

Noble Energy (Rockies)

Garfield County, CO

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

BM 34-43B - B 8

Wellbore #1

Plan: Plan #1

Sperry Drilling Services

Proposal Report

12 November, 2009

Well Coordinates: 577,319.70 N, 1,301,584.20 E (39° 23' 32.82" N, 107° 58' 17.39" W)

Ground Level: 9,203.00 ft

Local Coordinate Origin:

Centered on Well BM 34-43B - Slot B 8

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 34-43B - 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	272.73	299.99	0.05	-0.98	0.98	2.00	2.00	0.00	272.73
400.00	3.50	272.73	399.89	0.25	-5.34	5.34	2.00	2.00	0.00	0.00
485.00	5.20	272.73	484.64	0.56	-11.78	11.79	2.00	2.00	0.00	0.00
Build Rate = 2.00°/100ft										
500.00	5.50	272.73	499.58	0.63	-13.17	13.19	2.00	2.00	0.00	0.00
600.00	7.50	272.73	598.93	1.17	-24.48	24.50	2.00	2.00	0.00	0.00
700.00	9.50	272.73	697.83	1.87	-39.24	39.28	2.00	2.00	0.00	0.00
781.97	11.14	272.73	778.47	2.57	-53.91	53.96	2.00	2.00	0.00	0.00
End Build at 781.97ft										
800.00	11.14	272.73	796.16	2.74	-57.39	57.44	0.00	0.00	0.00	0.00
900.00	11.14	272.73	894.27	3.66	-76.69	76.76	0.00	0.00	0.00	0.00
1,000.00	11.14	272.73	992.39	4.58	-95.99	96.07	0.00	0.00	0.00	0.00
1,100.00	11.14	272.73	1,090.51	5.50	-115.28	115.39	0.00	0.00	0.00	0.00
1,200.00	11.14	272.73	1,188.62	6.42	-134.58	134.70	0.00	0.00	0.00	0.00
1,300.00	11.14	272.73	1,286.74	7.34	-153.88	154.02	0.00	0.00	0.00	0.00
1,400.00	11.14	272.73	1,384.85	8.26	-173.18	173.33	0.00	0.00	0.00	0.00
1,500.00	11.14	272.73	1,482.97	9.18	-192.47	192.65	0.00	0.00	0.00	0.00
8 5/8" Casing Pt.										
1,600.00	11.14	272.73	1,581.09	10.10	-211.77	211.96	0.00	0.00	0.00	0.00
1,700.00	11.14	272.73	1,679.20	11.02	-231.07	231.28	0.00	0.00	0.00	0.00
1,800.00	11.14	272.73	1,777.32	11.94	-250.37	250.59	0.00	0.00	0.00	0.00
1,900.00	11.14	272.73	1,875.43	12.86	-269.66	269.91	0.00	0.00	0.00	0.00
2,000.00	11.14	272.73	1,973.55	13.78	-288.96	289.22	0.00	0.00	0.00	0.00
2,100.00	11.14	272.73	2,071.67	14.70	-308.26	308.54	0.00	0.00	0.00	0.00
2,200.00	11.14	272.73	2,169.78	15.62	-327.56	327.85	0.00	0.00	0.00	0.00
2,300.00	11.14	272.73	2,267.90	16.54	-346.86	347.17	0.00	0.00	0.00	0.00
2,400.00	11.14	272.73	2,366.01	17.46	-366.15	366.48	0.00	0.00	0.00	0.00
2,500.00	11.14	272.73	2,464.13	18.38	-385.45	385.80	0.00	0.00	0.00	0.00
2,600.00	11.14	272.73	2,562.25	19.30	-404.75	405.11	0.00	0.00	0.00	0.00
2,700.00	11.14	272.73	2,660.36	20.22	-424.05	424.43	0.00	0.00	0.00	0.00
2,800.00	11.14	272.73	2,758.48	21.14	-443.34	443.74	0.00	0.00	0.00	0.00
2,900.00	11.14	272.73	2,856.59	22.06	-462.64	463.06	0.00	0.00	0.00	0.00
3,000.00	11.14	272.73	2,954.71	22.98	-481.94	482.37	0.00	0.00	0.00	0.00
3,100.00	11.14	272.73	3,052.83	23.90	-501.24	501.69	0.00	0.00	0.00	0.00
3,200.00	11.14	272.73	3,150.94	24.82	-520.53	521.00	0.00	0.00	0.00	0.00
3,300.00	11.14	272.73	3,249.06	25.74	-539.83	540.31	0.00	0.00	0.00	0.00
3,400.00	11.14	272.73	3,347.17	26.66	-559.13	559.63	0.00	0.00	0.00	0.00
3,500.00	11.14	272.73	3,445.29	27.58	-578.43	578.94	0.00	0.00	0.00	0.00
11.14 Inclination										
3,600.00	11.14	272.73	3,543.41	28.50	-597.72	598.26	0.00	0.00	0.00	0.00
3,700.00	11.14	272.73	3,641.52	29.42	-617.02	617.57	0.00	0.00	0.00	0.00
3,800.00	11.14	272.73	3,739.64	30.34	-636.32	636.89	0.00	0.00	0.00	0.00
3,900.00	11.14	272.73	3,837.75	31.26	-655.62	656.20	0.00	0.00	0.00	0.00
4,000.00	11.14	272.73	3,935.87	32.18	-674.92	675.52	0.00	0.00	0.00	0.00
4,100.00	11.14	272.73	4,033.99	33.10	-694.21	694.83	0.00	0.00	0.00	0.00
4,200.00	11.14	272.73	4,132.10	34.02	-713.51	714.15	0.00	0.00	0.00	0.00
4,300.00	11.14	272.73	4,230.22	34.94	-732.81	733.46	0.00	0.00	0.00	0.00
4,400.00	11.14	272.73	4,328.34	35.86	-752.11	752.78	0.00	0.00	0.00	0.00
4,500.00	11.14	272.73	4,426.45	36.78	-771.40	772.09	0.00	0.00	0.00	0.00
4,600.00	11.14	272.73	4,524.57	37.70	-790.70	791.41	0.00	0.00	0.00	0.00
4,700.00	11.14	272.73	4,622.68	38.62	-810.00	810.72	0.00	0.00	0.00	0.00
4,800.00	11.14	272.73	4,720.80	39.54	-829.30	830.04	0.00	0.00	0.00	0.00
4,900.00	11.14	272.73	4,818.92	40.46	-848.59	849.35	0.00	0.00	0.00	0.00

