

Noble Energy (Rockies)

Garfield County, CO

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

Rulison Federal 35-24B - A 5

Wellbore #1

Plan: Plan #1

Sperry Drilling Services

Proposal Report

12 November, 2009

Well Coordinates: 577,332.05 N, 1,301,605.30 E (39° 23' 32.95" N, 107° 58' 17.13" W)

Ground Level: 9,203.00 ft

Local Coordinate Origin: Centered on Well Rulison Federal 35-24B - Slot A 5

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 35-24B - 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	132.87	299.99	-0.67	0.72	0.98	2.00	2.00	0.00	132.87
400.00	3.50	132.87	399.89	-3.64	3.92	5.34	2.00	2.00	0.00	0.00
500.00	5.50	132.87	499.58	-8.97	9.67	13.18	2.00	2.00	0.00	0.00
600.00	7.50	132.87	598.93	-16.67	17.96	24.50	2.00	2.00	0.00	0.00
680.00	9.10	132.87	678.09	-24.53	26.43	36.04	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
700.00	9.50	132.87	697.83	-26.73	28.80	39.27	2.00	2.00	0.00	0.00
800.00	11.50	132.87	796.15	-39.12	42.15	57.49	2.00	2.00	0.00	0.00
900.00	13.50	132.87	893.77	-53.85	58.02	79.12	2.00	2.00	0.00	0.00
1,000.00	15.50	132.87	990.58	-70.88	76.37	104.15	2.00	2.00	0.00	0.00
1,100.00	17.50	132.87	1,086.46	-90.20	97.18	132.54	2.00	2.00	0.00	0.00
1,148.02	18.46	132.87	1,132.13	-100.28	108.05	147.36	2.00	2.00	0.00	0.00
End Build at 1148.02ft										
1,200.00	18.46	132.87	1,181.44	-111.48	120.11	163.81	0.00	0.00	0.00	0.00
1,300.00	18.46	132.87	1,276.29	-133.02	143.32	195.46	0.00	0.00	0.00	0.00
1,400.00	18.46	132.87	1,371.15	-154.56	166.53	227.11	0.00	0.00	0.00	0.00
1,500.00	18.46	132.87	1,466.00	-176.11	189.74	258.77	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	18.46	132.87	1,560.86	-197.65	212.94	290.42	0.00	0.00	0.00	0.00
1,700.00	18.46	132.87	1,655.71	-219.19	236.15	322.07	0.00	0.00	0.00	0.00
1,800.00	18.46	132.87	1,750.56	-240.73	259.36	353.72	0.00	0.00	0.00	0.00
1,900.00	18.46	132.87	1,845.42	-262.27	282.57	385.38	0.00	0.00	0.00	0.00
2,000.00	18.46	132.87	1,940.27	-283.81	305.78	417.03	0.00	0.00	0.00	0.00
2,100.00	18.46	132.87	2,035.13	-305.35	328.99	448.68	0.00	0.00	0.00	0.00
2,200.00	18.46	132.87	2,129.98	-326.89	352.20	480.34	0.00	0.00	0.00	0.00
2,300.00	18.46	132.87	2,224.84	-348.44	375.40	511.99	0.00	0.00	0.00	0.00
2,400.00	18.46	132.87	2,319.69	-369.98	398.61	543.64	0.00	0.00	0.00	0.00
2,500.00	18.46	132.87	2,414.54	-391.52	421.82	575.29	0.00	0.00	0.00	0.00
2,600.00	18.46	132.87	2,509.40	-413.06	445.03	606.95	0.00	0.00	0.00	0.00
2,700.00	18.46	132.87	2,604.25	-434.60	468.24	638.60	0.00	0.00	0.00	0.00
2,800.00	18.46	132.87	2,699.11	-456.14	491.45	670.25	0.00	0.00	0.00	0.00
2,900.00	18.46	132.87	2,793.96	-477.68	514.66	701.90	0.00	0.00	0.00	0.00
3,000.00	18.46	132.87	2,888.82	-499.22	537.86	733.56	0.00	0.00	0.00	0.00
3,100.00	18.46	132.87	2,983.67	-520.77	561.07	765.21	0.00	0.00	0.00	0.00
3,200.00	18.46	132.87	3,078.52	-542.31	584.28	796.86	0.00	0.00	0.00	0.00
3,300.00	18.46	132.87	3,173.38	-563.85	607.49	828.51	0.00	0.00	0.00	0.00
3,400.00	18.46	132.87	3,268.23	-585.39	630.70	860.17	0.00	0.00	0.00	0.00
3,500.00	18.46	132.87	3,363.09	-606.93	653.91	891.82	0.00	0.00	0.00	0.00
3,600.00	18.46	132.87	3,457.94	-628.47	677.12	923.47	0.00	0.00	0.00	0.00
18.46 Inclination										
3,700.00	18.46	132.87	3,552.80	-650.01	700.32	955.12	0.00	0.00	0.00	0.00
3,800.00	18.46	132.87	3,647.65	-671.55	723.53	986.78	0.00	0.00	0.00	0.00
3,900.00	18.46	132.87	3,742.50	-693.10	746.74	1,018.43	0.00	0.00	0.00	0.00
4,000.00	18.46	132.87	3,837.36	-714.64	769.95	1,050.08	0.00	0.00	0.00	0.00
4,100.00	18.46	132.87	3,932.21	-736.18	793.16	1,081.73	0.00	0.00	0.00	0.00
4,200.00	18.46	132.87	4,027.07	-757.72	816.37	1,113.39	0.00	0.00	0.00	0.00
4,300.00	18.46	132.87	4,121.92	-779.26	839.58	1,145.04	0.00	0.00	0.00	0.00
4,400.00	18.46	132.87	4,216.78	-800.80	862.78	1,176.69	0.00	0.00	0.00	0.00
4,500.00	18.46	132.87	4,311.63	-822.34	885.99	1,208.34	0.00	0.00	0.00	0.00
4,600.00	18.46	132.87	4,406.48	-843.88	909.20	1,240.00	0.00	0.00	0.00	0.00
4,700.00	18.46	132.87	4,501.34	-865.43	932.41	1,271.65	0.00	0.00	0.00	0.00
4,800.00	18.46	132.87	4,596.19	-886.97	955.62	1,303.30	0.00	0.00	0.00	0.00
4,900.00	18.46	132.87	4,691.05	-908.51	978.83	1,334.95	0.00	0.00	0.00	0.00

