

Noble Energy (Rockies)

Garfield County, CO

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

BM 34-43C - B 9

Wellbore #1

Plan: Plan #1

Sperry Drilling Services

Proposal Report

12 November, 2009

Well Coordinates: 577,313.60 N, 1,301,579.70 E (39° 23' 32.76" N, 107° 58' 17.45" W)

Ground Level: 9,203.00 ft

Local Coordinate Origin:

Centered on Well BM 34-43C - Slot B 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 34-43C - 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	258.03	299.99	-0.20	-0.96	0.98	2.00	2.00	0.00	258.03
400.00	3.50	258.03	399.89	-1.11	-5.23	5.34	2.00	2.00	0.00	0.00
500.00	5.50	258.03	499.58	-2.74	-12.90	13.19	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
600.00	7.50	258.03	598.93	-5.08	-23.98	24.51	2.00	2.00	0.00	0.00
700.00	9.50	258.03	697.83	-8.15	-38.43	39.29	2.00	2.00	0.00	0.00
800.00	11.50	258.03	796.15	-11.93	-56.26	57.51	2.00	2.00	0.00	0.00
801.07	11.52	258.03	797.20	-11.97	-56.47	57.72	2.00	2.00	0.00	0.00
End Build at 801.07ft										
900.00	11.52	258.03	894.13	-16.07	-75.80	77.48	0.00	0.00	0.00	0.00
1,000.00	11.52	258.03	992.12	-20.21	-95.34	97.45	0.00	0.00	0.00	0.00
1,100.00	11.52	258.03	1,090.10	-24.35	-114.88	117.42	0.00	0.00	0.00	0.00
1,200.00	11.52	258.03	1,188.09	-28.50	-134.42	137.40	0.00	0.00	0.00	0.00
1,300.00	11.52	258.03	1,286.07	-32.64	-153.96	157.37	0.00	0.00	0.00	0.00
1,400.00	11.52	258.03	1,384.06	-36.78	-173.50	177.34	0.00	0.00	0.00	0.00
1,500.00	11.52	258.03	1,482.04	-40.92	-193.04	197.31	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	11.52	258.03	1,580.03	-45.07	-212.57	217.29	0.00	0.00	0.00	0.00
1,700.00	11.52	258.03	1,678.01	-49.21	-232.11	237.26	0.00	0.00	0.00	0.00
1,800.00	11.52	258.03	1,776.00	-53.35	-251.65	257.23	0.00	0.00	0.00	0.00
1,900.00	11.52	258.03	1,873.98	-57.49	-271.19	277.20	0.00	0.00	0.00	0.00
2,000.00	11.52	258.03	1,971.97	-61.63	-290.73	297.17	0.00	0.00	0.00	0.00
2,100.00	11.52	258.03	2,069.95	-65.78	-310.27	317.15	0.00	0.00	0.00	0.00
2,200.00	11.52	258.03	2,167.94	-69.92	-329.81	337.12	0.00	0.00	0.00	0.00
2,300.00	11.52	258.03	2,265.92	-74.06	-349.35	357.09	0.00	0.00	0.00	0.00
2,400.00	11.52	258.03	2,363.91	-78.20	-368.89	377.06	0.00	0.00	0.00	0.00
2,500.00	11.52	258.03	2,461.89	-82.35	-388.43	397.04	0.00	0.00	0.00	0.00
2,600.00	11.52	258.03	2,559.88	-86.49	-407.97	417.01	0.00	0.00	0.00	0.00
2,700.00	11.52	258.03	2,657.86	-90.63	-427.50	436.98	0.00	0.00	0.00	0.00
2,800.00	11.52	258.03	2,755.85	-94.77	-447.04	456.95	0.00	0.00	0.00	0.00
2,900.00	11.52	258.03	2,853.83	-98.91	-466.58	476.92	0.00	0.00	0.00	0.00
3,000.00	11.52	258.03	2,951.82	-103.06	-486.12	496.90	0.00	0.00	0.00	0.00
3,100.00	11.52	258.03	3,049.80	-107.20	-505.66	516.87	0.00	0.00	0.00	0.00
3,200.00	11.52	258.03	3,147.79	-111.34	-525.20	536.84	0.00	0.00	0.00	0.00
3,300.00	11.52	258.03	3,245.77	-115.48	-544.74	556.81	0.00	0.00	0.00	0.00
3,400.00	11.52	258.03	3,343.76	-119.63	-564.28	576.79	0.00	0.00	0.00	0.00
3,500.00	11.52	258.03	3,441.74	-123.77	-583.82	596.76	0.00	0.00	0.00	0.00
11.52 Inclination										
3,600.00	11.52	258.03	3,539.73	-127.91	-603.36	616.73	0.00	0.00	0.00	0.00
3,700.00	11.52	258.03	3,637.71	-132.05	-622.90	636.70	0.00	0.00	0.00	0.00
3,800.00	11.52	258.03	3,735.70	-136.20	-642.44	656.67	0.00	0.00	0.00	0.00
3,900.00	11.52	258.03	3,833.68	-140.34	-661.97	676.65	0.00	0.00	0.00	0.00
4,000.00	11.52	258.03	3,931.67	-144.48	-681.51	696.62	0.00	0.00	0.00	0.00
4,100.00	11.52	258.03	4,029.65	-148.62	-701.05	716.59	0.00	0.00	0.00	0.00
4,200.00	11.52	258.03	4,127.64	-152.76	-720.59	736.56	0.00	0.00	0.00	0.00
4,300.00	11.52	258.03	4,225.62	-156.91	-740.13	756.54	0.00	0.00	0.00	0.00
4,400.00	11.52	258.03	4,323.61	-161.05	-759.67	776.51	0.00	0.00	0.00	0.00
4,500.00	11.52	258.03	4,421.59	-165.19	-779.21	796.48	0.00	0.00	0.00	0.00
4,600.00	11.52	258.03	4,519.58	-169.33	-798.75	816.45	0.00	0.00	0.00	0.00
4,700.00	11.52	258.03	4,617.56	-173.48	-818.29	836.42	0.00	0.00	0.00	0.00
4,800.00	11.52	258.03	4,715.55	-177.62	-837.83	856.40	0.00	0.00	0.00	0.00
4,900.00	11.52	258.03	4,813.53	-181.76	-857.37	876.37	0.00	0.00	0.00	0.00
5,000.00	11.52	258.03	4,911.52	-185.90	-876.91	896.34	0.00	0.00	0.00	0.00

