

Noble Energy (Rockies)

Garfield County, CO

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

Rulison Federal 35-14D - B11

Wellbore #1

Plan: Plan #1

Sperry Drilling Services

Proposal Report

12 November, 2009

Well Coordinates: 577,301.60 N, 1,301,570.70 E (39° 23' 32.64" N, 107° 58' 17.56" W)

Ground Level: 9,203.00 ft

Local Coordinate Origin: Centered on Well Rulison Federal 35-14D - Slot B11

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 35-14D - 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	2.00	180.00	99.98	-1.75	0.00	1.74	2.00	2.00	0.00	180.00
200.00	4.00	180.00	199.84	-6.98	0.00	6.98	2.00	2.00	0.00	0.00
300.00	6.00	180.00	299.45	-15.69	0.00	15.69	2.00	2.00	0.00	0.00
400.00	8.00	180.00	398.70	-27.88	0.00	27.87	2.00	2.00	0.00	0.00
Kickoff at 400.00ft										
500.00	9.37	180.00	497.55	-42.98	0.00	42.97	1.37	1.37	0.00	0.00
600.00	10.74	180.00	596.02	-60.43	0.00	60.42	1.37	1.37	0.00	0.00
700.00	12.10	180.00	694.03	-80.23	0.00	80.22	1.37	1.37	0.00	0.00
750.00	12.79	180.00	742.86	-91.01	0.00	90.99	1.37	1.37	0.00	0.00
Build Rate = 2.00°/100ft										
800.00	13.47	180.00	791.55	-102.37	0.00	102.35	1.37	1.37	0.00	0.00
900.00	14.84	180.00	888.51	-126.82	0.00	126.80	1.37	1.37	0.00	0.00
1,000.00	16.21	180.00	984.86	-153.59	0.00	153.56	1.37	1.37	0.00	0.00
1,100.00	17.58	180.00	1,080.54	-182.65	0.00	182.61	1.37	1.37	0.00	0.00
1,130.94	18.00	180.00	1,110.00	-192.10	0.00	192.06	1.37	1.37	0.00	0.00
End Build at 1130.94ft										
1,200.00	18.00	180.00	1,175.68	-213.44	0.00	213.40	0.00	0.00	0.00	0.00
1,300.00	18.00	180.00	1,270.79	-244.34	0.00	244.30	0.00	0.00	0.00	0.00
1,400.00	18.00	180.00	1,365.90	-275.24	0.00	275.19	0.00	0.00	0.00	0.00
1,500.00	18.00	180.00	1,461.00	-306.14	0.00	306.09	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	18.00	180.00	1,556.11	-337.04	0.00	336.98	0.00	0.00	0.00	0.00
1,700.00	18.00	180.00	1,651.21	-367.95	0.00	367.88	0.00	0.00	0.00	0.00
1,800.00	18.00	180.00	1,746.32	-398.85	0.00	398.78	0.00	0.00	0.00	0.00
1,900.00	18.00	180.00	1,841.42	-429.75	0.00	429.67	0.00	0.00	0.00	0.00
2,000.00	18.00	180.00	1,936.53	-460.65	0.00	460.57	0.00	0.00	0.00	0.00
2,100.00	18.00	180.00	2,031.63	-491.55	0.00	491.46	0.00	0.00	0.00	0.00
2,200.00	18.00	180.00	2,126.74	-522.46	0.00	522.36	0.00	0.00	0.00	0.00
2,300.00	18.00	180.00	2,221.85	-553.36	0.00	553.26	0.00	0.00	0.00	0.00
2,400.00	18.00	180.00	2,316.95	-584.26	0.00	584.15	0.00	0.00	0.00	0.00
2,500.00	18.00	180.00	2,412.06	-615.16	0.00	615.05	0.00	0.00	0.00	0.00
2,600.00	18.00	180.00	2,507.16	-646.06	0.00	645.95	0.00	0.00	0.00	0.00
2,700.00	18.00	180.00	2,602.27	-676.96	0.00	676.84	0.00	0.00	0.00	0.00
2,800.00	18.00	180.00	2,697.37	-707.87	0.00	707.74	0.00	0.00	0.00	0.00
2,900.00	18.00	180.00	2,792.48	-738.77	0.00	738.63	0.00	0.00	0.00	0.00
3,000.00	18.00	180.00	2,887.59	-769.67	0.00	769.53	0.00	0.00	0.00	0.00
3,100.00	18.00	180.00	2,982.69	-800.57	0.00	800.43	0.00	0.00	0.00	0.00
3,200.00	18.00	180.00	3,077.80	-831.47	0.00	831.32	0.00	0.00	0.00	0.00
3,300.00	18.00	180.00	3,172.90	-862.37	0.00	862.22	0.00	0.00	0.00	0.00
3,400.00	18.00	180.00	3,268.01	-893.28	0.00	893.11	0.00	0.00	0.00	0.00
3,500.00	18.00	180.00	3,363.11	-924.18	0.00	924.01	0.00	0.00	0.00	0.00
3,600.00	18.00	180.00	3,458.22	-955.08	0.00	954.91	0.00	0.00	0.00	0.00
18.00 Inclination										
3,700.00	18.00	180.00	3,553.33	-985.98	0.00	985.80	0.00	0.00	0.00	0.00
3,800.00	18.00	180.00	3,648.43	-1,016.88	0.00	1,016.70	0.00	0.00	0.00	0.00
3,900.00	18.00	180.00	3,743.54	-1,047.78	0.00	1,047.59	0.00	0.00	0.00	0.00
4,000.00	18.00	180.00	3,838.64	-1,078.69	0.00	1,078.49	0.00	0.00	0.00	0.00
4,100.00	18.00	180.00	3,933.75	-1,109.59	0.00	1,109.39	0.00	0.00	0.00	0.00
4,200.00	18.00	180.00	4,028.85	-1,140.49	0.00	1,140.28	0.00	0.00	0.00	0.00
4,300.00	18.00	180.00	4,123.96	-1,171.39	0.00	1,171.18	0.00	0.00	0.00	0.00
4,400.00	18.00	180.00	4,219.06	-1,202.29	0.00	1,202.08	0.00	0.00	0.00	0.00
4,500.00	18.00	180.00	4,314.17	-1,233.19	0.00	1,232.97	0.00	0.00	0.00	0.00
4,600.00	18.00	180.00	4,409.28	-1,264.10	0.00	1,263.87	0.00	0.00	0.00	0.00
4,700.00	18.00	180.00	4,504.38	-1,295.00	0.00	1,294.76	0.00	0.00	0.00	0.00
4,800.00	18.00	180.00	4,599.49	-1,325.90	0.00	1,325.66	0.00	0.00	0.00	0.00
4,900.00	18.00	180.00	4,694.59	-1,356.80	0.00	1,356.56	0.00	0.00	0.00	0.00
5,000.00	18.00	180.00	4,789.70	-1,387.70	0.00	1,387.45	0.00	0.00	0.00	0.00

