



## It's greaves time again

Posted by [Heading Out](#) on November 20, 2006 - 1:35am

Topic: [Supply/Production](#)

Tags: [canadian oil sands](#), [reserve calculations](#), [sagd](#) [[list all tags](#)]

I have been musing, over the weekend, a little more about the problem about what you consider a reserve. And, just being mischievous, I got to thinking a little about the Canadian Oil Sands. At the present time a very significant part of the production of the deposit comes from the surface mining of the sand. As I noted in [an earlier post](#), the relatively simple way of getting the bitumen from the sand, merely requires breaking the material into individual grains as it is carried, in a hot water pipeline, to the initial refinery. The first stop along the way is a rather large tank, where the clean sand sinks to the bottom, while the bitumen is taken from the top to be treated.

Now the point is this, that process is relatively simple and does not cost huge amounts of energy (and the water is recycled). Virtually all the oil in the deposit is recovered, and the sand is dropped into ponds where, after the water is drained away, it can be covered with the original top cover, and restored to its original condition. Except only that the bitumen is gone, and it won't get your feet dirty if you walk in the streams.

Grin, well now that I have several folks blood a little warmer, let me get to my point.

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The alternate current method of extraction, for deeper deposits of the sand is the Steam Assisted Gravity Drainage method (SAGD). This involves drilling horizontal holes down into the sand, and then feeding steam into the upper hole, so that the bitumen will be softened and will flow down into the lower, drainage hole. The recovery of oil using this process is stated to be about 60%. It is a bit more energy intensive, and also uses more water, though again a lot of this is recycled.

But here is my question. Mining has, for many minerals, transitioned from a surface operation, to an underground one, and there are technologies which allow almost 100% recovery of the valuable mineral from the deposits. This can be more effectively achieved if the majority of the material being mined is then pumped back underground to provide ground support for the material which has yet to be removed.

Now when one comes up with this idea is this sufficient to transform the reserve calculations for the oil to be recovered in Alberta and increase it by about 2/3rds? The example is perhaps a little overdrawn for the immediate future (though quite possible perhaps in a decade or so) but I raise the question because of what might be called the timely adjustment of reserve calculations.

We have heard a lot in the past week or so about reserve calculations, and I think [Dave](#) has quite effectively covered the ground in regard to the issues that CERA brought forth in their recent publication. But the whole issue of reserve calculations is filled with "what if" calculations of this type. Can we really get all that oil out of the oil shale? How much can we really extract from oil reservoirs of differing geology and geography? And more critically when can you really anticipate that the impact of new technology will change the amount of oil that can be recovered from a

Bear in mind that in almost all cases more than half the oil in a layer of rock gets left behind after the wells are closed down. If oil gets that valuable will we be going back and mining it in the same way that we do coal? (Short term answer, for technical reasons is likely no, though in the longer term . . . . .)

Now it would be nice if there was much evidence that there were lots of new technologies being developed to look into issues such as remote mining of oil layers, or other methods of a more conventional approach that would get us that additional recovery from the rock. Unfortunately, as Matt Simmons noted the other day, we just don't have the academic resource, the personnel, nor apparently the interest to look into these in sufficient detail. And the funding, despite the publicity, is not really all that evident for seeking to find these solutions.

Pity, really! But that aside, it is clear that some of the thinking on reserve amounts is beginning to consider that these technologies are going to be available. It takes on average about 20 years for any one of them to get to the point that it is widely adopted, even if the lab experiments look absolutely fabulous. Thus it might be constructive, when dreams are sold, suggesting that the oil wealth of the world still lies before us, if more specific details as to how it might be produced at the necessary rates and in the critical amounts of time wherein it will be needed, were provided. For example, in my mining example above, is just pronouncing the idea an adequate basis, or should lab experiments be done before we count it, or a first field trial, or a first full scale trial, or the first actual underground operation?

As I noted before, in commenting about [changing reserve calculations](#), just increasing recovery rates without a justification as to why one makes the change, does not carry with it a vast amount of credibility.



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