Plan Report for BM 34-43C - 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 (°)
5,100.00	11.52	258.03	5,009.50	-190.04	-896.44	916.31	0.00	0.00	0.00	0.00
5,200.00	11.52	258.03	5,107.49	-194.19	-915.98	936.29	0.00	0.00	0.00	0.00
5,300.00	11.52	258.03	5,205.47	-198.33	-935.52	956.26	0.00	0.00	0.00	0.00
5,400.00	11.52	258.03	5,303.46	-202.47	-955.06	976.23	0.00	0.00	0.00	0.00
5,500.00	11.52	258.03	5,401.44	-206.61	-974.60	996.20	0.00	0.00	0.00	0.00
5,600.00	11.52	258.03	5,499.43	-210.76	-994.14	1,016.17	0.00	0.00	0.00	0.00
5,700.00	11.52	258.03	5,597.41	-214.90	-1,013.68	1,036.15	0.00	0.00	0.00	0.00
5,800.00	11.52	258.03	5,695.40	-219.04	-1,033.22	1,056.12	0.00	0.00	0.00	0.00
5,900.00	11.52	258.03	5,793.38	-223.18	-1,052.76	1,076.09	0.00	0.00	0.00	0.00
6,000.00	11.52	258.03	5,891.37	-227.33	-1,072.30	1,096.06	0.00	0.00	0.00	0.00
6,100.00	11.52	258.03	5,989.35	-231.47	-1,091.84	1,116.04	0.00	0.00	0.00	0.00
6,200.00	11.52	258.03	6,087.34	-235.61	-1,111.38	1,136.01	0.00	0.00	0.00	0.00
6,297.70	11.52	258.03	6,183.07	-239.66	-1,130.47	1,155.52	0.00	0.00	0.00	0.00
Begin Drop at 6297.70ft										
6,300.00	11.49	258.03	6,185.32	-239.75	-1,130.91	1,155.98	1.50	-1.50	0.00	180.00
6,400.00	9.99	258.03	6,283.57	-243.62	-1,149.14	1,174.61	1.50	-1.50	0.00	180.00
6,500.00	8.49	258.03	6,382.27	-246.94	-1,164.84	1,190.66	1.50	-1.50	0.00	180.00
6,600.00	6.99	258.03	6,481.36	-249.74	-1,178.01	1,204.12	1.50	-1.50	0.00	180.00
6,700.00	5.49	258.03	6,580.76	-251.99	-1,188.64	1,214.98	1.50	-1.50	0.00	-180.00
Drop Rate = 1.50°/100ft										
6,800.00	3.99	258.03	6,680.42	-253.70	-1,196.72	1,223.24	1.50	-1.50	0.00	180.00
6,900.00	2.49	258.03	6,780.26	-254.87	-1,202.24	1,228.89	1.50	-1.50	0.00	180.00
7,000.00	0.99	258.03	6,880.21	-255.50	-1,205.20	1,231.92	1.50	-1.50	0.00	180.00
7,065.80	0.00	0.00	6,946.00	-255.62	-1,205.76	1,232.48	1.50	-1.50	154.98	180.00
End Drop at 7065.80ft - Williams Fork - BM 34-43C Plan #1 Driller's Tgt										
7,065.81	0.00	243.44	6,946.02	-255.62	-1,205.76	1,232.48	0.02	0.00	-776,148.15	-148.28
BM 34-43C Plan #1 Zone Tgt										
7,100.00	0.03	243.44	6,980.20	-255.62	-1,205.77	1,232.49	0.09	0.09	0.00	0.00
7,200.00	0.12	243.44	7,080.20	-255.68	-1,205.89	1,232.62	0.09	0.09	0.00	0.00