Plan Report for BM 34-43B - 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	11.14	272.73	4,917.03	41.38	-867.89	868.67	0.00	0.00	0.00	0.00
5,100.00	11.14	272.73	5,015.15	42.30	-887.19	887.98	0.00	0.00	0.00	0.00
5,200.00	11.14	272.73	5,113.26	43.22	-906.49	907.30	0.00	0.00	0.00	0.00
5,300.00	11.14	272.73	5,211.38	44.14	-925.79	926.61	0.00	0.00	0.00	0.00
5,400.00	11.14	272.73	5,309.50	45.06	-945.08	945.93	0.00	0.00	0.00	0.00
5,500.00	11.14	272.73	5,407.61	45.98	-964.38	965.24	0.00	0.00	0.00	0.00
5,600.00	11.14	272.73	5,505.73	46.90	-983.68	984.56	0.00	0.00	0.00	0.00
5,700.00	11.14	272.73	5,603.84	47.82	-1,002.98	1,003.87	0.00	0.00	0.00	0.00
5,800.00	11.14	272.73	5,701.96	48.74	-1,022.27	1,023.19	0.00	0.00	0.00	0.00
5,900.00	11.14	272.73	5,800.08	49.66	-1,041.57	1,042.50	0.00	0.00	0.00	0.00
6,000.00	11.14	272.73	5,898.19	50.58	-1,060.87	1,061.82	0.00	0.00	0.00	0.00
6,100.00	11.14	272.73	5,996.31	51.49	-1,080.17	1,081.13	0.00	0.00	0.00	0.00
6,200.00	11.14	272.73	6,094.42	52.41	-1,099.46	1,100.45	0.00	0.00	0.00	0.00
6,300.00	11.14	272.73	6,192.54	53.33	-1,118.76	1,119.76	0.00	0.00	0.00	0.00
6,326.00	11.14	272.73	6,218.05	53.57	-1,123.78	1,124.78	0.00	0.00	0.00	0.00
Begin Drop at 6326.00ft										
6,400.00	10.03	272.73	6,290.79	54.22	-1,137.36	1,138.37	1.50	-1.50	0.00	180.00
6,500.00	8.53	272.73	6,389.48	54.99	-1,153.46	1,154.49	1.50	-1.50	0.00	180.00
6,600.00	7.03	272.73	6,488.55	55.63	-1,166.98	1,168.03	1.50	-1.50	0.00	180.00
6,700.00	5.53	272.73	6,587.95	56.15	-1,177.91	1,178.96	1.50	-1.50	0.00	-180.00
Drop Rate = 1.50°/100ft										
6,800.00	4.03	272.73	6,687.60	56.55	-1,186.23	1,187.29	1.50	-1.50	0.00	180.00
6,900.00	2.53	272.73	6,787.43	56.82	-1,191.94	1,193.01	1.50	-1.50	0.00	180.00
7,000.00	1.03	272.73	6,887.38	56.97	-1,195.04	1,196.11	1.50	-1.50	0.00	180.00
7,068.62	0.00	0.00	6,956.00	57.00	-1,195.66	1,196.73	1.50	-1.50	127.18	180.00
End Drop at 7068.62ft - Williams Fork - BM 34-43B Plan #1 Driller's Tgt										
7,068.63	0.00	243.44	6,956.01	57.00	-1,195.66	1,196.73	0.02	0.00	-845,978.13	-148.28
BM 34-43B Plan #1 Zone Tgt										
7,100.00	0.03	243.44	6,987.38	57.00	-1,195.67	1,196.74	0.09	0.09	0.00	0.00
