

Noble Energy (Rockies)

Garfield County, CO

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

BM 35-23C - A 2

Wellbore #1

Plan: Plan #1

Sperry Drilling Services

Proposal Report

12 November, 2009

Well Coordinates: 577,350.00 N, 1,301,618.80 E (39° 23' 33.13" N, 107° 58' 16.96" W)

Ground Level: 9,203.00 ft

Local Coordinate Origin:

Centered on Well BM 35-23C - Slot A 2

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 35-23C - 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	104.37	299.99	-0.24	0.95	0.98	2.00	2.00	0.00	104.37
400.00	3.50	104.37	399.89	-1.33	5.18	5.34	2.00	2.00	0.00	0.00
500.00	5.50	104.37	499.58	-3.27	12.78	13.18	2.00	2.00	0.00	0.00
560.00	6.70	104.37	559.24	-4.86	18.95	19.56	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
600.00	7.50	104.37	598.93	-6.08	23.74	24.50	2.00	2.00	0.00	0.00
700.00	9.50	104.37	697.83	-9.75	38.06	39.28	2.00	2.00	0.00	0.00
800.00	11.50	104.37	796.15	-14.27	55.71	57.49	2.00	2.00	0.00	0.00
900.00	13.50	104.37	893.77	-19.64	76.68	79.13	2.00	2.00	0.00	0.00
901.37	13.53	104.37	895.10	-19.72	76.99	79.45	2.00	2.00	0.00	0.00
End Build at 901.37ft										
1,000.00	13.53	104.37	991.00	-25.45	99.34	102.51	0.00	0.00	0.00	0.00
1,100.00	13.53	104.37	1,088.22	-31.25	122.00	125.89	0.00	0.00	0.00	0.00
1,200.00	13.53	104.37	1,185.45	-37.06	144.66	149.28	0.00	0.00	0.00	0.00
1,300.00	13.53	104.37	1,282.68	-42.86	167.32	172.66	0.00	0.00	0.00	0.00
1,400.00	13.53	104.37	1,379.90	-48.67	189.97	196.04	0.00	0.00	0.00	0.00
1,500.00	13.53	104.37	1,477.13	-54.47	212.63	219.43	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	13.53	104.37	1,574.35	-60.28	235.29	242.81	0.00	0.00	0.00	0.00
1,700.00	13.53	104.37	1,671.58	-66.08	257.95	266.19	0.00	0.00	0.00	0.00
1,800.00	13.53	104.37	1,768.80	-71.89	280.61	289.57	0.00	0.00	0.00	0.00
1,900.00	13.53	104.37	1,866.03	-77.69	303.27	312.96	0.00	0.00	0.00	0.00
2,000.00	13.53	104.37	1,963.26	-83.50	325.93	336.34	0.00	0.00	0.00	0.00
2,100.00	13.53	104.37	2,060.48	-89.30	348.59	359.72	0.00	0.00	0.00	0.00
2,200.00	13.53	104.37	2,157.71	-95.11	371.25	383.11	0.00	0.00	0.00	0.00
2,300.00	13.53	104.37	2,254.93	-100.91	393.91	406.49	0.00	0.00	0.00	0.00
2,400.00	13.53	104.37	2,352.16	-106.71	416.57	429.87	0.00	0.00	0.00	0.00
2,500.00	13.53	104.37	2,449.38	-112.52	439.23	453.26	0.00	0.00	0.00	0.00
2,600.00	13.53	104.37	2,546.61	-118.32	461.89	476.64	0.00	0.00	0.00	0.00
2,700.00	13.53	104.37	2,643.84	-124.13	484.55	500.02	0.00	0.00	0.00	0.00
2,800.00	13.53	104.37	2,741.06	-129.93	507.20	523.40	0.00	0.00	0.00	0.00
2,900.00	13.53	104.37	2,838.29	-135.74	529.86	546.79	0.00	0.00	0.00	0.00
3,000.00	13.53	104.37	2,935.51	-141.54	552.52	570.17	0.00	0.00	0.00	0.00
3,100.00	13.53	104.37	3,032.74	-147.35	575.18	593.55	0.00	0.00	0.00	0.00
3,200.00	13.53	104.37	3,129.97	-153.15	597.84	616.94	0.00	0.00	0.00	0.00
3,300.00	13.53	104.37	3,227.19	-158.96	620.50	640.32	0.00	0.00	0.00	0.00
3,400.00	13.53	104.37	3,324.42	-164.76	643.16	663.70	0.00	0.00	0.00	0.00
3,500.00	13.53	104.37	3,421.64	-170.57	665.82	687.09	0.00	0.00	0.00	0.00
3,600.00	13.53	104.37	3,518.87	-176.37	688.48	710.47	0.00	0.00	0.00	0.00
13.53 Inclination										
3,700.00	13.53	104.37	3,616.09	-182.18	711.14	733.85	0.00	0.00	0.00	0.00
3,800.00	13.53	104.37	3,713.32	-187.98	733.80	757.23	0.00	0.00	0.00	0.00
3,900.00	13.53	104.37	3,810.55	-193.79	756.46	780.62	0.00	0.00	0.00	0.00
4,000.00	13.53	104.37	3,907.77	-199.59	779.12	804.00	0.00	0.00	0.00	0.00
4,100.00	13.53	104.37	4,005.00	-205.40	801.78	827.38	0.00	0.00	0.00	0.00
4,200.00	13.53	104.37	4,102.22	-211.20	824.43	850.77	0.00	0.00	0.00	0.00
4,300.00	13.53	104.37	4,199.45	-217.01	847.09	874.15	0.00	0.00	0.00	0.00
4,400.00	13.53	104.37	4,296.68	-222.81	869.75	897.53	0.00	0.00	0.00	0.00
4,500.00	13.53	104.37	4,393.90	-228.62	892.41	920.92	0.00	0.00	0.00	0.00
4,600.00	13.53	104.37	4,491.13	-234.42	915.07	944.30	0.00	0.00	0.00	0.00
4,700.00	13.53	104.37	4,588.35	-240.23	937.73	967.68	0.00	0.00	0.00	0.00
4,800.00	13.53	104.37	4,685.58	-246.03	960.39	991.06	0.00	0.00	0.00	0.00
4,900.00	13.53	104.37	4,782.80	-251.83	983.05	1,014.45	0.00	0.00	0.00	0.00