7,300.00	0.21	243.44	7,180.20	-255.81	-1,206.14	1,232.90	0.09	0.09	0.00	0.00
7,400.00	0.30	243.44	7,280.20	-256.01	-1,206.54	1,233.33	0.09	0.09	0.00	0.00
7,500.00	0.39	243.44	7,380.20	-256.28	-1,207.08	1,233.92	0.09	0.09	0.00	0.00
7,600.00	0.48	243.44	7,480.20	-256.62	-1,207.76	1,234.66	0.09	0.09	0.00	0.00
7,700.00	0.57	243.44	7,580.19	-257.03	-1,208.58	1,235.55	0.09	0.09	0.00	0.00
7,800.00	0.66	243.44	7,680.19	-257.51	-1,209.55	1,236.59	0.09	0.09	0.00	0.00
7,900.00	0.75	243.44	7,780.18	-258.06	-1,210.65	1,237.79	0.09	0.09	0.00	0.00
8,000.00	0.84	243.44	7,880.17	-258.68	-1,211.89	1,239.13	0.09	0.09	0.00	0.00
8,100.00	0.93	243.44	7,980.16	-259.37	-1,213.27	1,240.64	0.09	0.09	0.00	0.00
8,154.85	0.98	243.44	8,035.00	-259.78	-1,214.09	1,241.52	0.09	0.09	0.00	0.00
Top of Gas										
8,200.00	1.02	243.44	8,080.14	-260.14	-1,214.80	1,242.29	0.09	0.09	0.00	0.00
8,300.00	1.11	243.44	8,180.13	-260.97	-1,216.46	1,244.09	0.09	0.09	0.00	0.00
8,400.00	1.20	243.44	8,280.11	-261.87	-1,218.26	1,246.05	0.09	0.09	0.00	0.00
8,500.00	1.29	243.44	8,380.08	-262.84	-1,220.21	1,248.16	0.09	0.09	0.00	0.00
8,600.00	1.38	243.44	8,480.05	-263.88	-1,222.29	1,250.42	0.09	0.09	0.00	0.00
8,700.00	1.47	243.44	8,580.02	-265.00	-1,224.52	1,252.84	0.09	0.09	0.00	0.00
8,800.00	1.56	243.44	8,679.99	-266.18	-1,226.89	1,255.40	0.09	0.09	0.00	0.00
8,900.00	1.65	243.44	8,779.95	-267.43	-1,229.39	1,258.12	0.09	0.09	0.00	0.00
8,932.41	1.68	243.44	8,812.35	-267.85	-1,230.24	1,259.04	0.09	0.09	0.00	0.00
9,000.00	1.62	243.44	8,879.91	-268.72	-1,231.98	1,260.93	0.09	-0.09	0.00	-180.00
9,100.00	1.54	243.44	8,979.87	-269.96	-1,234.44	1,263.60	0.09	-0.09	0.00	180.00
9,200.00	1.45	243.44	9,079.84	-271.12	-1,236.77	1,266.13	0.09	-0.09	0.00	180.00
9,300.00	1.36	243.44	9,179.81	-272.22	-1,238.96	1,268.51	0.09	-0.09	0.00	180.00
9,400.00	1.28	243.44	9,279.78	-273.25	-1,241.02	1,270.74	0.09	-0.09	0.00	-180.00
9,471.24	1.22	243.44	9,351.00	-273.94	-1,242.41	1,272.25	0.09	-0.09	0.00	180.00
Cameo										
9,500.00	1.19	243.44	9,379.76	-274.21	-1,242.95	1,272.83	0.09	-0.09	0.00	-180.00
9,600.00	1.10	243.44	9,479.74	-275.10	-1,244.74	1,274.78	0.09	-0.09	0.00	180.00
9,700.00	1.02	243.44	9,579.72	-275.93	-1,246.40	1,276.57	0.09	-0.09	0.00	180.00

