

# Well Planning Proposal FOR

**Bill Barrett Corp.**  
**70 Ranch 4-63-3-33H**  
**Weld Co., CO**

Well File: Design #1 (4/20/12)

Presented By:

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Pat Rasmussen  
Regional Manager

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Bret Wolford  
Well Planner



**Sharewell**  
Energy Services, LP



Bill Barrett Corp.  
Project: Weld Co., CO  
Site: Sec.3-T4N-R63W  
Well: 70 Ranch 4-63-3-33H  
Wellbore: Wellbore #1  
Design: Design #1  
Lat: 40° 20' 22.164 N  
Long: 104° 24' 59.040 W  
Pad GL: 4541.00  
KB: WELL @ 4559.00usft



#### PROJECT DETAILS: Weld Co., CO

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



Azimuths to True North  
Magnetic North: 8.56°

Magnetic Field  
Strength: 53050.1snT  
Dip Angle: 67.03°  
Date: 04/18/2012  
Model: IGRF2010

#### WELL DETAILS: 70 Ranch 4-63-3-33H

	+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude	Slot
	0.00	0.00	1368362.493	3302055.674	40° 20' 22.164 N	104° 24' 59.040 W	

#### WELLBORE TARGET DETAILS (LAT/LONG)

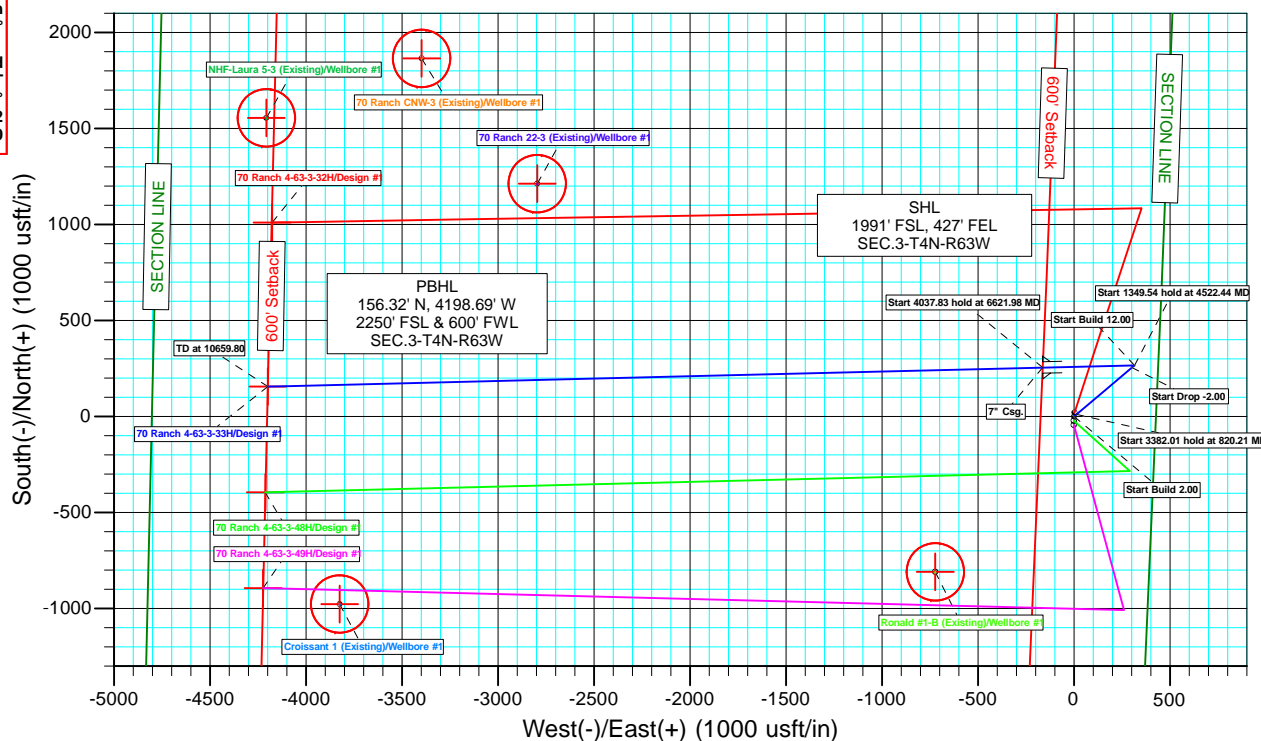
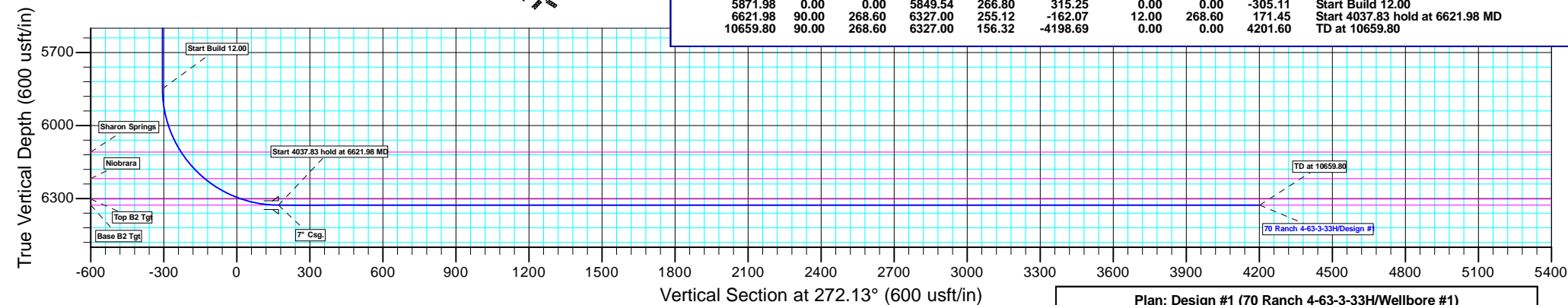
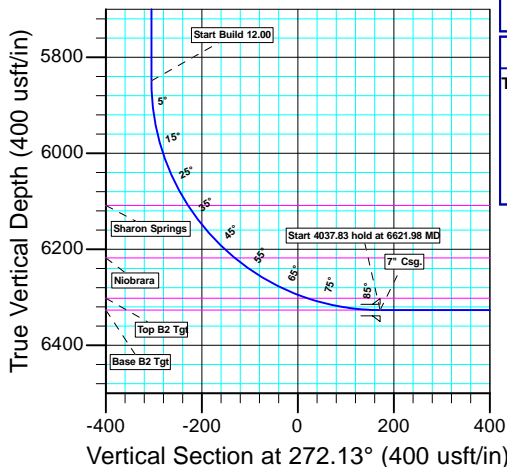
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
4-63-3-33H PBHL	6327.00	156.32	-4198.69	40° 20' 23.705 N	104° 25' 53.264 W	