Plan Report for Rulison Federal 35-24B - 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	18.46	132.87	4,785.90	-930.05	1,002.04	1,366.61	0.00	0.00	0.00	0.00
5,100.00	18.46	132.87	4,880.76	-951.59	1,025.24	1,398.26	0.00	0.00	0.00	0.00
5,200.00	18.46	132.87	4,975.61	-973.13	1,048.45	1,429.91	0.00	0.00	0.00	0.00
5,300.00	18.46	132.87	5,070.46	-994.67	1,071.66	1,461.56	0.00	0.00	0.00	0.00
5,400.00	18.46	132.87	5,165.32	-1,016.21	1,094.87	1,493.22	0.00	0.00	0.00	0.00
5,500.00	18.46	132.87	5,260.17	-1,037.76	1,118.08	1,524.87	0.00	0.00	0.00	0.00
5,600.00	18.46	132.87	5,355.03	-1,059.30	1,141.29	1,556.52	0.00	0.00	0.00	0.00
5,700.00	18.46	132.87	5,449.88	-1,080.84	1,164.50	1,588.17	0.00	0.00	0.00	0.00
5,800.00	18.46	132.87	5,544.74	-1,102.38	1,187.70	1,619.83	0.00	0.00	0.00	0.00
5,900.00	18.46	132.87	5,639.59	-1,123.92	1,210.91	1,651.48	0.00	0.00	0.00	0.00
6,000.00	18.46	132.87	5,734.44	-1,145.46	1,234.12	1,683.13	0.00	0.00	0.00	0.00
6,044.33	18.46	132.87	5,776.49	-1,155.01	1,244.41	1,697.16	0.00	0.00	0.00	0.00
Begin Drop at 6044.33ft										
6,100.00	17.63	132.87	5,829.42	-1,166.74	1,257.05	1,714.40	1.50	-1.50	0.00	180.00
6,200.00	16.13	132.87	5,925.12	-1,186.49	1,278.32	1,743.42	1.50	-1.50	0.00	180.00
6,300.00	14.63	132.87	6,021.53	-1,204.53	1,297.76	1,769.92	1.50	-1.50	0.00	180.00
6,400.00	13.13	132.87	6,118.61	-1,220.84	1,315.33	1,793.89	1.50	-1.50	0.00	180.00
6,500.00	11.63	132.87	6,216.29	-1,235.42	1,331.04	1,815.31	1.50	-1.50	0.00	180.00
6,600.00	10.13	132.87	6,314.49	-1,248.25	1,344.87	1,834.17	1.50	-1.50	0.00	180.00
6,700.00	8.63	132.87	6,413.15	-1,259.33	1,356.81	1,850.45	1.50	-1.50	0.00	180.00
6,800.00	7.13	132.87	6,512.20	-1,268.66	1,366.85	1,864.15	1.50	-1.50	0.00	-180.00
Drop Rate = 1.50°/100ft										
6,900.00	5.63	132.87	6,611.58	-1,276.21	1,374.99	1,875.25	1.50	-1.50	0.00	180.00
7,000.00	4.13	132.87	6,711.22	-1,281.99	1,381.22	1,883.75	1.50	-1.50	0.00	180.00
7,100.00	2.63	132.87	6,811.04	-1,286.00	1,385.53	1,889.63	1.50	-1.50	0.00	180.00
7,200.00	1.13	132.87	6,910.99	-1,288.22	1,387.93	1,892.90	1.50	-1.50	0.00	180.00
7,274.83	0.00	132.87	6,985.81	-1,288.72	1,388.47	1,893.64	1.50	-1.50	0.00	-180.00
Rulison Federal 35-24B Plan #1 Zone Tgt										
7,275.02	0.00	0.00	6,986.00	-1,288.72	1,388.47	1,893.64	1.50	-1.50	0.00	-180.00