Plan Report for BM 34-43C - 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	0.93	243.44	9,679.70	-276.69	-1,247.92	1,278.22	0.09	-0.09	0.00	180.00
9,900.00	0.85	243.44	9,779.69	-277.39	-1,249.30	1,279.73	0.09	-0.09	0.00	180.00
9,952.31	0.80	243.44	9,832.00	-277.72	-1,249.98	1,280.46	0.09	-0.09	0.00	180.00
Rollins										
10,000.00	0.76	243.44	9,879.68	-278.01	-1,250.56	1,281.09	0.09	-0.09	0.00	-180.00
10,100.00	0.67	243.44	9,979.67	-278.57	-1,251.67	1,282.30	0.09	-0.09	0.00	180.00
10,200.00	0.59	243.44	10,079.67	-279.06	-1,252.66	1,283.36	0.09	-0.09	0.00	180.00
10,258.33	0.54	243.44	10,138.00	-279.32	-1,253.17	1,283.92	0.09	-0.09	0.00	-180.00
Cozzette										
10,300.00	0.50	243.44	10,179.66	-279.48	-1,253.50	1,284.28	0.09	-0.09	0.00	180.00
10,400.00	0.41	243.44	10,279.66	-279.84	-1,254.22	1,285.06	0.09	-0.09	0.00	180.00
10,497.34	0.33	243.44	10,377.00	-280.12	-1,254.78	1,285.67	0.09	-0.09	0.00	180.00
Corcora										
10,500.00	0.33	243.44	10,379.66	-280.13	-1,254.80	1,285.68	0.09	-0.09	0.00	-180.00
10,600.00	0.24	243.44	10,479.66	-280.35	-1,255.24	1,286.17	0.09	-0.09	0.00	180.00
10,629.34	0.22	243.44	10,509.00	-280.40	-1,255.34	1,286.28	0.09	-0.09	0.00	-180.00
Mancos										
10,700.00	0.15	243.44	10,579.66	-280.51	-1,255.55	1,286.50	0.09	-0.09	0.00	180.00
10,800.00	0.07	243.44	10,679.66	-280.59	-1,255.72	1,286.69	0.09	-0.09	0.00	180.00
10,879.34	0.00	0.00	10,759.00	-280.61	-1,255.76	1,286.74	0.09	-0.09	146.91	180.00
Total Depth = 10879.34ft - BM 34-43C Plan #1 BH Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
225.00	225.00	0.00	0.00	Kickoff at 225.00ft
500.00	499.58	-2.74	-12.90	Build Rate = 2.00°/100ft
801.07	797.20	-11.97	-56.47	End Build at 801.07ft
3,500.00	3,441.74	-123.77	-583.82	11.52 Inclination
6,297.70	6,183.07	-239.66	-1,130.47	Begin Drop at 6297.70ft
6,700.00	6,580.76	-251.99	-1,188.64	Drop Rate = 1.50°/100ft
7,065.80	6,946.00	-255.62	-1,205.76	End Drop at 7065.80ft
10,879.34	10,759.00	-280.61	-1,255.76	Total Depth = 10879.34ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	BM 34-43C Plan #1 BH Tgt	257.40	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	10,879.34	Plan #1	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,482.04	8 5/8" Casing Pt.	8-5/8	11

