

Noble Energy (Rockies)

Garfield County, CO

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

Rulison Federal 35-14B - A11

Wellbore #1

Plan: Plan #1

Sperry Drilling Services

Proposal Report

12 November, 2009

Well Coordinates: 577,296.00 N, 1,301,578.30 E (39° 23' 32.58" N, 107° 58' 17.46" W)

Ground Level: 9,203.00 ft

Local Coordinate Origin: Centered on Well Rulison Federal 35-14B - Slot A11

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 Rulison Federal 35-14B - 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	175.99	299.99	-0.98	0.07	0.98	2.00	2.00	0.00	175.99
400.00	3.50	175.99	399.89	-5.33	0.37	5.34	2.00	2.00	0.00	0.00
500.00	5.50	175.99	499.58	-13.16	0.92	13.18	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
600.00	7.50	175.99	598.93	-24.45	1.71	24.49	2.00	2.00	0.00	0.00
700.00	9.50	175.99	697.83	-39.19	2.75	39.25	2.00	2.00	0.00	0.00
780.68	11.11	175.99	777.20	-53.59	3.76	53.68	2.00	2.00	0.00	0.00
End Build at 780.68ft										
800.00	11.11	175.99	796.16	-57.31	4.02	57.40	0.00	0.00	0.00	0.00
900.00	11.11	175.99	894.28	-76.54	5.36	76.65	0.00	0.00	0.00	0.00
1,000.00	11.11	175.99	992.41	-95.76	6.71	95.91	0.00	0.00	0.00	0.00
1,100.00	11.11	175.99	1,090.53	-114.99	8.06	115.17	0.00	0.00	0.00	0.00
1,200.00	11.11	175.99	1,188.66	-134.22	9.41	134.43	0.00	0.00	0.00	0.00
1,300.00	11.11	175.99	1,286.78	-153.45	10.75	153.69	0.00	0.00	0.00	0.00
1,400.00	11.11	175.99	1,384.91	-172.68	12.10	172.95	0.00	0.00	0.00	0.00
1,500.00	11.11	175.99	1,483.03	-191.91	13.45	192.20	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	11.11	175.99	1,581.16	-211.13	14.80	211.46	0.00	0.00	0.00	0.00
1,700.00	11.11	175.99	1,679.28	-230.36	16.14	230.72	0.00	0.00	0.00	0.00
1,800.00	11.11	175.99	1,777.41	-249.59	17.49	249.98	0.00	0.00	0.00	0.00
1,900.00	11.11	175.99	1,875.53	-268.82	18.84	269.24	0.00	0.00	0.00	0.00
2,000.00	11.11	175.99	1,973.66	-288.05	20.19	288.49	0.00	0.00	0.00	0.00
2,100.00	11.11	175.99	2,071.78	-307.28	21.53	307.75	0.00	0.00	0.00	0.00
2,200.00	11.11	175.99	2,169.91	-326.50	22.88	327.01	0.00	0.00	0.00	0.00
2,300.00	11.11	175.99	2,268.03	-345.73	24.23	346.27	0.00	0.00	0.00	0.00
2,400.00	11.11	175.99	2,366.15	-364.96	25.58	365.53	0.00	0.00	0.00	0.00
2,500.00	11.11	175.99	2,464.28	-384.19	26.92	384.79	0.00	0.00	0.00	0.00
2,600.00	11.11	175.99	2,562.40	-403.42	28.27	404.04	0.00	0.00	0.00	0.00
2,700.00	11.11	175.99	2,660.53	-422.65	29.62	423.30	0.00	0.00	0.00	0.00
2,800.00	11.11	175.99	2,758.65	-441.87	30.96	442.56	0.00	0.00	0.00	0.00
2,900.00	11.11	175.99	2,856.78	-461.10	32.31	461.82	0.00	0.00	0.00	0.00
3,000.00	11.11	175.99	2,954.90	-480.33	33.66	481.08	0.00	0.00	0.00	0.00
3,100.00	11.11	175.99	3,053.03	-499.56	35.01	500.33	0.00	0.00	0.00	0.00
3,200.00	11.11	175.99	3,151.15	-518.79	36.35	519.59	0.00	0.00	0.00	0.00
3,300.00	11.11	175.99	3,249.28	-538.02	37.70	538.85	0.00	0.00	0.00	0.00
3,400.00	11.11	175.99	3,347.40	-557.25	39.05	558.11	0.00	0.00	0.00	0.00
3,500.00	11.11	175.99	3,445.53	-576.47	40.40	577.37	0.00	0.00	0.00	0.00
3,600.00	11.11	175.99	3,543.65	-595.70	41.74	596.63	0.00	0.00	0.00	0.00
11.11 Inclination										
3,700.00	11.11	175.99	3,641.78	-614.93	43.09	615.88	0.00	0.00	0.00	0.00
3,800.00	11.11	175.99	3,739.90	-634.16	44.44	635.14	0.00	0.00	0.00	0.00
3,900.00	11.11	175.99	3,838.02	-653.39	45.79	654.40	0.00	0.00	0.00	0.00
4,000.00	11.11	175.99	3,936.15	-672.62	47.13	673.66	0.00	0.00	0.00	0.00
4,100.00	11.11	175.99	4,034.27	-691.84	48.48	692.92	0.00	0.00	0.00	0.00
4,200.00	11.11	175.99	4,132.40	-711.07	49.83	712.17	0.00	0.00	0.00	0.00
4,300.00	11.11	175.99	4,230.52	-730.30	51.18	731.43	0.00	0.00	0.00	0.00
4,400.00	11.11	175.99	4,328.65	-749.53	52.52	750.69	0.00	0.00	0.00	0.00
4,500.00	11.11	175.99	4,426.77	-768.76	53.87	769.95	0.00	0.00	0.00	0.00
4,600.00	11.11	175.99	4,524.90	-787.99	55.22	789.21	0.00	0.00	0.00	0.00
4,700.00	11.11	175.99	4,623.02	-807.21	56.57	808.47	0.00	0.00	0.00	0.00
4,800.00	11.11	175.99	4,721.15	-826.44	57.91	827.72	0.00	0.00	0.00	0.00
4,900.00	11.11	175.99	4,819.27	-845.67	59.26	846.98	0.00	0.00	0.00	0.00
5,000.00	11.11	175.99	4,917.40	-864.90	60.61	866.24	0.00	0.00	0.00	0.00

