



Bill Barrett Corp.
 Project: Weld Co., CO (NAD 83)
 Site: Sec. 21-T5N-R61W
 Well: Hawkins 5-61-21-6457BH
 Wellbore: OH
 Design: plan7 9oct13 rbw
 Lat: 40° 22' 58.24 N
 Long: 104° 13' 21.22 W
 Pad GL: 4665.00
 KB @ 4683.00ft



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
6551.00	84.100	92.60	6112.12	-831.23	334.30	0.00	0.00	497.33	Tie In -Start DLS 11.08 TFO -5.37
6609.00	90.500	92.00	6114.85	-833.56	392.16	11.08	-5.37	554.44	Start DLS 2.00 TFO -159.86
6639.73	89.923	91.79	6114.74	-834.57	422.88	2.00	-159.86	584.72	Start 939.24 hold at 6639.73 MD
7578.97	89.923	91.79	6116.00	-863.88	1361.66	0.00	0.00	1509.63	Start DLS 2.00 TFO -44.01
7603.37	90.274	91.45	6115.96	-864.57	1386.05	2.00	-44.01	1533.65	Start 3128.95 hold at 7603.37 MD
10732.32	90.274	91.45	6101.00	-943.71	4513.96	0.00	0.00	4611.56	TD at 10732.32

WELL DETAILS: Hawkins 5-61-21-6457BH

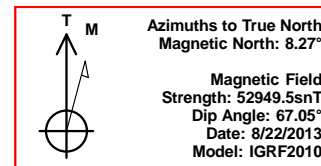
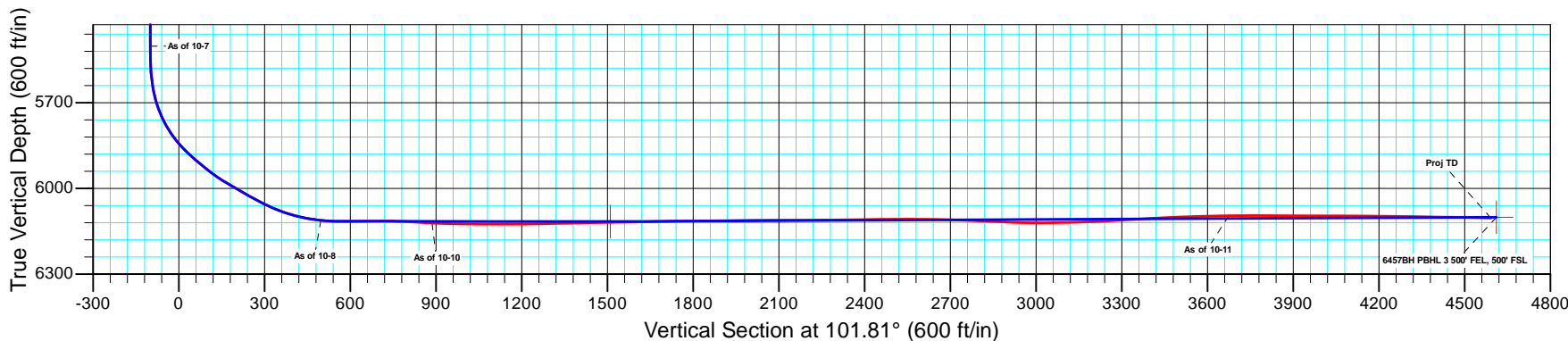
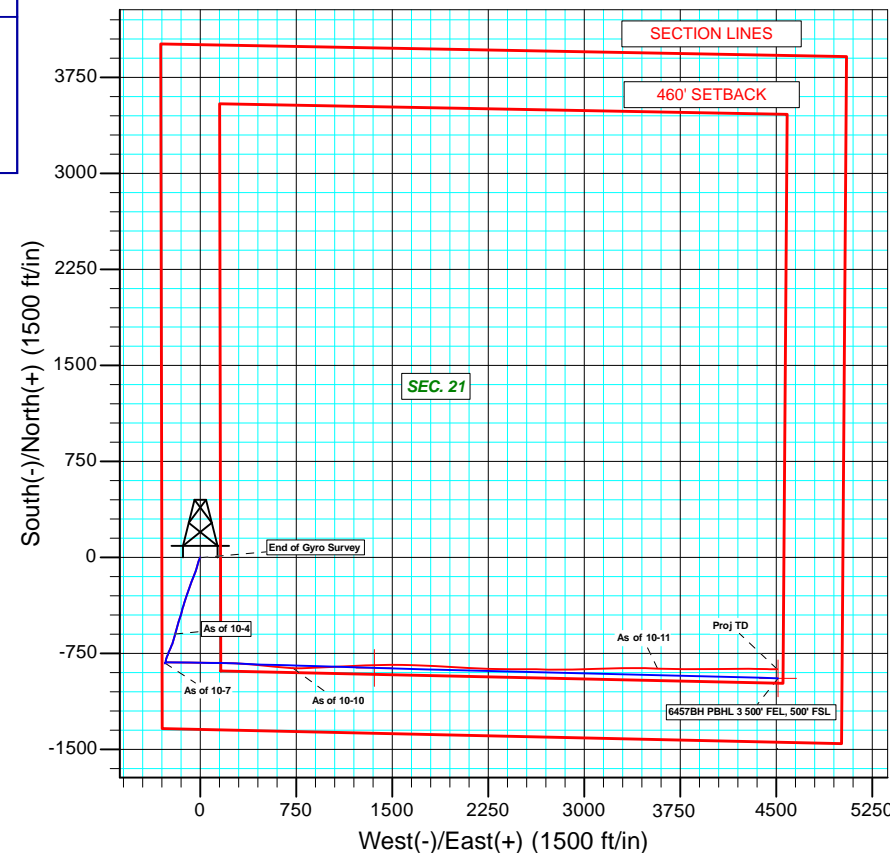
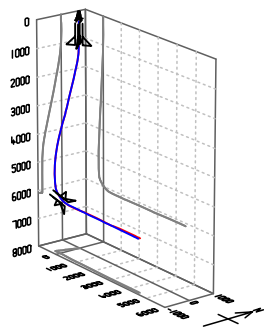
+N/-S	+E/-W	Northing	Ground Level: Easting	4665.00 Latitude	Longitude	Slot
0.00	0.00	1384873.95	3355857.68	40° 22' 58.24 N	104° 13' 21.22 W	

