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Measurement While Drilling System Improves Wellbore Placement

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SUMMARY

Many of the MWD and LWD systems that are utilized in the North America land market today were designed for drilling conventional wells and have limitations when applied to drilling and logging unconventional wells. An MWD/LWD system has been designed specifically for drilling and logging these unconventional wells. The system employs sensors and technology that are critical to efficient wellbore placement and address the needs of drilling and geology.

Many of the MWD and LWD systems that are utilized in the North America land market today were designed for drilling conventional wells and have limitations when applied to drilling and logging unconventional wells. As production methods have moved away from geometric fracing towards selectively fracing, the importance of maximizing exposure in the “sweet spot” and accurate wellbore placement is paramount. In order to accomplish this goal, improvements to the MWD systems and procedures that are typically used in the North America land market are required. An MWD/LWD system has been designed specifically for drilling and logging these unconventional wells. The system employs sensors and technology that are critical to efficient wellbore placement and address the needs of drilling and geology. The system includes highly accurate and continuous survey measurements, state of the art gamma imaging, propagation resistivity and drilling dynamics measurements that can be useful in geomechanics. Although many of the specific measurements have been available to industry for quite some time, the challenge has always been deploying these sensors in a package that meets the operational and economic challenges of the land market. In addition to cost effective packaging, improvements to the measurement quality were also undertaken. The system has been successfully used in several areas including the Eagle Ford, Permian Basin and Bakken and results are presented that verify improved wellbore placement and reduced operating costs.