

## Wellbore Spiraling Induced through Systematic Micro-Sliding

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**Abstract :** Stick-Slip is a term that is often overused and commonly diagnosed from surface drilling parameters of torque and differential pressure, but the actual magnitude of the condition is rarely captured at the BHA level as the necessary measurements are seldom deployed. Deployment of an accurate stick-slip measurement downhole has led to an interesting discovery that goes against long held traditional drilling lore. A divide has been identified between stick-slip as independent bit and BHA conditions. This phenomenon in horizontal laterals is common, but few M/LWD systems have been able to capture it. Utilizing measurements of downhole RPM bore pressure, high-speed magnetometer data, bending moment, and continuous inclination, the wellbore spiraling phenomenon is able to be captured, quantified, and intimately tied back to systematic effects of BHA stalling and micro-sliding. An operator in the Permian Basin has identified that this phenomenon is contributing to increased tortuosity and drag. Utilizing downhole torque measurements the root causes of the stick-slip and spiraling phenomenon were identified and able to be engineered out of the system.

**Keywords :** bending moment, downhole dynamics measurements, micro sliding, wellbore spiraling

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