



## **Bill Barrett Corp.**

**Garfield County, Colorado**

**Miller 10 Pad**

**Miller Federal 24A-31-691**

**Wellbore #1**

**Survey: Surveys from Surface**

## **Standard Survey Report**

**28 December, 2010**



<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well Miller Federal 24A-31-691
<b>Project:</b>	Garfield County, Colorado	<b>TVD Reference:</b>	KB @ 6284.00ft
<b>Site:</b>	Miller 10 Pad	<b>MD Reference:</b>	KB @ 6284.00ft
<b>Well:</b>	Miller Federal 24A-31-691	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Compass VM

<b>Project</b>	Garfield County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site		Miller 10 Pad			
Site Position:		Northing:	1,605,362.13 usft	Latitude:	39° 28' 36.39 N
From:	Lat/Long	Easting:	2,408,695.61 usft	Longitude:	107° 35' 41.81 W
Position Uncertainty:	0.00 ft	Slot Radius:	1.10 ft	Grid Convergence:	-1.32 °

Well	Miller Federal 24A-31-691					
Well Position	+N/-S	0.00 ft	Northing:	1,605,386.66 usft	Latitude:	39° 28' 36.62 N
	+E/-W	0.00 ft	Easting:	2,408,674.44 usft	Longitude:	107° 35' 42.09 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,262.00 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	07/28/10	10.26	65.83	52,408

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	279.73	

<b>Survey Program</b>	<b>Date</b>	12/28/10			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
50.00	700.00	Gyro Surveys (Wellbore #1)	MWD	MWD - Standard	
874.00	8,130.00	Surveys (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
50.00	0.380	67.31	50.00	0.06	0.15	-0.14	0.76	0.76	0.00	
100.00	0.340	55.53	100.00	0.21	0.43	-0.39	0.17	-0.08	-23.56	
150.00	0.220	56.82	150.00	0.35	0.63	-0.56	0.24	-0.24	2.58	
200.00	0.330	66.63	200.00	0.46	0.84	-0.75	0.24	0.22	19.62	
250.00	0.160	54.65	250.00	0.56	1.03	-0.92	0.35	-0.34	-23.96	
300.00	0.270	63.03	300.00	0.65	1.19	-1.07	0.23	0.22	16.76	
350.00	0.370	81.42	350.00	0.73	1.46	-1.32	0.28	0.20	36.78	
400.00	0.260	89.55	400.00	0.75	1.73	-1.58	0.24	-0.22	16.26	
450.00	0.180	82.11	449.99	0.76	1.92	-1.77	0.17	-0.16	-14.88	

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well Miller Federal 24A-31-691
<b>Project:</b>	Garfield County, Colorado	<b>TVD Reference:</b>	KB @ 6284.00ft
<b>Site:</b>	Miller 10 Pad	<b>MD Reference:</b>	KB @ 6284.00ft
<b>Well:</b>	Miller Federal 24A-31-691	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Compass VM