Plan Report for Rulison Federal 35-14B - 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	11.11	175.99	5,015.52	-884.13	61.96	885.50	0.00	0.00	0.00	0.00
5,200.00	11.11	175.99	5,113.65	-903.36	63.30	904.76	0.00	0.00	0.00	0.00
5,300.00	11.11	175.99	5,211.77	-922.58	64.65	924.01	0.00	0.00	0.00	0.00
5,400.00	11.11	175.99	5,309.90	-941.81	66.00	943.27	0.00	0.00	0.00	0.00
5,500.00	11.11	175.99	5,408.02	-961.04	67.35	962.53	0.00	0.00	0.00	0.00
5,600.00	11.11	175.99	5,506.14	-980.27	68.69	981.79	0.00	0.00	0.00	0.00
5,700.00	11.11	175.99	5,604.27	-999.50	70.04	1,001.05	0.00	0.00	0.00	0.00
5,800.00	11.11	175.99	5,702.39	-1,018.73	71.39	1,020.31	0.00	0.00	0.00	0.00
5,900.00	11.11	175.99	5,800.52	-1,037.95	72.74	1,039.56	0.00	0.00	0.00	0.00
6,000.00	11.11	175.99	5,898.64	-1,057.18	74.08	1,058.82	0.00	0.00	0.00	0.00
6,100.00	11.11	175.99	5,996.77	-1,076.41	75.43	1,078.08	0.00	0.00	0.00	0.00
6,200.00	11.11	175.99	6,094.89	-1,095.64	76.78	1,097.34	0.00	0.00	0.00	0.00
6,300.00	11.11	175.99	6,193.02	-1,114.87	78.13	1,116.60	0.00	0.00	0.00	0.00
6,327.22	11.11	175.99	6,219.73	-1,120.10	78.49	1,121.84	0.00	0.00	0.00	0.00
Begin Drop at 6327.22ft										
6,400.00	10.02	175.99	6,291.27	-1,133.42	79.43	1,135.17	1.50	-1.50	0.00	180.00
6,500.00	8.52	175.99	6,389.96	-1,149.49	80.55	1,151.27	1.50	-1.50	0.00	180.00
6,600.00	7.02	175.99	6,489.04	-1,162.98	81.50	1,164.78	1.50	-1.50	0.00	180.00
6,700.00	5.52	175.99	6,588.44	-1,173.88	82.26	1,175.70	1.50	-1.50	0.00	180.00
6,800.00	4.02	175.99	6,688.09	-1,182.18	82.84	1,184.01	1.50	-1.50	0.00	-180.00
Drop Rate = 1.50°/100ft										
6,900.00	2.52	175.99	6,787.92	-1,187.87	83.24	1,189.71	1.50	-1.50	0.00	180.00
7,000.00	1.02	175.99	6,887.87	-1,190.95	83.46	1,192.80	1.50	-1.50	0.00	180.00
7,068.13	0.00	360.00	6,956.00	-1,191.56	83.50	1,193.41	1.50	-1.50	0.00	-180.00
End Drop at 7068.13ft - Williams Fork - Rulison Federal 35-14B Plan #1 Driller's Tgt										
7,068.14	0.00	243.43	6,956.01	-1,191.56	83.50	1,193.41	0.00	0.00	0.00	243.43
Rulison Federal 35-14B Plan #1 Zone Tgt										
7,100.00	0.03	243.43	6,987.87	-1,191.56	83.49	1,193.41	0.09	0.09	0.00	243.43
7,200.00	0.12	243.43	7,087.87	-1,191.62	83.38	1,193.46	0.09	0.09	0.00	0.00