Plan Report for Rulison Federal 35-14D - 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	18.00	180.00	4,884.80	-1,418.60	0.00	1,418.35	0.00	0.00	0.00	0.00
5,200.00	18.00	180.00	4,979.91	-1,449.51	0.00	1,449.24	0.00	0.00	0.00	0.00
5,300.00	18.00	180.00	5,075.02	-1,480.41	0.00	1,480.14	0.00	0.00	0.00	0.00
5,400.00	18.00	180.00	5,170.12	-1,511.31	0.00	1,511.04	0.00	0.00	0.00	0.00
5,500.00	18.00	180.00	5,265.23	-1,542.21	0.00	1,541.93	0.00	0.00	0.00	0.00
5,600.00	18.00	180.00	5,360.33	-1,573.11	0.00	1,572.83	0.00	0.00	0.00	0.00
5,700.00	18.00	180.00	5,455.44	-1,604.01	0.00	1,603.73	0.00	0.00	0.00	0.00
5,800.00	18.00	180.00	5,550.54	-1,634.92	0.00	1,634.62	0.00	0.00	0.00	0.00
5,900.00	18.00	180.00	5,645.65	-1,665.82	0.00	1,665.52	0.00	0.00	0.00	0.00
6,000.00	18.00	180.00	5,740.76	-1,696.72	0.00	1,696.41	0.00	0.00	0.00	0.00
6,009.72	18.00	180.00	5,750.00	-1,699.72	0.00	1,699.42	0.00	0.00	0.00	0.00
Begin Drop at 6009.72ft										
6,100.00	16.64	171.84	5,836.18	-1,726.51	1.89	1,726.24	3.08	-1.50	-9.04	-123.00
6,200.00	15.14	162.80	5,932.36	-1,753.21	7.86	1,753.04	2.89	-1.50	-9.04	-125.52
6,300.00	13.64	153.76	6,029.22	-1,776.29	17.02	1,776.29	2.70	-1.50	-9.04	-128.06
6,400.00	12.14	144.71	6,126.69	-1,795.46	28.39	1,795.67	2.51	-1.50	-9.04	-131.00
6,500.00	10.64	135.67	6,224.72	-1,810.64	41.00	1,811.09	2.33	-1.50	-9.04	-134.42
6,600.00	9.14	126.63	6,323.23	-1,821.95	53.89	1,822.65	2.16	-1.50	-9.04	-138.42
6,700.00	7.64	117.59	6,422.16	-1,829.73	66.22	1,830.66	1.99	-1.50	-9.04	-143.11
6,800.00	6.14	108.55	6,521.44	-1,834.51	77.18	1,835.64	1.85	-1.50	-9.04	-148.59
Drop Rate = 1.50°/100ft										
6,900.00	4.64	99.51	6,620.99	-1,836.76	86.32	1,838.07	1.72	-1.50	-9.04	-154.96
7,000.00	3.14	90.47	6,720.76	-1,837.38	93.06	1,838.82	1.62	-1.50	-9.04	-162.27
7,100.00	1.63	81.42	6,820.67	-1,837.12	97.21	1,838.64	1.54	-1.50	-9.04	-170.42
7,200.00	0.13	81.42	6,920.65	-1,836.89	98.73	1,838.44	1.50	-1.50	0.00	180.00
7,208.86	0.00	71.58	6,931.00	-1,832.70	85.30	1,833.99	1.50	-1.50	0.00	-180.00
End Drop at 7208.86ft - Williams Fork - Rulison Federal 35-14D Plan #1 Driller's Tgt										
7,208.90	0.00	243.44	6,931.04	-1,832.70	85.30	1,833.99	0.00	0.00	0.00	243.44
