

# Continental Resources, Inc.

Weld County, CO

Sec. 1-T7N-R60W

Reines 1-1H

Plan A

Survey: Sperry MWD Surveys

## Sperry Drilling Services

## Standard Report

23 April, 2012

Well Coordinates: 1,464,110.65 N, 3,404,621.58 E (40° 35' 53.72" N, 104° 02' 34.32" W)

Ground Level: 4,929.00 ft

Local Coordinate Origin:

Centered on Well Reines 1-1H

Viewing Datum:

RKB 16' @ 4945.00ft (Unknown Well)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

**HALLIBURTON**

**Survey Report for Reines 1-1H - Sperry MWD Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Tie On to Surface</b>							
602.00	0.14	221.88	602.00	-0.55	-0.49	-0.55	0.02
<b>First MWD Survey</b>							
693.00	0.35	352.99	693.00	-0.35	-0.60	-0.35	0.50
784.00	0.42	338.88	784.00	0.23	-0.75	0.24	0.13
877.00	0.22	315.56	877.00	0.68	-1.00	0.68	0.25
966.00	0.28	14.63	965.99	1.01	-1.07	1.01	0.28
1,057.00	0.25	9.81	1,056.99	1.42	-0.98	1.42	0.04
1,149.00	0.29	21.27	1,148.99	1.84	-0.86	1.84	0.07
1,240.00	0.21	86.37	1,239.99	2.06	-0.61	2.06	0.30
1,331.00	0.29	26.28	1,330.99	2.28	-0.34	2.28	0.29
1,424.00	0.46	20.34	1,423.99	2.84	-0.10	2.84	0.19
1,514.00	0.28	41.10	1,513.99	3.34	0.17	3.34	0.25
1,604.00	0.28	350.40	1,603.99	3.73	0.27	3.73	0.27
1,694.00	0.44	33.98	1,693.98	4.23	0.43	4.23	0.34
1,785.00	0.56	28.10	1,784.98	4.91	0.83	4.91	0.14
1,875.00	0.30	9.82	1,874.98	5.53	1.08	5.53	0.32
1,965.00	0.49	8.17	1,964.98	6.14	1.18	6.14	0.21
2,058.00	0.36	13.15	2,057.97	6.82	1.30	6.82	0.15
2,153.00	0.51	12.33	2,152.97	7.53	1.46	7.52	0.16
2,247.00	0.41	22.84	2,246.97	8.25	1.68	8.24	0.14
2,341.00	0.41	33.16	2,340.97	8.84	1.99	8.83	0.08
2,435.00	0.34	39.52	2,434.96	9.33	2.35	9.33	0.09
2,528.00	0.61	30.93	2,527.96	9.97	2.78	9.96	0.30
2,621.00	0.47	37.99	2,620.96	10.70	3.27	10.69	0.17
2,717.00	0.33	45.07	2,716.95	11.20	3.71	11.19	0.15
2,809.00	0.46	33.18	2,808.95	11.70	4.10	11.68	0.17
2,903.00	0.49	51.73	2,902.95	12.26	4.62	12.25	0.17
2,996.00	0.31	70.71	2,995.95	12.59	5.17	12.57	0.24
3,089.00	0.26	68.21	3,088.95	12.75	5.61	12.73	0.06
3,182.00	0.59	145.92	3,181.94	12.44	6.07	12.41	0.64
3,275.00	0.86	183.44	3,274.94	11.34	6.30	11.32	0.57
3,369.00	1.02	170.58	3,368.92	9.81	6.39	9.79	0.28
3,462.00	0.83	177.73	3,461.91	8.32	6.55	8.30	0.24
3,556.00	1.03	179.87	3,555.90	6.80	6.58	6.78	0.22
3,650.00	1.14	190.71	3,649.88	5.03	6.41	5.01	0.25
3,744.00	1.29	181.54	3,743.86	3.06	6.21	3.04	0.26
3,838.00	1.44	187.82	3,837.83	0.83	6.02	0.81	0.23
3,932.00	1.74	189.48	3,931.80	-1.75	5.62	-1.77	0.32
4,026.00	1.90	193.55	4,025.75	-4.67	5.02	-4.69	0.22
4,120.00	2.16	189.50	4,119.69	-7.93	4.37	-7.95	0.32
4,214.00	2.21	190.63	4,213.62	-11.46	3.74	-11.47	0.07
4,308.00	1.74	193.37	4,307.57	-14.63	3.07	-14.64	0.51
4,402.00	1.21	199.19	4,401.54	-16.96	2.42	-16.96	0.59
4,496.00	1.02	205.50	4,495.52	-18.65	1.73	-18.66	0.24
4,589.00	0.44	230.45	4,588.51	-19.62	1.10	-19.63	0.70
4,681.00	0.34	250.58	4,680.51	-19.94	0.57	-19.94	0.18
4,774.00	0.47	232.36	4,773.51	-20.26	0.01	-20.26	0.20
4,869.00	0.59	198.50	4,868.50	-20.97	-0.46	-20.96	0.35