Plan Report for BM 35-23C - 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 (°)
5,000.00	13.53	104.37	4,880.03	-257.64	1,005.71	1,037.83	0.00	0.00	0.00	0.00
5,100.00	13.53	104.37	4,977.26	-263.44	1,028.37	1,061.21	0.00	0.00	0.00	0.00
5,200.00	13.53	104.37	5,074.48	-269.25	1,051.03	1,084.60	0.00	0.00	0.00	0.00
5,300.00	13.53	104.37	5,171.71	-275.05	1,073.69	1,107.98	0.00	0.00	0.00	0.00
5,400.00	13.53	104.37	5,268.93	-280.86	1,096.35	1,131.36	0.00	0.00	0.00	0.00
5,500.00	13.53	104.37	5,366.16	-286.66	1,119.01	1,154.75	0.00	0.00	0.00	0.00
5,600.00	13.53	104.37	5,463.39	-292.47	1,141.67	1,178.13	0.00	0.00	0.00	0.00
5,700.00	13.53	104.37	5,560.61	-298.27	1,164.32	1,201.51	0.00	0.00	0.00	0.00
5,800.00	13.53	104.37	5,657.84	-304.08	1,186.98	1,224.89	0.00	0.00	0.00	0.00
5,900.00	13.53	104.37	5,755.06	-309.88	1,209.64	1,248.28	0.00	0.00	0.00	0.00
6,000.00	13.53	104.37	5,852.29	-315.69	1,232.30	1,271.66	0.00	0.00	0.00	0.00
6,100.00	13.53	104.37	5,949.51	-321.49	1,254.96	1,295.04	0.00	0.00	0.00	0.00
6,200.00	13.53	104.37	6,046.74	-327.30	1,277.62	1,318.43	0.00	0.00	0.00	0.00
6,272.81	13.53	104.37	6,117.53	-331.52	1,294.12	1,335.45	0.00	0.00	0.00	0.00
Begin Drop at 6272.81ft										
6,300.00	13.12	104.37	6,143.99	-333.08	1,300.19	1,341.72	1.50	-1.50	0.00	180.00
6,400.00	11.62	104.37	6,241.66	-338.39	1,320.94	1,363.13	1.50	-1.50	0.00	180.00
6,500.00	10.12	104.37	6,339.87	-343.07	1,339.21	1,381.98	1.50	-1.50	0.00	180.00
6,600.00	8.62	104.37	6,438.53	-347.11	1,354.98	1,398.25	1.50	-1.50	0.00	180.00
6,700.00	7.12	104.37	6,537.59	-350.51	1,368.24	1,411.94	1.50	-1.50	0.00	-180.00
6,800.00	5.62	104.37	6,636.97	-353.26	1,378.99	1,423.03	1.50	-1.50	0.00	-180.00
Drop Rate = 1.50°/100ft										
6,900.00	4.12	104.37	6,736.60	-355.37	1,387.21	1,431.52	1.50	-1.50	0.00	180.00
7,000.00	2.62	104.37	6,836.43	-356.83	1,392.90	1,437.39	1.50	-1.50	0.00	180.00
7,100.00	1.12	104.37	6,936.37	-357.64	1,396.06	1,440.65	1.50	-1.50	0.00	180.00
7,174.22	0.01	104.37	7,010.59	-357.82	1,396.77	1,441.38	1.50	-1.50	0.00	180.00
BM 35-23C Plan #1 Zone Tgt										
7,174.63	0.00	360.00	7,011.00	-357.82	1,396.77	1,441.38	1.50	-1.50	0.00	-180.00
End Drop at 7174.63ft - Williams Fork - BM 35-23C Plan #1 Driller's Tgt										
