smart Pumper on wells allows companies to receive information from two sources: the device and field personnel. "By having two sources, you can cross-check and verify information," Gaither says.

In the future, Direct DriveHead will continue to improve upon the Smart Pumper and look for other industries where the technology can be useful. "Yes, we want to help those interested in using the Smart Pumper maximize production and reduce the risks associated with health, safety and the environment," Boyles says. "But my goal is to also find other collaborators to add applications to the platform that will prove beneficial beyond the oil and gas industry." **EMI**

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