

Noble Energy (Rockies)

Garfield County, CO

Sec. 35-T7S-R95W (SGV 35L PAD)

BM 35-13D - A 9

Wellbore #1

Plan: Plan #1

Sperry Drilling Services

Proposal Report

12 November, 2009

Well Coordinates: 577,308.00 N, 1,301,587.30 E (39° 23' 32.71" N, 107° 58' 17.35" W)

Ground Level: 9,203.00 ft

Local Coordinate Origin:

Centered on Well BM 35-13D - Slot A 9

Viewing Datum:

RKB - 24' @ 9227.00ft

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

HALLIBURTON

Plan Report for BM 35-13D - Plan #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kickoff at 225.00ft										
300.00	1.50	170.66	299.99	-0.97	0.16	0.98	2.00	2.00	0.00	170.66
360.00	2.70	170.66	359.95	-3.14	0.52	3.17	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
400.00	3.50	170.66	399.89	-5.27	0.87	5.32	2.00	2.00	0.00	0.00
490.30	5.31	170.66	489.92	-12.11	1.99	12.23	2.00	2.00	0.00	0.00
End Build at 490.30ft										
500.00	5.31	170.66	499.58	-13.00	2.14	13.12	0.00	0.00	0.00	0.00
600.00	5.31	170.66	599.15	-22.12	3.64	22.34	0.00	0.00	0.00	0.00
700.00	5.31	170.66	698.72	-31.25	5.14	31.55	0.00	0.00	0.00	0.00
800.00	5.31	170.66	798.29	-40.37	6.64	40.76	0.00	0.00	0.00	0.00
900.00	5.31	170.66	897.87	-49.50	8.14	49.97	0.00	0.00	0.00	0.00
1,000.00	5.31	170.66	997.44	-58.62	9.64	59.19	0.00	0.00	0.00	0.00
1,100.00	5.31	170.66	1,097.01	-67.75	11.14	68.40	0.00	0.00	0.00	0.00
1,200.00	5.31	170.66	1,196.58	-76.87	12.64	77.61	0.00	0.00	0.00	0.00
1,300.00	5.31	170.66	1,296.15	-86.00	14.14	86.82	0.00	0.00	0.00	0.00
1,400.00	5.31	170.66	1,395.72	-95.12	15.64	96.04	0.00	0.00	0.00	0.00
1,500.00	5.31	170.66	1,495.29	-104.25	17.14	105.25	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	5.31	170.66	1,594.87	-113.37	18.65	114.46	0.00	0.00	0.00	0.00
1,700.00	5.31	170.66	1,694.44	-122.50	20.15	123.68	0.00	0.00	0.00	0.00
1,800.00	5.31	170.66	1,794.01	-131.62	21.65	132.89	0.00	0.00	0.00	0.00
1,900.00	5.31	170.66	1,893.58	-140.75	23.15	142.10	0.00	0.00	0.00	0.00
2,000.00	5.31	170.66	1,993.15	-149.87	24.65	151.31	0.00	0.00	0.00	0.00
2,100.00	5.31	170.66	2,092.72	-159.00	26.15	160.53	0.00	0.00	0.00	0.00
2,200.00	5.31	170.66	2,192.29	-168.12	27.65	169.74	0.00	0.00	0.00	0.00
2,300.00	5.31	170.66	2,291.87	-177.25	29.15	178.95	0.00	0.00	0.00	0.00
2,400.00	5.31	170.66	2,391.44	-186.37	30.65	188.16	0.00	0.00	0.00	0.00
2,500.00	5.31	170.66	2,491.01	-195.50	32.15	197.38	0.00	0.00	0.00	0.00
2,600.00	5.31	170.66	2,590.58	-204.62	33.65	206.59	0.00	0.00	0.00	0.00
2,700.00	5.31	170.66	2,690.15	-213.75	35.15	215.80	0.00	0.00	0.00	0.00
2,800.00	5.31	170.66	2,789.72	-222.87	36.65	225.02	0.00	0.00	0.00	0.00
2,900.00	5.31	170.66	2,889.30	-232.00	38.15	234.23	0.00	0.00	0.00	0.00
3,000.00	5.31	170.66	2,988.87	-241.12	39.66	243.44	0.00	0.00	0.00	0.00
3,100.00	5.31	170.66	3,088.44	-250.25	41.16	252.65	0.00	0.00	0.00	0.00
3,200.00	5.31	170.66	3,188.01	-259.37	42.66	261.87	0.00	0.00	0.00	0.00
3,300.00	5.31	170.66	3,287.58	-268.49	44.16	271.08	0.00	0.00	0.00	0.00
3,400.00	5.31	170.66	3,387.15	-277.62	45.66	280.29	0.00	0.00	0.00	0.00
3,500.00	5.31	170.66	3,486.72	-286.74	47.16	289.51	0.00	0.00	0.00	0.00
3,520.00	5.31	170.66	3,506.64	-288.57	47.46	291.35	0.00	0.00	0.00	0.00
5.31 Inclination										
3,600.00	5.31	170.66	3,586.30	-295.87	48.66	298.72	0.00	0.00	0.00	0.00
3,700.00	5.31	170.66	3,685.87	-304.99	50.16	307.93	0.00	0.00	0.00	0.00
3,800.00	5.31	170.66	3,785.44	-314.12	51.66	317.14	0.00	0.00	0.00	0.00
3,900.00	5.31	170.66	3,885.01	-323.24	53.16	326.36	0.00	0.00	0.00	0.00
4,000.00	5.31	170.66	3,984.58	-332.37	54.66	335.57	0.00	0.00	0.00	0.00
4,100.00	5.31	170.66	4,084.15	-341.49	56.16	344.78	0.00	0.00	0.00	0.00
4,200.00	5.31	170.66	4,183.73	-350.62	57.66	353.99	0.00	0.00	0.00	0.00
4,300.00	5.31	170.66	4,283.30	-359.74	59.16	363.21	0.00	0.00	0.00	0.00
4,400.00	5.31	170.66	4,382.87	-368.87	60.66	372.42	0.00	0.00	0.00	0.00
4,500.00	5.31	170.66	4,482.44	-377.99	62.17	381.63	0.00	0.00	0.00	0.00
4,600.00	5.31	170.66	4,582.01	-387.12	63.67	390.85	0.00	0.00	0.00	0.00
4,700.00	5.31	170.66	4,681.58	-396.24	65.17	400.06	0.00	0.00	0.00	0.00
4,800.00	5.31	170.66	4,781.15	-405.37	66.67	409.27	0.00	0.00	0.00	0.00

