


# ELLIPSE OF UNCERTAINTY

## SCIENTIFIC DRILLING'S ISCWSA ERROR MODELS

Well Location: **GULF OF MEXICO** [ FISH HOOK WELL ]

Well Profile: 1<sup>st</sup> Section [ 3,600 ft. ] Build at 2° DLS to 32° Inclination and 2° Azimuth  
 2<sup>nd</sup> Section [ 5,800 ft. ] Turn at 3° DLS to 60° Inclination and 220° Azimuth  
 3<sup>rd</sup> Section [ 3,100 ft. ] Hold 60° Inclination, 220° Azimuth to 12,530 ft

### ERROR MODEL

	SEMI MINOR AXIS [ FT.]	SEMI MAJOR AXIS [ FT.]	ELLIPSE AREA [ SQ.FT.]	ACCURACY COMPARED TO THE SDI KEEPER
 SDI KEEPER WIRELINE GYRO	9.3	18.5	540.8	n/a
 SDI ALL-ATTITUDE DROP KEEPER	19.1	30.9	1,853.2	3.4 x less accurate
 STANDARD GYRO	16.1	38.6	1,951.4	3.6 x less accurate
 MWD + IFR + SAG + MS	19.9	35.1	2,195.8	4.1 x less accurate
 STANDARD MWD	22.7	64.9	4,630.3	8.6 x less accurate

All survey error models calculated at 2-sigma

Well Location: **NORTH SEA** [ EXTENDED REACH WELL ]

Well Profile: 1<sup>st</sup> Section [ 17,716.54 ft. ] Build at 2° DLS to 90° Inclination , 75° Azimuth  
 3<sup>rd</sup> Section [ 8,530.18 ft. ] Hod 90° Inclination, 75° Azimuth to 26,246.72 ft.

### ERROR MODEL



	SEMI MINOR AXIS [ FT.]	SEMI MAJOR AXIS [ FT.]	ELLIPSE AREA [ SQ.FT.]	ACCURACY COMPARED TO THE SDI KEEPER
 SDI KEEPER WIRELINE GYRO	47.4	162.5	24,214.1	n/a
 STANDARD GYRO	46.3	327.4	47,585.0	2 x less accurate
 MWD + IFR + SAG + MS	52.2	307.7	50,454.6	2.1 x less accurate
 STANDARD MWD	63.2	553.8	109,874.6	4.5 x less accurate

All survey error models calculated at 2-sigma

Well Location: **BASS STRAIGHT** [ DESIGNER WELL ]

Well Profile: 1<sup>st</sup> Section [ 5,577.43 ft. ] Build at 2.5° DLS to 50° Inclination , 0° Azimuth  
 2<sup>nd</sup> Section [ 3,772.97 ft. ] Drop at 2° DLS to 0° Inclination , 0° Azimuth at 9350.39 ft.  
 3<sup>rd</sup> Section [ 10,170.6 ft. ] Build at 15°DLS to 110° Inclination , 193° Azimuth to 13,221.78 ft.

### ERROR MODEL

	SEMI MINOR AXIS [ FT.]	SEMI MAJOR AXIS [ FT.]	ELLIPSE AREA [ SQ.FT.]	ACCURACY COMPARED TO THE SDI KEEPER
 SDI KEEPER WIRELINE GYRO	12.2	20.1	770.4	n/a
 STANDARD GYRO	23.2	36.2	2,634.6	3.4 x less accurate
 MWD + IFR + SAG + MS	31.0	44.9	4,379.4	5.7 x less accurate
 STANDARD MWD	46.0	83.5	12,061.1	15.7 x less accurate

All survey error models calculated at 2-sigma



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