Plan Report for BM 34-43C - Plan #1

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,065.80	6,946.00	Williams Fork		0.00	
8,154.85	8,035.00	Top of Gas		0.00	
9,471.24	9,351.00	Cameo		0.00	
9,952.31	9,832.00	Rollins		0.00	
10,258.33	10,138.00	Cozzette		0.00	
10,497.34	10,377.00	Corcora		0.00	
10,629.34	10,509.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
BM 34-43C Plan #1 Driller's Tgt	6,946.00	-255.62	-1,205.76	Rectangle
BM 34-43C Plan #1 Zone Tgt	6,946.00	-280.61	-1,255.76	Rectangle
BM 34-43C Plan #1 BH Tgt	10,759.00	-280.61	-1,255.76	Point

**North Reference Sheet for Sec. 35-T7S-R95W (SGV 35L PAD) - BM 34-43C -
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 34-43C - Slot B 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

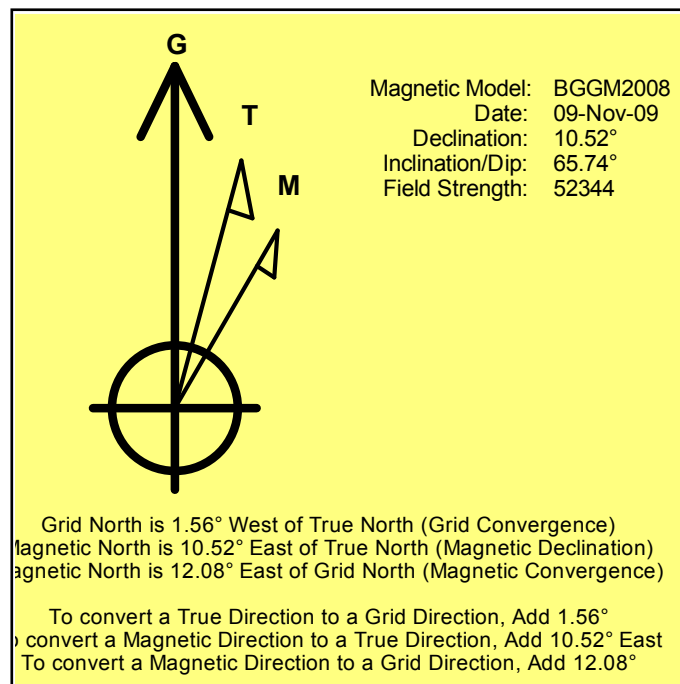
Grid Coordinates of Well: 577,313.60 ft N, 1,301,579.70 ft E

Geographical Coordinates of Well: 39° 23' 32.76" N, 107° 58' 17.45" W

Grid Convergence at Surface is: -1.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,879.34ft
the Bottom Hole Displacement is 1,286.74ft in the Direction of 257.40° (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 34-43C
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
801.07	11.52	258.03	797.20	-11.97	-56.47	2.00	258.03	57.72
6297.70	11.52	258.03	6183.07	-239.66	-1130.47	0.00	0.00	1155.52
7065.80	0.00	0.00	6946.00	-255.62	-1205.76	1.50	180.00	1232.48
8932.41	1.68	243.44	8812.35	-267.85	-1230.24	0.09	243.44	1259.04
10879.34	0.00	360.00	10759.00	-280.61	-1255.76	0.09	180.00	1286.74

BM 34-43C Plan #1 Driller's Tgt

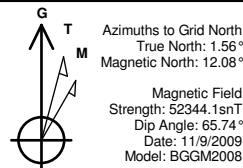
BM 34-43C Plan #1 BH Tgt

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BM 34-43C Plan #1 Driller's Tgt	6946.00	-255.62	-1205.76	Rectangle (Sides: L25.00 W25.00)
BM 34-43C Plan #1 Zone Tgt	6946.00	-280.61	-1255.76	Rectangle (Sides: L100.00 W200.00)
BM 34-43C Plan #1 BH Tgt	10759.00	-280.61	-1255.76	Point