Plan Report for BM 35-13D - Plan #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
4,900.00	5.31	170.66	4,880.73	-414.49	68.17	418.48	0.00	0.00	0.00	0.00
5,000.00	5.31	170.66	4,980.30	-423.62	69.67	427.70	0.00	0.00	0.00	0.00
5,100.00	5.31	170.66	5,079.87	-432.74	71.17	436.91	0.00	0.00	0.00	0.00
5,200.00	5.31	170.66	5,179.44	-441.87	72.67	446.12	0.00	0.00	0.00	0.00
5,300.00	5.31	170.66	5,279.01	-450.99	74.17	455.33	0.00	0.00	0.00	0.00
5,400.00	5.31	170.66	5,378.58	-460.12	75.67	464.55	0.00	0.00	0.00	0.00
5,500.00	5.31	170.66	5,478.15	-469.24	77.17	473.76	0.00	0.00	0.00	0.00
5,600.00	5.31	170.66	5,577.73	-478.37	78.67	482.97	0.00	0.00	0.00	0.00
5,700.00	5.31	170.66	5,677.30	-487.49	80.17	492.19	0.00	0.00	0.00	0.00
5,800.00	5.31	170.66	5,776.87	-496.62	81.67	501.40	0.00	0.00	0.00	0.00
5,900.00	5.31	170.66	5,876.44	-505.74	83.18	510.61	0.00	0.00	0.00	0.00
6,000.00	5.31	170.66	5,976.01	-514.87	84.68	519.82	0.00	0.00	0.00	0.00
6,100.00	5.31	170.66	6,075.58	-523.99	86.18	529.04	0.00	0.00	0.00	0.00
6,200.00	5.31	170.66	6,175.16	-533.12	87.68	538.25	0.00	0.00	0.00	0.00
6,300.00	5.31	170.66	6,274.73	-542.24	89.18	547.46	0.00	0.00	0.00	0.00
6,400.00	5.31	170.66	6,374.30	-551.37	90.68	556.67	0.00	0.00	0.00	0.00
6,500.00	5.31	170.66	6,473.87	-560.49	92.18	565.89	0.00	0.00	0.00	0.00
6,600.00	5.31	170.66	6,573.44	-569.62	93.68	575.10	0.00	0.00	0.00	0.00
6,644.52	5.31	170.66	6,617.77	-573.68	94.35	579.20	0.00	0.00	0.00	0.00
Begin Drop at 6644.52ft										
6,700.00	4.47	170.66	6,673.05	-578.34	95.12	583.91	1.50	-1.50	0.00	180.00
6,800.00	2.97	170.66	6,772.83	-584.75	96.17	590.38	1.50	-1.50	0.00	180.00
Drop Rate = 1.50°/100ft										
6,900.00	1.47	170.66	6,872.76	-588.58	96.80	594.25	1.50	-1.50	0.00	-180.00
6,998.26	0.00	360.00	6,971.00	-589.83	97.00	595.51	1.50	-1.50	0.00	-180.00
End Drop at 6998.26ft - Williams Fork - BM 35-13D Plan #1 Driller's Tgt - BM 35-13D Plan #1 Zone Tgt										
7,000.00	0.00	243.43	6,972.74	-589.83	97.00	595.51	0.09	0.09	0.00	243.43
7,100.00	0.09	243.43	7,072.74	-589.87	96.93	595.54	0.09	0.09	0.00	0.00
