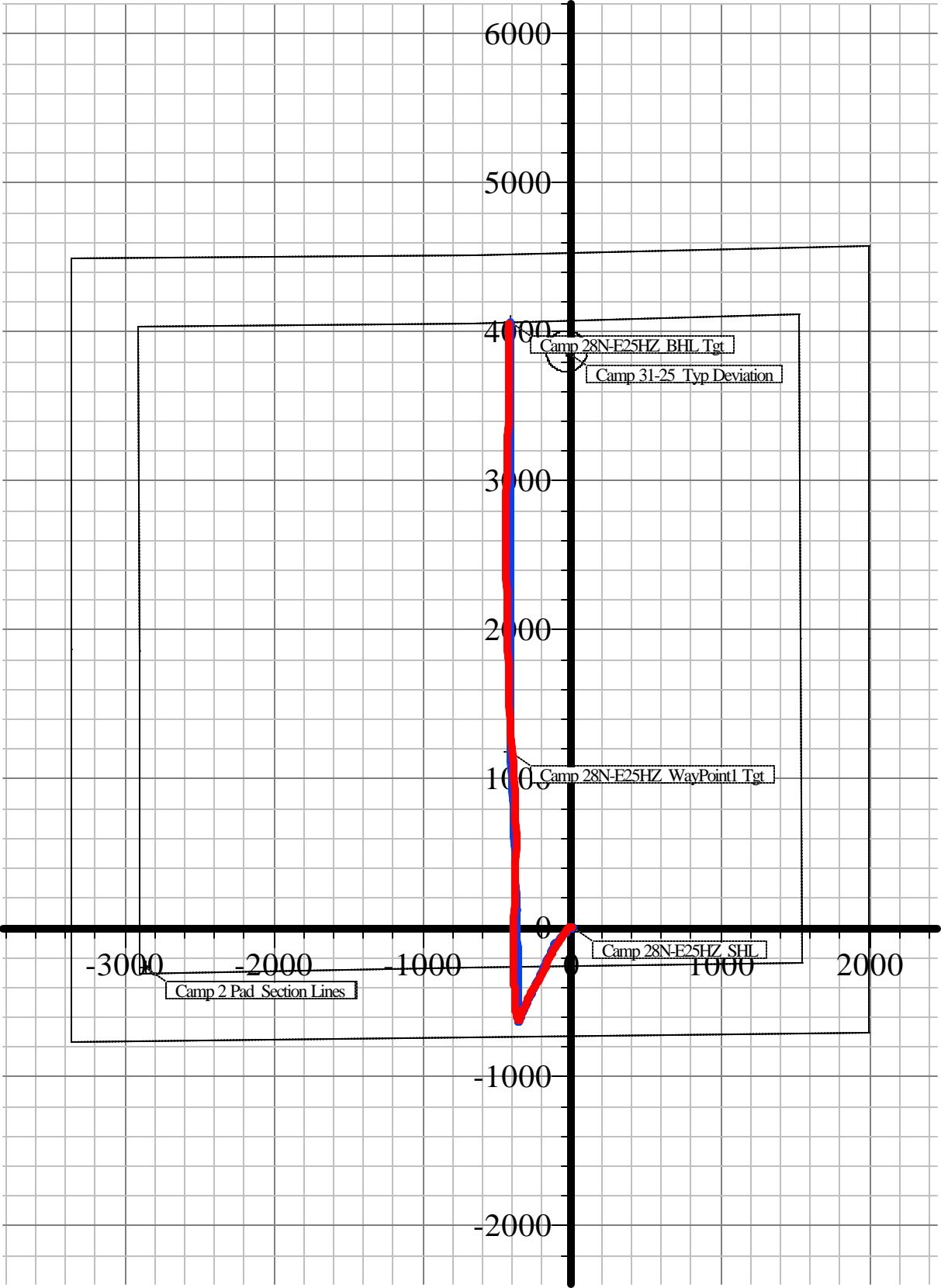


South(-)/North(+) [ft]



West(-)/East(+) [ft]

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 25-T3N-R66W

Camp 28N-E25HZ

Plan A Rev 2

Survey: Sperry MWD Surveys

Sperry Drilling Services Standard Report

08 February, 2012

Well Coordinates: 1,313,416.74 N, 3,217,098.05 E (40° 11' 28.01" N, 104° 43' 22.39" W)

