



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.21-T5N-R61W

Kunsemiller 05-61-21-0108BH

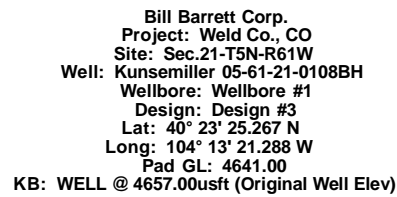
Wellbore #1

Survey: Survey #2

Standard Survey Report

28 November, 2013

Archer

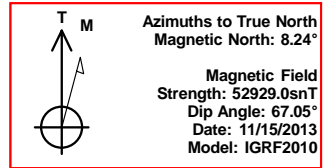


Archer

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
810.00	1.25	208.20	809.92	-8.92	-2.86	0.00	0.00	-2.70	Start Drop -1.39
900.00	0.00	0.00	899.91	-9.78	-3.33	1.39	180.00	-3.14	Start Build 1.50
2012.76	16.69	340.61	1997.00	142.03	-56.77	1.50	340.61	-59.39	Start 1780.95 hold at 2012.76 MD
3793.71	16.69	340.61	3709.91	624.52	-226.63	0.00	0.00	-238.14	Start Drop -1.50
4906.47	0.00	0.00	4800.00	776.33	-280.07	1.50	180.00	-294.38	Start 873.15 hold at 4906.47 MD
5721.80	0.00	0.00	5615.33	776.33	-280.07	0.00	0.00	-294.38	Start Build 12.00
6474.30	90.30	91.06	6092.79	767.44	199.81	12.00	91.06	185.58	Start 3676.93 hold at 6474.30 MD
10151.23	90.30	91.06	6073.54	699.29	3876.06	0.00	0.00	3862.46	TD at 10151.23