7,200.00	0.02	243.44	7,036.37	-357.82	1,396.77	1,441.38	0.09	0.09	0.00	243.44
7,300.00	0.11	243.44	7,136.37	-357.88	1,396.66	1,441.29	0.09	0.09	0.00	0.00
7,400.00	0.20	243.44	7,236.37	-358.00	1,396.41	1,441.09	0.09	0.09	0.00	0.00
7,500.00	0.29	243.44	7,336.36	-358.19	1,396.03	1,440.77	0.09	0.09	0.00	0.00
7,600.00	0.38	243.44	7,436.36	-358.46	1,395.50	1,440.33	0.09	0.09	0.00	0.00
7,700.00	0.47	243.44	7,536.36	-358.79	1,394.83	1,439.78	0.09	0.09	0.00	0.00
7,800.00	0.56	243.44	7,636.36	-359.19	1,394.02	1,439.11	0.09	0.09	0.00	0.00
7,900.00	0.65	243.44	7,736.35	-359.67	1,393.07	1,438.33	0.09	0.09	0.00	0.00
8,000.00	0.74	243.44	7,836.34	-360.21	1,391.98	1,437.43	0.09	0.09	0.00	0.00
8,100.00	0.83	243.44	7,936.33	-360.83	1,390.75	1,436.42	0.09	0.09	0.00	0.00
8,200.00	0.92	243.44	8,036.32	-361.51	1,389.38	1,435.29	0.09	0.09	0.00	0.00
8,263.69	0.98	243.44	8,100.00	-361.99	1,388.44	1,434.51	0.09	0.09	0.00	0.00
Top of Gas										
8,300.00	1.01	243.44	8,136.31	-362.27	1,387.87	1,434.04	0.09	0.09	0.00	0.00
8,400.00	1.10	243.44	8,236.29	-363.09	1,386.22	1,432.68	0.09	0.09	0.00	0.00
8,500.00	1.19	243.44	8,336.27	-363.99	1,384.43	1,431.20	0.09	0.09	0.00	0.00
8,600.00	1.28	243.44	8,436.25	-364.96	1,382.50	1,429.60	0.09	0.09	0.00	0.00
8,700.00	1.37	243.44	8,536.22	-365.99	1,380.43	1,427.89	0.09	0.09	0.00	0.00
8,800.00	1.46	243.44	8,636.19	-367.10	1,378.21	1,426.07	0.09	0.09	0.00	0.00
8,900.00	1.55	243.44	8,736.15	-368.28	1,375.86	1,424.13	0.09	0.09	0.00	0.00
9,000.00	1.64	243.44	8,836.12	-369.52	1,373.37	1,422.07	0.09	0.09	0.00	0.00
9,041.20	1.68	243.44	8,877.30	-370.06	1,372.30	1,421.19	0.09	0.09	0.00	0.00
9,100.00	1.63	243.44	8,936.07	-370.82	1,370.78	1,419.93	0.09	-0.09	0.00	180.00
9,200.00	1.54	243.44	9,036.04	-372.05	1,368.30	1,417.89	0.09	-0.09	0.00	-180.00
9,300.00	1.46	243.44	9,136.00	-373.22	1,365.96	1,415.96	0.09	-0.09	0.00	180.00
9,400.00	1.37	243.44	9,235.97	-374.33	1,363.76	1,414.14	0.09	-0.09	0.00	180.00
9,500.00	1.28	243.44	9,335.94	-375.36	1,361.68	1,412.43	0.09	-0.09	0.00	180.00
9,580.08	1.21	243.44	9,416.00	-376.14	1,360.12	1,411.14	0.09	-0.09	0.00	-180.00
Cameo										
9,600.00	1.20	243.44	9,435.92	-376.33	1,359.75	1,410.83	0.09	-0.09	0.00	180.00