Ground Level: 4,980.00 ft

Local Coordinate Origin:

Centered on Well Camp 28N-E25HZ

Viewing Datum:

RKB 25' @ 5005.00ft (H&P 308)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Survey Report for Camp 28N-E25HZ - Sperry MWD Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
800.00	0.41	232.41	799.98	1.37	-4.59	1.83	0.00
919.00	0.06	242.18	918.98	1.08	-4.98	1.58	0.29
1,013.00	0.14	243.39	1,012.98	1.01	-5.12	1.52	0.09
1,106.00	0.52	292.72	1,105.98	1.12	-5.61	1.68	0.47
1,198.00	0.22	311.47	1,197.98	1.40	-6.13	2.01	0.35
1,290.00	0.45	306.95	1,289.97	1.73	-6.55	2.39	0.25
1,382.00	0.47	323.23	1,381.97	2.25	-7.07	2.96	0.14
1,473.00	0.68	317.31	1,472.97	2.95	-7.66	3.71	0.24
1,565.00	0.92	321.10	1,564.96	3.92	-8.49	4.76	0.27
1,657.00	0.66	306.94	1,656.95	4.82	-9.38	5.74	0.35
1,749.00	0.77	306.67	1,748.94	5.50	-10.30	6.52	0.12
1,840.00	0.57	341.05	1,839.94	6.30	-10.94	7.37	0.48
1,932.00	0.93	317.82	1,931.93	7.28	-11.59	8.42	0.50
2,023.00	1.83	245.81	2,022.91	7.24	-13.41	8.56	1.95
2,115.00	3.06	237.94	2,114.82	5.33	-16.83	7.01	1.38
2,207.00	4.59	217.31	2,206.62	1.10	-21.14	3.23	2.21
2,299.00	5.80	221.46	2,298.24	-5.31	-26.45	-2.61	1.38
2,391.00	8.06	212.76	2,389.56	-14.22	-33.02	-10.80	2.70
2,487.00	9.35	210.01	2,484.46	-26.64	-40.56	-22.39	1.41
2,582.00	9.94	215.59	2,578.11	-39.99	-49.19	-34.80	1.16
2,678.00	10.90	218.24	2,672.53	-53.85	-59.63	-47.53	1.12
2,773.00	10.31	219.18	2,765.91	-67.50	-70.56	-60.00	0.65
2,869.00	11.57	214.16	2,860.16	-82.12	-81.40	-73.45	1.64
2,964.00	11.40	212.92	2,953.26	-97.89	-91.85	-88.08	0.32
3,059.00	11.25	211.01	3,046.41	-113.71	-101.73	-102.82	0.43
3,154.00	11.17	212.91	3,139.60	-129.38	-111.50	-117.42	0.40
3,249.00	10.19	201.95	3,232.96	-144.90	-119.64	-132.03	2.37
3,344.00	10.25	205.27	3,326.46	-160.34	-126.39	-146.71	0.62
3,440.00	8.40	204.77	3,421.18	-174.43	-132.98	-160.06	1.93
3,535.00	9.38	214.54	3,515.05	-187.11	-140.27	-171.93	1.89
3,629.00	11.01	210.72	3,607.56	-201.14	-149.20	-184.98	1.88
3,726.00	9.02	205.12	3,703.08	-215.99	-157.16	-198.95	2.28
3,821.00	10.27	201.49	3,796.74	-230.61	-163.43	-212.86	1.46
3,916.00	10.65	203.48	3,890.16	-246.54	-170.03	-228.04	0.55
4,011.00	10.92	204.67	3,983.48	-262.77	-177.28	-243.45	0.37
4,106.00	12.74	209.01	4,076.46	-280.11	-186.12	-259.81	2.13
4,202.00	13.05	209.02	4,170.04	-298.84	-196.51	-277.39	0.32
4,297.00	10.32	205.69	4,263.06	-315.90	-205.40	-293.46	2.96
4,393.00	8.45	204.63	4,357.77	-330.06	-212.07	-306.87	1.96
4,488.00	10.19	211.30	4,451.52	-343.58	-219.35	-319.59	2.15
4,584.00	10.31	212.88	4,545.99	-358.05	-228.42	-333.07	0.32
4,679.00	11.83	210.64	4,639.22	-373.57	-238.00	-347.53	1.66
4,775.00	11.16	211.45	4,733.29	-389.97	-247.86	-362.84	0.72
4,870.00	10.63	212.12	4,826.58	-405.23	-257.32	-377.07	0.57
4,965.00	9.56	214.41	4,920.10	-419.16	-266.43	-390.00	1.20
5,060.00	10.01	204.63	5,013.73	-433.17	-274.33	-403.15	1.81
5,156.00	8.09	202.02	5,108.53	-447.02	-280.34	-416.31	2.04
5,251.00	10.82	202.06	5,202.23	-461.49	-286.20	-430.11	2.87
5,346.00	11.85	200.76	5,295.38	-478.87	-293.01	-446.72	1.12
5,441.00	9.38	202.54	5,388.74	-495.15	-299.43	-462.25	2.62

