

New Equipment Simplifies Production

By Colter Cookson

When Apple introduced the iPad®, it's unlikely the company imagined oil field pumpers using the mobile device to gather pump data from the comfort of their trucks in the cold of winter. Fortunately, Apple did not have to. The industry's production experts have been hard at work introducing products that take advantage of modern technology from outside the industry.

These products also implement novel ideas and leverage the industry's growing knowledge of well dynamics to help operators increase production, cut costs, and better protect the environment. One of the offerings include a novel tertiary recovery technique that uses oil-attracting materials to produce oil at an extremely low cost.

EOR Technique

By using materials that attract oil but repel water, Tokata Oil Recovery Inc. of Stillwater, Ok., can help oil and gas producers boost production from marginal wells and turn abandoned wells into profitable assets, says company Chairman Tom Westbrook "We can insert and use the material to produce more than 10 bbl/d without water, to eliminate water treatment costs, or we can use it to bring up six, seven or eight times more oil with water separated at the surface," he reports.

The technique is profitable, even in wells that produce only a few barrels of oil a day because it eliminates many of the costs associated with traditional lifting technologies, Westbrook says. As an example, he points to energy: "The energy

required for the Tokata Oil Recovery System™ is around 5 percent of that required for a conventional pumpjack. In fact, at 1,400-1,500 feet, it runs on the same amount of electricity as eight 150-watt light bulbs."

Company President Pat O'Malley says the Tokata system (which is named after the Lakota Sioux word for "into the future") also eliminates the costs associated with separation equipment. "The materials Tokata uses are inexpensive and the equipment is easy to maintain, so we have extremely low operating costs," he states.

According to Westbrook, the technique also has environmental benefits. "By using less energy to bring up the oil and pump it off, we have a lower carbon

footprint," he relates. "Also, since we are not using anything to run a gun barrel or a separator, we keep the highest Btu hydrocarbons. And because we do not have to dispose of water at the surface, we have reduced the major potential for surface impacts."

O'Malley adds that the technique delivers results quickly. "After removing the pumpjack, sucker rods and production pipe, inserting our process down hole and hooking up our equipment at the surface, we are producing oil within an hour," he details.

For the past two years, Tokata has been testing and refining the technique in two fields in Northeast Oklahoma. "We have comparable or better production than what had happened in these fields



This system from Tokata Oil Recovery Oil Inc. uses oil-attracting, water-repelling materials to produce oil from marginal wells. Tokata says the system requires 5 percent as much electricity as a conventional pumpjack and can eliminate the need for separation equipment.

Production Technology



before,” Westbrook reports.

To improve the technique, Tokata has gathered a team of petroleum and mechanical engineers and chemists, which Westbrook says has paid off already. “One way is that we can put the materials at a depth of 1,500 feet in less time than it took us to set them at 400 feet only a

year ago,” he relates.

At its current maximum depth of 1,600 feet, Westbrook calculates the company’s technology could restore 5 to 10 percent of abandoned wells. “We are working with Oklahoma State University to extend our maximum depth to 4,000 feet,” he says.

According to Westbrook, Tokata will provide and operate the equipment associated with the technique for producers in exchange for a percentage of the revenue. “Compared with other tertiary recovery technologies, this is the cheapest, walk out, turn it on approach available,” he says. □