7,300.00	0.21	243.43	7,187.87	-1,191.75	83.12	1,193.58	0.09	0.09	0.00	0.00
7,400.00	0.30	243.43	7,287.87	-1,191.95	82.73	1,193.77	0.09	0.09	0.00	0.00
7,500.00	0.39	243.43	7,387.87	-1,192.21	82.19	1,194.02	0.09	0.09	0.00	0.00
7,600.00	0.48	243.43	7,487.86	-1,192.55	81.51	1,194.34	0.09	0.09	0.00	0.00
7,700.00	0.57	243.43	7,587.86	-1,192.96	80.70	1,194.73	0.09	0.09	0.00	0.00
7,800.00	0.66	243.43	7,687.85	-1,193.44	79.74	1,195.18	0.09	0.09	0.00	0.00
7,900.00	0.75	243.43	7,787.85	-1,193.99	78.64	1,195.70	0.09	0.09	0.00	0.00
8,000.00	0.84	243.43	7,887.84	-1,194.61	77.40	1,196.29	0.09	0.09	0.00	0.00
8,100.00	0.93	243.43	7,987.82	-1,195.30	76.02	1,196.94	0.09	0.09	0.00	0.00
8,157.18	0.98	243.43	8,045.00	-1,195.73	75.17	1,197.34	0.09	0.09	0.00	0.00
Top of Gas										
8,200.00	1.02	243.43	8,087.81	-1,196.06	74.50	1,197.66	0.09	0.09	0.00	0.00
8,300.00	1.11	243.43	8,187.79	-1,196.89	72.84	1,198.44	0.09	0.09	0.00	0.00
8,400.00	1.20	243.43	8,287.77	-1,197.79	71.04	1,199.29	0.09	0.09	0.00	0.00
8,500.00	1.29	243.43	8,387.75	-1,198.76	69.10	1,200.21	0.09	0.09	0.00	0.00
8,600.00	1.38	243.43	8,487.72	-1,199.80	67.02	1,201.19	0.09	0.09	0.00	0.00
8,700.00	1.47	243.43	8,587.69	-1,200.91	64.79	1,202.24	0.09	0.09	0.00	0.00
8,800.00	1.56	243.43	8,687.66	-1,202.09	62.43	1,203.36	0.09	0.09	0.00	0.00
8,900.00	1.65	243.43	8,787.62	-1,203.35	59.93	1,204.54	0.09	0.09	0.00	0.00
8,934.67	1.68	243.43	8,822.27	-1,203.80	59.03	1,204.97	0.09	0.09	0.00	0.00
9,000.00	1.62	243.43	8,887.57	-1,204.64	57.34	1,205.76	0.09	-0.09	0.00	180.00
9,100.00	1.54	243.43	8,987.54	-1,205.87	54.88	1,206.93	0.09	-0.09	0.00	180.00
9,200.00	1.45	243.43	9,087.50	-1,207.04	52.55	1,208.03	0.09	-0.09	0.00	180.00
9,300.00	1.36	243.43	9,187.47	-1,208.14	50.35	1,209.07	0.09	-0.09	0.00	180.00
9,400.00	1.28	243.43	9,287.45	-1,209.17	48.29	1,210.04	0.09	-0.09	0.00	180.00
9,473.57	1.21	243.43	9,361.00	-1,209.89	46.85	1,210.72	0.09	-0.09	0.00	180.00
Cameo										
9,500.00	1.19	243.43	9,387.42	-1,210.13	46.36	1,210.95	0.09	-0.09	0.00	-180.00
9,600.00	1.11	243.43	9,487.40	-1,211.03	44.56	1,211.80	0.09	-0.09	0.00	180.00
9,700.00	1.02	243.43	9,587.39	-1,211.86	42.90	1,212.58	0.09	-0.09	0.00	180.00