Survey Report for Camp 28N-E25HZ - Sperry MWD Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,537.00	9.54	205.83	5,483.44	-509.53	-305.90	-475.91	0.59
5,632.00	9.53	205.99	5,577.13	-523.69	-312.77	-489.30	0.03
5,727.00	9.41	208.23	5,670.83	-537.60	-319.89	-502.41	0.41
5,822.00	8.76	203.00	5,764.64	-551.10	-326.39	-515.19	1.11
5,918.00	8.03	200.38	5,859.61	-564.11	-331.59	-527.61	0.86
6,013.00	8.22	203.78	5,953.66	-576.55	-336.64	-539.47	0.54
6,108.00	8.33	201.17	6,047.67	-589.18	-341.86	-551.51	0.41
6,204.00	8.14	198.43	6,142.68	-602.11	-346.52	-563.90	0.45
6,299.00	6.03	199.16	6,236.95	-613.21	-350.28	-574.56	2.22
6,394.00	4.28	203.52	6,331.56	-621.17	-353.34	-582.17	1.89
6,489.00	0.92	216.23	6,426.45	-625.04	-355.20	-585.83	3.57
6,584.00	0.66	273.95	6,521.44	-625.62	-356.20	-586.30	0.84
6,648.00	1.23	270.34	6,585.44	-625.59	-357.25	-586.17	0.90
6,674.00	2.15	317.12	6,611.42	-625.23	-357.86	-585.75	6.10
KOP @ 6674							
6,679.00	2.41	321.22	6,616.42	-625.08	-357.99	-585.58	6.10
6,711.00	5.04	334.76	6,648.35	-623.28	-359.02	-583.69	8.61
6,743.00	8.34	342.10	6,680.13	-619.80	-360.33	-580.10	10.63
6,775.00	11.12	344.61	6,711.67	-614.62	-361.86	-574.78	8.79
6,806.00	14.00	344.17	6,741.92	-608.13	-363.68	-568.14	9.30
6,838.00	16.69	344.12	6,772.78	-599.98	-365.99	-559.80	8.41
6,870.00	19.18	345.21	6,803.22	-590.48	-368.59	-550.09	7.85
6,902.00	21.78	346.08	6,833.19	-579.63	-371.36	-539.02	8.18
6,933.00	24.11	347.74	6,861.74	-567.86	-374.09	-527.03	7.80
6,965.00	25.74	351.44	6,890.76	-554.60	-376.51	-513.59	7.05
6,997.00	28.19	353.90	6,919.28	-540.21	-378.35	-499.09	8.41
7,028.00	29.93	355.55	6,946.38	-525.22	-379.73	-484.03	6.18
7,060.00	31.77	357.59	6,973.85	-508.84	-380.70	-467.64	6.61
7,092.00	35.01	356.25	7,000.56	-491.26	-381.66	-450.06	10.38
7,124.00	38.08	357.66	7,026.27	-472.23	-382.66	-431.03	9.95
7,155.00	41.09	357.17	7,050.16	-452.50	-383.55	-411.31	9.76
7,187.00	45.15	356.55	7,073.51	-430.67	-384.76	-389.46	12.76
7,219.00	48.17	357.13	7,095.47	-407.43	-386.04	-366.22	9.53
7,251.00	51.33	356.67	7,116.14	-383.05	-387.36	-341.82	9.94
7,282.00	54.90	356.73	7,134.75	-358.30	-388.79	-317.06	11.52
7,314.00	58.56	356.87	7,152.30	-331.59	-390.28	-290.33	11.44
7,346.00	62.20	356.78	7,168.11	-303.82	-391.82	-262.55	11.38
7,377.00	66.84	357.09	7,181.45	-275.88	-393.31	-234.60	14.99
7,409.00	70.66	358.22	7,193.04	-246.09	-394.53	-204.84	12.38
7,441.00	74.27	358.50	7,202.68	-215.59	-395.40	-174.41	11.31
7,472.00	78.66	358.52	7,209.94	-185.47	-396.19	-144.37	14.16
7,504.00	82.67	359.85	7,215.12	-153.90	-396.63	-112.92	13.19
7,536.00	84.27	0.68	7,218.76	-122.11	-396.49	-81.31	5.62
7,568.00	85.87	1.34	7,221.51	-90.24	-395.92	-49.65	5.41
7,622.00	89.01	2.44	7,223.92	-36.33	-394.14	3.80	6.16
7" Casing @ 7622							
7,656.00	90.99	3.13	7,223.92	-2.37	-392.49	37.41	6.16
7,720.00	90.43	2.82	7,223.13	61.54	-389.17	100.66	1.00
7,815.00	88.77	1.83	7,223.79	156.45	-385.32	194.69	2.03
7,910.00	89.94	2.70	7,224.86	251.37	-381.56	288.74	1.53
8,005.00	89.51	1.64	7,225.32	346.30	-377.97	382.82	1.20