End Drop at 7275.02ft - Williams Fork - Rulison Federal 35-24B Plan #1 Driller's Tgt										
7,300.00	0.02	243.44	7,010.98	-1,288.73	1,388.47	1,893.64	0.09	0.09	0.00	243.44
7,400.00	0.11	243.44	7,110.98	-1,288.78	1,388.36	1,893.60	0.09	0.09	0.00	0.00
7,500.00	0.20	243.44	7,210.98	-1,288.90	1,388.11	1,893.51	0.09	0.09	0.00	0.00
7,600.00	0.29	243.44	7,310.98	-1,289.09	1,387.73	1,893.37	0.09	0.09	0.00	0.00
7,700.00	0.38	243.44	7,410.98	-1,289.36	1,387.20	1,893.18	0.09	0.09	0.00	0.00
7,800.00	0.47	243.44	7,510.97	-1,289.69	1,386.53	1,892.93	0.09	0.09	0.00	0.00
7,900.00	0.56	243.44	7,610.97	-1,290.10	1,385.73	1,892.64	0.09	0.09	0.00	0.00
8,000.00	0.65	243.44	7,710.96	-1,290.57	1,384.78	1,892.30	0.09	0.09	0.00	0.00
8,100.00	0.74	243.44	7,810.96	-1,291.11	1,383.69	1,891.90	0.09	0.09	0.00	0.00
8,200.00	0.83	243.44	7,910.95	-1,291.73	1,382.46	1,891.45	0.09	0.09	0.00	0.00
8,300.00	0.92	243.44	8,010.94	-1,292.41	1,381.09	1,890.96	0.09	0.09	0.00	0.00
8,364.07	0.98	243.44	8,075.00	-1,292.89	1,380.14	1,890.61	0.09	0.09	0.00	0.00
Top of Gas										
8,400.00	1.01	243.44	8,110.92	-1,293.17	1,379.58	1,890.41	0.09	0.09	0.00	0.00
8,500.00	1.10	243.44	8,210.90	-1,293.99	1,377.93	1,889.81	0.09	0.09	0.00	0.00
8,600.00	1.19	243.44	8,310.88	-1,294.89	1,376.14	1,889.16	0.09	0.09	0.00	0.00
8,700.00	1.28	243.44	8,410.86	-1,295.85	1,374.21	1,888.45	0.09	0.09	0.00	0.00
8,800.00	1.37	243.44	8,510.83	-1,296.89	1,372.13	1,887.70	0.09	0.09	0.00	0.00
8,900.00	1.46	243.44	8,610.80	-1,298.00	1,369.92	1,886.90	0.09	0.09	0.00	0.00
9,000.00	1.55	243.44	8,710.77	-1,299.17	1,367.57	1,886.04	0.09	0.09	0.00	0.00
9,100.00	1.64	243.44	8,810.73	-1,300.42	1,365.07	1,885.13	0.09	0.09	0.00	0.00
9,141.59	1.68	243.44	8,852.30	-1,300.96	1,364.00	1,884.74	0.09	0.09	0.00	0.00
9,200.00	1.63	243.44	8,910.69	-1,301.71	1,362.49	1,884.19	0.09	-0.09	0.00	180.00
9,300.00	1.54	243.44	9,010.65	-1,302.95	1,360.01	1,883.29	0.09	-0.09	0.00	180.00
9,400.00	1.46	243.44	9,110.62	-1,304.12	1,357.67	1,882.44	0.09	-0.09	0.00	180.00
9,500.00	1.37	243.44	9,210.59	-1,305.22	1,355.46	1,881.64	0.09	-0.09	0.00	180.00
9,600.00	1.28	243.44	9,310.56	-1,306.26	1,353.39	1,880.89	0.09	-0.09	0.00	180.00
9,680.46	1.21	243.44	9,391.00	-1,307.05	1,351.82	1,880.32	0.09	-0.09	0.00	180.00
Cameo										

