



The dark and stormy Friday night entry

Posted by [Heading Out](#) on June 11, 2005 - 12:33pm

Topic: [Alternative energy](#)

Well it's a Friday night, and that means it's time to [slip out bad news](#). Well actually it is not that bad, but it is going to be a little technical, and I am not sure how easy it is going to be to explain. But here goes.

I am, as you may recall, reading *Twilight in the Desert* by Matt Simmons. He and I agree on a lot of things, and in some instances I am perhaps stronger in my concerns than he. But I just gone through pages 60 to 90 and I have a couple of comments about two things – the first is the damage to the oil producing formations that he writes about in Chapter 3, and then the secrecy about production in the Saudi oilfields that he is concerned about in Chapter 4.



[maximum reservoir contact well](#)

Originally uploaded by [Heading Out](#).

His concern is with Aramco overproducing the current fields, and thereby leaving a lot of oil in place that might otherwise be recovered if the process was carried out more slowly. We are going to have to visit the sandwich shop again to have me try and explain his concern and why I think they may have got around it. The analogy is perhaps a little weaker, but let's try it anyway.

You go into the shop where you have always had good service, and there are two lines to the counter. At the head of the line other than yours is one of those people who have no consciousness about other people's time and needs. She is chatting away to the single waitress behind the counter and, despite your attempt to get through, she monopolizes the staff person, and then to make matters worse, stands so that only the friends of hers in the line behind her can then come up to the counter and be waited on while you fume in a line that isn't moving anywhere. And so, after a while, with no progress, you leave promising yourself never to go back.

This is a little like the condition down underground in the oilwell. In order to push the oil from the rock into the oil well the Saudi's have pumped water into the rock under the oil and it pushes the oil up and towards the well (see [this picture](#)). If it is done slowly then the water:oil surface moves up relatively evenly and most of the oil gets moved up and captured. But there are channels through the rock that the water can move up through fairly easily and faster than the oil, and if allowed to happen the water flow up through this line can monopolize the well (waitress) and block any more oil from getting there.

That all I agree with, and even with a single horizontal well, rather than the older vertical ones, once the water gets into the well bore then production is very largely going to be over. But it appears that Aramco engineers have seen a way around this, and this is the maximum reservoir contact well (see the picture above which is taken from the [Saudi response to the CSIS in 2004](#)).

What they have done is to run a whole lot of small lateral holes off from the main horizontal well. This penetrates more of the fractures that the oil is found in, and thus gives a higher production. But it has a couple of other advantages. To go back to our sandwich shop analogy, it is a somewhat like opening a number of different cash registers and waitress stations. Now instead of getting frustrated by a blockage on one cash register, you have a number of ways to get served. The other thing that they have done in the latest wells is to put valves into these wells. This is a little like having a policeman in the shop that stops folk crossing from one register to another so that just because water has blocked one passage it can be isolated, and you can still get served. As a result the new wells they are now putting in will be less susceptible to early water penetration, and will likely allow a greater oil recovery from the rock.

That being said, the problem with more efficient extraction methods is that they also accelerate the oil removal and that means that the down slope of the curve after production has peaked becomes much steeper. A confirmation of that comes, unfortunately, from the UK where the decline in production from the North Sea is now reported, at [Powerswitch](#) as having climbed to 17% over the last year, which is an accelerating decline, and is a hint that the oil production problem will be on us much earlier than we might have hoped.

Um! In regard to secrecy, I guess my immediate answer is [here](#) and [here](#) . The world has moved into the internet era, and while it is not yet possible to get daily production runs from individual fields, one can also find out, from [tanker discussions](#) , for example, that supply from Saudi Arabia has declined more than could normally be anticipated.

This may or may not be a better source than more official channels, since there now appears to be a debate as to whether Venezuela produced 2.7 mbd last month as the EIA report, or whether as the IEA would have it, the production has dropped to around 2.1 mbd “ which is a big drop, if true.

Ah! I have also been reminded that I have been remiss in not noting that though I sometimes bewail that we are still a voice shouting in the wilderness, largely unheard, that this is not consistently true. For reasons of academic anonymity our two children have acquired the pseudonyms of the Advocate and the Engineer. Well the Advocate has been sufficiently convinced that both the Advocate and the Bishop have just purchased hybrid cars. Which is a very encouraging little sign to us all that we should not get discouraged, but need to continue talking about the problem. It is not as though it is going to go away. (I will chat about this some more after they have some experience driving them).



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