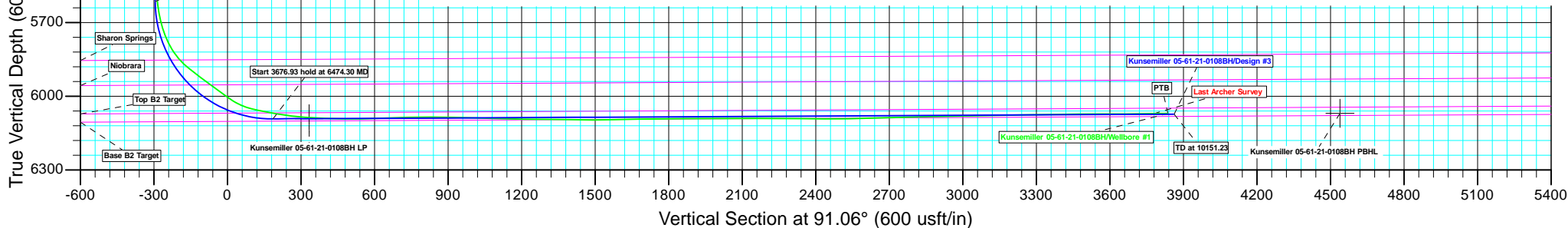
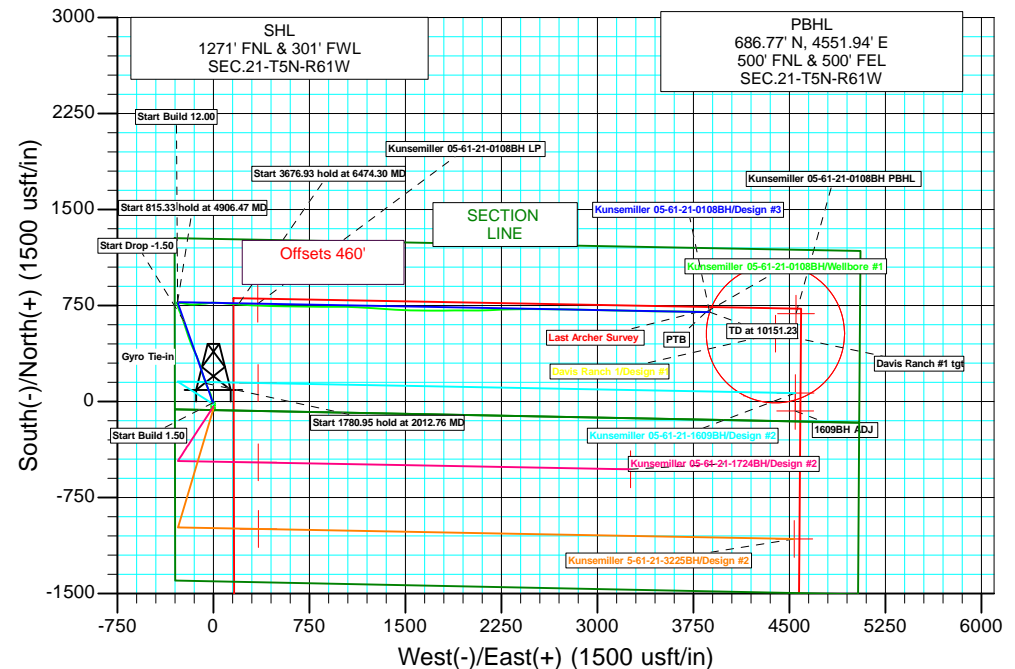
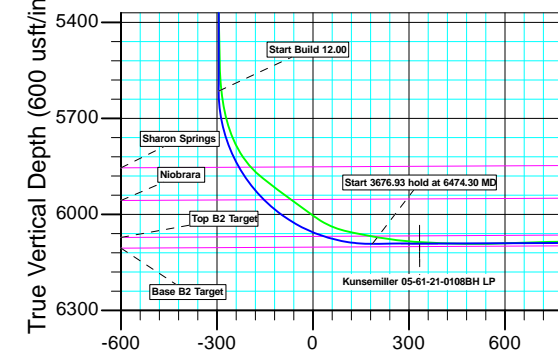
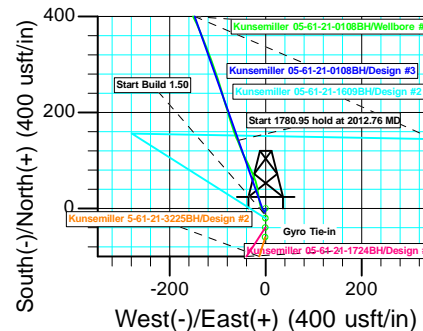
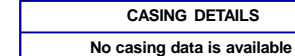
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level



+N/-S	+E/-W	Northing	Ground Level:	4641.00		
0.00	0.00	1387608.553	Easting	Latitude	Longitude	Slot
			3355813.025	40° 23' 25.267 N	104° 13' 21.288 W	

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Kunsemiller 05-61-21-0108BH PBHL6070.00		686.77	4551.94	40° 23' 32.050 N	104° 12' 22.457 W	Point
Kunsemiller 05-61-21-0108BH LP 6092.00		764.67	347.34	40° 23' 32.824 N	104° 13' 16.799 W	Point



Plan: Design #3 (Kunsemiller 05-61-21-0108BH/Wellbore #1)

Created By: Ricky Osburn Date: 10:58, November 28 2013

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Kunsemiller 05-61-21-0108BH
Project:	Weld Co., CO	TVD Reference:	WELL @ 4657.00usft (Original Well Elev)
Site:	Sec.21-T5N-R61W	MD Reference:	WELL @ 4657.00usft (Original Well Elev)
Well:	Kunsemiller 05-61-21-0108BH	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDMDBBW

Project	Weld Co., CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Sec.21-T5N-R61W				
Site Position:		Northing:	1,387,608.565 usft	Latitude:	40° 23' 25.267 N
From:	Lat/Long	Easting:	3,355,813.025 usft	Longitude:	104° 13' 21.288 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.83 °

Well	Kunsemiller 05-61-21-0108BH					
Well Position	+N/-S	0.00 usft	Northing:	1,387,608.553 usft	Latitude:	40° 23' 25.267 N
	+E/-W	0.00 usft	Easting:	3,355,813.025 usft	Longitude:	104° 13' 21.288 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,641.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2013/11/15	8.24	67.05	52,929