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
6457BH PBHL 3	6101.00	-943.71	4513.96	40° 22' 48.91 N	104° 12' 22.89 W	Point
6457BH T1	6116.00	-863.88	1361.66	40° 22' 49.70 N	104° 13' 3.62 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: plan7 9oct13 rbw (Hawkins 5-61-21-6457BH/OH)

Created By: Brandon West

Date: 9:31, October 14 2013

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Hawkins 5-61-21-6457BH
Project:	Weld Co., CO (NAD 83)	TVD Reference:	KB @ 4683.00ft
Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-6457BH	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
From:	Lat/Long	Easting:	3,355,857.59 usft
Position Uncertainty:	0.00 ft	Slot Radius:	1.10 ft
		Latitude:	40° 22' 58.83 N
		Longitude:	104° 13' 21.21 W
		Grid Convergence:	0.83 °

Well	Hawkins 5-61-21-6457BH		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	40° 22' 58.24 N
		Longitude:	104° 13' 21.22 W
		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	101.81	

Survey Program	Date	10/14/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	735.00	Gyro Survey (OH)	MWD	MWD - Standard	
870.00	10,730.00	MWD Surveys (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)	
735.00	0.150	208.14	734.99	-1.74	-0.08	0.28	0.00	0.00	0.00	
870.00	0.500	129.60	869.99	-2.27	0.29	0.75	0.36	0.26	-58.17	
961.00	2.700	221.10	960.96	-4.14	-0.81	0.06	3.03	2.42	100.55	
1,053.00	5.100	208.70	1,052.74	-9.36	-4.20	-2.19	2.75	2.61	-13.48	
1,145.00	7.200	200.50	1,144.21	-18.35	-8.18	-4.25	2.47	2.28	-8.91	
1,237.00	9.700	201.40	1,235.20	-30.97	-13.03	-6.42	2.72	2.72	0.98	
1,328.00	12.100	194.00	1,324.56	-47.36	-18.13	-8.06	3.05	2.64	-8.13	
1,419.00	10.900	193.10	1,413.73	-65.00	-22.39	-8.62	1.33	-1.32	-0.99	
1,515.00	12.800	200.00	1,507.68	-83.83	-28.09	-10.34	2.47	1.98	7.19	
1,610.00	11.100	194.20	1,600.62	-102.59	-33.93	-12.22	2.19	-1.79	-6.11	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Hawkins 5-61-21-6457BH
Project:	Weld Co., CO (NAD 83)	TVD Reference:	KB @ 4683.00ft
Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-6457BH	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)
1,704.00	12.600	200.00	1,692.62	-121.00	-39.66	-14.06	2.04	1.60	6.17
1,800.00	12.900	203.00	1,786.25	-140.70	-47.43	-17.63	0.76	0.31	3.13
1,895.00	12.100	203.90	1,879.00	-159.57	-55.60	-21.77	0.87	-0.84	0.95
1,991.00	14.200	204.80	1,972.48	-179.46	-64.62	-26.53	2.20	2.19	0.94
2,086.00	13.800	197.60	2,064.66	-200.83	-72.93	-30.29	1.88	-0.42	-7.58
2,181.00	12.800	193.60	2,157.12	-221.86	-78.83	-31.76	1.43	-1.05	-4.21