Plan Report for BM 35-23C - 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 (°)
9,700.00	1.11	243.44	9,535.90	-377.23	1,357.94	1,409.34	0.09	-0.09	0.00	-180.00
9,800.00	1.03	243.44	9,635.88	-378.07	1,356.28	1,407.97	0.09	-0.09	0.00	180.00
9,900.00	0.94	243.44	9,735.87	-378.83	1,354.74	1,406.70	0.09	-0.09	0.00	180.00
10,000.00	0.85	243.44	9,835.86	-379.53	1,353.35	1,405.55	0.09	-0.09	0.00	-180.00
10,061.15	0.80	243.44	9,897.00	-379.93	1,352.56	1,404.90	0.09	-0.09	0.00	-180.00
Rollins										
10,100.00	0.77	243.44	9,935.85	-380.16	1,352.08	1,404.50	0.09	-0.09	0.00	180.00
10,200.00	0.68	243.44	10,035.84	-380.73	1,350.95	1,403.57	0.09	-0.09	0.00	-180.00
10,300.00	0.59	243.44	10,135.83	-381.22	1,349.96	1,402.75	0.09	-0.09	0.00	180.00
10,367.17	0.54	243.44	10,203.00	-381.52	1,349.37	1,402.26	0.09	-0.09	0.00	-180.00
Cozzette										
10,400.00	0.51	243.44	10,235.83	-381.65	1,349.10	1,402.04	0.09	-0.09	0.00	180.00
10,500.00	0.42	243.44	10,335.82	-382.02	1,348.37	1,401.44	0.09	-0.09	0.00	180.00
10,600.00	0.33	243.44	10,435.82	-382.31	1,347.78	1,400.96	0.09	-0.09	0.00	-180.00
10,606.18	0.33	243.44	10,442.00	-382.33	1,347.75	1,400.93	0.09	-0.09	0.00	180.00
Corcora										
10,700.00	0.25	243.44	10,535.82	-382.54	1,347.33	1,400.58	0.09	-0.09	0.00	-180.00
10,738.18	0.22	243.44	10,574.00	-382.61	1,347.19	1,400.47	0.09	-0.09	0.00	-180.00
Mancos										
10,800.00	0.16	243.44	10,635.82	-382.70	1,347.01	1,400.32	0.09	-0.09	0.00	180.00
10,900.00	0.08	243.44	10,735.82	-382.79	1,346.82	1,400.16	0.09	-0.09	0.00	180.00
10,988.18	0.00	0.00	10,824.00	-382.82	1,346.77	1,400.12	0.09	-0.09	0.00	180.00
Total Depth = 10988.18ft - BM 35-23C Plan #1 BH Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
225.00	225.00	0.00	0.00	Kickoff at 225.00ft
560.00	559.24	-4.86	18.95	Build Rate = 2.00°/100ft
901.37	895.10	-19.72	76.99	End Build at 901.37ft
3,600.00	3,518.87	-176.37	688.48	13.53 Inclination
6,272.81	6,117.53	-331.52	1,294.12	Begin Drop at 6272.81ft
6,800.00	6,636.97	-353.26	1,378.99	Drop Rate = 1.50°/100ft
7,174.63	7,011.00	-357.82	1,396.77	End Drop at 7174.63ft
10,988.18	10,824.00	-382.82	1,346.77	Total Depth = 10988.18ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	BM 35-23C Plan #1 BH Tgt	105.87	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	10,988.18	Plan #1	MWD