**Survey Report for Reines 1-1H - Sperry MWD Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,962.00	0.64	153.66	4,961.50	-21.89	-0.38	-21.88	0.51
5,055.00	0.68	147.22	5,054.49	-22.81	0.15	-22.82	0.09
5,149.00	0.28	148.73	5,148.49	-23.48	0.57	-23.48	0.43
5,243.00	0.11	153.89	5,242.49	-23.76	0.73	-23.76	0.18
5,337.00	0.17	140.35	5,336.49	-23.95	0.86	-23.95	0.07
5,430.00	0.09	83.17	5,429.49	-24.04	1.02	-24.05	0.15
5,524.00	0.33	103.91	5,523.49	-24.10	1.36	-24.10	0.26
5,618.00	0.44	87.36	5,617.48	-24.15	1.98	-24.15	0.17
5,649.00	0.62	82.38	5,648.48	-24.12	2.27	-24.13	0.60
5,713.00	2.74	16.45	5,712.45	-22.61	3.04	-22.62	3.99
5,745.00	6.86	4.49	5,744.34	-19.97	3.41	-19.98	13.18
5,776.00	10.79	0.49	5,774.96	-15.22	3.58	-15.23	12.82
5,807.00	15.52	0.51	5,805.14	-8.17	3.64	-8.18	15.26
5,838.00	19.70	359.56	5,834.68	1.21	3.64	1.20	13.52
5,869.00	23.61	359.36	5,863.49	12.65	3.53	12.64	12.62
5,900.00	27.41	358.91	5,891.46	25.99	3.32	25.98	12.27
5,931.00	30.74	359.64	5,918.55	41.06	3.14	41.04	10.80
5,963.00	34.05	359.65	5,945.57	58.20	3.03	58.19	10.34
5,994.00	36.89	359.21	5,970.81	76.18	2.85	76.17	9.20
6,025.00	40.54	359.23	5,995.00	95.57	2.59	95.56	11.77
6,056.00	44.26	358.39	6,017.88	116.46	2.15	116.45	12.14
6,087.00	47.26	359.40	6,039.51	138.66	1.72	138.66	9.95
6,119.00	50.68	0.25	6,060.51	162.80	1.65	162.79	10.87
6,149.00	53.36	0.97	6,078.97	186.44	1.91	186.43	9.13
6,180.00	56.05	1.83	6,096.88	211.73	2.53	211.72	8.97
6,212.00	58.50	1.58	6,114.18	238.64	3.33	238.63	7.68
6,243.00	60.19	359.72	6,129.99	265.30	3.63	265.29	7.51
6,275.00	61.63	357.74	6,145.55	293.26	3.01	293.25	7.03
6,306.00	64.26	358.07	6,159.65	320.84	2.00	320.84	8.54
6,337.00	68.15	358.31	6,172.15	349.19	1.10	349.18	12.57
6,368.00	71.12	359.29	6,182.94	378.24	0.50	378.24	10.03
6,399.00	73.60	0.38	6,192.33	407.78	0.41	407.78	8.67
6,430.00	75.70	0.74	6,200.54	437.67	0.71	437.67	6.87
6,460.00	78.57	1.40	6,207.22	466.91	1.25	466.90	9.80
6,492.00	81.04	0.31	6,212.88	498.40	1.72	498.39	8.42
6,523.00	83.80	359.35	6,216.97	529.12	1.63	529.12	9.42
6,543.00	86.69	359.07	6,218.63	549.05	1.35	549.04	14.52
6,620.00	91.23	359.51	6,220.02	626.01	0.40	626.01	5.92
6,714.00	90.56	358.50	6,218.56	719.99	-1.23	719.99	1.29
6,776.00	90.49	359.49	6,217.99	781.97	-2.32	781.98	1.60
6,837.00	90.68	0.84	6,217.36	842.97	-2.14	842.97	2.23
6,899.00	90.37	1.45	6,216.80	904.95	-0.90	904.95	1.10
6,960.00	89.69	1.70	6,216.76	965.93	0.77	965.92	1.19
7,022.00	88.83	1.29	6,217.56	1,027.90	2.39	1,027.89	1.54
7,084.00	88.76	1.62	6,218.87	1,089.87	3.96	1,089.85	0.54
7,146.00	88.64	1.53	6,220.28	1,151.83	5.67	1,151.80	0.24
7,207.00	89.88	1.62	6,221.06	1,212.80	7.34	1,212.77	2.04
7,268.00	89.20	1.06	6,221.55	1,273.78	8.77	1,273.74	1.44
7,330.00	90.56	2.94	6,221.68	1,335.74	10.93	1,335.69	3.74
7,422.00	90.00	1.75	6,221.23	1,427.66	14.70	1,427.60	1.43
7,483.00	90.06	1.31	6,221.20	1,488.64	16.33	1,488.57	0.73