Plan Report for Rulison Federal 35-14B - 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	243.43	9,687.37	-1,212.62	41.38	1,213.30	0.09	-0.09	0.00	180.00
9,900.00	0.85	243.43	9,787.36	-1,213.32	39.99	1,213.96	0.09	-0.09	0.00	180.00
9,954.65	0.80	243.43	9,842.00	-1,213.67	39.29	1,214.29	0.09	-0.09	0.00	-180.00
Rollins										
10,000.00	0.76	243.43	9,887.35	-1,213.94	38.74	1,214.55	0.09	-0.09	0.00	180.00
10,100.00	0.67	243.43	9,987.34	-1,214.50	37.62	1,215.08	0.09	-0.09	0.00	180.00
10,200.00	0.59	243.43	10,087.34	-1,215.00	36.63	1,215.55	0.09	-0.09	0.00	180.00
10,260.67	0.54	243.43	10,148.00	-1,215.26	36.10	1,215.80	0.09	-0.09	0.00	-180.00
Cozzette										
10,300.00	0.50	243.43	10,187.33	-1,215.42	35.78	1,215.95	0.09	-0.09	0.00	180.00
10,400.00	0.42	243.43	10,287.33	-1,215.78	35.06	1,216.29	0.09	-0.09	0.00	180.00
10,499.67	0.33	243.43	10,387.00	-1,216.07	34.48	1,216.56	0.09	-0.09	0.00	180.00
Corcora										
10,500.00	0.33	243.43	10,387.33	-1,216.07	34.48	1,216.56	0.09	-0.09	0.00	-180.00
10,600.00	0.24	243.43	10,487.32	-1,216.30	34.04	1,216.77	0.09	-0.09	0.00	180.00
10,631.68	0.22	243.43	10,519.00	-1,216.35	33.92	1,216.82	0.09	-0.09	0.00	180.00
Mancos										
10,700.00	0.16	243.43	10,587.32	-1,216.45	33.72	1,216.92	0.09	-0.09	0.00	-180.00
10,800.00	0.07	243.43	10,687.32	-1,216.54	33.55	1,217.00	0.09	-0.09	0.00	180.00
10,881.68	0.00	360.00	10,769.00	-1,216.56	33.50	1,217.02	0.09	-0.09	0.00	180.00
Rulison Federal 35-14B 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
500.00	499.58	-13.16	0.92	Build Rate = 2.00°/100ft
780.68	777.20	-53.59	3.76	End Build at 780.68ft
3,600.00	3,543.65	-595.70	41.74	11.11 Inclination
6,327.22	6,219.73	-1,120.10	78.49	Begin Drop at 6327.22ft
6,800.00	6,688.09	-1,182.18	82.84	Drop Rate = 1.50°/100ft
7,068.13	6,956.00	-1,191.56	83.50	End Drop at 7068.13ft
10,881.68	10,769.00	-1,216.56	33.50	Total Depth = 10881.68ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Rulison Federal 35-14B Plan #1 BH Tgt	178.42	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	10,881.68	Plan #1	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,483.03	8 5/8" Casing Pt.	8-5/8	11

