



Bill Barrett Corp.
 Project: Weld Co., CO (NAD 83)
 Site: Sec. 21-T5N-R61W
 Well: Hawkins 5-61-21-3340BH
 Wellbore: OH
 Design: Plan3 07Sep13 RG
 Lat: 40° 22' 58.83 N
 Long: 104° 13' 21.21 W
 Pad GL: 4665.00
 KB @ 4683.00ft



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
7227.00	89.300	88.70	6137.31	939.96	901.58	0.00	0.00	1060.59	Tie In - Start 56.00 hold at 7227.00 MD
7283.00	89.300	88.70	6137.99	941.23	957.56	0.00	0.00	1115.83	Start DLS 4.00 TFO 48.29
7379.37	91.865	91.58	6137.01	940.99	1053.91	4.00	48.29	1210.46	Start 1434.92 hold at 7379.37 MD
8814.29	91.865	91.58	6090.32	901.49	2487.52	0.00	0.00	2611.74	Start DLS 4.00 TFO -168.69
8854.85	90.274	91.26	6089.56	900.49	2528.06	4.00	-168.69	2651.39	Start 2000.00 hold at 8854.85 MD
10854.85	90.274	91.26	6080.00	856.51	4527.55	0.00	0.00	4607.86	TD at 10854.85

WELL DETAILS: Hawkins 5-61-21-3340BH

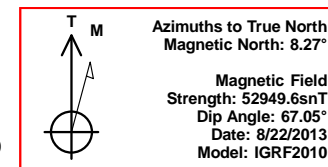
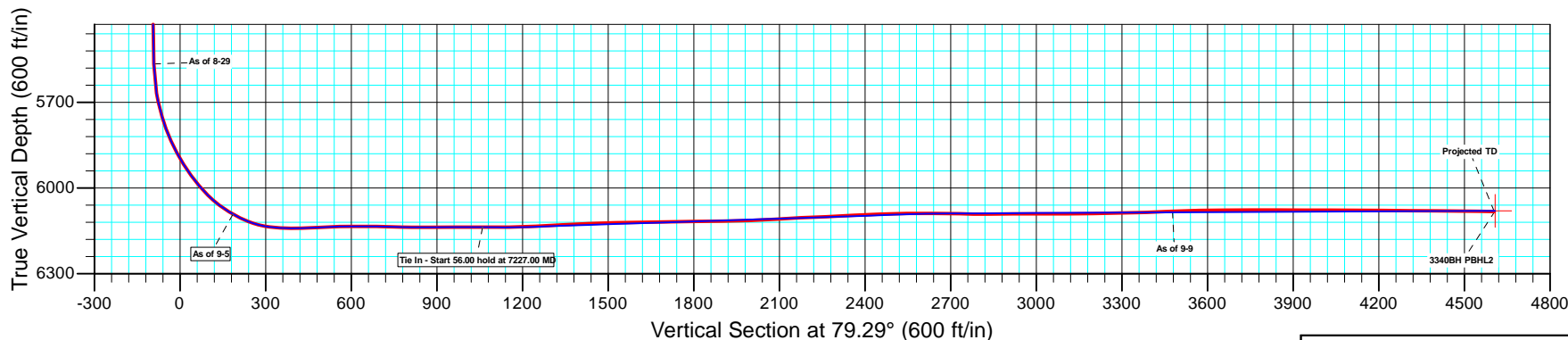
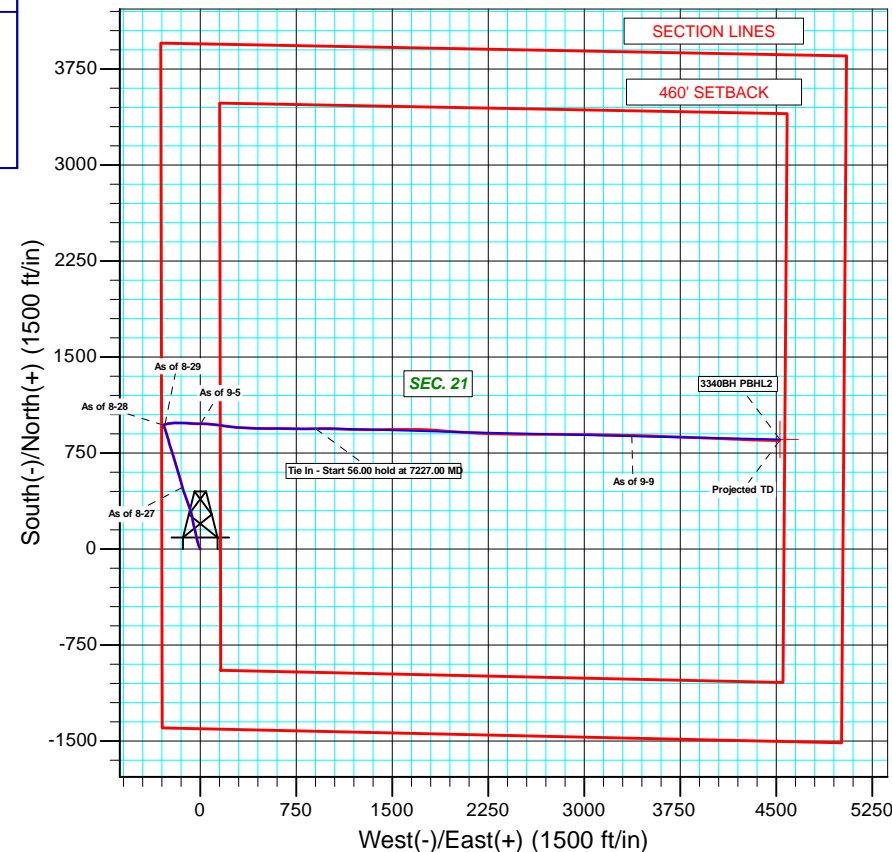
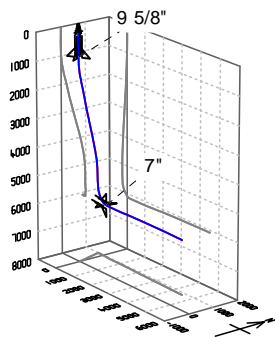
+N/-S	+E/-W	Northing	Ground Level: Easting	4665.00 Latitude	Longitude	Slot
0.00	0.00	1384933.66	3355857.60	40° 22' 58.83 N	104° 13' 21.21 W	