**Survey Report for Reines 1-1H - Sperry MWD Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7,545.00	90.12	2.19	6,221.10	1,550.61	18.22	1,550.53	1.42
7,606.00	90.12	1.62	6,220.98	1,611.57	20.25	1,611.49	0.93
7,667.00	90.06	0.38	6,220.88	1,672.56	21.31	1,672.48	2.04
7,729.00	89.94	358.78	6,220.88	1,734.56	20.86	1,734.48	2.59
7,790.00	90.31	359.75	6,220.75	1,795.55	20.08	1,795.47	1.70
7,851.00	89.94	0.69	6,220.61	1,856.55	20.31	1,856.47	1.66
7,912.00	89.94	358.83	6,220.68	1,917.55	20.05	1,917.47	3.05
7,973.00	90.19	359.38	6,220.61	1,978.54	19.10	1,978.46	0.99
8,034.00	89.69	357.85	6,220.67	2,039.52	17.63	2,039.45	2.64
8,095.00	90.06	359.26	6,220.81	2,100.50	16.09	2,100.43	2.39
8,157.00	89.69	356.70	6,220.94	2,162.45	13.90	2,162.39	4.17
8,218.00	89.51	356.05	6,221.37	2,223.33	10.05	2,223.28	1.11
8,280.00	89.57	357.53	6,221.86	2,285.23	6.58	2,285.19	2.39
8,340.00	89.75	358.67	6,222.22	2,345.19	4.59	2,345.16	1.92
8,402.00	89.51	359.42	6,222.62	2,407.18	3.55	2,407.16	1.27
8,463.00	88.89	356.80	6,223.47	2,468.14	1.54	2,468.12	4.41
8,525.00	89.26	356.87	6,224.47	2,530.04	-1.88	2,530.03	0.61
8,586.00	89.75	357.47	6,225.00	2,590.96	-4.89	2,590.96	1.27
8,646.00	89.26	356.63	6,225.52	2,650.88	-7.98	2,650.89	1.62
8,707.00	90.19	357.03	6,225.81	2,711.78	-11.35	2,711.81	1.66
8,768.00	89.51	356.35	6,225.97	2,772.68	-14.88	2,772.71	1.58
8,829.00	90.00	355.83	6,226.23	2,833.54	-19.03	2,833.59	1.17
8,890.00	90.12	355.90	6,226.17	2,894.38	-23.43	2,894.44	0.23
8,951.00	90.00	356.56	6,226.10	2,955.25	-27.44	2,955.32	1.10
9,012.00	89.88	357.20	6,226.17	3,016.15	-30.76	3,016.24	1.07
9,073.00	89.94	358.59	6,226.26	3,077.11	-33.00	3,077.21	2.28
9,134.00	89.88	359.95	6,226.36	3,138.11	-33.78	3,138.20	2.23
9,198.00	89.94	0.88	6,226.46	3,202.10	-33.32	3,202.20	1.46
9,261.00	90.12	1.62	6,226.43	3,265.09	-31.94	3,265.18	1.21
9,324.00	89.94	2.52	6,226.39	3,328.05	-29.67	3,328.13	1.46
9,387.00	89.63	0.14	6,226.63	3,391.02	-28.21	3,391.10	3.81
9,451.00	90.06	1.36	6,226.80	3,455.02	-27.37	3,455.09	2.02
9,513.00	89.75	0.14	6,226.91	3,517.01	-26.56	3,517.08	2.03
9,575.00	89.51	359.89	6,227.31	3,579.01	-26.54	3,579.08	0.56
9,638.00	89.44	1.01	6,227.88	3,642.00	-26.05	3,642.07	1.78
9,702.00	89.38	2.21	6,228.54	3,705.97	-24.25	3,706.03	1.88
9,766.00	89.32	0.91	6,229.27	3,769.94	-22.51	3,770.00	2.03
9,829.00	89.63	0.63	6,229.85	3,832.94	-21.66	3,832.99	0.66
9,892.00	89.26	1.05	6,230.46	3,895.93	-20.74	3,895.97	0.89
9,955.00	89.63	1.78	6,231.07	3,958.90	-19.18	3,958.95	1.30
10,051.00	89.44	359.90	6,231.85	4,054.88	-17.77	4,054.92	1.97
10,114.00	89.75	1.36	6,232.29	4,117.88	-17.08	4,117.91	2.37
10,157.00	89.88	2.24	6,232.43	4,160.86	-15.73	4,160.89	2.07
<b>Final MWD Survey</b>							
10,191.00	89.88	2.24	6,232.50	4,194.83	-14.40	4,194.85	0.00
<b>Straight Line Projection to Bit</b>							
10,192.00	89.88	2.24	6,232.50	4,195.83	-14.36	4,195.85	0.00