#### CASING DETAILS

TVD	MD	Name	Size
6327.00	6621.98	7" Csg.	7

#### FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation
199.00	199.00	Pierre
3949.00	3969.32	Terry/Sussex
4599.00	4621.44	Shannon
6109.00	6146.28	Sharon Springs
6218.00	6292.87	Niobrara
6302.00	6466.77	Top B2 Tgt
6327.00	6619.83	Base B2 Tgt



#### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
820.21	6.40	49.76	819.55	11.55	13.65	2.00	49.76	-13.21	Start 3382.01 hold at 820.21 MD
4202.22	6.40	49.76	4180.45	255.25	301.60	0.00	0.00	-291.90	Start Drop -2.00
4522.44	0.00	0.00	4500.00	266.80	315.25	2.00	180.00	-305.11	Start 1349.54 hold at 4522.44 MD
5871.98	0.00	0.00	5849.54	266.80	315.25	0.00	0.00	-305.11	Start Build 12.00
6621.98	90.00	268.60	6327.00	255.12	-162.07	12.00	268.60	171.45	Start 4037.83 hold at 6621.98 MD
10659.80	90.00	268.60	6327.00	156.32	-4198.69	0.00	0.00	4201.60	TD at 10659.80

Plan: Design #1 (70 Ranch 4-63-3-33H/Wellbore #1)

Created By: Bret Wolford

Date: 13:35, April 20 2012



**Bill Barrett Corporation**

## **Bill Barrett Corp.**

Weld Co., CO  
Sec.3-T4N-R63W  
70 Ranch 4-63-3-33H

Wellbore #1

Plan: Design #1

## **Standard Planning Report**

20 April, 2012



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Company:</b>	Bill Barrett Corp.	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site:</b>	Sec.3-T4N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Weld Co., CO		
<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 Northern Zone		

Site		Sec.3-T4N-R63W			
Site Position:		Northing:	1,368,318.789 usft	Latitude:	40° 20' 21.732 N
From:	Lat/Long	Easting:	3,302,056.208 usft	Longitude:	104° 24' 59.040 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.70 °

Well	70 Ranch 4-63-3-33H					
Well Position	+N/-S	43.71 usft	Northing:	1,368,362.493 usft	Latitude:	40° 20' 22.164 N
	+E/-W	0.00 usft	Easting:	3,302,055.674 usft	Longitude:	104° 24' 59.040 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,541.00 usft

<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>
	IGRF2010	04/18/12	8.56	67.03	53,050

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	272.13

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
820.21	6.40	49.76	819.55	11.55	13.65	2.00	2.00	0.00	49.76	
4,202.22	6.40	49.76	4,180.45	255.25	301.60	0.00	0.00	0.00	0.00	
4,522.44	0.00	0.00	4,500.00	266.80	315.25	2.00	-2.00	0.00	180.00	
5,871.98	0.00	0.00	5,849.54	266.80	315.25	0.00	0.00	0.00	0.00	
6,621.98	90.00	268.60	6,327.00	255.12	-162.07	12.00	12.00	0.00	268.60	4-63-3-33H PBHL
10,659.80	90.00	268.60	6,327.00	156.32	-4,198.69	0.00	0.00	0.00	0.00	4-63-3-33H PBHL

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<b>Company:</b>	Bill Barrett Corp.	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site:</b>	Sec.3-T4N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned 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)
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
<b>Pierre</b>									
199.00	0.00	0.00	199.00	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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	49.76	599.98	1.13	1.33	-1.29	2.00	2.00	0.00
700.00	4.00	49.76	699.84	4.51	5.33	-5.16	2.00	2.00	0.00
800.00	6.00	49.76	799.45	10.14	11.98	-11.59	2.00	2.00	0.00
<b>Start 3382.01 hold at 820.21 MD</b>									
820.21	6.40	49.76	819.55	11.55	13.65	-13.21	2.00	2.00	0.00
900.00	6.40	49.76	898.84	17.30	20.44	-19.78	0.00	0.00	0.00
1,000.00	6.40	49.76	998.21	24.50	28.95	-28.02	0.00	0.00	0.00
1,100.00	6.40	49.76	1,097.59	31.71	37.47	-36.26	0.00	0.00	0.00
1,200.00	6.40	49.76	1,196.96	38.92	45.98	-44.50	0.00	0.00	0.00
1,300.00	6.40	49.76	1,296.34	46.12	54.50	-52.74	0.00	0.00	0.00
1,400.00	6.40	49.76	1,395.72	53.33	63.01	-60.98	0.00	0.00	0.00
1,500.00	6.40	49.76	1,495.09	60.53	71.53	-69.22	0.00	0.00	0.00
1,600.00	6.40	49.76	1,594.47	67.74	80.04	-77.46	0.00	0.00	0.00
1,700.00	6.40	49.76	1,693.84	74.94	88.55	-85.71	0.00	0.00	0.00
1,800.00	6.40	49.76	1,793.22	82.15	97.07	-93.95	0.00	0.00	0.00
1,900.00	6.40	49.76	1,892.60	89.36	105.58	-102.19	0.00	0.00	0.00
2,000.00	6.40	49.76	1,991.97	96.56	114.10	-110.43	0.00	0.00	0.00
2,100.00	6.40	49.76	2,091.35	103.77	122.61	-118.67	0.00	0.00	0.00
2,200.00	6.40	49.76	2,190.72	110.97	131.13	-126.91	0.00	0.00	0.00
2,300.00	6.40	49.76	2,290.10	118.18	139.64	-135.15	0.00	0.00	0.00
2,400.00	6.40	49.76	2,389.48	125.39	148.16	-143.39	0.00	0.00	0.00
2,500.00	6.40	49.76	2,488.85	132.59	156.67	-151.63	0.00	0.00	0.00
2,600.00	6.40	49.76	2,588.23	139.80	165.18	-159.87	0.00	0.00	0.00
2,700.00	6.40	49.76	2,687.60	147.00	173.70	-168.11	0.00	0.00	0.00
2,800.00	6.40	49.76	2,786.98	154.21	182.21	-176.35	0.00	0.00	0.00
2,900.00	6.40	49.76	2,886.35	161.41	190.73	-184.59	0.00	0.00	0.00
3,000.00	6.40	49.76	2,985.73	168.62	199.24	-192.83	0.00	0.00	0.00
3,100.00	6.40	49.76	3,085.11	175.83	207.76	-201.07	0.00	0.00	0.00
3,200.00	6.40	49.76	3,184.48	183.03	216.27	-209.31	0.00	0.00	0.00
3,300.00	6.40	49.76	3,283.86	190.24	224.78	-217.55	0.00	0.00	0.00
3,400.00	6.40	49.76	3,383.23	197.44	233.30	-225.79	0.00	0.00	0.00
3,500.00	6.40	49.76	3,482.61	204.65	241.81	-234.03	0.00	0.00	0.00
3,600.00	6.40	49.76	3,581.99	211.86	250.33	-242.27	0.00	0.00	0.00
3,700.00	6.40	49.76	3,681.36	219.06	258.84	-250.51	0.00	0.00	0.00
3,800.00	6.40	49.76	3,780.74	226.27	267.36	-258.75	0.00	0.00	0.00
3,900.00	6.40	49.76	3,880.11	233.47	275.87	-266.99	0.00	0.00	0.00
<b>Terry/Sussex</b>									
3,969.32	6.40	49.76	3,949.00	238.47	281.77	-272.71	0.00	0.00	0.00
4,000.00	6.40	49.76	3,979.49	240.68	284.39	-275.23	0.00	0.00	0.00
4,100.00	6.40	49.76	4,078.87	247.88	292.90	-283.47	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
4,202.22	6.40	49.76	4,180.45	255.25	301.60	-291.90	0.00	0.00	0.00
4,300.00	4.45	49.76	4,277.79	261.22	308.66	-298.73	2.00	-2.00	0.00
4,400.00	2.45	49.76	4,377.60	265.11	313.25	-303.17	2.00	-2.00	0.00
4,500.00	0.45	49.76	4,477.56	266.74	315.18	-305.04	2.00	-2.00	0.00