Survey									
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)
500.00	0.270	92.06	499.99	0.77	2.12	-1.96	0.20	0.18	19.90
550.00	0.270	115.78	549.99	0.71	2.34	-2.19	0.22	0.00	47.44
600.00	0.080	82.10	599.99	0.67	2.48	-2.33	0.42	-0.38	-67.36
650.00	0.190	89.84	649.99	0.67	2.60	-2.45	0.22	0.22	15.48
700.00	0.210	107.13	699.99	0.65	2.77	-2.62	0.13	0.04	34.58
781.00	0.175	184.65	780.99	0.48	2.90	-2.78	0.30	-0.04	95.70
<b>9 5/8"</b>									
874.00	0.400	220.70	873.99	0.09	2.68	-2.63	0.30	0.24	38.77
966.00	2.700	273.80	965.95	-0.01	0.31	-0.31	2.70	2.50	57.72
1,061.00	5.200	290.30	1,060.72	1.63	-5.96	6.15	2.86	2.63	17.37
1,156.00	7.900	288.00	1,155.09	5.15	-16.21	16.85	2.85	2.84	-2.42
1,251.00	9.800	286.00	1,248.96	9.39	-30.19	31.35	2.03	2.00	-2.11
1,346.00	12.400	280.50	1,342.18	13.48	-48.00	49.59	2.95	2.74	-5.79
1,442.00	14.900	283.10	1,435.46	18.16	-70.16	72.22	2.68	2.60	2.71
1,537.00	16.700	278.20	1,526.87	22.87	-95.57	98.06	2.36	1.89	-5.16
1,632.00	18.900	278.00	1,617.32	26.96	-124.32	127.09	2.32	2.32	-0.21
1,727.00	22.100	278.40	1,706.29	31.71	-157.24	160.34	3.37	3.37	0.42
1,822.00	24.700	276.50	1,793.47	36.57	-194.65	198.03	2.85	2.74	-2.00
1,917.00	25.000	276.40	1,879.67	41.06	-234.32	237.89	0.32	0.32	-0.11
2,012.00	25.000	278.00	1,965.77	46.09	-274.15	277.99	0.71	0.00	1.68
2,107.00	25.200	276.50	2,051.80	51.17	-314.12	318.25	0.70	0.21	-1.58
2,202.00	24.700	282.40	2,137.95	57.73	-353.61	358.28	2.67	-0.53	6.21
2,297.00	24.900	280.40	2,224.19	65.60	-392.67	398.10	0.91	0.21	-2.11
2,392.00	24.300	279.00	2,310.57	72.27	-431.64	437.65	0.88	-0.63	-1.47
2,487.00	24.100	277.20	2,397.22	77.75	-470.19	476.57	0.80	-0.21	-1.89
2,582.00	26.000	280.40	2,483.29	83.95	-509.92	516.77	2.46	2.00	3.37
2,678.00	26.500	280.90	2,569.39	91.79	-551.65	559.23	0.57	0.52	0.52
2,773.00	26.900	279.80	2,654.26	99.46	-593.64	601.91	0.67	0.42	-1.16
2,868.00	25.000	283.30	2,739.68	107.74	-634.36	643.44	2.57	-2.00	3.68
2,963.00	25.100	280.90	2,825.75	116.17	-673.68	683.62	1.07	0.11	-2.53
3,058.00	25.300	280.80	2,911.70	123.78	-713.41	724.06	0.22	0.21	-0.11
3,153.00	24.700	279.50	2,997.80	130.86	-752.92	764.21	0.86	-0.63	-1.37
3,249.00	23.500	278.90	3,085.43	137.13	-791.62	803.41	1.28	-1.25	-0.63
3,344.00	21.200	281.30	3,173.29	143.43	-827.18	839.52	2.60	-2.42	2.53
3,439.00	20.300	279.50	3,262.13	149.51	-860.28	873.17	1.16	-0.95	-1.89
3,534.00	18.300	282.30	3,351.79	155.41	-891.11	904.55	2.32	-2.11	2.95
3,629.00	15.900	281.10	3,442.58	161.10	-918.45	932.47	2.55	-2.53	-1.26
3,724.00	15.600	280.50	3,534.02	165.93	-943.78	958.25	0.36	-0.32	-0.63
3,819.00	13.500	278.50	3,625.97	169.90	-967.31	982.11	2.27	-2.21	-2.11
3,914.00	12.700	275.30	3,718.49	172.50	-988.68	1,003.61	1.14	-0.84	-3.37
4,010.00	10.700	280.70	3,812.50	175.13	-1,007.94	1,023.04	2.37	-2.08	5.63
4,105.00	9.100	279.30	3,906.08	177.98	-1,024.03	1,039.37	1.70	-1.68	-1.47
4,200.00	7.000	272.60	4,000.14	179.46	-1,037.22	1,052.63	2.42	-2.21	-7.05

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<b>Well:</b>	Miller Federal 24A-31-691	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Compass VM