**Survey Report for Reines 1-1H - Sperry MWD Surveys****Survey Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
0.00	0.00	0.00	0.00	Tie On to Surface
602.00	602.00	-0.55	-0.49	First MWD Survey
10,157.00	6,232.43	4,160.86	-15.73	Final MWD Survey
10,191.00	6,232.50	4,194.83	-14.40	Straight Line Projection to Bit

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
TD	No Target (Freehand)	359.80	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
602.00	10,192.00	Sperry MWD Surveys	MWD

**Targets**

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Reines 1-11H Setba - survey hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,464,110.65	3,404,621.58	40° 35' 53.721 N	104° 2' 34.321 W
Reines 1-11H Sestic - survey hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,464,110.65	3,404,621.58	40° 35' 53.721 N	104° 2' 34.321 W
Reines 1-11H Plan / - survey misses target center by 36.18ft at 10191.63ft MD (6232.50 TVD, 4195.46 N, -14.38 E) - Point	0.00	0.00	6,243.00	4,196.79	-48.98	1,468,307.33	3,404,572.61	40° 36' 35.194 N	104° 2' 34.062 W

**North Reference Sheet for Sec. 1-T7N-R60W - Reines 1-1H - Plan A**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to RKB 16' @ 4945.00ft (Unknown Well). Northing and Easting are relative to Reines 1-1H

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is 105° 30' 0.000 W°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 40° 47' 0.000 N°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99997520

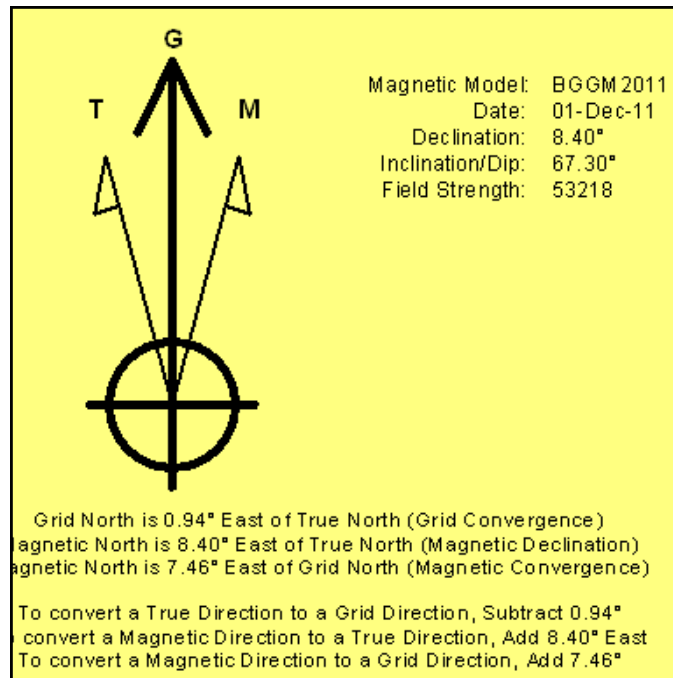
Grid Coordinates of Well: 1,464,110.65 ft N, 3,404,621.58 ft E