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<b>Company:</b>	Bill Barrett Corp.	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site:</b>	Sec.3-T4N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned 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)
<b>Start 1349.54 hold at 4522.44 MD</b>									
4,522.44	0.00	0.00	4,500.00	266.80	315.25	-305.11	2.00	-2.00	0.00
4,600.00	0.00	0.00	4,577.56	266.80	315.25	-305.11	0.00	0.00	0.00
<b>Shannon</b>									
4,621.44	0.00	0.00	4,599.00	266.80	315.25	-305.11	0.00	0.00	0.00
4,700.00	0.00	0.00	4,677.56	266.80	315.25	-305.11	0.00	0.00	0.00
4,800.00	0.00	0.00	4,777.56	266.80	315.25	-305.11	0.00	0.00	0.00
4,900.00	0.00	0.00	4,877.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,000.00	0.00	0.00	4,977.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,100.00	0.00	0.00	5,077.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,200.00	0.00	0.00	5,177.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,300.00	0.00	0.00	5,277.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,400.00	0.00	0.00	5,377.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,500.00	0.00	0.00	5,477.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,600.00	0.00	0.00	5,577.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,700.00	0.00	0.00	5,677.56	266.80	315.25	-305.11	0.00	0.00	0.00
5,800.00	0.00	0.00	5,777.56	266.80	315.25	-305.11	0.00	0.00	0.00
<b>Start Build 12.00</b>									
5,871.98	0.00	0.00	5,849.54	266.80	315.25	-305.11	0.00	0.00	0.00
5,875.00	0.36	268.60	5,852.56	266.80	315.24	-305.10	12.00	12.00	0.00
5,900.00	3.36	268.60	5,877.55	266.78	314.43	-304.28	12.00	12.00	0.00
5,925.00	6.36	268.60	5,902.45	266.73	312.31	-302.17	12.00	12.00	0.00
5,950.00	9.36	268.60	5,927.22	266.64	308.89	-298.76	12.00	12.00	0.00
5,975.00	12.36	268.60	5,951.76	266.53	304.18	-294.06	12.00	12.00	0.00
6,000.00	15.36	268.60	5,976.03	266.38	298.19	-288.08	12.00	12.00	0.00
6,025.00	18.36	268.60	5,999.96	266.21	290.95	-280.84	12.00	12.00	0.00
6,050.00	21.36	268.60	6,023.47	266.00	282.45	-272.36	12.00	12.00	0.00
6,075.00	24.36	268.60	6,046.50	265.76	272.75	-262.67	12.00	12.00	0.00
6,100.00	27.36	268.60	6,068.99	265.49	261.84	-251.79	12.00	12.00	0.00
6,125.00	30.36	268.60	6,090.88	265.20	249.78	-239.74	12.00	12.00	0.00
<b>Sharon Springs</b>									
6,146.28	32.92	268.60	6,109.00	264.92	238.62	-228.60	12.00	12.00	0.00
6,150.00	33.36	268.60	6,112.12	264.87	236.59	-226.57	12.00	12.00	0.00
6,175.00	36.36	268.60	6,132.63	264.53	222.31	-212.31	12.00	12.00	0.00
6,200.00	39.36	268.60	6,152.36	264.15	206.97	-197.00	12.00	12.00	0.00
6,225.00	42.36	268.60	6,171.27	263.75	190.62	-180.67	12.00	12.00	0.00
6,250.00	45.36	268.60	6,189.29	263.33	173.30	-163.39	12.00	12.00	0.00
6,275.00	48.36	268.60	6,206.38	262.88	155.07	-145.18	12.00	12.00	0.00
<b>Niobrara</b>									
6,292.87	50.51	268.60	6,218.00	262.55	141.50	-131.63	12.00	12.00	0.00
6,300.00	51.36	268.60	6,222.49	262.41	135.96	-126.11	12.00	12.00	0.00
6,325.00	54.36	268.60	6,237.59	261.92	116.04	-106.22	12.00	12.00	0.00
6,350.00	57.36	268.60	6,251.61	261.42	95.36	-85.57	12.00	12.00	0.00
6,375.00	60.36	268.60	6,264.54	260.89	73.97	-64.21	12.00	12.00	0.00
6,400.00	63.36	268.60	6,276.33	260.36	51.93	-42.21	12.00	12.00	0.00
6,425.00	66.36	268.60	6,286.95	259.80	29.31	-19.62	12.00	12.00	0.00
6,450.00	69.36	268.60	6,296.37	259.23	6.16	3.49	12.00	12.00	0.00
<b>Top B2 Tgt</b>									
6,466.77	71.38	268.60	6,302.00	258.85	-9.63	19.25	12.00	12.00	0.00
6,475.00	72.36	268.60	6,304.56	258.66	-17.45	27.06	12.00	12.00	0.00
6,500.00	75.36	268.60	6,311.51	258.07	-41.45	51.03	12.00	12.00	0.00
6,525.00	78.36	268.60	6,317.19	257.47	-65.79	75.32	12.00	12.00	0.00
6,550.00	81.36	268.60	6,321.59	256.87	-90.39	99.88	12.00	12.00	0.00