7,200.00	0.18	243.43	7,172.74	-589.97	96.72	595.63	0.09	0.09	0.00	0.00
7,300.00	0.27	243.43	7,272.74	-590.15	96.36	595.78	0.09	0.09	0.00	0.00
7,400.00	0.36	243.43	7,372.74	-590.40	95.87	595.99	0.09	0.09	0.00	0.00
7,500.00	0.45	243.43	7,472.74	-590.71	95.24	596.25	0.09	0.09	0.00	0.00
7,600.00	0.54	243.43	7,572.74	-591.10	94.46	596.58	0.09	0.09	0.00	0.00
7,700.00	0.63	243.43	7,672.73	-591.56	93.55	596.97	0.09	0.09	0.00	0.00
7,800.00	0.72	243.43	7,772.72	-592.09	92.49	597.41	0.09	0.09	0.00	0.00
7,900.00	0.81	243.43	7,872.71	-592.69	91.29	597.92	0.09	0.09	0.00	0.00
8,000.00	0.90	243.43	7,972.70	-593.35	89.96	598.48	0.09	0.09	0.00	0.00
8,087.31	0.98	243.43	8,060.00	-594.00	88.67	599.03	0.09	0.09	0.00	0.00
Top of Gas										
8,100.00	0.99	243.43	8,072.69	-594.09	88.48	599.11	0.09	0.09	0.00	0.00
8,200.00	1.08	243.43	8,172.67	-594.90	86.86	599.79	0.09	0.09	0.00	0.00
8,300.00	1.17	243.43	8,272.65	-595.78	85.10	600.53	0.09	0.09	0.00	0.00
8,400.00	1.26	243.43	8,372.63	-596.73	83.20	601.34	0.09	0.09	0.00	0.00
8,500.00	1.35	243.43	8,472.61	-597.75	81.16	602.20	0.09	0.09	0.00	0.00
8,600.00	1.44	243.43	8,572.58	-598.84	78.98	603.12	0.09	0.09	0.00	0.00
8,700.00	1.53	243.43	8,672.54	-600.00	76.66	604.10	0.09	0.09	0.00	0.00
8,800.00	1.62	243.43	8,772.50	-601.23	74.20	605.14	0.09	0.09	0.00	0.00
8,864.89	1.68	243.43	8,837.37	-602.07	72.53	605.84	0.09	0.09	0.00	0.00
8,900.00	1.65	243.43	8,872.46	-602.52	71.62	606.23	0.09	-0.09	0.00	-180.00
9,000.00	1.56	243.43	8,972.42	-603.78	69.11	607.29	0.09	-0.09	0.00	180.00
9,100.00	1.48	243.43	9,072.39	-604.96	66.74	608.29	0.09	-0.09	0.00	180.00
9,200.00	1.39	243.43	9,172.36	-606.08	64.50	609.24	0.09	-0.09	0.00	180.00
9,300.00	1.30	243.43	9,272.33	-607.13	62.40	610.12	0.09	-0.09	0.00	180.00
9,400.00	1.22	243.43	9,372.30	-608.12	60.43	610.96	0.09	-0.09	0.00	180.00
9,403.70	1.21	243.43	9,376.00	-608.15	60.36	610.99	0.09	-0.09	0.00	180.00
Cameo										
9,500.00	1.13	243.43	9,472.28	-609.04	58.59	611.73	0.09	-0.09	0.00	-180.00
9,600.00	1.05	243.43	9,572.27	-609.89	56.89	612.45	0.09	-0.09	0.00	180.00
9,700.00	0.96	243.43	9,672.25	-610.67	55.33	613.11	0.09	-0.09	0.00	180.00