2,277.00	14.900	199.70	2,250.33	-243.82	-85.50	-33.79	2.66	2.19	6.35
2,373.00	15.400	199.90	2,342.99	-267.43	-94.00	-37.28	0.52	0.52	0.21
2,468.00	14.500	200.80	2,434.77	-290.41	-102.51	-40.91	0.98	-0.95	0.95
2,563.00	13.600	200.50	2,526.93	-311.99	-110.65	-44.46	0.95	-0.95	-0.32
2,658.00	13.200	195.20	2,619.35	-332.92	-117.40	-46.79	1.36	-0.42	-5.58
2,752.00	14.300	196.40	2,710.65	-354.41	-123.50	-48.35	1.21	1.17	1.28
2,847.00	14.000	196.80	2,802.77	-376.67	-130.13	-50.29	0.33	-0.32	0.42
2,942.00	14.100	197.70	2,894.93	-398.69	-136.97	-52.48	0.25	0.11	0.95
3,038.00	14.000	195.70	2,988.06	-421.01	-143.67	-54.47	0.52	-0.10	-2.08
3,133.00	15.300	195.80	3,079.97	-444.14	-150.19	-56.12	1.37	1.37	0.11
3,228.00	15.000	198.10	3,171.66	-467.88	-157.42	-58.34	0.71	-0.32	2.42
3,323.00	16.000	197.60	3,263.21	-492.05	-165.20	-61.01	1.06	1.05	-0.53
3,419.00	17.600	196.30	3,355.11	-518.59	-173.27	-63.48	1.71	1.67	-1.35
3,512.00	17.700	195.80	3,443.73	-545.69	-181.07	-65.57	0.20	0.11	-0.54
3,607.00	16.600	197.80	3,534.51	-572.51	-189.15	-67.99	1.31	-1.16	2.11
3,702.00	15.800	192.90	3,625.74	-598.04	-196.19	-69.65	1.67	-0.84	-5.16
As of 10-4									
3,798.00	14.400	192.10	3,718.42	-622.45	-201.61	-69.96	1.47	-1.46	-0.83
3,893.00	12.700	199.30	3,810.78	-643.86	-207.54	-71.38	2.52	-1.79	7.58
3,987.00	12.200	197.40	3,902.57	-663.09	-213.92	-73.70	0.69	-0.53	-2.02
4,083.00	14.300	201.60	3,996.01	-683.80	-221.32	-76.70	2.41	2.19	4.38
4,177.00	14.200	204.80	4,087.12	-705.06	-230.43	-81.27	0.84	-0.11	3.40
4,273.00	13.100	204.10	4,180.41	-725.68	-239.81	-86.23	1.16	-1.15	-0.73
4,368.00	10.900	201.50	4,273.33	-743.86	-247.50	-90.04	2.38	-2.32	-2.74
4,463.00	9.700	201.30	4,366.79	-759.68	-253.70	-92.87	1.26	-1.26	-0.21
4,558.00	8.400	198.60	4,460.61	-773.71	-258.82	-95.01	1.44	-1.37	-2.84
4,652.00	6.900	198.50	4,553.77	-785.57	-262.80	-96.48	1.60	-1.60	-0.11
4,746.00	6.000	194.90	4,647.17	-795.68	-265.86	-97.40	1.05	-0.96	-3.83
4,841.00	5.000	192.40	4,741.74	-804.52	-268.02	-97.71	1.08	-1.05	-2.63
4,937.00	4.000	189.20	4,837.44	-811.91	-269.46	-97.60	1.07	-1.04	-3.33
5,031.00	3.000	191.80	4,931.26	-817.55	-270.48	-97.45	1.08	-1.06	2.77
5,127.00	2.400	195.30	5,027.16	-821.95	-271.53	-97.58	0.65	-0.63	3.65
5,223.00	1.100	191.50	5,123.11	-824.79	-272.24	-97.69	1.36	-1.35	-3.96
5,317.00	1.100	215.00	5,217.09	-826.42	-272.94	-98.04	0.48	0.00	25.00
5,411.00	0.800	229.70	5,311.08	-827.58	-273.96	-98.80	0.41	-0.32	15.64
5,507.00	1.100	340.10	5,407.07	-827.15	-274.78	-99.70	1.63	0.31	115.00
5,602.00	1.500	37.30	5,502.05	-825.30	-274.34	-99.64	1.36	0.42	60.21