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<b>Company:</b>	Bill Barrett Corp.	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site:</b>	Sec.3-T4N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned 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)	
6,575.00	84.36	268.60	6,324.70	256.27	-115.18	124.64	12.00	12.00	0.00	
6,600.00	87.36	268.60	6,326.50	255.65	-140.11	149.52	12.00	12.00	0.00	
<b>Base B2 Tgt</b>										
6,619.83	89.74	268.60	6,327.00	255.17	-159.93	169.31	12.00	12.00	0.00	
<b>Start 4037.83 hold at 6621.98 MD - 7" Csg.</b>										
6,621.98	90.00	268.60	6,327.00	255.12	-162.07	171.45	11.99	11.99	0.00	
6,700.00	90.00	268.60	6,327.00	253.21	-240.07	249.33	0.00	0.00	0.00	
6,800.00	90.00	268.60	6,327.00	250.76	-340.04	349.13	0.00	0.00	0.00	
6,900.00	90.00	268.60	6,327.00	248.31	-440.01	448.94	0.00	0.00	0.00	
7,000.00	90.00	268.60	6,327.00	245.87	-539.98	548.75	0.00	0.00	0.00	
7,100.00	90.00	268.60	6,327.00	243.42	-639.95	648.56	0.00	0.00	0.00	
7,200.00	90.00	268.60	6,327.00	240.97	-739.92	748.37	0.00	0.00	0.00	
7,300.00	90.00	268.60	6,327.00	238.53	-839.89	848.18	0.00	0.00	0.00	
7,400.00	90.00	268.60	6,327.00	236.08	-939.86	947.99	0.00	0.00	0.00	
7,500.00	90.00	268.60	6,327.00	233.63	-1,039.83	1,047.80	0.00	0.00	0.00	
7,600.00	90.00	268.60	6,327.00	231.19	-1,139.80	1,147.61	0.00	0.00	0.00	
7,700.00	90.00	268.60	6,327.00	228.74	-1,239.77	1,247.42	0.00	0.00	0.00	
7,800.00	90.00	268.60	6,327.00	226.29	-1,339.74	1,347.23	0.00	0.00	0.00	
7,900.00	90.00	268.60	6,327.00	223.85	-1,439.71	1,447.04	0.00	0.00	0.00	
8,000.00	90.00	268.60	6,327.00	221.40	-1,539.68	1,546.85	0.00	0.00	0.00	
8,100.00	90.00	268.60	6,327.00	218.95	-1,639.65	1,646.66	0.00	0.00	0.00	
8,200.00	90.00	268.60	6,327.00	216.51	-1,739.62	1,746.47	0.00	0.00	0.00	
8,300.00	90.00	268.60	6,327.00	214.06	-1,839.59	1,846.28	0.00	0.00	0.00	
8,400.00	90.00	268.60	6,327.00	211.61	-1,939.56	1,946.09	0.00	0.00	0.00	
8,500.00	90.00	268.60	6,327.00	209.17	-2,039.53	2,045.90	0.00	0.00	0.00	
8,600.00	90.00	268.60	6,327.00	206.72	-2,139.50	2,145.71	0.00	0.00	0.00	
8,700.00	90.00	268.60	6,327.00	204.27	-2,239.47	2,245.52	0.00	0.00	0.00	
8,800.00	90.00	268.60	6,327.00	201.83	-2,339.44	2,345.33	0.00	0.00	0.00	
8,900.00	90.00	268.60	6,327.00	199.38	-2,439.41	2,445.14	0.00	0.00	0.00	
9,000.00	90.00	268.60	6,327.00	196.93	-2,539.38	2,544.95	0.00	0.00	0.00	
9,100.00	90.00	268.60	6,327.00	194.49	-2,639.35	2,644.76	0.00	0.00	0.00	
9,200.00	90.00	268.60	6,327.00	192.04	-2,739.32	2,744.57	0.00	0.00	0.00	
9,300.00	90.00	268.60	6,327.00	189.59	-2,839.29	2,844.38	0.00	0.00	0.00	
9,400.00	90.00	268.60	6,327.00	187.14	-2,939.26	2,944.19	0.00	0.00	0.00	
9,500.00	90.00	268.60	6,327.00	184.70	-3,039.23	3,044.00	0.00	0.00	0.00	
9,600.00	90.00	268.60	6,327.00	182.25	-3,139.20	3,143.81	0.00	0.00	0.00	
9,700.00	90.00	268.60	6,327.00	179.80	-3,239.17	3,243.62	0.00	0.00	0.00	
9,800.00	90.00	268.60	6,327.00	177.36	-3,339.14	3,343.43	0.00	0.00	0.00	
9,900.00	90.00	268.60	6,327.00	174.91	-3,439.11	3,443.24	0.00	0.00	0.00	
10,000.00	90.00	268.60	6,327.00	172.46	-3,539.08	3,543.05	0.00	0.00	0.00	
10,100.00	90.00	268.60	6,327.00	170.02	-3,639.05	3,642.86	0.00	0.00	0.00	
10,200.00	90.00	268.60	6,327.00	167.57	-3,739.02	3,742.67	0.00	0.00	0.00	
10,300.00	90.00	268.60	6,327.00	165.12	-3,838.99	3,842.48	0.00	0.00	0.00	
10,400.00	90.00	268.60	6,327.00	162.68	-3,938.96	3,942.29	0.00	0.00	0.00	
10,500.00	90.00	268.60	6,327.00	160.23	-4,038.93	4,042.10	0.00	0.00	0.00	
10,600.00	90.00	268.60	6,327.00	157.78	-4,138.90	4,141.91	0.00	0.00	0.00	
<b>TD at 10659.80 - 4-63-3-33H PBHL</b>										
10,659.80	90.00	268.60	6,327.00	156.32	-4,198.69	4,201.60	0.00	0.00	0.00	