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
3340BH PBHL2	6080.00	856.51	4527.55	40° 23' 7.29 N	104° 12' 22.70 W	Point

PROJECT DETAILS: Weld Co., CO (NAD 83)

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



Plan: Plan3 07Sep13 RG (Hawkins 5-61-21-3340BH/OH)

Created By: Brandon West

Date: 9:50, September 10 2013

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Hawkins 5-61-21-3340BH
Project:	Weld Co., CO (NAD 83)	TVD Reference:	KB @ 4683.00ft
Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-3340BH	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassVM

Project	Weld Co., CO (NAD 83)		
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:	1,384,933.66 usft	Latitude:	40° 22' 58.83 N
From:	Lat/Long	Easting:	3,355,857.59 usft	Longitude:	104° 13' 21.21 W
Position Uncertainty:	0.00 ft	Slot Radius:	1.10 ft	Grid Convergence:	0.83 °

Well	Hawkins 5-61-21-3340BH					
Well Position	+N/-S	0.00 ft	Northing:	1,384,933.66 usft	Latitude:	40° 22' 58.83 N
	+E/-W	0.00 ft	Easting:	3,355,857.59 usft	Longitude:	104° 13' 21.21 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,665.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/22/2013	8.27	67.05	52,950

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	79.29	

Survey Program	Date	9/10/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	10,855.00	MWD Survey (OH)	MWD	MWD - Standard	