Rulison Federal 35-14D Plan #1 Zone Tgt										
7,300.00	0.08	243.44	7,022.14	-1,832.73	85.24	1,834.02	0.09	0.09	0.00	243.44
7,400.00	0.17	243.44	7,122.14	-1,832.83	85.04	1,834.12	0.09	0.09	0.00	0.00
7,500.00	0.26	243.44	7,222.14	-1,833.00	84.70	1,834.28	0.09	0.09	0.00	0.00
7,600.00	0.35	243.44	7,322.14	-1,833.24	84.23	1,834.51	0.09	0.09	0.00	0.00
7,700.00	0.44	243.44	7,422.14	-1,833.55	83.61	1,834.81	0.09	0.09	0.00	0.00
7,800.00	0.53	243.44	7,522.14	-1,833.93	82.85	1,835.17	0.09	0.09	0.00	0.00
7,900.00	0.62	243.44	7,622.13	-1,834.38	81.94	1,835.61	0.09	0.09	0.00	0.00
8,000.00	0.71	243.44	7,722.12	-1,834.90	80.90	1,836.11	0.09	0.09	0.00	0.00
8,100.00	0.80	243.44	7,822.12	-1,835.49	79.72	1,836.68	0.09	0.09	0.00	0.00
8,200.00	0.89	243.44	7,922.10	-1,836.15	78.40	1,837.31	0.09	0.09	0.00	0.00
8,297.91	0.98	243.44	8,020.00	-1,836.87	76.97	1,838.00	0.09	0.09	0.00	0.00
Top of Gas										
8,300.00	0.98	243.44	8,022.09	-1,836.88	76.94	1,838.01	0.09	0.09	0.00	0.00
8,400.00	1.07	243.44	8,122.08	-1,837.69	75.33	1,838.79	0.09	0.09	0.00	0.00
8,500.00	1.16	243.44	8,222.06	-1,838.56	73.59	1,839.62	0.09	0.09	0.00	0.00
8,600.00	1.25	243.44	8,322.03	-1,839.50	71.70	1,840.53	0.09	0.09	0.00	0.00
8,700.00	1.34	243.44	8,422.01	-1,840.51	69.68	1,841.50	0.09	0.09	0.00	0.00
8,800.00	1.43	243.44	8,521.98	-1,841.59	67.51	1,842.54	0.09	0.09	0.00	0.00
8,900.00	1.52	243.44	8,621.95	-1,842.75	65.21	1,843.65	0.09	0.09	0.00	0.00
9,000.00	1.61	243.44	8,721.91	-1,843.97	62.76	1,844.83	0.09	0.09	0.00	0.00
9,075.22	1.68	243.44	8,797.09	-1,844.93	60.83	1,845.76	0.09	0.09	0.00	0.00
9,100.00	1.66	243.44	8,821.87	-1,845.26	60.19	1,846.07	0.09	-0.09	0.00	180.00
9,200.00	1.57	243.44	8,921.83	-1,846.52	57.66	1,847.28	0.09	-0.09	0.00	180.00
9,300.00	1.49	243.44	9,021.79	-1,847.71	55.28	1,848.43	0.09	-0.09	0.00	180.00
9,400.00	1.40	243.44	9,121.76	-1,848.84	53.03	1,849.51	0.09	-0.09	0.00	180.00
9,500.00	1.31	243.44	9,221.73	-1,849.89	50.91	1,850.53	0.09	-0.09	0.00	180.00
9,600.00	1.23	243.44	9,321.71	-1,850.89	48.92	1,851.48	0.09	-0.09	0.00	180.00
9,614.30	1.21	243.44	9,336.00	-1,851.02	48.65	1,851.61	0.09	-0.09	0.00	180.00
Cameo										
9,700.00	1.14	243.44	9,421.69	-1,851.81	47.08	1,852.37	0.09	-0.09	0.00	-180.00