Survey									
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)
4,295.00	6.200	275.50	4,094.51	180.21	-1,048.11	1,063.49	0.91	-0.84	3.05
4,390.00	4.300	282.00	4,189.11	181.44	-1,056.70	1,072.17	2.09	-2.00	6.84
4,485.00	3.800	276.30	4,283.87	182.53	-1,063.32	1,078.87	0.68	-0.53	-6.00
4,580.00	2.300	306.40	4,378.74	184.01	-1,067.98	1,083.72	2.26	-1.58	31.68
4,675.00	1.600	40.10	4,473.70	186.15	-1,068.66	1,084.75	3.04	-0.74	98.63
4,771.00	1.000	77.70	4,569.68	187.36	-1,066.98	1,083.30	1.05	-0.63	39.17
4,866.00	0.400	201.10	4,664.68	187.22	-1,066.29	1,082.59	1.33	-0.63	129.89
4,961.00	1.000	189.60	4,759.67	186.10	-1,066.55	1,082.66	0.65	0.63	-12.11
5,056.00	0.300	49.80	4,854.66	185.44	-1,066.49	1,082.49	1.31	-0.74	-147.16
5,151.00	2.600	81.80	4,949.63	185.91	-1,064.17	1,080.28	2.47	2.42	33.68
5,246.00	1.800	106.80	5,044.56	185.78	-1,060.61	1,076.75	1.30	-0.84	26.32
5,341.00	1.600	112.70	5,139.52	184.84	-1,057.96	1,073.98	0.28	-0.21	6.21
5,437.00	1.400	141.60	5,235.49	183.41	-1,055.99	1,071.80	0.81	-0.21	30.10
5,532.00	0.900	283.00	5,330.48	182.66	-1,056.00	1,071.68	2.29	-0.53	148.84
5,627.00	1.300	224.90	5,425.46	182.07	-1,057.49	1,073.05	1.18	0.42	-61.16
5,722.00	2.400	293.60	5,520.42	182.10	-1,060.07	1,075.60	2.40	1.16	72.32
5,817.00	1.700	267.30	5,615.36	182.83	-1,063.30	1,078.91	1.22	-0.74	-27.68
5,912.00	2.200	250.70	5,710.31	182.16	-1,066.43	1,081.88	0.79	0.53	-17.47
6,007.00	1.500	316.60	5,805.27	182.46	-1,069.01	1,084.47	2.21	-0.74	69.37
6,102.00	1.900	275.00	5,900.23	183.50	-1,071.43	1,087.03	1.33	0.42	-43.79
6,197.00	0.300	226.80	5,995.21	183.47	-1,073.18	1,088.75	1.80	-1.68	-50.74
6,292.00	0.600	222.00	6,090.20	182.93	-1,073.69	1,089.16	0.32	0.32	-5.05
6,387.00	2.200	202.20	6,185.17	180.87	-1,074.72	1,089.82	1.73	1.68	-20.84
6,482.00	0.000	165.90	6,280.15	179.18	-1,075.40	1,090.22	2.32	-2.32	0.00
6,578.00	1.400	50.10	6,376.14	179.94	-1,074.50	1,089.46	1.46	1.46	0.00
6,673.00	0.800	130.60	6,471.13	180.25	-1,073.11	1,088.14	1.57	-0.63	84.74
6,768.00	1.100	53.00	6,566.12	180.37	-1,071.88	1,086.94	1.28	0.32	-81.68
6,863.00	1.100	184.60	6,661.11	180.01	-1,071.22	1,086.24	2.11	0.00	138.53
6,958.00	0.700	44.80	6,756.10	179.51	-1,070.89	1,085.82	1.79	-0.42	-147.16
7,053.00	3.000	15.60	6,851.05	182.32	-1,069.81	1,085.23	2.54	2.42	-30.74
7,148.00	1.800	18.20	6,945.96	186.13	-1,068.68	1,084.76	1.27	-1.26	2.74
7,243.00	0.500	18.10	7,040.94	187.94	-1,068.08	1,084.48	1.37	-1.37	-0.11
7,338.00	0.600	235.30	7,135.94	188.05	-1,068.36	1,084.77	1.10	0.11	-150.32
7,433.00	1.500	196.10	7,230.93	186.57	-1,069.11	1,085.27	1.16	0.95	-41.26
7,528.00	0.400	169.20	7,325.91	185.05	-1,069.40	1,085.29	1.22	-1.16	-28.32
7,623.00	1.000	211.80	7,420.90	184.02	-1,069.77	1,085.48	0.80	0.63	44.84
7,719.00	1.300	356.80	7,516.90	184.40	-1,070.27	1,086.04	2.29	0.31	151.04
7,814.00	0.300	236.90	7,611.89	185.34	-1,070.54	1,086.47	1.55	-1.05	-126.21
7,909.00	0.900	165.30	7,706.88	184.48	-1,070.56	1,086.34	0.90	0.63	-75.37
8,004.00	1.300	192.80	7,801.87	182.71	-1,070.61	1,086.09	0.69	0.42	28.95
8,085.00	1.800	187.80	7,882.84	180.55	-1,070.99	1,086.10	0.64	0.62	-6.17
8,130.00	1.800	187.80	7,927.81	179.15	-1,071.18	1,086.05	0.00	0.00	0.00

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<b>Site:</b>	Miller 10 Pad	<b>MD Reference:</b>	KB @ 6284.00ft
<b>Well:</b>	Miller Federal 24A-31-691	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Compass VM

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (ft)	Hole Diameter (ft)
781.00	780.99	9 5/8"		0.80	1.02

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
700.00	699.99	0.65	2.77	End of Gyros	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_