Survey Report for Camp 28N-E25HZ - Sperry MWD Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8,100.00	89.07	0.44	7,226.50	441.27	-376.24	477.13	1.35
8,195.00	89.75	0.55	7,227.48	536.26	-375.42	571.55	0.73
8,291.00	89.94	359.97	7,227.74	632.26	-374.99	667.01	0.64
8,386.00	88.89	358.39	7,228.71	727.24	-376.34	761.64	2.00
8,481.00	87.96	357.94	7,231.32	822.16	-379.39	856.37	1.09
8,576.00	89.69	357.45	7,233.26	917.06	-383.21	951.17	1.89
8,671.00	87.84	356.26	7,235.31	1,011.89	-388.42	1,046.04	2.32
8,766.00	88.33	356.33	7,238.49	1,106.63	-394.55	1,140.92	0.52
8,862.00	90.31	356.08	7,239.63	1,202.41	-400.90	1,236.85	2.08
8,958.00	90.93	356.06	7,238.59	1,298.18	-407.48	1,332.79	0.65
9,053.00	90.87	356.86	7,237.09	1,392.99	-413.35	1,427.70	0.84
9,148.00	90.80	357.76	7,235.71	1,487.87	-417.81	1,522.55	0.95
9,243.00	90.37	357.39	7,234.74	1,582.78	-421.83	1,617.38	0.60
9,338.00	91.61	358.90	7,233.10	1,677.71	-424.90	1,712.13	2.06
9,433.00	90.99	358.41	7,230.94	1,772.66	-427.13	1,806.82	0.83
9,529.00	91.17	359.73	7,229.13	1,868.63	-428.69	1,902.45	1.39
9,623.00	91.30	359.38	7,227.11	1,962.60	-429.42	1,996.02	0.40
9,718.00	91.24	358.56	7,225.00	2,057.56	-431.13	2,090.66	0.87
9,813.00	91.36	357.49	7,222.85	2,152.48	-434.40	2,185.42	1.13
9,909.00	91.73	359.06	7,220.26	2,248.40	-437.29	2,281.14	1.68
10,004.00	89.81	359.29	7,218.98	2,343.38	-438.65	2,375.77	2.04
10,100.00	89.20	359.80	7,219.81	2,439.37	-439.42	2,471.34	0.83
10,195.00	88.02	359.44	7,222.12	2,534.34	-440.05	2,565.88	1.30
10,290.00	88.45	359.88	7,225.04	2,629.29	-440.61	2,660.41	0.65
10,385.00	88.27	359.92	7,227.76	2,724.25	-440.78	2,754.89	0.19
10,480.00	88.45	0.38	7,230.48	2,819.21	-440.53	2,849.34	0.52
10,576.00	88.77	0.96	7,232.81	2,915.18	-439.40	2,944.70	0.69
10,671.00	88.21	0.49	7,235.31	3,010.14	-438.20	3,039.05	0.77
10,766.00	88.58	1.61	7,237.97	3,105.08	-436.46	3,133.33	1.24
10,861.00	89.07	1.87	7,239.92	3,200.02	-433.58	3,227.48	0.58
10,957.00	89.38	1.54	7,241.22	3,295.97	-430.72	3,322.65	0.47
11,052.00	88.08	1.87	7,243.32	3,390.90	-427.90	3,416.80	1.41
11,147.00	86.54	0.89	7,247.78	3,485.76	-425.61	3,510.95	1.92
11,243.00	86.72	0.21	7,253.43	3,581.59	-424.69	3,606.19	0.73
11,338.00	86.35	0.01	7,259.17	3,676.42	-424.51	3,700.51	0.44
11,433.00	87.28	359.96	7,264.45	3,771.27	-424.53	3,794.88	0.98
11,529.00	88.21	0.62	7,268.22	3,867.19	-424.05	3,890.26	1.19
11,624.00	88.33	0.36	7,271.09	3,962.15	-423.24	3,984.64	0.30
11,670.00	88.33	359.96	7,272.43	4,008.13	-423.11	4,030.37	0.87
11,718.00	88.33	359.96	7,273.83	4,056.10	-423.14	4,078.10	0.00
Projection to Bit @ 11718							