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Hawkins 5-61-21-6457BH
Project:	Weld Co., CO (NAD 83)	TVD Reference:	KB @ 4683.00ft
Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-6457BH	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)
As of 10-7									
5,651.00	1.800	33.80	5,551.03	-824.15	-273.52	-99.08	0.65	0.61	-7.14
5,696.00	4.700	67.90	5,595.96	-822.87	-271.42	-97.28	7.48	6.44	75.78
5,743.00	10.500	79.00	5,642.53	-821.33	-265.43	-91.73	12.67	12.34	23.62
5,792.00	16.400	86.20	5,690.16	-820.02	-254.13	-80.94	12.49	12.04	14.69
5,823.00	20.400	90.50	5,719.57	-819.77	-244.36	-71.43	13.62	12.90	13.87
5,855.00	23.800	90.70	5,749.22	-819.90	-232.32	-59.62	10.63	10.63	0.63
5,886.00	28.800	89.20	5,777.00	-819.87	-218.59	-46.19	16.27	16.13	-4.84
5,918.00	34.300	90.40	5,804.26	-819.83	-201.85	-29.81	17.30	17.19	3.75
5,950.00	39.800	91.80	5,829.79	-820.21	-182.59	-10.87	17.39	17.19	4.38
5,981.00	42.500	92.10	5,853.13	-820.91	-162.20	9.22	8.73	8.71	0.97
6,013.00	46.900	90.40	5,875.87	-821.39	-139.70	31.34	14.25	13.75	-5.31
6,045.00	49.200	91.10	5,897.26	-821.70	-115.91	54.70	7.37	7.19	2.19
6,076.00	50.800	90.40	5,917.19	-822.01	-92.17	78.00	5.44	5.16	-2.26
6,108.00	52.700	89.80	5,937.00	-822.05	-67.04	102.61	6.12	5.94	-1.88
6,140.00	55.600	89.90	5,955.74	-821.98	-41.10	127.98	9.07	9.06	0.31
6,171.00	58.900	90.10	5,972.51	-821.98	-15.03	153.50	10.66	10.65	0.65
6,203.00	60.300	91.40	5,988.70	-822.35	12.56	180.58	5.61	4.38	4.06
6,235.00	60.400	91.20	6,004.53	-822.98	40.37	207.93	0.63	0.31	-0.63
6,267.00	60.500	90.90	6,020.31	-823.49	68.20	235.28	0.87	0.31	-0.94
6,298.00	60.900	90.30	6,035.48	-823.77	95.23	261.79	2.12	1.29	-1.94
6,329.00	63.400	89.90	6,049.96	-823.82	122.64	288.63	8.14	8.06	-1.29
6,361.00	66.800	90.20	6,063.43	-823.85	151.66	317.04	10.66	10.63	0.94
6,392.00	68.400	91.30	6,075.25	-824.22	180.32	345.17	6.12	5.16	3.55
6,423.00	71.400	91.70	6,085.90	-824.98	209.42	373.81	9.75	9.68	1.29
6,455.00	75.400	93.00	6,095.04	-826.25	240.05	404.05	13.09	12.50	4.06
6,487.00	78.800	93.20	6,102.18	-827.93	271.19	434.88	10.64	10.63	0.63
6,518.00	80.600	93.10	6,107.73	-829.61	301.64	465.03	5.82	5.81	-0.32
6,551.00	84.100	92.60	6,112.12	-831.23	334.30	497.33	10.71	10.61	-1.52
As of 10-8									
6,658.00	91.600	95.90	6,116.13	-839.16	440.84	603.24	7.66	7.01	3.08
6,753.00	90.600	95.80	6,114.31	-848.84	535.33	697.71	1.06	-1.05	-0.11
6,848.00	86.900	95.50	6,116.38	-858.19	629.83	792.12	3.91	-3.89	-0.32
6,914.00	86.600	93.90	6,120.12	-863.59	695.50	857.51	2.46	-0.45	-2.42
6,943.00	87.800	92.20	6,121.54	-865.13	724.42	886.13	7.17	4.14	-5.86
As of 10-10									
6,978.00	88.100	90.30	6,122.79	-865.89	759.39	920.52	5.49	0.86	-5.43
7,010.00	88.200	89.00	6,123.82	-865.70	791.37	951.78	4.07	0.31	-4.06
7,039.00	89.700	88.60	6,124.35	-865.09	820.36	980.03	5.35	5.17	-1.38
7,133.00	89.500	87.50	6,125.01	-861.89	914.30	1,071.33	1.19	-0.21	-1.17
7,228.00	90.500	87.40	6,125.01	-857.66	1,009.21	1,163.36	1.06	1.05	-0.11
7,322.00	89.800	84.70	6,124.76	-851.19	1,102.97	1,253.82	2.97	-0.74	-2.87
7,418.00	91.500	89.00	6,123.68	-845.92	1,198.80	1,346.54	4.82	1.77	4.48
7,512.00	91.600	88.70	6,121.13	-844.03	1,292.74	1,438.11	0.34	0.11	-0.32