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)	
0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.220	103.15	100.00	-0.04	0.19	0.18	0.22	0.22	0.00	
200.00	0.200	167.30	200.00	-0.26	0.41	0.36	0.22	-0.02	64.15	
300.00	0.140	228.26	300.00	-0.51	0.36	0.26	0.18	-0.06	60.96	
400.00	0.140	357.82	400.00	-0.47	0.26	0.17	0.25	0.00	129.56	
500.00	0.010	115.10	500.00	-0.35	0.27	0.20	0.14	-0.13	117.28	
600.00	0.270	271.36	600.00	-0.35	0.04	-0.03	0.28	0.26	156.26	
700.00	0.160	313.81	700.00	-0.25	-0.30	-0.34	0.19	-0.11	42.45	
740.00	0.420	324.20	740.00	-0.09	-0.42	-0.43	0.66	0.65	25.98	
871.00	0.700	335.00	870.99	1.03	-1.04	-0.83	0.23	0.21	8.24	

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Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-3340BH	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassVM

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)
963.00	3.100	332.80	962.93	3.75	-2.42	-1.68	2.61	2.61	-2.39
1,054.00	6.000	335.90	1,053.64	10.28	-5.48	-3.48	3.20	3.19	3.41
1,145.00	8.400	336.50	1,143.91	20.72	-10.08	-6.05	2.64	2.64	0.66
1,237.00	10.500	340.70	1,234.66	34.79	-15.53	-8.79	2.40	2.28	4.57
1,328.00	12.600	349.20	1,323.82	52.37	-20.13	-10.04	2.96	2.31	9.34
1,421.00	12.100	346.60	1,414.67	71.82	-24.29	-10.52	0.80	-0.54	-2.80
1,516.00	13.800	345.20	1,507.25	92.46	-29.49	-11.79	1.82	1.79	-1.47
1,611.00	13.300	347.20	1,599.60	114.07	-34.81	-13.00	0.72	-0.53	2.11
1,706.00	14.500	347.70	1,691.82	136.35	-39.76	-13.72	1.27	1.26	0.53
1,801.00	14.200	345.90	1,783.86	159.27	-45.13	-14.74	0.57	-0.32	-1.89
1,896.00	15.900	348.10	1,875.60	183.31	-50.66	-15.70	1.89	1.79	2.32
1,992.00	16.000	348.90	1,967.90	209.16	-55.91	-16.06	0.25	0.10	0.83
2,088.00	15.100	346.60	2,060.39	234.30	-61.36	-16.74	1.14	-0.94	-2.40
2,183.00	13.900	351.70	2,152.36	257.63	-65.88	-16.84	1.84	-1.26	5.37
2,278.00	13.700	347.20	2,244.62	279.90	-70.01	-16.77	1.15	-0.21	-4.74
2,374.00	13.800	343.20	2,337.87	301.94	-75.84	-18.40	1.00	0.10	-4.17
2,469.00	14.400	338.70	2,430.01	323.80	-83.41	-21.77	1.32	0.63	-4.74
2,564.00	16.800	337.60	2,521.51	347.50	-92.93	-26.72	2.55	2.53	-1.16
2,659.00	17.100	341.60	2,612.38	373.45	-102.57	-31.37	1.27	0.32	4.21
2,753.00	16.500	340.80	2,702.37	399.17	-111.33	-35.19	0.68	-0.64	-0.85
2,848.00	17.700	339.20	2,793.17	425.41	-120.89	-39.71	1.36	1.26	-1.68
2,944.00	17.900	340.50	2,884.58	452.96	-131.00	-44.52	0.46	0.21	1.35
3,039.00	17.700	345.80	2,975.03	480.72	-139.42	-47.63	1.72	-0.21	5.58
As of 8-27									
3,134.00	15.900	342.90	3,065.98	507.16	-146.78	-49.96	2.09	-1.89	-3.05
3,229.00	16.700	345.10	3,157.16	532.79	-154.12	-52.40	1.06	0.84	2.32
3,324.00	16.300	345.20	3,248.25	558.87	-161.04	-54.35	0.42	-0.42	0.11
3,420.00	16.900	345.30	3,340.25	585.39	-168.02	-56.28	0.63	0.63	0.10
3,514.00	18.000	342.30	3,429.92	612.45	-175.90	-58.99	1.51	1.17	-3.19
3,609.00	16.900	343.70	3,520.55	639.69	-184.24	-62.12	1.24	-1.16	1.47
3,704.00	17.000	343.20	3,611.42	666.23	-192.13	-64.94	0.19	0.11	-0.53
3,800.00	16.800	343.00	3,703.27	692.94	-200.24	-67.95	0.22	-0.21	-0.21
3,894.00	16.400	342.10	3,793.36	718.55	-208.29	-71.10	0.51	-0.43	-0.96
3,988.00	15.600	341.80	3,883.71	743.19	-216.32	-74.41	0.86	-0.85	-0.32
4,084.00	15.500	342.20	3,976.20	767.67	-224.27	-77.67	0.15	-0.10	0.42
4,179.00	16.200	342.50	4,067.59	792.39	-232.14	-80.80	0.74	0.74	0.32
4,274.00	14.500	343.10	4,159.20	816.41	-239.58	-83.65	1.80	-1.79	0.63
4,370.00	13.600	348.30	4,252.33	838.96	-245.36	-85.14	1.61	-0.94	5.42
4,464.00	12.200	344.90	4,343.95	859.38	-250.19	-86.09	1.69	-1.49	-3.62
4,559.00	12.400	341.00	4,436.77	878.71	-256.13	-88.33	0.90	0.21	-4.11
4,653.00	12.700	342.30	4,528.53	898.10	-262.56	-91.04	0.44	0.32	1.38
4,748.00	10.500	340.90	4,621.58	916.23	-268.56	-93.57	2.33	-2.32	-1.47
4,842.00	9.300	343.10	4,714.18	931.59	-273.57	-95.64	1.34	-1.28	2.34
4,938.00	7.400	339.70	4,809.16	944.81	-277.97	-97.51	2.04	-1.98	-3.54