7,200.00	0.12	243.44	7,087.38	56.94	-1,195.78	1,196.85	0.09	0.09	0.00	0.00
7,300.00	0.21	243.44	7,187.38	56.81	-1,196.04	1,197.10	0.09	0.09	0.00	0.00
7,400.00	0.30	243.44	7,287.38	56.62	-1,196.43	1,197.49	0.09	0.09	0.00	0.00
7,500.00	0.39	243.44	7,387.38	56.35	-1,196.97	1,198.02	0.09	0.09	0.00	0.00
7,600.00	0.48	243.44	7,487.37	56.01	-1,197.64	1,198.69	0.09	0.09	0.00	0.00
7,700.00	0.57	243.44	7,587.37	55.60	-1,198.46	1,199.49	0.09	0.09	0.00	0.00
7,800.00	0.66	243.44	7,687.36	55.12	-1,199.42	1,200.44	0.09	0.09	0.00	0.00
7,900.00	0.75	243.44	7,787.36	54.57	-1,200.51	1,201.52	0.09	0.09	0.00	0.00
8,000.00	0.84	243.44	7,887.35	53.95	-1,201.75	1,202.74	0.09	0.09	0.00	0.00
8,100.00	0.93	243.44	7,987.34	53.27	-1,203.13	1,204.10	0.09	0.09	0.00	0.00
8,157.67	0.98	243.44	8,045.00	52.84	-1,203.99	1,204.95	0.09	0.09	0.00	0.00
Top of Gas										
8,200.00	1.02	243.44	8,087.32	52.51	-1,204.65	1,205.60	0.09	0.09	0.00	0.00
8,300.00	1.11	243.44	8,187.30	51.68	-1,206.31	1,207.24	0.09	0.09	0.00	0.00
8,400.00	1.20	243.44	8,287.28	50.78	-1,208.11	1,209.02	0.09	0.09	0.00	0.00
8,500.00	1.29	243.44	8,387.26	49.81	-1,210.05	1,210.93	0.09	0.09	0.00	0.00
8,600.00	1.38	243.44	8,487.23	48.77	-1,212.13	1,212.99	0.09	0.09	0.00	0.00
8,700.00	1.47	243.44	8,587.20	47.65	-1,214.35	1,215.18	0.09	0.09	0.00	0.00
8,800.00	1.56	243.44	8,687.17	46.47	-1,216.72	1,217.51	0.09	0.09	0.00	0.00
8,900.00	1.65	243.44	8,787.13	45.22	-1,219.22	1,219.98	0.09	0.09	0.00	0.00
8,935.28	1.68	243.44	8,822.39	44.76	-1,220.14	1,220.88	0.09	0.09	0.00	0.00
9,000.00	1.62	243.44	8,887.09	43.93	-1,221.80	1,222.53	0.09	-0.09	0.00	180.00
9,100.00	1.54	243.44	8,987.05	42.70	-1,224.27	1,224.96	0.09	-0.09	0.00	180.00
9,200.00	1.45	243.44	9,087.01	41.53	-1,226.61	1,227.27	0.09	-0.09	0.00	180.00
9,300.00	1.37	243.44	9,186.98	40.43	-1,228.80	1,229.44	0.09	-0.09	0.00	180.00
9,400.00	1.28	243.44	9,286.96	39.40	-1,230.87	1,231.47	0.09	-0.09	0.00	180.00
9,474.06	1.22	243.44	9,361.00	38.68	-1,232.31	1,232.90	0.09	-0.09	0.00	180.00
Cameo										
9,500.00	1.19	243.44	9,386.93	38.43	-1,232.80	1,233.38	0.09	-0.09	0.00	-180.00
9,600.00	1.11	243.44	9,486.91	37.54	-1,234.59	1,235.15	0.09	-0.09	0.00	180.00

