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Improving Directional Survey Accuracy through Real-Time Operating Centers

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Abstract

Standard directional surveying practices are subject to numerous error sources which can cause inaccurate placement of the wellbore. This is problematic because inaccurate wellbore placement increases collision risk, reduces reservoir drainage, and impacts subsurface models. Web-based software was developed to provide rig site personnel with a simple interface to transfer survey data in real-time to survey analysts in a remote operations center. The web interface is easily accessible via standard web browsers and enables users to upload data in any format without the need to manually configure or manipulate data fields. Independent survey quality analysis by remote operating centers is the most effective way to validate directional survey accuracy and to ensure it is free from gross or large systematic errors that exceed the assumptions of the positional error model. Furthermore, by applying multi-station analysis corrections and using in-field referencing geomagnetic models, the positional uncertainty of the wellbore trajectory can be reduced by 50 percent or greater. These methods improve wellbore placement substantially at a low operational cost, thus significantly increasing the value of the wellbore.



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