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Company:</b>	Bill Barrett Corp.	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site:</b>	Sec.3-T4N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
4-63-3-33H PBHL	0.00	0.00	6,327.00	156.32	-4,198.69	1,368,467.495	3,297,855.388	40° 20' 23.705 N	104° 25' 53.264 W
- plan hits target center									
- Point									

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(usft)	(usft)		(")	(")
6,621.98	6,327.00	7" Csg.	7	8-3/4

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
199.00	199.00	Pierre		0.00	
3,969.32	3,949.00	Terry/Sussex		0.00	
4,621.44	4,599.00	Shannon		0.00	
6,146.28	6,109.00	Sharon Springs		0.00	
6,292.87	6,218.00	Niobrara		0.00	
6,466.77	6,302.00	Top B2 Tgt		0.00	
6,619.83	6,327.00	Base B2 Tgt		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	Start Build 2.00
820.21	819.55	11.55	13.65	Start 3382.01 hold at 820.21 MD
4,202.22	4,180.45	255.25	301.60	Start Drop -2.00
4,522.44	4,500.00	266.80	315.25	Start 1349.54 hold at 4522.44 MD
5,871.98	5,849.54	266.80	315.25	Start Build 12.00
6,621.98	6,327.00	255.12	-162.07	Start 4037.83 hold at 6621.98 MD
10,659.80	6,327.00	156.32	-4,198.69	TD at 10659.80



**Bill Barrett Corporation**

## **Bill Barrett Corp.**

Weld Co., CO

Sec.3-T4N-R63W

70 Ranch 4-63-3-33H

Wellbore #1

Design #1

## **Anticollision Report**

20 April, 2012



<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	04/20/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	10,659.81	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec.3-T4N-R63W						
70 Ranch 4-63-3-32H - Wellbore #1 - Design #1	500.00	500.00	22.03	20.05	11.115	CC
70 Ranch 4-63-3-32H - Wellbore #1 - Design #1	600.00	599.24	22.46	20.04	9.258	ES
70 Ranch 4-63-3-32H - Wellbore #1 - Design #1	10,659.81	10,832.68	854.65	609.50	3.486	SF
70 Ranch 4-63-3-48H - Wellbore #1 - Design #1	500.00	500.00	21.86	19.88	11.026	CC, ES
70 Ranch 4-63-3-48H - Wellbore #1 - Design #1	10,659.81	10,620.01	549.85	305.56	2.251	SF
70 Ranch 4-63-3-49H - Wellbore #1 - Design #1	500.00	500.00	43.72	41.73	22.051	CC, ES
70 Ranch 4-63-3-49H - Wellbore #1 - Design #1	10,659.81	10,749.48	1,049.90	804.42	4.277	SF