Plan Report for BM 34-43B - 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	1.02	243.44	9,586.90	36.71	-1,236.25	1,236.79	0.09	-0.09	0.00	180.00
9,800.00	0.93	243.44	9,686.88	35.95	-1,237.78	1,238.29	0.09	-0.09	0.00	180.00
9,900.00	0.85	243.44	9,786.87	35.25	-1,239.17	1,239.66	0.09	-0.09	0.00	180.00
9,955.14	0.80	243.44	9,842.00	34.90	-1,239.88	1,240.36	0.09	-0.09	0.00	180.00
Rollins										
10,000.00	0.76	243.44	9,886.86	34.62	-1,240.42	1,240.90	0.09	-0.09	0.00	-180.00
10,100.00	0.67	243.44	9,986.85	34.06	-1,241.54	1,242.01	0.09	-0.09	0.00	180.00
10,200.00	0.59	243.44	10,086.85	33.57	-1,242.53	1,242.98	0.09	-0.09	0.00	180.00
10,261.16	0.54	243.44	10,148.00	33.30	-1,243.07	1,243.51	0.09	-0.09	0.00	-180.00
Cozzette										
10,300.00	0.50	243.44	10,186.84	33.14	-1,243.38	1,243.82	0.09	-0.09	0.00	180.00
10,400.00	0.42	243.44	10,286.84	32.78	-1,244.10	1,244.53	0.09	-0.09	0.00	180.00
10,500.00	0.33	243.44	10,386.84	32.49	-1,244.68	1,245.10	0.09	-0.09	0.00	180.00
10,500.16	0.33	243.44	10,387.00	32.49	-1,244.68	1,245.10	0.00	0.00	0.00	0.00
Corcora										
10,600.00	0.24	243.44	10,486.83	32.27	-1,245.13	1,245.55	0.09	-0.09	0.00	180.00
10,632.17	0.22	243.44	10,519.00	32.21	-1,245.24	1,245.66	0.09	-0.09	0.00	180.00
Mancos										
10,700.00	0.16	243.44	10,586.83	32.11	-1,245.44	1,245.85	0.09	-0.09	0.00	-180.00
10,800.00	0.07	243.44	10,686.83	32.02	-1,245.62	1,246.03	0.09	-0.09	0.00	180.00
10,882.17	0.00	360.00	10,769.00	32.00	-1,245.66	1,246.07	0.09	-0.09	0.00	180.00
BM 34-43B 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
485.00	484.64	0.56	-11.78	Build Rate = 2.00°/100ft
781.97	778.47	2.57	-53.91	End Build at 781.97ft
3,500.00	3,445.29	27.58	-578.43	11.14 Inclination
6,326.00	6,218.05	53.57	-1,123.78	Begin Drop at 6326.00ft
6,700.00	6,587.95	56.15	-1,177.91	Drop Rate = 1.50°/100ft
7,068.62	6,956.00	57.00	-1,195.66	End Drop at 7068.62ft
10,882.17	10,769.00	32.00	-1,245.66	Total Depth = 10882.17ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	BM 34-43B Plan #1 BH Tgt	271.47	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	10,882.17	Plan #1	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,482.97	8 5/8" Casing Pt.	8-5/8	11

