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Geophysical Industry Update: Whistle While You Work

Market is Humming a Happy Tune

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It is indeed fortunate that the oil and gas industry tends to attract a hardy bunch of folks with an unfailing determination to continually wrest more hydrocarbons from deep within the earth.

These sturdy souls always rise up, brush themselves off and essentially begin again following the intermittent oh-so-stressful industry downturns.

Just look at the geophysical sector, for example.

A mere couple of years back, last rites were in order; today, it's going gangbusters.

"We see more demand for seismic services across the board, such as libraries, reprocessing, new data acquisition," said Chip Gill, current president of the Houston-based International Association of Geophysical Contractors (IAGC). "Still, it's important to remind ourselves how far down the geophysical industry was. So while it's definitely improved, we have to take that in the context of how bad things were."

But, darn, it's hard to show restraint when business is humming like now.

"It's a really positive time in the industry," said Deanna Goodwin, president North and South America at Veritas. "Capacity is being stretched to the point where supply and demand match, and that's a positive change.

"The mood in the company is good, the morale is terrific and there are lots of vehicles still in the garage at 7:00 in the evening."

The attitude at WesternGeco is equally ebullient.

"We've seen a significant shift in the balance for supply and demand across both our land and marine services," said Elaine Buck, the company's marketing manager for North America, including Mexico.

Photo courtesy of Fairfield Industries

The deep Gulf continues to be of interest in both normal exploration shooting and a growing interest in 4-D possibilities.

"One of the good things we see today is increased collaboration with our customers," Buck said. "We're more involved in their longer planning cycle, which is definitely required considering the vessel capacity (tightness) and crew capacity for land that's worldwide.

"That's a real message that all the seismic contractors want to push is that clients need to be talking to us today about 2007."

The sometimes-thorny procurement process still needs some tweaking in the minds of some industry participants.

"The E&P companies continue to make efforts to shift an unrealistic and imbalanced amount of risk on to the contractors," Gill said. "The amount of risk is not commensurate with the value of the contracts."

The good news is this appears to be changing.

"It's becoming a little more reasonable, with both the contractors and E&P companies looking at risk and trying to be reasonable and fair," Goodwin said. "When capacity is tight like now, the oil companies don't have as much leverage, so we're able to negotiate fair contracts that are becoming more favorable."

Booming Gulf Activity

If anyone needs proof of the uptick in marine activity, they need look no further than the Gulf of Mexico, where time-sharing is the M.O., given the crowded waters.

Managing time in the Gulf with vessel activity is a challenge industry-wide, according to Goodwin. With multiple vessels working in close proximity and multiple wells being drilled, contractors must plan their shoots accordingly.

There is a consensus among many folks that this kind of market offers tremendous opportunities for development of new technologies. In fact, some new high-tech applications already are under way.

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Not surprisingly, some of the newer technologies being used are in the still-frontier deepwater play with its horde of salt bodies, which provide numerous challenges for data acquisition to adequately image and evaluate the subsalt drilling targets.

"The new thing in the marine environment is in wide azimuth, i.e., rich azimuth with towed streamer and true wide azimuth with nodes," said Steve Mitchell, vice president of operations at Fairfield. "That's the new stuff versus conventional long offset."

All-azimuth illumination is crucial for accurate imaging where reservoirs are partially obscured by salt bodies or other complications; seabed nodal seismic systems can be used to acquire true all-azimuth surveys in a cost-effective manner, according to Mitchell. They also offer precise repeatable positioning for time-lapse surveys.

A full-scale field trial of nodal seabed technology was scheduled to kick off in September to image the subsalt section at BP's Atlantis field in the GOM. The program will use Fairfield's Z 3000 nodal system designed for deepwater use.

WesternGeco continues to build upon its Q technology suite for enhanced reservoir delineation, characterization and monitoring, which has proven valuable to address subsalt issues.

"We're excited about a new acquisition mode called over/under where we actually stack the streamers one on top of the other," Buck said. "This enhances the low and high frequencies, which is important for subsalt imaging.

"For deepwater subsalt imaging, we're ramping up this work, while Q Seabed is our next technology enhancement for deep gas over the shelf," she said. "It's an enhancement over the older but robust OBC system we have."

The positive fallout from the increasing number of wells operators anticipate drilling in the deepwater is wide ranging. For instance, the ensuing infrastructure builds will yield increasing opportunities for independents because the play will be opened to smaller companies.

Also, operators of large fields can look outside for small reserves to pump into the same infrastructure.

Looking Ahead

Barring the unexpected, activity in the marine side of the business is anticipated to continue escalating, particularly in the GOM.

"The Gulf of Mexico will continue to be strong, especially the deep Gulf, and I think we'll see another generation of shooting take place," said Bob Peebler, president of I/O. "In addition to normal exploration type shooting, we'll see a growing interest in 4-D, both in towed streamer and on seabed type installations, where I think we're still in the early adopter stage.

"I think the mega-trend is a renewed interest in land geophysics," Peebler said, "and it makes sense to us if you look at where the oil and gas reserves are.

"As places like Russia, Libya, Nigeria and others re-open, there's almost a missed round of technology used in many of these places, so we're starting to see a significant increase in land activity.

"As I talk to executives in the IOCs – the BPs, the Shells – I think they're all increasing resource allocation toward land," he added, "and I think this will bode well for the industry."

Much of the land activity in North America will be in the more unconventional plays such as the tight gas sands, fractured reservoirs, the Barnett Shale play, Peebler noted. In places like Russia and China, the action will be focused more on typical exploration type plays.

"Coming with the increasing activity are a lot of regional players," Peebler said. "All over the FSU we see a lot of small companies taking up new technology, so there's sort of an interesting race going on. There are a lot of companies forming, and some of the more aggressive ones are purchasing new technology to get an edge.

"It will be interesting to see how land activity unfolds, and five years from now who will have leadership positions around the world."

Because land carries more technical challenges than marine, it's likely many previous surveys were under-sampled. The main reason for this, according to Peebler, is the cost of the recording with all the crews, cables, etc., has limited the number of sensors people would like to employ.

"I think over time, technology will let people put more sensors out, especially as we move into the digital world," he said. "We'll see a renewed interest and another turn of the crank for land shooting."

Where does he think the hot spots will be located?

"I don't think the majority of future activity will be in North America; it will be where the oil and gas is – the Middle East, Russia, China, etc." ❑