Plan Report for Rulison Federal 35-14B - Plan #1**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,068.13	6,956.00	Williams Fork		0.00	
8,157.18	8,045.00	Top of Gas		0.00	
9,473.57	9,361.00	Cameo		0.00	
9,954.65	9,842.00	Rollins		0.00	
10,260.67	10,148.00	Cozzette		0.00	
10,499.67	10,387.00	Corcora		0.00	
10,631.68	10,519.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Rulison Federal 35-14B Plan #1 Driller's Tgt	6,956.00	-1,191.56	83.50	Rectangle
Rulison Federal 35-14B Plan #1 BH Tgt	10,769.00	-1,216.56	33.50	Point
Rulison Federal 35-14B Plan #1 Zone Tgt	6,956.00	-1,216.56	33.50	Rectangle

**North Reference Sheet for Sec. 35-T7S-R95W (SGV 35L PAD) - Rulison Federal
35-14B - 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 Rulison Federal 35-14B - Slot A11

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

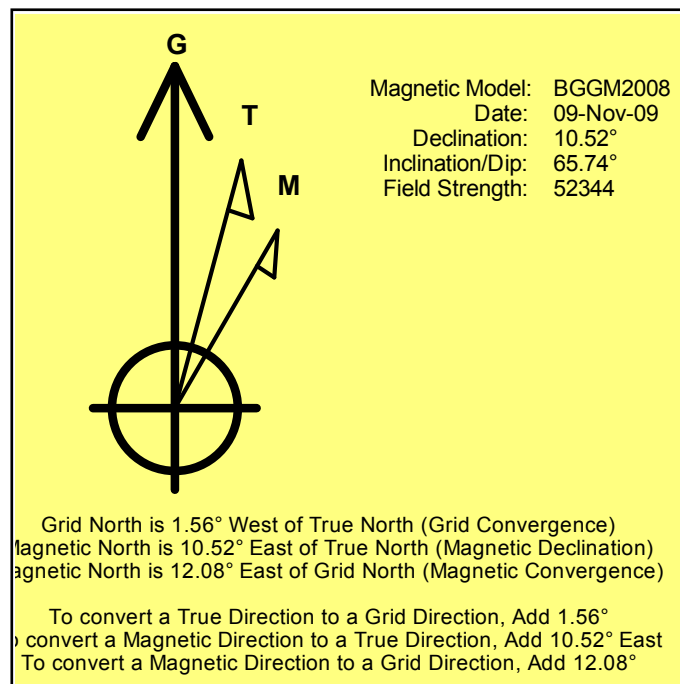
Grid Coordinates of Well: 577,296.00 ft N, 1,301,578.30 ft E

Geographical Coordinates of Well: 39° 23' 32.58" N, 107° 58' 17.46" W

Grid Convergence at Surface is: -1.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,881.68ft
the Bottom Hole Displacement is 1,217.02ft in the Direction of 178.42° (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: Rulison Federal 35-14B
Wellbore: Wellbore #1
Plan: Plan #1

Noble Energy (Rockies)

HALLIBURTON

SECTION DETAILS

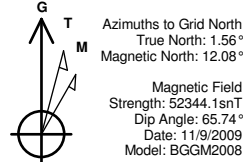
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	
780.68	11.11	175.99	777.20	-53.59	3.76	2.00	175.99	53.68	
6327.22	11.11	175.99	6219.73	-1120.10	78.49	0.00	0.00	1121.84	
7068.13	0.00	360.00	6956.00	-1191.56	83.50	1.50	180.00	1193.41	Rulison Federal 35-14B Plan #1 Driller's Tgt
8934.67	1.68	243.43	8822.27	-1203.80	59.03	0.09	243.43	1204.97	
10881.68	0.00	360.00	10769.00	-1216.56	33.50	0.09	180.00	1217.02	Rulison Federal 35-14B Plan #1 BH Tgt

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Rulison Federal 35-14B Plan #1 Driller's Tgt	6956.00	-1191.56	83.50	Rectangle (Sides: L25.00 W25.00)
Rulison Federal 35-14B Plan #1 Zone Tgt	6956.00	-1216.56	33.50	Rectangle (Sides: L100.00 W200.00)
Rulison Federal 35-14B Plan #1 BH Tgt	10769.00	-1216.56	33.50	Point