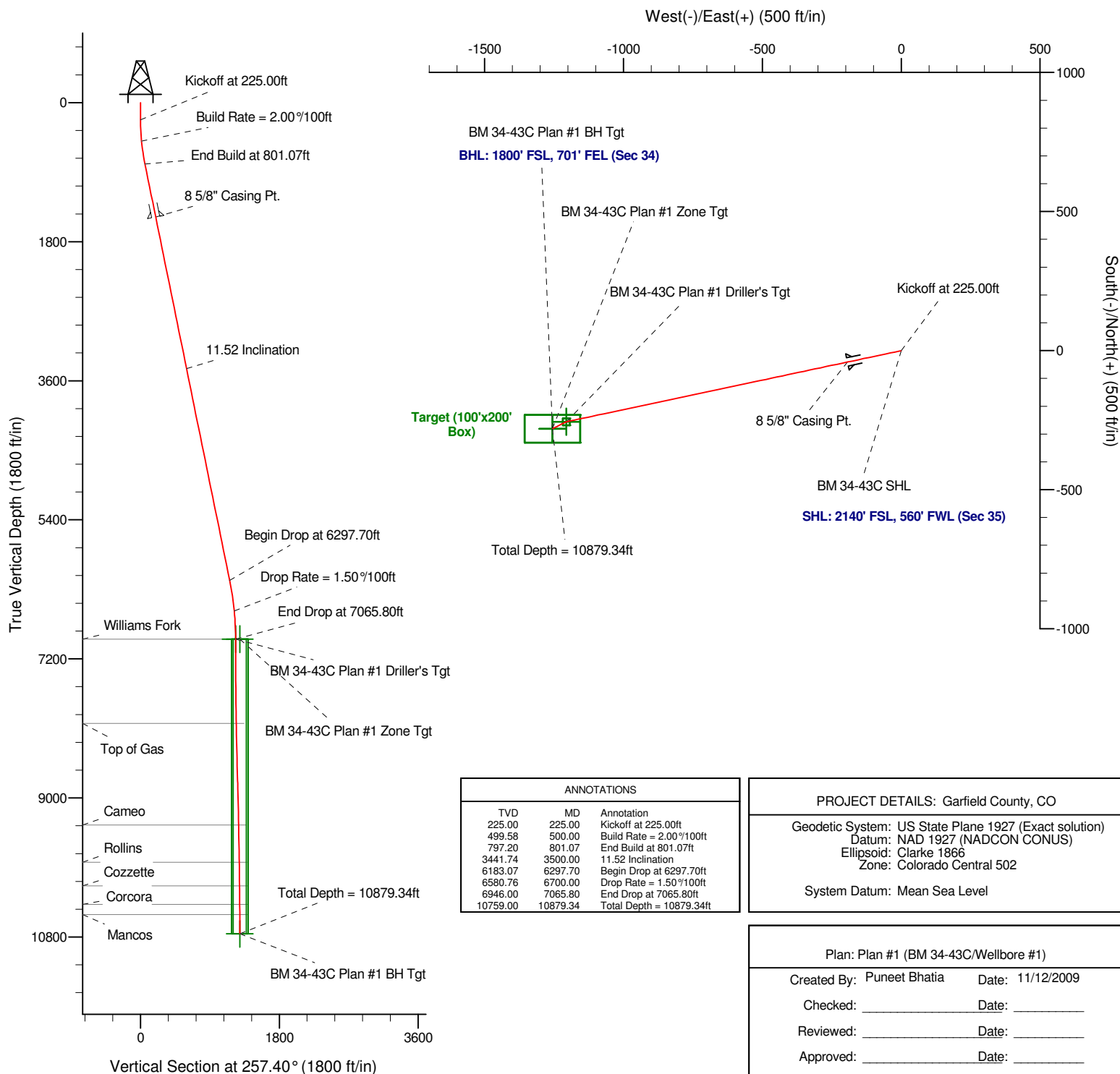
WELL DETAILS: BM 34-43C

North	Ground Level:	9203.00	Longitude
0.000733 3.60	Easting	1301579.70	39° 23' 32.759 N 107° 58' 17.447 W B 9



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6946.00	7065.80	Williams Fork
8035.00	8154.85	Top of Gas
9351.00	9471.24	Cameo
9832.00	9952.31	Rollins
10138.00	10258.33	Cozzette
10377.00	10497.34	Corcora
10509.00	10629.34	Mancos



ANNOTATIONS

TVD	MD	Annotation
225.00	225.00	Kickoff at 225.00ft
499.58	500.00	Build Rate = 2.00%/100ft
797.20	801.07	End Build at 801.07ft
3441.74	3500.00	11.52 Incline
6183.07	6297.70	Begin Drop at 6297.70ft
6580.76	6700.00	Drop Rate = 1.50%/100ft
6946.00	7065.80	End Drop at 7065.80ft
10759.00	10879.34	Total Depth = 10879.34ft

PROJECT DETAILS: Garfield County, CO

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado Central 502

System Datum: Mean Sea Level

Plan: Plan #1 (BM 34-43C/Wellbore #1)

Created By: Puneet Bhatia Date: 11/12/2009

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____