Offset Design		Sec.3-T4N-R63W - 70 Ranch 4-63-3-32H - Wellbore #1 - Design #1											Offset Site Error:		0.00 usft
Survey Program:		0-MWD											Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
0.00	0.00	0.00	0.00	0.00	0.00	7.27	21.86	2.79	22.03						
100.00	100.00	100.00	100.00	0.09	0.09	7.27	21.86	2.79	22.03	21.85	0.18	119.553			
200.00	200.00	200.00	200.00	0.32	0.32	7.27	21.86	2.79	22.03	21.40	0.63	34.764			
300.00	300.00	300.00	300.00	0.54	0.54	7.27	21.86	2.79	22.03	20.95	1.08	20.339			
400.00	400.00	400.00	400.00	0.77	0.77	7.27	21.86	2.79	22.03	20.50	1.53	14.374			
500.00	500.00	500.00	500.00	0.99	0.99	7.27	21.86	2.79	22.03	20.05	1.98	11.115	CC		
600.00	599.98	599.24	599.22	1.21	1.21	5.09	23.49	3.32	22.46	20.04	2.43	9.258	ES		
700.00	699.84	698.43	698.27	1.44	1.44	-0.96	28.39	4.93	23.93	21.06	2.87	8.331			
800.00	799.45	797.52	796.98	1.67	1.68	-9.43	36.52	7.60	26.86	23.52	3.34	8.050			
820.21	819.55	817.53	816.88	1.73	1.73	-11.27	38.56	8.26	27.67	24.24	3.44	8.056			
900.00	898.84	896.45	895.18	1.93	1.93	-16.60	47.88	11.32	32.12	28.29	3.84	8.373			
1,000.00	998.21	995.09	992.62	2.20	2.22	-18.76	62.41	16.08	40.42	36.05	4.36	9.263			
1,100.00	1,097.59	1,093.20	1,088.97	2.48	2.55	-17.92	80.01	21.85	51.49	46.58	4.91	10.489			
1,200.00	1,196.96	1,190.56	1,183.89	2.76	2.93	-15.75	100.56	28.59	65.37	59.91	5.46	11.964			
1,300.00	1,296.34	1,286.97	1,277.11	3.05	3.35	-13.20	123.92	36.25	82.20	76.17	6.02	13.643			
1,400.00	1,395.72	1,382.21	1,368.33	3.34	3.83	-10.69	149.92	44.78	102.04	95.45	6.59	15.491			
1,500.00	1,495.09	1,476.10	1,457.32	3.63	4.36	-8.41	178.35	54.10	124.94	117.79	7.15	17.474			
1,600.00	1,594.47	1,569.93	1,545.29	3.93	4.93	-6.36	209.36	64.27	150.74	143.03	7.71	19.540			
1,700.00	1,693.84	1,666.21	1,635.32	4.23	5.54	-4.68	241.81	74.90	177.36	169.07	8.29	21.403			
1,800.00	1,793.22	1,762.50	1,725.34	4.52	6.17	-3.43	274.26	85.54	204.07	195.21	8.86	23.029			
1,900.00	1,892.60	1,858.78	1,815.37	4.82	6.81	-2.48	306.70	96.18	230.85	221.41	9.44	24.452			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
2,000.00	1,991.97	1,955.07	1,905.40	5.12	7.45	-1.72	339.15	106.82	257.68	247.65	10.02	25.705		
2,100.00	2,091.35	2,051.36	1,995.42	5.42	8.10	-1.10	371.60	117.46	284.54	273.92	10.61	26.815		
2,200.00	2,190.72	2,147.64	2,085.45	5.72	8.75	-0.59	404.05	128.10	311.42	300.22	11.20	27.804		
2,300.00	2,290.10	2,243.93	2,175.48	6.02	9.40	-0.16	436.49	138.74	338.32	326.53	11.79	28.690		
2,400.00	2,389.48	2,340.21	2,265.51	6.32	10.06	0.20	468.94	149.38	365.24	352.85	12.39	29.488		
2,500.00	2,488.85	2,436.50	2,355.53	6.62	10.72	0.52	501.39	160.02	392.17	379.19	12.98	30.209		
2,600.00	2,588.23	2,532.78	2,445.56	6.92	11.38	0.80	533.84	170.65	419.11	405.53	13.58	30.865		
2,700.00	2,687.60	2,629.07	2,535.59	7.23	12.04	1.04	566.28	181.29	446.05	431.88	14.18	31.463		
2,800.00	2,786.98	2,725.36	2,625.62	7.53	12.70	1.25	598.73	191.93	473.00	458.23	14.78	32.011		
2,900.00	2,886.35	2,821.64	2,715.64	7.83	13.37	1.44	631.18	202.57	499.96	484.59	15.38	32.514		
3,000.00	2,985.73	2,917.93	2,805.67	8.13	14.03	1.62	663.63	213.21	526.92	510.95	15.98	32.978		
3,100.00	3,085.11	3,014.21	2,895.70	8.43	14.70	1.77	696.07	223.85	553.89	537.31	16.58	33.407		
3,200.00	3,184.48	3,110.50	2,985.72	8.74	15.36	1.91	728.52	234.49	580.86	563.68	17.18	33.804		
3,300.00	3,283.86	3,206.78	3,075.75	9.04	16.03	2.04	760.97	245.13	607.83	590.04	17.79	34.174		
3,400.00	3,383.23	3,303.07	3,165.78	9.34	16.70	2.16	793.42	255.77	634.80	616.41	18.39	34.518		
3,500.00	3,482.61	3,399.36	3,255.81	9.65	17.37	2.27	825.87	266.40	661.78	642.79	19.00	34.839		
3,600.00	3,581.99	3,495.64	3,345.83	9.95	18.03	2.37	858.31	277.04	688.76	669.16	19.60	35.140		
3,700.00	3,681.36	3,591.93	3,435.86	10.25	18.70	2.46	890.76	287.68	715.74	695.53	20.21	35.422		
3,800.00	3,780.74	3,703.20	3,540.12	10.56	19.42	2.65	927.70	299.79	742.27	721.43	20.84	35.610		
3,900.00	3,880.11	3,833.79	3,664.12	10.86	20.05	2.86	966.60	312.55	765.17	743.68	21.49	35.610		
4,000.00	3,979.49	3,966.86	3,792.24	11.16	20.64	2.96	1,000.67	323.72	783.71	761.58	22.13	35.411		
4,100.00	4,078.87	4,101.87	3,923.81	11.47	21.16	2.95	1,029.43	333.15	797.79	775.02	22.77	35.033		
4,202.22	4,180.45	4,241.31	4,061.03	11.78	21.60	2.82	1,052.91	340.85	807.50	784.09	23.42	34.485		
4,300.00	4,277.79	4,375.46	4,194.02	12.03	21.95	2.66	1,069.49	346.28	813.46	789.55	23.92	34.013		
4,400.00	4,377.60	4,513.12	4,331.20	12.22	22.23	2.57	1,080.33	349.84	817.36	793.04	24.31	33.619		
4,500.00	4,477.56	4,651.05	4,469.04	12.38	22.41	2.53	1,084.90	351.34	819.00	794.38	24.62	33.262		
4,522.44	4,500.00	4,682.02	4,500.00	12.41	22.44	2.53	1,085.06	351.39	819.06	785.85	33.20	24.668		
4,600.00	4,577.56	4,759.58	4,577.56	12.54	22.51	2.53	1,085.06	351.39	819.06	785.65	33.41	24.517		
4,700.00	4,677.56	4,859.58	4,677.56	12.71	22.60	2.53	1,085.06	351.39	819.06	785.37	33.69	24.313		
4,800.00	4,777.56	4,959.58	4,777.56	12.88	22.69	2.53	1,085.06	351.39	819.06	785.08	33.97	24.110		
4,900.00	4,877.56	5,059.58	4,877.56	13.06	22.79	2.53	1,085.06	351.39	819.06	784.80	34.26	23.908		
5,000.00	4,977.56	5,159.58	4,977.56	13.24	22.88	2.53	1,085.06	351.39	819.06	784.51	34.55	23.708		
5,100.00	5,077.56	5,259.58	5,077.56	13.42	22.98	2.53	1,085.06	351.39	819.06	784.21	34.84	23.509		
5,200.00	5,177.56	5,359.58	5,177.56	13.60	23.08	2.53	1,085.06	351.39	819.06	783.92	35.14	23.311		
5,300.00	5,277.56	5,459.58	5,277.56	13.78	23.19	2.53	1,085.06	351.39	819.06	783.62	35.43	23.115		
5,400.00	5,377.56	5,559.58	5,377.56	13.96	23.29	2.53	1,085.06	351.39	819.06	783.32	35.73	22.920		
5,500.00	5,477.56	5,659.58	5,477.56	14.15	23.40	2.53	1,085.06	351.39	819.06	783.02	36.04	22.727		
5,600.00	5,577.56	5,759.58	5,577.56	14.33	23.50	2.53	1,085.06	351.39	819.06	782.71	36.34	22.536		
5,700.00	5,677.56	5,859.58	5,677.56	14.52	23.61	2.53	1,085.06	351.39	819.06	782.40	36.65	22.346		
5,800.00	5,777.56	5,959.58	5,777.56	14.71	23.72	2.53	1,085.06	351.39	819.06	782.09	36.96	22.158		
5,871.98	5,849.54	6,031.56	5,849.54	14.84	23.80	2.53	1,085.06	351.39	819.06	781.87	37.19	22.024		
5,875.00	5,852.56	6,034.93	5,852.91	14.85	23.81	2.53	1,085.06	351.38	819.06	789.52	29.54	27.729		
5,900.00	5,877.55	6,062.82	5,880.78	14.89	23.83	2.51	1,085.04	350.36	819.06	789.45	29.61	27.666		
5,925.00	5,902.45	6,090.70	5,908.54	14.91	23.85	2.48	1,085.00	347.73	819.06	789.40	29.66	27.616		
