SDI GYRO SURVEY SYSTEM

SDI’s premier wellbore surveying technology has been streamlined to provide customers with the new EDGE Survey System. EDGE provides a cost effective option for appropriate markets, while maintaining the performance and quality standards customers have come to expect from SDI.

- Convenient flat rate pricing based on the chosen conveyance method.
- The EDGE Survey System reduces survey times allowing you to get back to drilling faster.

Advance quality assurance systems allow for lightning fast survey times reducing rig downtime while surveying using wireline. The memory drop gyro service virtually eliminates rig time requirements. Combining these operational features with a new state of the art software allows for faster surveying saving time and money.

- The EDGE Survey System meets or exceeds the Operators Wellbore Survey Group (OWSG) error model

The OWSG is a sub committee of International Steering Committee for Wellbore Survey Accuracy (ISCWSA) made up of wellbore positioning experts from several industry leading exploration and production companies. Working together they developed an Instrument Performance Model (IPM) that meets the specification of multiple service providers. These IPM’s are aimed at simplifying the anti-collision analysis for future drilling reducing the risks associated other vendors unproven IPM’s.

What is a wellbore survey and how does it relate to an EOU?

A wellbore survey consists of measured depth, inclination and azimuth. From these sensor measurements Northing / Easting, Vertical Section, and True Vertical Depth can be calculated.

Now that the positional data for a given well has been generated its location is known correct?

The answer is both yes and no. Every survey tool has a related amount of positional uncertainty which should be modeled by a supplier validated Instrument Performance Model (IPM). IPM’s use error model terms in order to calculate a survey’s Ellipse of Uncertainty (EOU). Several of these terms are combined to generate a three dimensional ellipse that resembles the shape of an egg. A more accurate survey tool will produce a smaller EOU for a well at a specified depth. For perspective, the EOU produced by a standard MWD tool for a two mile long lateral well landed at 8000’ TVD has the same area as a major league baseball field. A premium Keeper gyro survey on that same well provides an uncertainty area the size of half a basketball court!

Depending on a number of factors a premium keeper gyro survey may exceed a given well’s Technical requirements. Factors worth considering in choosing an appropriate survey tool are offset surface well spacing, hole section to be surveyed, and the targeted formation pay thickness.

Consider the example below which highlights a near vertical surface hole section in the Permian basin to a depth of 2,000’. In this situation you can see how a premium gyro, the SDI Keeper, provides a EOU of less than 15.5 ft cross sectional distance for a well that open hole diameter is a foot wide. This level of accuracy is not required for this situation due to the surface well spacing 20 ft and a 80 ft thick targeted pay zone. The EDGE (OWSG) EOU would be a more practical choice in this application. Additionally, an inclination only survey tool in this provides you with a lateral uncertainty of over 30 feet, which will cause serious anti-collisions concerns for the next well.

TARGET APPLICATIONS

- Real Time Wireline Surveying
- Memory Drop Gyro Surveying
- Whipstock and Motor Orientation Services
- Top Hole Surveying
- Kick Off Point Surveying
- Regulatory Compliance

Plan and section view Keeper / Edge (OWSG) / Inc Only
GENERAL SPECIFICATIONS

INSTRUMENT ACCURACY

INCLINATION
0.1° inc 0° - 30° inclination

AZIMUTH
0.15° x 3° inclination

TOOL FACE
0.15° x 3° inclination

TOOL SPECIFICATIONS

PRESSURE RATING
20,000 psi [137,900 kPa]

SURVEY SPEED
400 ft/min [Suggested Maximum]

MAXIMUM INCLINATION
30°

OPERATION
2 3/8” Tubing up to 13 3/8” Casing

SURVEYING IN HOLE
200°F Unshielded 300°F with Heat Shield
SIZE RANGING FROM

MAXIMUM TEMPERATURE
Reduced to 20 mins per 1000ft

SURVEYING TIME ON WIRELINE
Alkaline = 12 hours

BATTERY
Lithium = 36 hours

SYSTEM ACCURACY
Subject to Well Profile

ELLIPSE OF UNCERTAINTY

SCIENTIFIC DRILLING’S ISCWSA ERROR MODELS

CORPORATE HEADQUARTERS
16701 Greenspoint Park Drive
Suite 200
Houston, TX 77060
+1.281.443.3300
+1.800.514.8949
www.scientificdrilling.com

SDI’s EDGE SERVICE is designed to provide gyro surveys safely, reliably and effectively in order to meet drilling and regulatory requirements at an exceptional price point.