Plan Report for BM 35-23C - Plan #1

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,477.13	8 5/8" Casing Pt.	8-5/8	11

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,174.63	7,011.00	Williams Fork		0.00	
8,263.69	8,100.00	Top of Gas		0.00	
9,580.08	9,416.00	Cameo		0.00	
10,061.15	9,897.00	Rollins		0.00	
10,367.17	10,203.00	Cozzette		0.00	
10,606.18	10,442.00	Corcora		0.00	
10,738.18	10,574.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
BM 35-23C Plan #1 Zone Tgt	7,011.00	-382.82	1,346.77	Rectangle
BM 35-23C Plan #1 Driller's Tgt	7,011.00	-357.82	1,396.77	Rectangle
BM 35-23C Plan #1 BH Tgt	10,824.00	-382.82	1,346.77	Point

North Reference Sheet for Sec. 35-T7S-R95W (SGV 35L PAD) - BM 35-23C - 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 35-23C - Slot A 2

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: 0.99994882

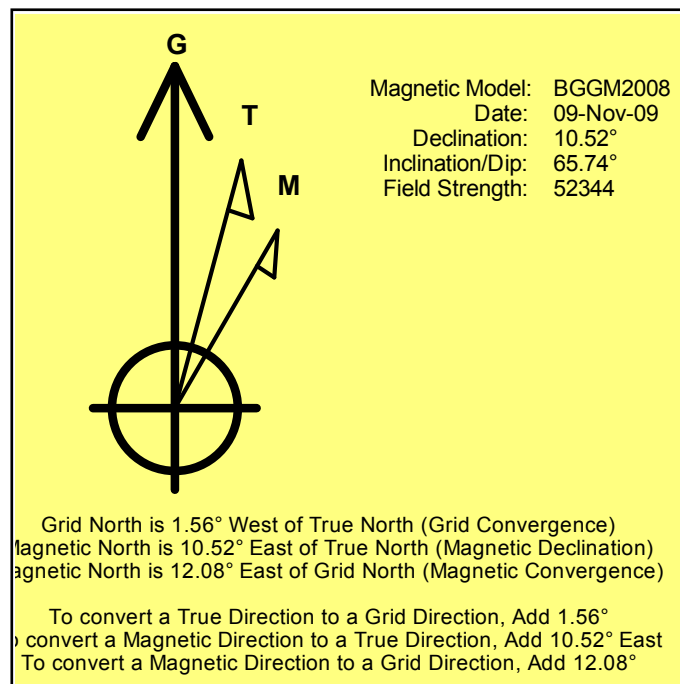
Grid Coordinates of Well: 577,350.00 ft N, 1,301,618.80 ft E

Geographical Coordinates of Well: 39° 23' 33.13" N, 107° 58' 16.96" W

Grid Convergence at Surface is: -1.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,988.18ft
the Bottom Hole Displacement is 1,400.12ft in the Direction of 105.87° (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 35-23C
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
901.37	13.53	104.37	895.10	-19.72	76.99	2.00	104.37	79.45
6272.81	13.53	104.37	6117.53	-331.52	1294.12	0.00	0.00	1335.45
7174.63	0.00	360.00	7011.00	-357.82	1396.77	1.50	180.00	1441.38
9041.20	1.68	243.44	8877.30	-370.06	1372.30	0.09	243.44	1421.19
10988.18	0.00	360.00	10824.00	-382.82	1346.77	0.09	180.00	1400.12

BM 35-23C Plan #1 Driller's Tgt

BM 35-23C Plan #1 BH Tgt

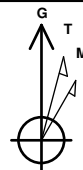
WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BM 35-23C Plan #1 Driller's Tgt	7011.00	-357.82	1396.77	Rectangle (Sides: L25.00 W25.00)
BM 35-23C Plan #1 Zone Tgt	7011.00	-382.82	1346.77	Rectangle (Sides: L100.00 W200.00)
BM 35-23C Plan #1 BH Tgt	10824.00	-382.82	1346.77	Point

WELL DETAILS: BM 35-23C

Northing	Ground Level:	9203.00	Longitude
0.0007350	Easting	1301618.80	39° 23' 33.129 N
			107° 58' 16.961 W

A 2



Azimuths to Grid North
True North: 1.56°
Magnetic North: 12.08°
Magnetic Field
Strength: 52344.2snT
Dip Angle: 65.74°
Date: 11/9/2009
Model: BGGM2008

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
7011.00	7174.63	Williams Fork
8100.00	8263.69	Top of Gas
9416.00	9580.08	Cameo
9897.00	10061.15	Rollins
10203.00	10367.17	Cozzette
10442.00	10606.18	Corcora
10574.00	10738.18	Mancos