Design		Wellbore #1			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)		+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00		0.00	0.00	91.06

Survey Program	Date	2013/11/28			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
82.00	810.00	Gyro Tie-in (Wellbore #1)	GYRO	GyroCompass Mode	
831.00	10,084.00	Survey #2 (Wellbore #1)	MWD	MWD - Standard	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Gyro Tie-in									
810.00	1.25	208.20	809.92	-8.92	-2.86	-2.70	0.00	0.00	0.00
First Archer Survey									
831.00	1.00	219.60	830.92	-9.26	-3.09	-2.91	1.59	-1.19	54.29
923.00	1.50	308.90	922.90	-9.12	-4.54	-4.37	1.95	0.54	97.07
1,015.00	4.00	334.40	1,014.79	-5.47	-6.86	-6.76	2.96	2.72	27.72
1,107.00	6.40	343.40	1,106.41	2.34	-9.71	-9.75	2.75	2.61	9.78
1,199.00	6.90	347.70	1,197.79	12.65	-12.35	-12.59	0.77	0.54	4.67
1,291.00	9.00	350.80	1,288.90	25.15	-14.68	-15.14	2.33	2.28	3.37
1,383.00	9.50	351.60	1,379.70	39.77	-16.94	-17.67	0.56	0.54	0.87
1,475.00	10.90	343.20	1,470.25	55.61	-20.57	-21.59	2.22	1.52	-9.13
1,570.00	11.50	335.10	1,563.45	72.80	-27.15	-28.49	1.77	0.63	-8.53

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Kunsemiller 05-61-21-0108BH
Project:	Weld Co., CO	TVD Reference:	WELL @ 4657.00usft (Original Well Elev)
Site:	Sec.21-T5N-R61W	MD Reference:	WELL @ 4657.00usft (Original Well Elev)
Well:	Kunsemiller 05-61-21-0108BH	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDMDBBW