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

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,068.62	6,956.00	Williams Fork		0.00	
8,157.67	8,045.00	Top of Gas		0.00	
9,474.06	9,361.00	Cameo		0.00	
9,955.14	9,842.00	Rollins		0.00	
10,261.16	10,148.00	Cozzette		0.00	
10,500.16	10,387.00	Corcora		0.00	
10,632.17	10,519.00	Mancos		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
BM 34-43B Plan #1 Zone Tgt	6,956.00	32.00	-1,245.66	Rectangle
BM 34-43B Plan #1 BH Tgt	10,769.00	32.00	-1,245.66	Point
BM 34-43B Plan #1 Driller's Tgt	6,956.00	57.00	-1,195.66	Rectangle

North Reference Sheet for Sec. 35-T7S-R95W (SGV 35L PAD) - BM 34-43B - 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 34-43B - Slot B 8

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

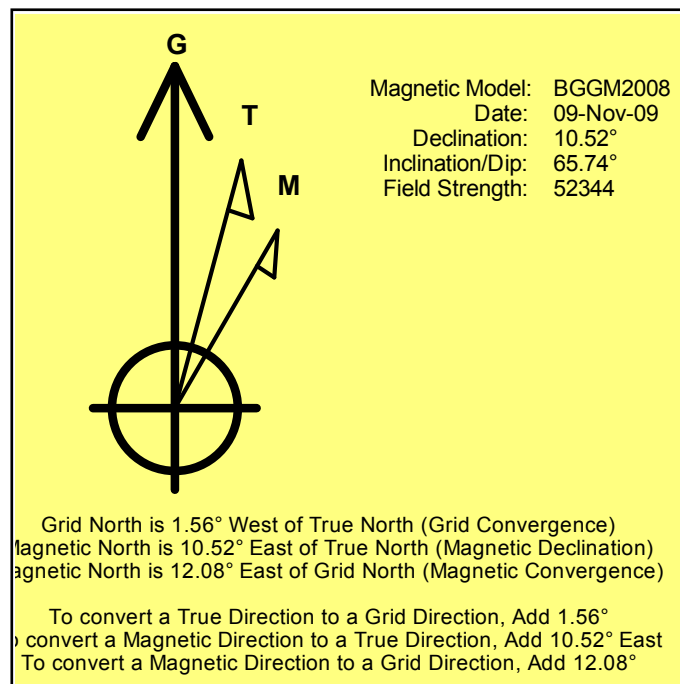
Grid Coordinates of Well: 577,319.70 ft N, 1,301,584.20 ft E

Geographical Coordinates of Well: 39° 23' 32.82" N, 107° 58' 17.39" W

Grid Convergence at Surface is: -1.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,882.17ft
the Bottom Hole Displacement is 1,246.07ft in the Direction of 271.47° (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: BM 34-43B
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
781.97	11.14	272.73	778.46	2.57	-53.91	2.00	272.73	53.96
6326.00	11.14	272.73	6218.05	53.57	-1123.78	0.00	0.00	1124.78
7068.62	0.00	0.00	6956.00	57.00	-1195.66	1.50	180.00	1196.73
8935.28	1.68	243.44	8822.39	44.76	-1220.14	0.09	243.44	1220.88
10882.17	0.00	360.00	10769.00	32.00	-1245.66	0.09	180.00	1246.07

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

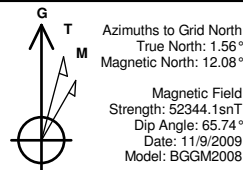
BM 34-43B Plan #1 BH Tgt

WELL DETAILS: BM 34-43B

Northing: 0.0007309.70
Ground Level: 1301584.20
Latitude: 39° 23' 32.820 N
Longitude: 107° 58' 17.391 W
B 8

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BM 34-43B Plan #1 Driller's Tgt	6956.00	57.00	-1195.66	Rectangle (Sides: L25.00 W25.00)
BM 34-43B Plan #1 Zone Tgt	6956.00	32.00	-1245.66	Rectangle (Sides: L100.00 W200.00)
BM 34-43B Plan #1 BH Tgt	10769.00	32.00	-1245.66	Point



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6956.00	7068.62	Williams Fork
8045.00	8157.67	Top of Gas
9361.00	9474.06	Cameo
9842.00	9955.14	Rollins
10148.00	10261.16	Cozzette
10387.00	10500.16	Corcora
10519.00	10632.17	Mancos