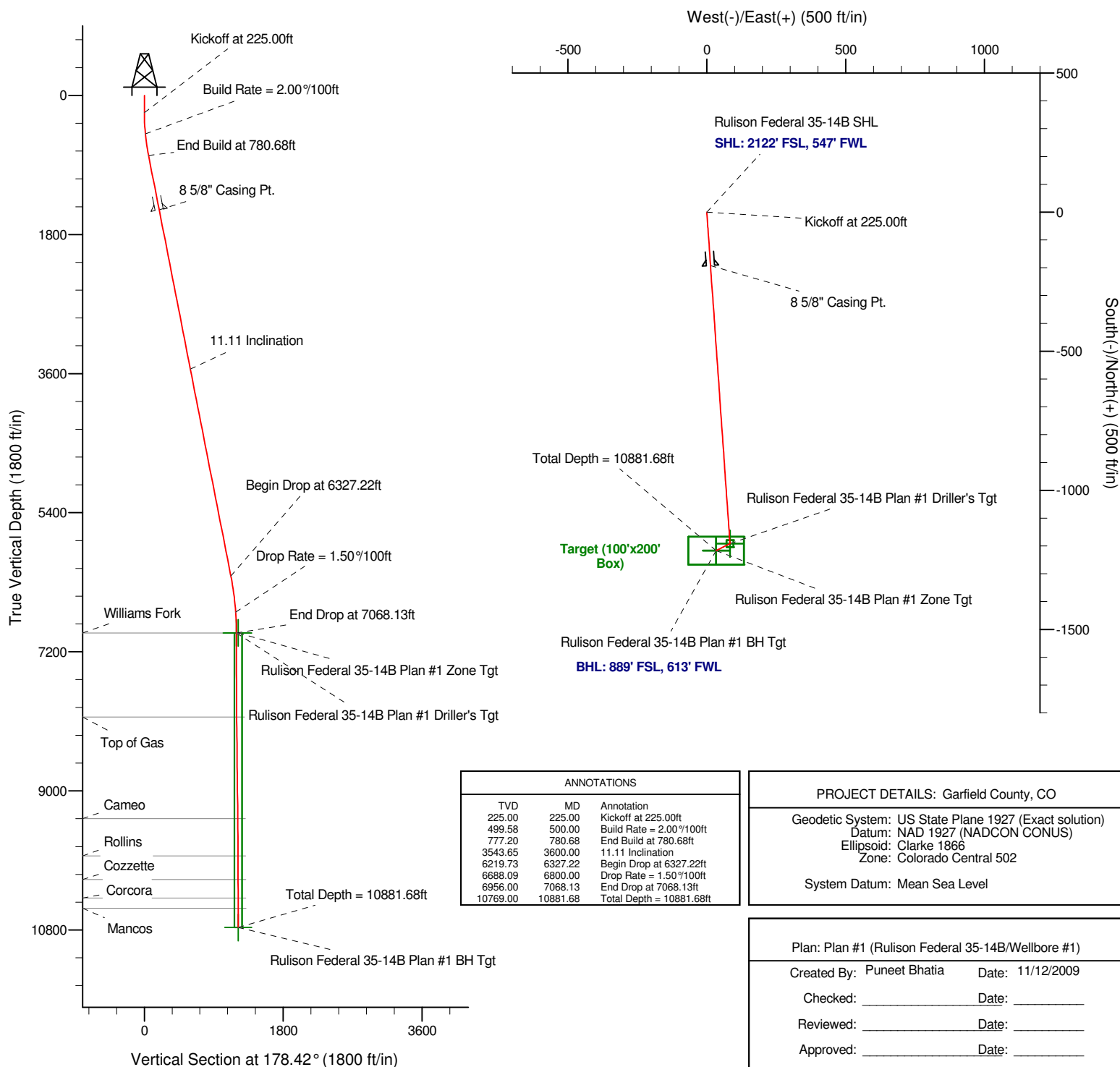
WELL DETAILS: Rulison Federal 35-14B

Ground Level:	9203.00	Latitude	39° 23' 32.584 N	Longitude	107° 58' 17.458 W	A11
North	577296.00	East	1301578.30			



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6956.00	7068.13	Williams Fork
8045.00	8157.18	Top of Gas
9361.00	9473.57	Cameo
9842.00	9954.65	Rollins
10148.00	10260.67	Cozzette
10387.00	10499.67	Corcora
10519.00	10631.68	Mancos



ANNOTATIONS

TVD	MD	Annotation
225.00	225.00	Kickoff at 225.00ft
499.58	500.00	Build Rate = 2.00°/100ft
777.20	780.68	End Build at 780.68ft
3543.65	3600.00	11.11 Incline
6219.73	6327.22	Begin Drop at 6327.22ft
6688.09	6800.00	Drop Rate = 1.50°/100ft
6956.00	7068.13	End Drop at 7068.13ft
10769.00	10881.68	Total Depth = 10881.68ft

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 (Rulison Federal 35-14B/Wellbore #1)

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

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____