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,664.00	10.70	334.70	1,655.69	89.19	-34.82	-36.47	0.85	-0.85	-0.43
1,759.00	11.90	332.60	1,748.84	105.86	-43.10	-45.05	1.34	1.26	-2.21
1,853.00	12.10	339.10	1,840.79	123.67	-51.08	-53.35	1.45	0.21	6.91
1,948.00	11.40	336.40	1,933.80	141.57	-58.39	-61.00	0.94	-0.74	-2.84
2,042.00	13.50	340.40	2,025.59	160.42	-65.79	-68.74	2.41	2.23	4.26
2,137.00	14.80	343.10	2,117.71	182.48	-73.03	-76.40	1.53	1.37	2.84
2,231.00	14.10	342.70	2,208.73	204.90	-79.93	-83.71	0.75	-0.74	-0.43
2,326.00	15.70	344.20	2,300.54	228.32	-86.87	-91.08	1.73	1.68	1.58
2,420.00	17.10	342.10	2,390.71	253.71	-94.58	-99.26	1.62	1.49	-2.23
2,514.00	18.40	341.60	2,480.23	280.94	-103.51	-108.69	1.39	1.38	-0.53
2,609.00	18.10	340.10	2,570.45	309.04	-113.27	-118.97	0.59	-0.32	-1.58
2,703.00	17.10	338.70	2,660.05	335.65	-123.26	-129.45	1.16	-1.06	-1.49
2,797.00	16.40	337.90	2,750.07	360.82	-133.27	-139.92	0.78	-0.74	-0.85
2,892.00	16.10	335.80	2,841.27	385.26	-143.72	-150.82	0.69	-0.32	-2.21
2,986.00	16.00	333.10	2,931.61	408.70	-154.92	-162.46	0.80	-0.11	-2.87
3,080.00	15.70	337.00	3,022.04	431.96	-165.75	-173.72	1.18	-0.32	4.15
3,175.00	16.70	338.60	3,113.26	456.50	-175.76	-184.17	1.15	1.05	1.68
3,269.00	18.50	340.00	3,202.86	483.09	-185.78	-194.69	1.97	1.91	1.49
3,363.00	21.10	340.60	3,291.30	513.07	-196.51	-205.97	2.77	2.77	0.64
3,458.00	22.90	340.90	3,379.37	546.67	-208.24	-218.31	1.90	1.89	0.32
3,552.00	21.30	342.00	3,466.47	580.19	-219.50	-230.19	1.76	-1.70	1.17
3,647.00	19.10	343.00	3,555.62	611.47	-229.37	-240.65	2.34	-2.32	1.05
3,741.00	17.10	342.20	3,644.96	639.34	-238.10	-249.88	2.14	-2.13	-0.85
3,836.00	14.90	338.70	3,736.28	664.02	-246.80	-259.05	2.53	-2.32	-3.68
3,930.00	13.30	337.00	3,827.44	685.23	-255.42	-268.05	1.76	-1.70	-1.81
4,024.00	10.70	335.20	3,919.38	703.11	-263.31	-276.27	2.79	-2.77	-1.91
4,119.00	8.70	340.30	4,013.02	717.88	-269.43	-282.66	2.29	-2.11	5.37
4,213.00	8.10	339.80	4,106.01	730.79	-274.11	-287.58	0.64	-0.64	-0.53
4,307.00	7.10	347.60	4,199.19	742.68	-277.65	-291.34	1.53	-1.06	8.30
4,402.00	4.30	347.40	4,293.71	751.89	-279.68	-293.55	2.95	-2.95	-0.21
4,496.00	3.10	342.00	4,387.51	757.75	-281.24	-295.21	1.33	-1.28	-5.74
4,591.00	2.90	347.50	4,482.38	762.54	-282.55	-296.61	0.37	-0.21	5.79
4,686.00	2.70	345.40	4,577.27	767.05	-283.64	-297.78	0.24	-0.21	-2.21
4,780.00	2.00	332.50	4,671.19	770.65	-284.95	-299.16	0.93	-0.74	-13.72
4,875.00	0.50	304.30	4,766.16	772.35	-286.06	-300.30	1.66	-1.58	-29.68
4,969.00	0.40	47.40	4,860.16	772.80	-286.16	-300.40	0.75	-0.11	109.68
5,064.00	0.60	53.70	4,955.16	773.32	-285.51	-299.77	0.22	0.21	6.63
5,159.00	0.50	42.50	5,050.15	773.92	-284.83	-299.10	0.15	-0.11	-11.79
5,253.00	0.70	125.70	5,144.15	773.89	-284.09	-298.36	0.86	0.21	88.51
5,348.00	1.20	121.30	5,239.14	773.03	-282.77	-297.02	0.53	0.53	-4.63
5,442.00	1.30	113.30	5,333.11	772.10	-280.95	-295.18	0.21	0.11	-8.51
5,536.00	1.30	112.20	5,427.09	771.28	-278.98	-293.20	0.03	0.00	-1.17
5,630.00	1.10	109.90	5,521.07	770.57	-277.14	-291.35	0.22	-0.21	-2.45
5,661.00	1.50	101.70	5,552.06	770.38	-276.47	-290.67	1.42	1.29	-26.45
5,693.00	4.20	95.60	5,584.02	770.18	-274.89	-289.09	8.48	8.44	-19.06
5,724.00	6.80	89.40	5,614.87	770.09	-271.92	-286.12	8.59	8.39	-20.00
5,756.00	9.00	87.50	5,646.57	770.22	-267.53	-281.73	6.92	6.87	-5.94
5,787.00	11.60	93.40	5,677.07	770.14	-261.99	-276.20	9.04	8.39	19.03
5,819.00	15.30	96.50	5,708.18	769.47	-254.59	-268.78	11.78	11.56	9.69
5,850.00	19.30	97.70	5,737.78	768.32	-245.44	-259.61	12.95	12.90	3.87
5,882.00	24.30	97.80	5,767.48	766.72	-233.67	-247.81	15.63	15.62	0.31
5,913.00	28.70	101.00	5,795.22	764.43	-220.04	-234.14	14.92	14.19	10.32
5,945.00	33.90	99.60	5,822.55	761.48	-203.68	-217.74	16.41	16.25	-4.37
5,976.00	40.40	94.60	5,847.25	759.23	-185.12	-199.14	23.11	20.97	-16.13