5,950.00	5,927.22	6,118.56	5,936.07	14.94	23.86	2.42	1,084.93	343.48	819.06	789.36	29.70	27.578		
5,975.00	5,951.76	6,146.39	5,963.27	14.95	23.87	2.34	1,084.83	337.65	819.07	789.34	29.73	27.551		
6,000.00	5,976.03	6,174.17	5,990.04	14.96	23.87	2.24	1,084.71	330.25	819.08	789.33	29.75	27.533		
6,025.00	5,999.96	6,201.89	6,016.29	14.96	23.86	2.13	1,084.56	321.33	819.09	789.33	29.76	27.524		
6,050.00	6,023.47	6,229.56	6,041.91	14.96	23.85	1.99	1,084.39	310.92	819.10	789.34	29.76	27.521		
6,075.00	6,046.50	6,257.14	6,066.83	14.95	23.83	1.84	1,084.20	299.09	819.11	789.35	29.76	27.523		
6,100.00	6,068.99	6,284.65	6,090.95	14.94	23.81	1.68	1,083.98	285.87	819.14	789.38	29.76	27.526		
6,125.00	6,090.88	6,312.07	6,114.19	14.92	23.79	1.51	1,083.74	271.34	819.16	789.40	29.76	27.528		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Offset Design      Sec.3-T4N-R63W - 70 Ranch 4-63-3-32H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program:      0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,150.00	6,112.12	6,339.39	6,136.48	14.90	23.76	1.33	1,083.48	255.56	819.19	789.43	29.76	27.525		
6,175.00	6,132.63	6,366.60	6,157.76	14.88	23.73	1.14	1,083.21	238.60	819.23	789.45	29.77	27.514		
6,200.00	6,152.36	6,393.70	6,177.95	14.87	23.70	0.95	1,082.91	220.53	819.27	789.47	29.80	27.491		
6,225.00	6,171.27	6,420.68	6,197.00	14.85	23.66	0.76	1,082.59	201.43	819.32	789.47	29.85	27.451		
6,250.00	6,189.29	6,447.54	6,214.86	14.83	23.63	0.56	1,082.27	181.37	819.38	789.46	29.91	27.390		
6,275.00	6,206.38	6,474.27	6,231.49	14.82	23.59	0.38	1,081.92	160.45	819.44	789.43	30.01	27.305		
6,300.00	6,222.49	6,500.87	6,246.85	14.82	23.56	0.19	1,081.57	138.74	819.52	789.38	30.14	27.190		
6,325.00	6,237.59	6,527.34	6,260.91	14.83	23.53	0.02	1,081.20	116.33	819.60	789.30	30.31	27.043		
6,350.00	6,251.61	6,553.66	6,273.64	14.85	23.49	-0.14	1,080.82	93.29	819.70	789.18	30.52	26.861		
6,375.00	6,264.54	6,579.85	6,285.03	14.89	23.46	-0.30	1,080.43	69.72	819.80	789.04	30.77	26.644		
6,400.00	6,276.33	6,605.90	6,295.06	14.96	23.44	-0.44	1,080.04	45.69	819.92	788.85	31.07	26.391		
6,425.00	6,286.95	6,631.80	6,303.71	15.07	23.42	-0.56	1,079.64	21.28	820.04	788.63	31.42	26.103		
6,450.00	6,296.37	6,657.56	6,310.99	15.22	23.40	-0.67	1,079.23	-3.42	820.18	788.37	31.81	25.782		
6,475.00	6,304.56	6,683.17	6,316.90	15.41	23.38	-0.76	1,078.82	-28.34	820.33	788.07	32.26	25.430		
6,500.00	6,311.51	6,708.65	6,321.45	15.63	23.38	-0.83	1,078.41	-53.40	820.49	787.73	32.75	25.051		
6,525.00	6,317.19	6,733.98	6,324.64	15.88	23.38	-0.89	1,078.00	-78.52	820.66	787.36	33.29	24.650		
6,550.00	6,321.59	6,759.17	6,326.48	16.17	23.39	-0.92	1,077.58	-103.64	820.83	786.96	33.87	24.232		
6,575.00	6,324.70	6,784.21	6,327.00	16.47	23.41	-0.94	1,077.17	-128.67	821.02	786.53	34.50	23.801		
6,600.00	6,326.50	6,809.14	6,327.00	16.80	23.44	-0.94	1,076.76	-153.59	821.22	786.05	35.16	23.354		
6,621.98	6,327.00	6,831.11	6,327.00	17.11	23.48	-0.94	1,076.40	-175.56	821.40	785.61	35.79	22.950		
6,700.00	6,327.00	6,909.13	6,327.00	18.31	23.75	-0.94	1,075.12	-253.57	822.02	783.88	38.14	21.553		
6,800.00	6,327.00	7,009.13	6,327.00	20.10	24.50	-0.94	1,073.48	-353.55	822.83	781.17	41.66	19.753		
6,900.00	6,327.00	7,109.12	6,327.00	22.09	25.80	-0.94	1,071.84	-453.54	823.63	778.04	45.59	18.065		
7,000.00	6,327.00	7,209.12	6,327.00	24.24	27.54	-0.94	1,070.19	-553.52	824.44	774.59	49.85	16.539		
7,100.00	6,327.00	7,309.12	6,327.00	26.51	29.55	-0.94	1,068.55	-653.50	825.24	770.89	54.35	15.183		
7,200.00	6,327.00	7,409.11	6,327.00	28.88	31.72	-0.94	1,066.91	-753.49	826.05	767.00	59.04	13.990		
7,300.00	6,327.00	7,509.11	6,327.00	31.31	34.01	-0.94	1,065.27	-853.47	826.85	762.97	63.88	12.943		
7,400.00	6,327.00	7,609.11	6,327.00	33.80	36.39	-0.94	1,063.63	-953.45	827.66	758.82	68.84	12.023		
7,500.00	6,327.00	7,709.10	6,327.00	36.34	38.83	-0.94	1,061.98	-1,053.44	828.46	754.57	73.89	11.212		
7,600.00	6,327.00	7,809.10	6,327.00	38.91	41.31	-0.94	1,060.34	-1,153.42	829.27	750.25	79.01	10.496		
7,700.00	6,327.00	7,909.10	6,327.00	41.51	43.84	-0.94	1,058.70	-1,253.40	830.07	745.87	84.20	9.859		
7,800.00	6,327.00	8,009.09	6,327.00	44.14	46.39	-0.94	1,057.06	-1,353.39	830.88	741.44	89.43	9.291		
7,900.00	6,327.00	8,109.09	6,327.00	46.78	48.98	-0.94	1,055.42	-1,453.37	831.68	736.97	94.71	8.781		
8,000.00	6,327.00	8,209.09	6,327.00	49.45	51.59	-0.94	1,053.77	-1,553.35	832.49	732.46	100.02	8.323		
8,100.00	6,327.00	8,309.09	6,327.00	52.13	54.22	-0.94	1,052.13	-1,653.34	833.29	727.92	105.37	7.908		
8,200.00	6,327.00	8,409.08	6,327.00	54.82	56.86	-0.94	1,050.49	-1,753.32	834.09	723.36	110.74	7.532		
8,300.00	6,327.00	8,509.08	6,327.00	57.52	59.52	-0.94	1,048.85	-1,853.30	834.90	718.77	116.13	7.189		
8,400.00	6,327.00	8,609.08	6,327.00	60.23	62.19	-0.94	1,047.20	-1,953.29	835.70	714.16	121.54	6.876		
8,500.00	6,327.00	8,709.07	6,327.00	62.94	64.87	-0.94	1,045.56	-2,053.27	836.51	709.54	126.97	6.588		
8,600.00	6,327.00	8,809.07	6,327.00	65.67	67.56	-0.94	1,043.92	-2,153.25	837.31	704.90	132.41	6.323		
8,700.00	6,327.00	8,909.07	6,327.00	68.40	70.26	-0.94	1,042.28	-2,253.24	838.12	700.25	137.87	6.079		
8,800.00	6,327.00	9,009.06	6,327.00	71.14	72.97	-0.94	1,040.64	-2,353.22	838.92	695.58	143.34	5.853		
8,900.00	6,327.00	9,109.06	6,327.00	73.88	75.69	-0.94	1,038.99	-2,453.20	839.73	690.91	148.82	5.643		
9,000.00	6,327.00	9,209.06	6,327.00	76.63	78.41	-0.94	1,037.35	-2,553.19	840.53	686.23	154.30	5.447		
9,100.00	6,327.00	9,309.05	6,327.00	79.37	81.14	-0.94	1,035.71	-2,653.17	841.34	681.54	159.80	5.265		
9,200.00	6,327.00	9,409.05	6,327.00	82.13	83.87	-0.94	1,034.07	-2,753.15	842.14	676.84	165.30	5.095		
9,300.00	6,327.00	9,509.05	6,327.00	84.88	86.60	-0.94	1,032.42	-2,853.14	842.95	672.14	170.81	4.935		
9,400.00	6,327.00	9,609.04	6,327.00	87.64	89.34	-0.94	1,030.78	-2,953.12	843.75	667.42	176.33	4.785		
9,500.00	6,327.00	9,709.04	6,327.00	90.41	92.09	-0.94	1,029.14	-3,053.10	844.56	662.71	181.85	4.644		
9,600.00	6,327.00	9,809.04	6,327.00	93.17	94.84	-0.94	1,027.50	-3,153.09	845.36	657.99	187.37	4.512		
9,700.00	6,327.00	9,909.03	6,327.00	95.94	97.59	-0.94	1,025.86	-3,253.07	846.17	653.26	192.90	4.386		
9,800.00	6,327.00	10,009.03	6,327.00	98.71	100.34	-0.94	1,024.21	-3,353.05	846.97	648.53	198.44	4.268		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