Plan Report for Rulison Federal 35-14D - 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	1.05	243.44	9,521.67	-1,852.67	45.36	1,853.19	0.09	-0.09	0.00	180.00
9,900.00	0.97	243.44	9,621.65	-1,853.46	43.78	1,853.95	0.09	-0.09	0.00	180.00
10,000.00	0.88	243.44	9,721.64	-1,854.18	42.34	1,854.65	0.09	-0.09	0.00	180.00
10,095.37	0.80	243.44	9,817.00	-1,854.80	41.09	1,855.25	0.09	-0.09	0.00	-180.00
Rollins										
10,100.00	0.80	243.44	9,821.63	-1,854.83	41.03	1,855.28	0.09	-0.09	0.00	180.00
10,200.00	0.71	243.44	9,921.62	-1,855.42	39.86	1,855.84	0.09	-0.09	0.00	180.00
10,300.00	0.62	243.44	10,021.61	-1,855.94	38.82	1,856.34	0.09	-0.09	0.00	180.00
10,400.00	0.54	243.44	10,121.61	-1,856.39	37.91	1,856.78	0.09	-0.09	0.00	180.00
10,401.39	0.54	243.44	10,123.00	-1,856.40	37.90	1,856.78	0.00	0.00	0.00	0.00
Cozzette										
10,500.00	0.45	243.44	10,221.60	-1,856.78	37.14	1,857.15	0.09	-0.09	0.00	180.00
10,600.00	0.36	243.44	10,321.60	-1,857.09	36.50	1,857.45	0.09	-0.09	0.00	180.00
10,640.40	0.33	243.44	10,362.00	-1,857.20	36.28	1,857.56	0.09	-0.09	0.00	-180.00
Corcora										
10,700.00	0.28	243.44	10,421.60	-1,857.35	36.00	1,857.69	0.09	-0.09	0.00	180.00
10,772.40	0.22	243.44	10,494.00	-1,857.48	35.72	1,857.83	0.09	-0.09	0.00	180.00
Mancos										
10,800.00	0.19	243.44	10,521.60	-1,857.53	35.63	1,857.87	0.09	-0.09	0.00	-180.00
10,900.00	0.11	243.44	10,621.60	-1,857.64	35.40	1,857.98	0.09	-0.09	0.00	180.00
11,000.00	0.02	243.44	10,721.60	-1,857.69	35.31	1,858.03	0.09	-0.09	0.00	180.00
11,022.40	0.00	0.00	10,744.00	-1,857.70	35.30	1,858.03	0.09	-0.09	520.35	180.00
Total Depth = 11022.40ft - Rulison Federal 35-14D Plan #1 BH Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
400.00	398.70	-27.88	0.00	Kickoff at 400.00ft
750.00	742.86	-91.01	0.00	Build Rate = 2.00°/100ft
1,130.94	1,110.00	-192.10	0.00	End Build at 1130.94ft
3,600.00	3,458.22	-955.08	0.00	18.00 Inclination
6,009.72	5,750.00	-1,699.72	0.00	Begin Drop at 6009.72ft
6,800.00	6,521.44	-1,834.51	77.18	Drop Rate = 1.50°/100ft
7,208.86	6,931.00	-1,832.70	85.30	End Drop at 7208.86ft
11,022.40	10,744.00	-1,857.70	35.30	Total Depth = 11022.40ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Rulison Federal 35-14D Plan #1 BH Tgt	178.91	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	11,022.40	Plan #1	MWD