Geographical Coordinates of Well: 40° 35' 53.72" N, 104° 02' 34.32" W

Grid Convergence at Surface is: 0.94°

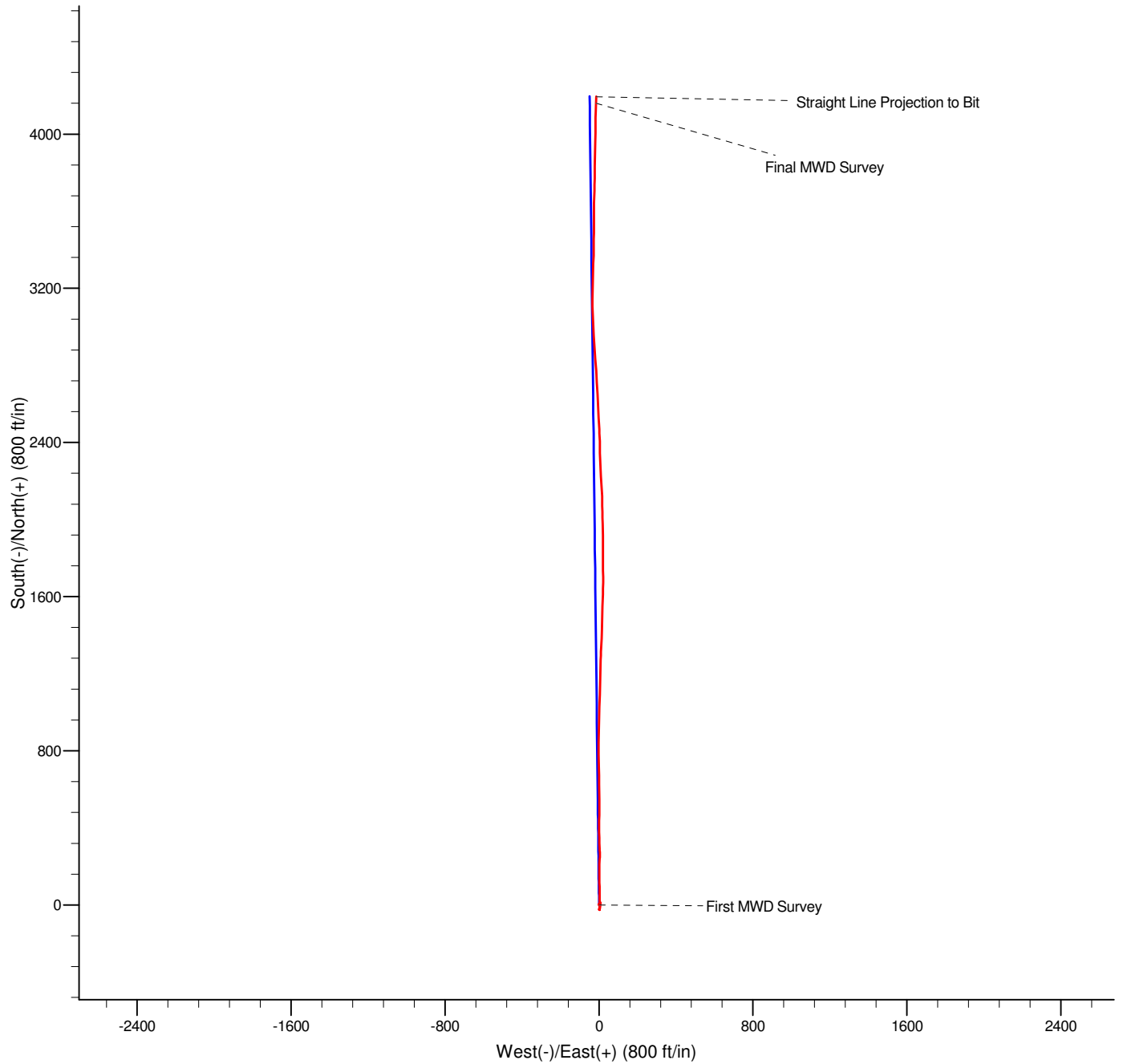
Based upon Minimum Curvature type calculations, at a Measured Depth of 10,192.00ft  
the Bottom Hole Displacement is 4,195.85ft in the Direction of 359.80° (Grid).

Magnetic Convergence at surface is: -7.46° ( 1 December 2011, , BGGM2011)



**LEGEND**

- Reines 1-1H, Plan A, Plan A Rev 0 V0
- Sperry MWD Surveys



LEGEND

- Reines 1-1H, Plan A, Plan A Rev 0 V0
- Sperry MWD Surveys

