

**NO STRANGER TO THE CANADIAN MARKET, COILED** tubing drilling long ago gained widespread acceptance as a legitimate technology. Cross the 49th parallel and the story is much different.

For several reasons — technological and geological among them — CT drilling simply hasn't penetrated the U.S. market with vigour. But much like an infant slowly learning to crawl before walking, it seems to gradually be gaining a foothold. Continued technological development has helped fuel optimism that it will grab a larger market share of U.S. drilling.

Kent Perry, director, exploration and production research with the Des Plaines, Illinois-based Gas Technology Institute (GTI), sees a bright long-term future for CT drilling in his country. Right now, it's mainly being used in Colorado and Kansas, he notes.

He points specifically to a particular project using a CT rig from Advanced Drilling Technologies of Yuma, Colorado, in the Niobrara Chalk in Kansas where estimated cost savings were pegged at 25% to 35% per well. "We've had a lot of inquiries about the rig and its applicability to various areas," Perry says.

"This particular rig ... moves very fast [and] the environmental footprint is almost zero in southwest Kansas. We get good hole quality, good cement jobs and straight holes." The rig is capable of drilling, running casing, tool handling and logging.

"One of the early drawbacks to coiled tubing drilling was that at first it was like hybrid



# warming up to coil

**INROADS SLOWLY  
BEING MADE  
IN THE U.S.  
BY RICHARD MACEDO**

systems," he says. "You'd take a rotary rig and then you'd bring in a coiled tubing system onto it, couple the two up and start drilling in that fashion. If you have to take the time to match the two up, well, then you're losing time.

"If your coiled tubing rig didn't have the ability to run casing, then you'd have to get a casing crew in and that was extra time and extra money. And so these rigs need to be designed kind of fit-for-purpose and have the capability to do the complete package to be efficient."

EnCana Corporation recently took some baby steps with the technology in Colorado's Piceance Basin, one of the Canadian gas giant's growing and highest potential resource plays in the U.S. Tim Baer, the lead for drilling in the south Piceance, says things have been going smoothly.

The company has been working with new rigs from Xtreme Coil Drilling Corp. Three XTC 400s, Xtreme's largest rig model, are working in the U.S. The first XTC 400 was delivered in May, the second in July and the third in September. Two XTC 400s are currently contracted to EnCana.

**SOUTHERN EXPOSURE**

Xtreme Coil Drilling has penetrated the U.S. market with its largest rig, the XTC 400.



“The rigs themselves are very beneficial because they can drill with both jointed pipe and coil applications. That’s very beneficial for us for different applications as needed,” Baer says. “We’ve started at just the infancy stages of using coil to drill out from surface pipe and drill the rest of the hole. It does give you some leverage in both cases.

“There’s obviously no connection times so you just continue drilling, so there’s no downtime as far as making connections and that sort of thing. It saves us quite a bit of time.”

According to the Petroleum Technology Transfer Council, in 2006, CT drilling represented less than one per cent of U.S. activity. An analysis showed that initial penetration in that market would involve vertical wells ranging from zero to 5,000 feet, followed by horizontals. After 2010, with additional technology development, CT will spread to the 5,000- to 10,000-foot range. By 2025, the application will represent 28% of wells in the zero- to 5,000-foot range and 19% of the wells in the 5,000- to 10,000-foot range.

Based on an average 25% reduction in costs compared to conventional drilling, annual savings are predicted to reach a level over \$6 billion by 2025. With the lower cost, gas resources that would not have been economic with conventional methods would be developed. Assuming current technology, GTI estimates that about 11 trillion cubic feet (tcf) of non-conventional gas at depths to 5,000 feet could be economically recovered from the U.S. natural gas base.

“There’s not a lot of availability of these types of rigs [in the U.S.] and ... a lot of the stuff in Canada is shallow,” Baer says. “Where we are, it is different. It is a little bit deeper but I think the biggest hindrance [was] the coil’s ability to meet a target [for] directional drilling. They had to find a package that would allow us to find a way that we could hit a spot — x, y, z space — downhole.”

The coil by its very nature has the inclination to bend, he adds, so apparatus such as motors and directional tools are needed to deliver success. “You come out vertical to say 2,000 feet and you start ... your directional part and you drill [a] 19 degree deviation and once you get just above your target