Plan Report for Rulison Federal 35-14D - Plan #1

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,461.00	8 5/8" Casing Pt.	8-5/8	11

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,208.86	6,931.00	Williams Fork		0.00	
8,297.91	8,020.00	Top of Gas		0.00	
9,614.30	9,336.00	Cameo		0.00	
10,095.37	9,817.00	Rollins		0.00	
10,401.39	10,123.00	Cozzette		0.00	
10,640.40	10,362.00	Corcora		0.00	
10,772.40	10,494.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Rulison Federal 35-14D Plan #1 Driller's Tgt	6,931.00	-1,832.70	85.30	Rectangle
Rulison Federal 35-14D Plan #1 Zone Tgt	6,931.00	-1,857.70	35.30	Rectangle
Rulison Federal 35-14D Plan #1 BH Tgt	10,744.00	-1,857.70	35.30	Point

North Reference Sheet for Sec. 35-T7S-R95W (SGV 35L PAD) - Rulison Federal 35-14D - 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 35-14D - Slot B11

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

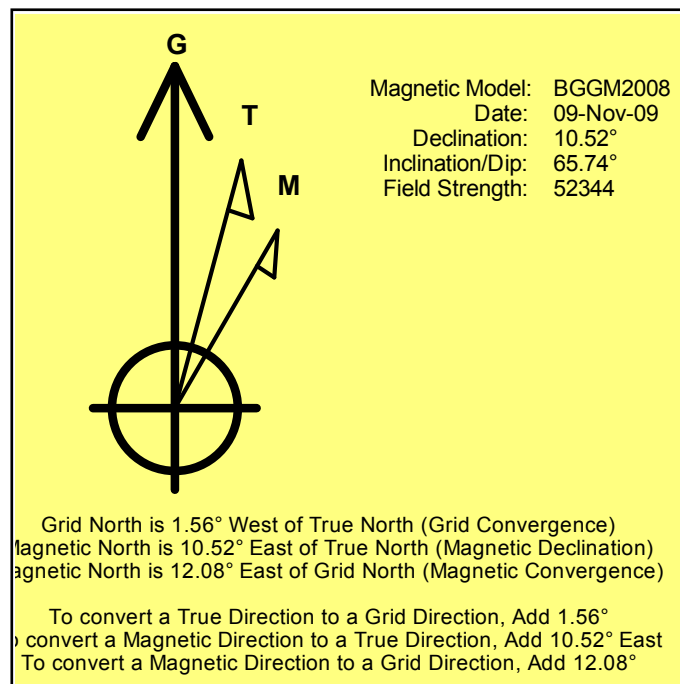
Grid Coordinates of Well: 577,301.60 ft N, 1,301,570.70 ft E

Geographical Coordinates of Well: 39° 23' 32.64" N, 107° 58' 17.56" W

Grid Convergence at Surface is: -1.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,022.40ft
the Bottom Hole Displacement is 1,858.03ft in the Direction of 178.91° (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

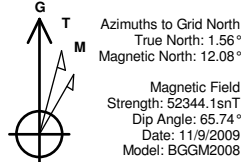
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	
780.68	11.11	175.99	777.20	-53.59	3.76	2.00	175.99	53.68	
6327.22	11.11	175.99	6219.73	-1120.10	78.49	0.00	0.00	1121.84	
7068.13	0.00	360.00	6956.00	-1191.56	83.50	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
Northing	577296.00	Easting	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