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Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-3340BH	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassVM

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)
5,032.00	5.400	334.30	4,902.57	954.48	-281.99	-99.66	2.22	-2.13	-5.74
5,129.00	3.500	331.40	4,999.27	961.19	-285.39	-101.75	1.97	-1.96	-2.99
5,224.00	3.500	25.80	5,094.12	966.35	-285.52	-100.92	3.37	0.00	57.26
As of 8-28									
5,318.00	2.300	27.10	5,188.00	970.61	-283.41	-98.05	1.28	-1.28	1.38
5,413.00	0.700	93.80	5,282.97	972.27	-281.96	-96.32	2.23	-1.68	70.21
5,508.00	1.300	91.40	5,377.95	972.20	-280.30	-94.71	0.63	0.63	-2.53
5,603.00	0.600	91.40	5,472.94	972.16	-278.73	-93.17	0.74	-0.74	0.00
5,696.00	1.600	67.30	5,565.92	972.65	-277.05	-91.42	1.16	1.08	-25.91
As of 8-29									
5,799.00	9.200	76.40	5,668.39	975.15	-267.70	-81.78	7.40	7.38	8.83
5,830.00	12.400	76.50	5,698.84	976.51	-262.06	-75.97	10.32	10.32	0.32
5,862.00	15.100	76.10	5,729.92	978.31	-254.67	-68.38	8.44	8.44	-1.25
5,894.00	17.500	78.90	5,760.63	980.24	-245.90	-59.41	7.89	7.50	8.75
5,926.00	19.900	80.70	5,790.94	982.05	-235.80	-49.15	7.71	7.50	5.63
5,957.00	22.100	82.40	5,819.88	983.67	-224.81	-38.05	7.36	7.10	5.48
5,988.00	25.000	86.40	5,848.29	984.85	-212.49	-25.72	10.68	9.35	12.90
6,020.00	29.100	91.00	5,876.79	985.14	-197.96	-11.39	14.38	12.81	14.38
6,052.00	32.200	91.00	5,904.32	984.86	-181.65	4.59	9.69	9.69	0.00
6,084.00	34.400	89.80	5,931.06	984.74	-164.08	21.82	7.18	6.88	-3.75
6,115.00	36.400	88.70	5,956.33	984.98	-146.13	39.51	6.77	6.45	-3.55
6,147.00	39.500	93.20	5,981.56	984.63	-126.46	58.76	12.98	9.69	14.06
6,178.00	42.200	95.10	6,005.01	983.15	-106.24	78.36	9.59	8.71	6.13
6,210.00	46.700	93.60	6,027.85	981.46	-83.91	99.99	14.44	14.06	-4.69
6,241.00	51.100	92.90	6,048.22	980.14	-60.59	122.66	14.30	14.19	-2.26
6,272.00	54.900	91.30	6,066.88	979.25	-35.85	146.79	12.93	12.26	-5.16
6,304.00	59.700	91.10	6,084.16	978.68	-8.94	173.14	15.01	15.00	-0.63
6,319.00	60.900	91.10	6,091.59	978.43	4.09	185.89	8.00	8.00	0.00
As of 9-5									
6,380.00	68.200	93.30	6,117.79	976.29	59.09	239.53	12.40	11.97	3.61
6,410.00	75.400	96.00	6,127.16	973.97	87.47	266.98	25.47	24.00	9.00
6,471.00	84.600	97.90	6,137.74	966.69	147.03	324.16	15.39	15.08	3.11
6,562.00	91.700	96.20	6,140.67	955.54	237.24	410.72	8.02	7.80	-1.87
6,658.00	92.200	93.70	6,137.41	947.26	332.81	503.09	2.65	0.52	-2.60
6,753.00	91.000	91.80	6,134.75	942.70	427.66	595.44	2.36	-1.26	-2.00
6,848.00	89.000	90.40	6,134.75	940.88	522.64	688.42	2.57	-2.11	-1.47
6,942.00	88.400	89.70	6,136.89	940.80	616.61	780.74	0.98	-0.64	-0.74
7,038.00	90.400	90.90	6,137.89	940.30	712.60	874.96	2.43	2.08	1.25
7,133.00	90.500	90.40	6,137.15	939.22	807.59	968.10	0.54	0.11	-0.53
7,227.00	89.300	88.70	6,137.31	939.96	901.58	1,060.59	2.21	-1.28	-1.81
7,322.00	91.000	91.20	6,137.06	940.04	996.57	1,153.94	3.18	1.79	2.63
7,417.00	92.700	92.00	6,133.99	937.39	1,091.48	1,246.70	1.98	1.79	0.84
7,511.00	92.900	92.20	6,129.40	933.95	1,185.30	1,338.25	0.30	0.21	0.21
7,607.00	92.600	90.00	6,124.80	932.11	1,281.17	1,432.10	2.31	-0.31	-2.29

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Well:	Hawkins 5-61-21-3340BH	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassVM

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)
7,702.00	91.100	89.30	6,121.73	932.69	1,376.11	1,525.50	1.74	-1.58	-0.74
7,797.00	90.900	89.00	6,120.07	934.10	1,471.09	1,619.08	0.38	-0.21	-0.32
7,893.00	90.900	90.30	6,118.56	934.68	1,567.07	1,713.50	1.35	0.00	1.35
7,988.00	90.700	90.00	6,117.24	934.44	1,662.06	1,806.79	0.38	-0.21	-0.32
8,083.00	90.400	93.00	6,116.32	931.95	1,757.02	1,899.63	3.17	-0.32	3.16
8,178.00	92.400	94.40	6,114.00	925.82	1,851.78	1,991.60	2.57	2.11	1.47
8,274.00	93.300	93.60	6,109.23	919.13	1,947.43	2,084.34	1.25	0.94	-0.83
8,368.00	92.700	93.80	6,104.31	913.07	2,041.10	2,175.25	0.67	-0.64	0.21
8,462.00	92.300	92.90	6,100.21	907.59	2,134.85	2,266.35	1.05	-0.43	-0.96
8,558.00	92.900	92.80	6,095.86	902.82	2,230.63	2,359.58	0.63	0.63	-0.10
8,653.00	92.600	90.90	6,091.30	899.76	2,325.47	2,452.19	2.02	-0.32	-2.00
8,749.00	90.300	90.80	6,088.87	898.33	2,421.42	2,546.21	2.40	-2.40	-0.10
8,844.00	89.500	90.40	6,089.03	897.34	2,516.42	2,639.36	0.94	-0.84	-0.42
8,939.00	88.700	90.20	6,090.53	896.84	2,611.40	2,732.60	0.87	-0.84	-0.21
9,035.00	90.300	90.50	6,091.36	896.25	2,707.39	2,826.81	1.70	1.67	0.31
9,129.00	90.100	90.10	6,091.04	895.76	2,801.39	2,919.08	0.48	-0.21	-0.43
9,224.00	90.200	90.40	6,090.79	895.35	2,896.39	3,012.34	0.33	0.11	0.32
9,320.00	89.900	90.00	6,090.70	895.01	2,992.39	3,106.61	0.52	-0.31	-0.42
9,415.00	91.100	91.90	6,089.87	893.44	3,087.37	3,199.63	2.37	1.26	2.00
9,509.00	91.300	91.00	6,087.91	891.06	3,181.32	3,291.50	0.98	0.21	-0.96
9,603.00	91.700	90.70	6,085.45	889.67	3,275.27	3,383.56	0.53	0.43	-0.32
9,699.00	92.200	90.80	6,082.18	888.41	3,371.21	3,477.59	0.53	0.52	0.10
As of 9-9									
9,794.00	91.400	92.30	6,079.19	885.84	3,466.12	3,570.38	1.79	-0.84	1.58
9,889.00	90.500	92.50	6,077.62	881.86	3,561.03	3,662.89	0.97	-0.95	0.21
9,985.00	90.400	92.40	6,076.87	877.76	3,656.94	3,756.36	0.15	-0.10	-0.10
10,080.00	89.600	92.00	6,076.87	874.11	3,751.86	3,848.96	0.94	-0.84	-0.42
10,174.00	89.700	92.00	6,077.44	870.83	3,845.81	3,940.65	0.11	0.11	0.00
10,268.00	89.700	92.10	6,077.93	867.47	3,939.74	4,032.33	0.11	0.00	0.11
10,362.00	89.800	92.20	6,078.34	863.94	4,033.68	4,123.97	0.15	0.11	0.11
10,457.00	89.800	92.20	6,078.67	860.30	4,128.61	4,216.57	0.00	0.00	0.00
10,553.00	89.500	91.90	6,079.26	856.86	4,224.54	4,310.19	0.44	-0.31	-0.31
10,648.00	89.500	92.00	6,080.09	853.63	4,319.48	4,402.88	0.11	0.00	0.11
10,744.00	89.400	91.90	6,081.01	850.36	4,415.42	4,496.54	0.15	-0.10	-0.10
10,799.00	89.300	91.70	6,081.63	848.64	4,470.39	4,550.23	0.41	-0.18	-0.36
10,855.00	89.300	91.70	6,082.32	846.97	4,526.36	4,604.92	0.00	0.00	0.00
Projected TD - 3340BH PBHL2									

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Hawkins 5-61-21-3340BH
Project:	Weld Co., CO (NAD 83)	TVD Reference:	KB @ 4683.00ft
Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-3340BH	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassVM

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,039.00	2,975.03	480.72	-139.42	As of 8-27
5,224.00	5,094.12	966.35	-285.52	As of 8-28
5,696.00	5,565.92	972.65	-277.05	As of 8-29
6,319.00	6,091.59	978.43	4.09	As of 9-5
9,699.00	6,082.18	888.41	3,371.21	As of 9-9
10,855.00	6,082.32	846.97	4,526.36	Projected TD

Checked By: _____ Approved By: _____ Date: _____