Plan Report for BM 35-13D - Plan #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
9,800.00	0.87	243.43	9,772.24	-611.38	53.90	613.71	0.09	-0.09	0.00	180.00
9,884.77	0.80	243.43	9,857.00	-611.94	52.79	614.18	0.09	-0.09	0.00	-180.00
Rollins										
9,900.00	0.79	243.43	9,872.23	-612.03	52.60	614.26	0.09	-0.09	0.00	180.00
10,000.00	0.70	243.43	9,972.22	-612.61	51.44	614.75	0.09	-0.09	0.00	180.00
10,100.00	0.61	243.43	10,072.21	-613.13	50.41	615.18	0.09	-0.09	0.00	180.00
10,190.79	0.54	243.43	10,163.00	-613.53	49.60	615.53	0.09	-0.09	0.00	180.00
Cozzette										
10,200.00	0.53	243.43	10,172.21	-613.57	49.52	615.56	0.09	-0.09	0.00	-180.00
10,300.00	0.44	243.43	10,272.20	-613.95	48.77	615.88	0.09	-0.09	0.00	180.00
10,400.00	0.36	243.43	10,372.20	-614.26	48.14	616.14	0.09	-0.09	0.00	180.00
10,429.80	0.33	243.43	10,402.00	-614.34	47.99	616.21	0.09	-0.09	0.00	180.00
Corcora										
10,500.00	0.27	243.43	10,472.20	-614.50	47.66	616.35	0.09	-0.09	0.00	-180.00
10,561.80	0.22	243.43	10,534.00	-614.62	47.42	616.45	0.09	-0.09	0.00	180.00
Mancos										
10,600.00	0.18	243.43	10,572.20	-614.68	47.30	616.50	0.09	-0.09	0.00	-180.00
10,700.00	0.10	243.43	10,672.20	-614.79	47.09	616.59	0.09	-0.09	0.00	180.00
10,800.00	0.01	243.43	10,772.20	-614.83	47.00	616.63	0.09	-0.09	0.00	180.00
10,811.80	0.00	0.00	10,784.00	-614.83	47.00	616.63	0.09	-0.09	987.85	179.99
Total Depth = 10811.80ft - BM 35-13D Plan #1 BH Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
225.00	225.00	0.00	0.00	Kickoff at 225.00ft
360.00	359.95	-3.14	0.52	Build Rate = 2.00°/100ft
490.30	489.92	-12.11	1.99	End Build at 490.30ft
3,520.00	3,506.64	-288.57	47.46	5.31 Inclination
6,644.52	6,617.77	-573.68	94.35	Begin Drop at 6644.52ft
6,800.00	6,772.83	-584.75	96.17	Drop Rate = 1.50°/100ft
6,998.26	6,971.00	-589.83	97.00	End Drop at 6998.26ft
10,811.80	10,784.00	-614.83	47.00	Total Depth = 10811.80ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	+E/-W (ft)	Start TVD (ft)
Target	BM 35-13D Plan #1 BH Tgt	175.63	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	10,810.86	Plan #1	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,495.29	8 5/8" Casing Pt.	8-5/8	11

