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Book of Abstracts

KEYNOTE ADDRESS: THE STATE OF THE INDUSTRY – PHASE DIFFERENCES BETWEEN RECESSIONS, SUPPLY AND DEMAND, AND COMMON SENSE

Ian Jack, Consultant

ABSTRACT

Last year's conclusions are re-examined and are found to be robust despite the recent tumultuous changes in the global financial and business markets. The leading indicators of the upstream petroleum geoscience industry (namely the oil price, rig counts etc) have to a large extent recovered. However, the global industrial recession has taken its toll and downstream activities continue to suffer, hence the overall earnings and profits of the integrated oil and gas majors remain considerably lower -- actually around 50% lower -- than during the boom of 2005-2008. Downstream spending has thus taken a huge hit during the last 12 months, but the upstream spending, having been predicted to rise 11% in 2009, is likely only to have suffered a reduction around 15% (some analyses suggest as much as 21%) thanks partly to some long-term thinking by managements and probably to some delay or "phase shift" in applying upstream reductions and indeed in the difficulty of applying upstream cuts quickly in an international environment. In terms of global energy consumption, oil has lost some market share to gas and especially to coal. Looking forward, most of the respondents to a recent survey estimated increases in upstream spend in 2010, although some majors did forecast some (fairly small) reductions -- for example Chevron announced a 5% reduction compared to 2009. Many companies continue to look long-term, with ExxonMobil (in December 2009) estimating a 35% increase in global energy demand by 2030 compared to that in 2005. Government "think tanks" seem to support this view (or maybe this is where the view is coming from!). It appears to be unlikely that global oil production can rise to meet this demand, and a recent report by the Cambridge Energy Research Association in March 2010 is suggesting that "energy efficiency" should be top of the agenda for governments and business. We will therefore probably see initiatives in this direction filtering down from governments over the next year. There will also be stronger drives towards increasing the recovery factor from existing reservoirs which will impact seismic quality and repeatability requirements. Some other "phase discrepancies" are worth mentioning. One of these is the huge number of land drilling rigs operating compared to the number of marine ones. No surprises there in view of the cost differentials -- but then consider the differential in the unit cost of land seismic data compared to marine data -- which is opposite in sense to the drilling cost differential. There has to be an opportunity here, and the recent announcement of a JV between Shell and HP might be a major step in this direction.

VIBRATOR TESTING: IS IT WORTH THE EFFORT?

Dave Monk, Apache Corp.

ABSTRACT

It is not uncommon to run a series of tests at the start of a 3D survey involving vibrators to examine various acquisition parameters. But is this worth the time, or does an analysis on a theoretical basis tell the story and render the practical testing of vibrate parameters unnecessary? By showing a series of results from tests performed in the Western desert to examine single vibrators, and arrays using different Vibes, sweep parameters and ground conditions, I hope to show that you don't always get what you expect, and that operational issues can often cloud conclusions from such testing.

ADVANCES IN 4D ACQUISITION

Peter Sabel, Statoil

ABSTRACT

To acquire good 4D it is important to repeat acquisition parameters and especially the baseline's source and receiver positions. If one cannot compensate for feather one will have to shoot 4D infill, which adds to the cost of the monitor survey. We present a novel approach to pre-plot planning and positioning QC during acquisition.

From analysis of the baseline's post-plot data for unique coverage contribution of each source-receiver pair and using a field specific tolerable positioning error we derive uniqueness criteria. Lines not matching these criteria will be removed from the pre-plot.

From analysis of the baseline data we define how much feather deviation we can tolerate and introduce a robustness criterion, the *feather aperture*. All pre-plot lines for the monitor survey will now have an associated, line specific, feather aperture value. The feather aperture concept assists in choosing lines with a wide feather aperture for periods of unpredictable currents and can also help to reduce time spent waiting on unnecessarily tight feather matching criteria. This paper shall demonstrate a technique that should change 4D QC and also significantly improve acquisition efficiency.

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