Plan Report for Rulison Federal 35-24B - 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	1.20	243.44	9,410.54	-1,307.23	1,351.45	1,880.18	0.09	-0.09	0.00	-180.00
9,800.00	1.11	243.44	9,510.52	-1,308.13	1,349.65	1,879.53	0.09	-0.09	0.00	180.00
9,900.00	1.03	243.44	9,610.50	-1,308.96	1,347.98	1,878.92	0.09	-0.09	0.00	180.00
10,000.00	0.94	243.44	9,710.48	-1,309.73	1,346.45	1,878.36	0.09	-0.09	0.00	180.00
10,100.00	0.85	243.44	9,810.47	-1,310.43	1,345.05	1,877.86	0.09	-0.09	0.00	180.00
10,161.54	0.80	243.44	9,872.00	-1,310.83	1,344.26	1,877.57	0.09	-0.09	0.00	180.00
Rollins										
10,200.00	0.77	243.44	9,910.46	-1,311.06	1,343.79	1,877.40	0.09	-0.09	0.00	-180.00
10,300.00	0.68	243.44	10,010.45	-1,311.63	1,342.66	1,876.99	0.09	-0.09	0.00	180.00
10,400.00	0.59	243.44	10,110.45	-1,312.12	1,341.66	1,876.62	0.09	-0.09	0.00	180.00
10,467.56	0.54	243.44	10,178.00	-1,312.42	1,341.07	1,876.41	0.09	-0.09	0.00	-180.00
Cozzette										
10,500.00	0.51	243.44	10,210.44	-1,312.55	1,340.80	1,876.31	0.09	-0.09	0.00	180.00
10,600.00	0.42	243.44	10,310.44	-1,312.92	1,340.08	1,876.05	0.09	-0.09	0.00	180.00
10,700.00	0.34	243.44	10,410.44	-1,313.21	1,339.49	1,875.83	0.09	-0.09	0.00	180.00
10,706.56	0.33	243.44	10,417.00	-1,313.23	1,339.45	1,875.82	0.09	-0.09	0.00	-180.00
Corcora										
10,800.00	0.25	243.44	10,510.44	-1,313.44	1,339.03	1,875.67	0.09	-0.09	0.00	180.00
10,838.57	0.22	243.44	10,549.00	-1,313.51	1,338.89	1,875.62	0.09	-0.09	0.00	180.00
Mancos										
10,900.00	0.16	243.44	10,610.43	-1,313.60	1,338.71	1,875.55	0.09	-0.09	0.00	-180.00
11,000.00	0.08	243.44	10,710.43	-1,313.69	1,338.52	1,875.48	0.09	-0.09	0.00	-180.00
11,088.57	0.00	360.00	10,799.00	-1,313.72	1,338.47	1,875.46	0.09	-0.09	0.00	180.00
Rulison Federal 35-24B 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
680.00	678.09	-24.53	26.43	Build Rate = 2.00°/100ft
1,148.02	1,132.13	-100.28	108.05	End Build at 1148.02ft
3,600.00	3,457.94	-628.47	677.12	18.46 Inclination
6,044.33	5,776.49	-1,155.01	1,244.41	Begin Drop at 6044.33ft
6,800.00	6,512.20	-1,268.66	1,366.85	Drop Rate = 1.50°/100ft
7,275.02	6,986.00	-1,288.72	1,388.47	End Drop at 7275.02ft
11,088.57	10,799.00	-1,313.72	1,338.47	Total Depth = 11088.57ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Rulison Federal 35-24B Plan #1 BH Tgt	134.47	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	11,088.57	Plan #1	MWD