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,674.00	6,611.42	-625.23	-357.86	KOP @ 6674
7,622.00	7,223.92	-36.33	-394.14	7" Casing @ 7622
11,718.00	7,273.83	4,056.10	-423.14	Projection to Bit @ 11718

Survey Report for Camp 28N-E25HZ - Sperry MWD Surveys

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Camp 28N-E25HZ_BHL Tgt	354.18	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
125.00	800.00	Surface Casing Gyro Surveys	NS-GYRO-MS
921.00	11,718.00	Sperry MWD Surveys	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,619.03	7,223.87	7"	7	8-3/4

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
Camp 2 Pad_Sectio	0.00	0.00	-63.00	-262.99	-2,857.19	1,313,128.73	3,214,243.39	40° 11' 25.410 N	104° 43' 59.210 W
- survey misses target center by 2991.99ft at 800.00ft MD (799.98 TVD, 1.37 N, -4.59 E)									
- Polygon									
Camp 2 Pad_Setbac	0.00	0.00	-63.00	-262.99	-2,857.19	1,313,128.73	3,214,243.39	40° 11' 25.410 N	104° 43' 59.210 W
- survey misses target center by 2991.99ft at 800.00ft MD (799.98 TVD, 1.37 N, -4.59 E)									
- Polygon									
Camp 31-25_Typ De	0.00	0.00	-54.00	3,869.93	-36.53	1,317,286.04	3,217,027.60	40° 12' 6.253 N	104° 43' 22.865 W
- survey misses target center by 3961.82ft at 800.00ft MD (799.98 TVD, 1.37 N, -4.59 E)									
- Circle (radius 137.00)									
Camp 28N-E25HZ_\		0.00	7,246.55	1,180.00	-410.00	1,314,593.05	3,216,677.74	40° 11' 39.671 N	104° 43' 27.677 W
- survey misses target center by 12.64ft at 8840.32ft MD (7239.66 TVD, 1180.78 N, -399.43 E)									
- Point									
Camp 28N-E25HZ_!	0.00	0.00	0.00	0.04	0.00	1,313,416.78	3,217,098.04	40° 11' 28.011 N	104° 43' 22.394 W
- survey misses target center by 800.00ft at 800.00ft MD (799.98 TVD, 1.37 N, -4.59 E)									
- Point									
Camp 28N-E25HZ_I	0.00	0.00	7,271.00	4,061.07	-413.65	1,317,473.86	3,216,648.84	40° 12' 8.142 N	104° 43' 27.725 W
- survey misses target center by 11.08ft at 11718.00ft MD (7273.83 TVD, 4056.10 N, -423.14 E)									
- Point									

North Reference Sheet for Sec. 25-T3N-R66W - Camp 28N-E25HZ - Plan A Rev 2

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

Vertical Depths are relative to RKB 25' @ 5005.00ft (H&P 308). Northing and Easting are relative to Camp 28N-E25HZ

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: 0.99995738

Grid Coordinates of Well: 1,313,416.74 ft N, 3,217,098.05 ft E

Geographical Coordinates of Well: 40° 11' 28.01" N, 104° 43' 22.39" W

Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,718.00ft
the Bottom Hole Displacement is 4,078.12ft in the Direction of 354.04° (True).

Magnetic Convergence at surface is: -8.22° (3 February 2012, , BGGM2011)