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Site:	Sec.21-T5N-R61W	MD Reference:	WELL @ 4657.00usft (Original Well Elev)
Well:	Kunsemiller 05-61-21-0108BH	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDMDBBW

Survey										
	Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
	6,008.00	47.20	90.20	5,870.34	758.35	-163.01	-177.02	23.27	21.25	-13.75
	6,039.00	52.20	85.80	5,890.39	759.21	-139.41	-153.43	19.42	16.13	-14.19
	6,071.00	53.50	84.60	5,909.71	761.35	-113.99	-128.06	5.04	4.06	-3.75
	6,102.00	53.50	84.40	5,928.15	763.74	-89.19	-103.30	0.52	0.00	-0.65
	6,134.00	53.60	84.40	5,947.17	766.25	-63.57	-77.73	0.31	0.31	0.00
	6,165.00	53.80	84.10	5,965.52	768.75	-38.71	-52.93	1.01	0.65	-0.97
	6,197.00	53.60	84.70	5,984.46	771.27	-13.04	-27.31	1.64	-0.62	1.87
	6,228.00	54.40	89.40	6,002.69	772.55	11.99	-2.30	12.53	2.58	15.16
	6,260.00	58.30	93.60	6,020.42	771.83	38.60	24.32	16.36	12.19	13.12
	6,291.00	65.20	95.00	6,035.09	769.78	65.82	51.56	22.61	22.26	4.52
	6,323.00	72.80	94.80	6,046.55	767.23	95.56	81.35	23.76	23.75	-0.62
	6,354.00	77.70	94.20	6,054.44	764.88	125.44	111.27	15.92	15.81	-1.94
	6,386.00	78.80	94.10	6,060.95	762.61	156.68	142.55	3.45	3.44	-0.31
	6,417.00	79.70	94.30	6,066.74	760.38	187.06	172.96	2.97	2.90	0.65
	6,448.00	80.60	94.50	6,072.04	758.04	217.51	203.45	2.97	2.90	0.65
	6,480.00	81.50	94.60	6,077.02	755.53	249.02	235.00	2.83	2.81	0.31
	Kunsemiller 05-61-21-0108BH LP									
	6,578.61	86.43	92.85	6,087.38	749.17	346.84	332.93	5.30	5.00	-1.78
	6,604.00	87.70	92.40	6,088.68	748.01	372.17	358.27	5.30	5.00	-1.76
	6,698.00	88.10	90.50	6,092.13	745.63	466.08	452.20	2.06	0.43	-2.02
	6,793.00	91.10	90.90	6,092.79	744.47	561.06	547.19	3.19	3.16	0.42
	6,887.00	92.50	90.90	6,089.84	743.00	654.99	641.14	1.49	1.49	0.00
	6,982.00	91.40	90.90	6,086.61	741.50	749.93	736.08	1.16	-1.16	0.00
	7,076.00	89.80	90.30	6,085.62	740.52	843.91	830.07	1.82	-1.70	-0.64
	7,170.00	88.70	90.20	6,086.85	740.11	937.90	924.05	1.18	-1.17	-0.11
	7,265.00	88.50	90.20	6,089.17	739.78	1,032.87	1,019.01	0.21	-0.21	0.00
	7,360.00	88.60	92.20	6,091.58	737.79	1,127.82	1,113.98	2.11	0.11	2.11
	7,454.00	88.90	95.30	6,093.63	731.64	1,221.58	1,207.84	3.31	0.32	3.30
	7,549.00	89.70	94.70	6,094.79	723.36	1,316.21	1,302.61	1.05	0.84	-0.63
	7,644.00	89.10	91.90	6,095.78	717.90	1,411.04	1,397.52	3.01	-0.63	-2.95
	7,738.00	89.50	92.40	6,096.93	714.37	1,504.97	1,491.49	0.68	0.43	0.53
	7,833.00	92.00	91.50	6,095.69	711.14	1,599.89	1,586.46	2.80	2.63	-0.95