Plan Report for Rulison Federal 35-24B - Plan #1

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,466.00	8 5/8" Casing Pt.	8-5/8	11

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,275.02	6,986.00	Williams Fork		0.00	
8,364.07	8,075.00	Top of Gas		0.00	
9,680.46	9,391.00	Cameo		0.00	
10,161.54	9,872.00	Rollins		0.00	
10,467.56	10,178.00	Cozzette		0.00	
10,706.56	10,417.00	Corcora		0.00	
10,838.57	10,549.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Rulison Federal 35-24B Plan #1 Driller's Tgt	6,986.00	-1,288.72	1,388.47	Rectangle
Rulison Federal 35-24B Plan #1 Zone Tgt	6,986.00	-1,313.72	1,338.47	Rectangle
Rulison Federal 35-24B Plan #1 BH Tgt	10,799.00	-1,313.72	1,338.47	Point

North Reference Sheet for Sec. 35-T7S-R95W (SGV 35L PAD) - Rulison Federal 35-24B - 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 35-24B - Slot A 5

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

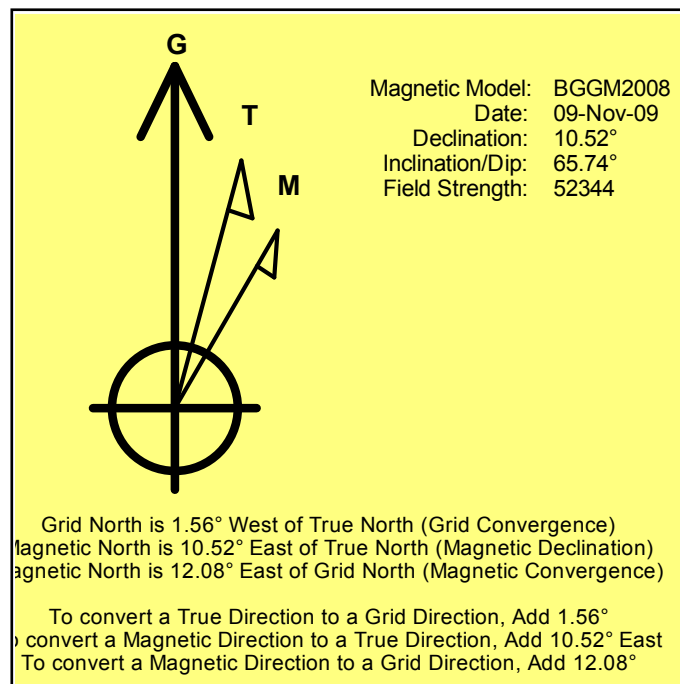
Grid Coordinates of Well: 577,332.05 ft N, 1,301,605.30 ft E

Geographical Coordinates of Well: 39° 23' 32.95" N, 107° 58' 17.13" W

Grid Convergence at Surface is: -1.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,088.57ft
the Bottom Hole Displacement is 1,875.46ft in the Direction of 134.47° (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 35-24B
Wellbore: Wellbore #1
Plan: Plan #1

Noble Energy (Rockies)

HALLIBURTON

SECTION DETAILS

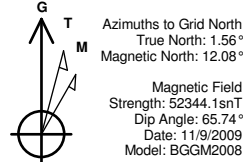
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
225.00	0.00	0.00	225.00	0.00	0.00	0.00	0.00	0.00	
1148.02	18.46	132.87	1132.13	-100.28	108.05	2.00	132.87	147.36	
6044.33	18.46	132.87	5776.49	-1155.01	1244.41	0.00	0.00	1697.16	
7275.02	0.00	0.00	6986.00	-1288.72	1388.47	1.50	180.00	1893.64	Rulison Federal 35-24B Plan #1 Driller's Tgt
9141.59	1.68	243.44	8852.30	-1300.96	1364.00	0.09	243.44	1884.74	
11088.57	0.00	360.00	10799.00	-1313.72	1338.47	0.09	180.00	1875.46	Rulison Federal 35-24B Plan #1 BH Tgt

WELL DETAILS: Rulison Federal 35-24B

Ground Level: 9203.00
Northing: 577332.05 Easting: 1301605.30 Latitude: 39° 23' 32.948 N Longitude: 107° 58' 17.127 W A 5

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Rulison Federal 35-24B Plan #1 Driller's Tgt	6986.00	-1288.72	1388.47	Rectangle (Sides: L25.00 W25.00)
Rulison Federal 35-24B Plan #1 Zone Tgt	6986.00	-1313.72	1338.47	Rectangle (Sides: L100.00 W200.00)
Rulison Federal 35-24B Plan #1 BH Tgt	10799.00	-1313.72	1338.47	Point



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6986.00	7275.02	Williams Fork
8075.00	8364.07	Top of Gas
9391.00	9680.46	Cameo
9872.00	10161.54	Rollins
10178.00	10467.56	Cozzette
10417.00	10706.56	Corcora
10549.00	10838.57	Mancos