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Hawkins 5-61-21-6457BH
Project:	Weld Co., CO (NAD 83)	TVD Reference:	KB @ 4683.00ft
Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-6457BH	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)	
7,580.48	91.384	88.41	6,119.35	-842.30	1,361.18	1,504.74	0.53	-0.32	-0.42	
6457BH T1										
7,607.00	91.300	88.30	6,118.73	-841.54	1,387.68	1,530.53	0.53	-0.32	-0.42	
7,703.00	91.000	88.70	6,116.80	-839.03	1,483.63	1,623.93	0.52	-0.31	0.42	
7,798.00	90.600	91.10	6,115.48	-838.87	1,578.61	1,716.87	2.56	-0.42	2.53	
7,894.00	90.900	92.50	6,114.22	-841.88	1,674.55	1,811.40	1.49	0.31	1.46	
7,989.00	90.600	92.50	6,112.98	-846.02	1,769.45	1,905.14	0.32	-0.32	0.00	
8,084.00	90.500	93.10	6,112.06	-850.66	1,864.34	1,998.96	0.64	-0.11	0.63	
8,179.00	90.100	92.70	6,111.57	-855.47	1,959.21	2,092.81	0.60	-0.42	-0.42	
8,274.00	90.400	93.30	6,111.15	-860.44	2,054.08	2,186.69	0.71	0.32	0.63	
8,368.00	90.300	93.50	6,110.58	-866.02	2,147.91	2,279.68	0.24	-0.11	0.21	
8,463.00	91.000	91.30	6,109.50	-870.00	2,242.82	2,373.39	2.43	0.74	-2.32	
8,558.00	90.600	91.00	6,108.17	-871.90	2,337.79	2,466.74	0.53	-0.42	-0.32	
8,654.00	89.900	90.70	6,107.75	-873.33	2,433.78	2,560.99	0.79	-0.73	-0.31	
8,749.00	88.400	89.70	6,109.16	-873.66	2,528.76	2,654.03	1.90	-1.58	-1.05	
8,845.00	88.200	91.20	6,112.01	-874.41	2,624.71	2,748.11	1.58	-0.21	1.56	
8,940.00	87.300	91.00	6,115.74	-876.23	2,719.62	2,841.38	0.97	-0.95	-0.21	
9,035.00	88.000	89.90	6,119.64	-876.98	2,814.54	2,934.44	1.37	0.74	-1.16	
9,130.00	90.800	88.50	6,120.63	-875.65	2,909.51	3,027.13	3.30	2.95	-1.47	
9,225.00	90.800	87.70	6,119.30	-872.50	3,004.45	3,119.42	0.84	0.00	-0.84	
9,320.00	92.800	89.10	6,116.32	-869.85	3,099.36	3,211.77	2.57	2.11	1.47	
9,415.00	93.000	89.10	6,111.51	-868.36	3,194.22	3,304.33	0.21	0.21	0.00	
9,510.00	94.200	88.40	6,105.55	-866.29	3,289.01	3,396.69	1.46	1.26	-0.74	
9,604.00	91.800	89.60	6,100.63	-864.66	3,382.86	3,488.21	2.85	-2.55	1.28	
9,699.00	92.000	91.00	6,097.48	-865.15	3,477.80	3,581.25	1.49	0.21	1.47	
9,794.00	90.500	91.90	6,095.41	-867.56	3,572.75	3,674.68	1.84	-1.58	0.95	
As of 10-11										
9,890.00	89.800	91.30	6,095.16	-870.24	3,668.71	3,769.15	0.96	-0.73	-0.63	
9,985.00	89.600	91.20	6,095.65	-872.31	3,763.68	3,862.54	0.24	-0.21	-0.11	
10,080.00	89.800	90.30	6,096.15	-873.55	3,858.67	3,955.78	0.97	0.21	-0.95	
10,175.00	89.800	89.60	6,096.48	-873.47	3,953.67	4,048.75	0.74	0.00	-0.74	
10,268.00	89.500	88.90	6,097.05	-872.25	4,046.66	4,139.52	0.82	-0.32	-0.75	
10,362.00	89.700	88.40	6,097.71	-870.04	4,140.63	4,231.05	0.57	0.21	-0.53	
10,458.00	89.000	90.10	6,098.80	-868.78	4,236.62	4,324.74	1.91	-0.73	1.77	
10,553.00	89.300	91.50	6,100.21	-870.11	4,331.59	4,417.98	1.51	0.32	1.47	
10,649.00	88.800	91.50	6,101.80	-872.62	4,427.55	4,512.42	0.52	-0.52	0.00	
10,671.00	88.400	91.20	6,102.33	-873.14	4,449.53	4,534.05	2.27	-1.82	-1.36	
10,730.00	88.400	91.20	6,103.98	-874.37	4,508.50	4,592.02	0.00	0.00	0.00	
Proj TD - 6457BH PBHL 3 500' FEL, 500' FSL										

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well Hawkins 5-61-21-6457BH
Project:	Weld Co., CO (NAD 83)	TVD Reference:	KB @ 4683.00ft
Site:	Sec. 21-T5N-R61W	MD Reference:	KB @ 4683.00ft
Well:	Hawkins 5-61-21-6457BH	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)	
3,702.00	3,625.74	-598.04	-196.19	As of 10-4
5,602.00	5,502.05	-825.30	-274.34	As of 10-7
6,551.00	6,112.12	-831.23	334.30	As of 10-8
6,943.00	6,121.54	-865.13	724.42	As of 10-10
9,794.00	6,095.41	-867.56	3,572.75	As of 10-11
10,730.00	6,103.98	-874.37	4,508.50	Proj TD

Checked By: _____ Approved By: _____ Date: _____