Plan Report for BM 35-13D - Plan #1**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,998.26	6,971.00	Williams Fork		0.00	
8,087.31	8,060.00	Top of Gas		0.00	
9,403.70	9,376.00	Cameo		0.00	
9,884.77	9,857.00	Rollins		0.00	
10,190.79	10,163.00	Cozzette		0.00	
10,429.80	10,402.00	Corcora		0.00	
10,561.80	10,534.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
BM 35-13D Plan #1 Zone Tgt	6,971.00	-614.83	47.00	Rectangle
BM 35-13D Plan #1 BH Tgt	10,784.00	-614.83	47.00	Point
BM 35-13D Plan #1 Driller's Tgt	6,971.00	-589.83	97.00	Rectangle

North Reference Sheet for Sec. 35-T7S-R95W (SGV 35L PAD) - BM 35-13D - Wellbore #1

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

Vertical Depths are relative to RKB - 24' @ 9227.00ft. Northing and Easting are relative to BM 35-13D - Slot A 9

Coordinate System is US State Plane 1927 (Exact solution), Colorado Central 502 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:39° 45' 0.000 N°

False Easting: 2,000,000.00ft, False Northing: 0.00ft, Scale Reduction: 0.99994881

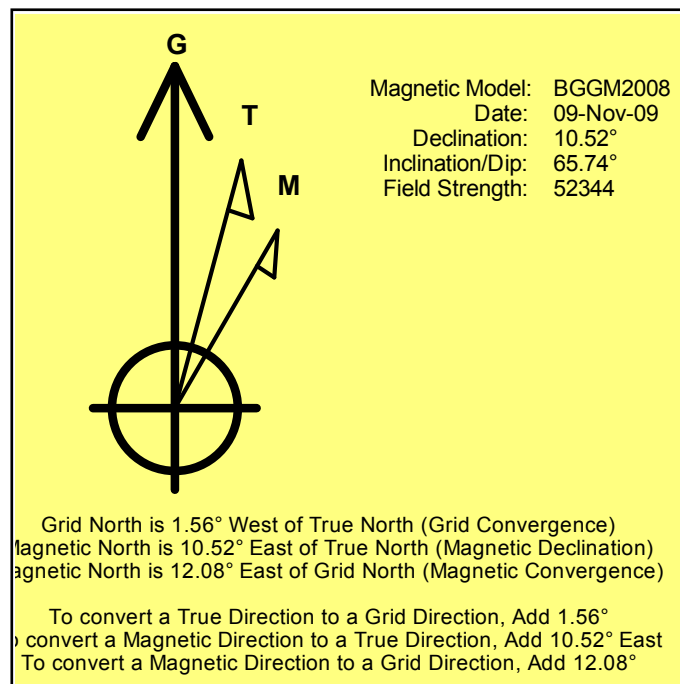
Grid Coordinates of Well: 577,308.00 ft N, 1,301,587.30 ft E

Geographical Coordinates of Well: 39° 23' 32.71" N, 107° 58' 17.35" W

Grid Convergence at Surface is: -1.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,811.80ft
the Bottom Hole Displacement is 616.63ft in the Direction of 175.63° (Grid).

Magnetic Convergence at surface is: -12.08° (9 November 2009, , BGGM2008)



Project: Garfield County, CO
Site: Sec. 35-T7S-R95W (SGV 35L PAD)
Well: BM 35-13D
Wellbore: Wellbore #1
Plan: Plan #1

Noble Energy (Rockies)

HALLIBURTON

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00
490.30	5.31	170.66	489.92	-12.11	1.99	2.00	170.66	12.23
6644.52	5.31	170.66	6617.77	-573.68	94.35	0.00	0.00	579.20
6998.26	0.00	360.00	6971.00	-589.83	97.00	1.50	180.00	595.51
8864.89	1.68	243.43	8837.37	-602.07	72.53	0.09	243.43	605.84
10811.80	0.00	360.00	10784.00	-614.83	47.00	0.09	180.00	616.63

BM 35-13D Plan #1 Driller's Tgt

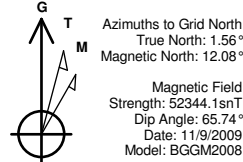
BM 35-13D Plan #1 BH Tgt

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BM 35-13D Plan #1 Driller's Tgt	6971.00	-589.83	97.00	Rectangle (Sides: L25.00 W25.00)
BM 35-13D Plan #1 Zone Tgt	6971.00	-614.83	47.00	Rectangle (Sides: L100.00 W200.00)
BM 35-13D Plan #1 BH Tgt	10784.00	-614.83	47.00	Point

WELL DETAILS: BM 35-13D

Ground Level:	9203.00	Latitude	107° 58' 17.348 W	A 9
North	0.0007308.00	Easting	1301587.30	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6971.00	6998.26	Williams Fork
8060.00	8087.31	Top of Gas
9376.00	9403.70	Cameo
9857.00	9884.77	Rollins
10163.00	10190.79	Cozzette
10402.00	10429.80	Corcora
10534.00	10561.80	Mancos