	7,927.00	91.10	90.00	6,093.15	709.91	1,693.85	1,680.43	1.86	-0.96	-1.60
	8,022.00	89.60	89.20	6,092.57	710.57	1,788.84	1,775.39	1.79	-1.58	-0.84
	8,116.00	90.90	90.20	6,092.16	711.06	1,882.84	1,869.36	1.74	1.38	1.06
	8,210.00	90.50	89.70	6,091.01	711.15	1,976.83	1,963.33	0.68	-0.43	-0.53
	8,304.00	90.40	89.20	6,090.27	712.05	2,070.82	2,057.29	0.54	-0.11	-0.53
	8,399.00	89.80	88.00	6,090.10	714.37	2,165.79	2,152.20	1.41	-0.63	-1.26
	8,494.00	89.10	87.00	6,091.02	718.51	2,260.69	2,247.01	1.28	-0.74	-1.05
	8,588.00	89.40	88.20	6,092.25	722.45	2,354.60	2,340.83	1.32	0.32	1.28
	8,683.00	89.80	89.90	6,092.91	724.02	2,449.58	2,435.77	1.84	0.42	1.79
	8,777.00	91.30	91.20	6,092.01	723.12	2,543.57	2,529.76	2.11	1.60	1.38
	8,872.00	91.40	90.90	6,089.77	721.38	2,638.53	2,624.73	0.33	0.11	-0.32
	8,966.00	91.60	91.00	6,087.31	719.82	2,732.48	2,718.70	0.24	0.21	0.11
	9,061.00	92.20	91.00	6,084.16	718.17	2,827.41	2,813.64	0.63	0.63	0.00
	9,156.00	90.30	91.30	6,082.09	716.26	2,922.37	2,908.62	2.02	-2.00	0.32
	9,250.00	90.90	91.40	6,081.10	714.05	3,016.34	3,002.61	0.65	0.64	0.11
	9,345.00	91.60	91.30	6,079.03	711.81	3,111.29	3,097.59	0.74	0.74	-0.11
	9,439.00	90.80	91.00	6,077.06	709.92	3,205.25	3,191.56	0.91	-0.85	-0.32
	9,534.00	90.30	90.80	6,076.15	708.43	3,300.23	3,286.56	0.57	-0.53	-0.21
	9,628.00	91.50	91.10	6,074.67	706.87	3,394.20	3,380.55	1.32	1.28	0.32
	9,723.00	90.70	90.90	6,072.85	705.21	3,489.17	3,475.53	0.87	-0.84	-0.21
	9,817.00	89.90	90.60	6,072.36	703.98	3,583.16	3,569.52	0.91	-0.85	-0.32
	9,912.00	90.30	90.80	6,072.19	702.82	3,678.15	3,664.52	0.47	0.42	0.21

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Kunsemiller 05-61-21-0108BH
Project:	Weld Co., CO	TVD Reference:	WELL @ 4657.00usft (Original Well Elev)
Site:	Sec.21-T5N-R61W	MD Reference:	WELL @ 4657.00usft (Original Well Elev)
Well:	Kunsemiller 05-61-21-0108BH	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDMDBBW

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
Last Archer Survey										
10,027.00	90.60	90.90	6,071.29	701.12	3,793.14	3,779.52	0.27	0.26	0.09	
PTB - Kunsemiller 05-61-21-0108BH PBHL										
10,084.00	90.60	90.90	6,070.69	700.22	3,850.13	3,836.51	0.00	0.00	0.00	

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
810.00	809.92	-8.92	-2.86	Gyro Tie-in	
831.00	830.92	-9.26	-3.09	First Archer Survey	
10,027.00	6,071.29	701.12	3,793.14	Last Archer Survey	
10,084.00	6,070.69	700.22	3,850.13	PTB	

Checked By: _____ Approved By: _____ Date: _____