



Revisiting the barrels per rig issue

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Topic: [Supply/Production](#)

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The discussion about the rising costs of rigs, and the support equipment that goes with them has caused me to go back to an earlier [source](#) which pointed out, about a month ago, that Saudi Arabia was planning on doubling its drilling rig fleet from the current 55 to around 110. As part of this effort some deep wells will be drilled into the Arabian Gulf.

"We will be using very specialized equipment for this operation," said Tom Emmons, Ensco 76 drilling engineer. "That's because the target wells will be some of the most challenging that Saudi Aramco has ever drilled due to the high temperature and high pressure of these wells.

"The Karan-6 location is actually one of the shallower prospects," said Mulaik. "Several of the locations will require more than 6,000 m of drilling. However, the Ensco 76 can drill up to 9,000 m."

A second exploration rig will join the Ensco 76 during 2006 in drilling deep exploration prospects in the Gulf. The two rigs will drill 11 prospects scattered through Saudi territorial waters. The entire project will last from five to six years. This reflects a substantial investment by Saudi Aramco to discover new gas fields.

At one time I had tried to calculate how many wells it would take to meet the new goals for Saudi increased production. Some of my assumptions were a little off, but by going back over the past few years, using the OPEC Annual Statistical Bulletins, the number of wells that a rig can drill appears to average around 10. So that if we consider that Aramco need to produce around a million bd a year to match current well declines, and that they are promising to add about 400,000 bd per year to world supply, then an initial simple calculation would suggest that this would give an average required yield per well of around 1,270 bd.

Now it must be said that Saudi plans include that some of these wells that are to be drilled are going to be for gas, that some will be used for water injection, and also that in fact not all rigs are working at one time. For example, a quick check with [Baker Hughes](#) shows that of the nominally 55 rigs mentioned above some 37 are currently drilling on land and 1 offshore. (Remember also that while Aramco had decided to rent five more offshore rigs, one of those sank while still in the GOMEX, and two are apparently damaged). And while these were earlier reported to be going out for gas exploration, the [Business Week story](#) mentions that they will also be used for oil exploration and for reworking old fields.

In the Middle East in general Baker Hughes suggests that about 20 - 25% of the wells will be for gas, and perhaps 5% might be for other purposes (such as water injection), but even when these

improvements are made, it does not lead to a very high assumed number for anticipated new oilwell production in the future. Bear in mind that in their presentation in defense against Matt Simmons comments, they had said that MRC could generate flows of up to 10,000 bd.

The current arithmetic is given more concrete numbers again by the BW story

According to one industry source in the region, the Khurays field, the largest expansion planned, will need an estimated 400 wells drilled to produce the target of 1.2 million barrels. If each rig drills six to seven wells per year, that would require some 20 rigs at the site for three years. The field will also need 2 million barrels per day of water injection, facilities to process the water, and pipelines.

This gives an average of 3,000 bd/well. This is a bit lower than the numbers I have used before, but the number of rigs that are being sought suggest that it is the new reality.

At the same time, with the shortage of rigs internationally, it is not certain that the number needed will be available. However [Drilling Contractor](#) notes

There may not be too many more new contracts coming from Saudi Aramco, however. The company said that most of those rigs have already been contracted. Other rigs contracted in the region were also brought in from other areas. Precision Drilling has four land rigs working in Saudi Arabia, with two additional units being refurbished in Kuwait that will begin working in Saudi Arabia in November. Those two rigs were mobilized from Precision's Venezuelan fleet.

Another rig that will be available in the region in 2006 is Thule Drilling's Thule Power jackup. ODS-Petrodata in Houston reported that this rig is currently being reactivated after having been idle since November 2002. In fact, the company said, the rig, the ex-Arabdrill 19, sank in 2002 and was declared a total loss. The rig is expected to be available for contract in mid-2006.

It is also likely that several of the jackups under construction in Singapore will fulfill rig requirements in the region. Of the approximately 40 or more jackups under construction or on order, nine are scheduled for delivery in 2006 and another 17 are set for delivery in 2007. . . . Saudi Aramco is reported to have tenders out for three additional jackups to begin in the second quarter 2006. ODS-Petrodata also reports that Khafji Oil & Gas is expected to tender for at least one more jackup in the Kingdom. Additionally, ENSCO International's jackups ENSCO 76, 95 and 97 are scheduled to begin working offshore Saudi Arabia under long-term contracts this year.

Dayrates for these rigs also indicate that Saudi Aramco is willing to pay the high day rates necessary for equipment. The ENSCO 76 is contracted in the low-\$100s while the ENSCO 97 is in the low-\$80s. . . . Onshore is a similar situation. For example, Nabors Drilling has 22 land rigs in Saudi Arabia, all working for Saudi Aramco. Nabors has two rigs contracted to Lukoil for a drilling program slated to begin in the Kingdom in early 2006. . . . To fulfill onshore rig demand in Saudi Arabia, rigs would likely have to be reactivated or new units built. As far as Nabors is concerned, it has several rigs in the US that could be reactivated and refurbished but due to rates increasing in the US, day rates in Saudi Arabia and other countries likely would have to rise as well to entice those rigs.

As some of those commenting here have noted, US prices may limit foreign ventures, as the article observes:

Additionally, according to Mr Smith, drilling contractors are beginning to see term contracts in the US, making it even more difficult to entice a contractor to move a rig to international areas.

Which may mean that while Aramco may be able to meet it's short term needs for rigs, the world demand and shortage of supply may make this a growing issue in the not-too-distant future.



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