<b>Offset Design</b> Sec.3-T4N-R63W - 70 Ranch 4-63-3-32H - Wellbore #1 - Design #1												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,900.00	6,327.00	10,109.03	6,327.00	101.48	103.10	-0.94	1,022.57	-3,453.04	847.77	643.80	203.98	4.156	
10,000.00	6,327.00	10,209.02	6,327.00	104.25	105.85	-0.94	1,020.93	-3,553.02	848.58	639.06	209.52	4.050	
10,100.00	6,327.00	10,309.02	6,327.00	107.02	108.61	-0.94	1,019.29	-3,653.00	849.38	634.32	215.07	3.949	
10,200.00	6,327.00	10,409.02	6,327.00	109.80	111.38	-0.94	1,017.64	-3,752.99	850.19	629.57	220.61	3.854	
10,300.00	6,327.00	10,509.01	6,327.00	112.57	114.14	-0.94	1,016.00	-3,852.97	850.99	624.83	226.17	3.763	
10,400.00	6,327.00	10,609.01	6,327.00	115.35	116.91	-0.94	1,014.36	-3,952.95	851.80	620.08	231.72	3.676	
10,500.00	6,327.00	10,709.01	6,327.00	118.13	119.68	-0.94	1,012.72	-4,052.93	852.60	615.33	237.28	3.593	
10,600.00	6,327.00	10,809.00	6,327.00	120.91	122.45	-0.94	1,011.08	-4,152.92	853.41	610.57	242.84	3.514	
10,659.81	6,327.00	10,832.68	6,327.00	122.57	123.10	1.48	1,010.69	-4,176.59	854.65	609.50	245.16	3.486 SF	

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Offset Design      Sec.3-T4N-R63W - 70 Ranch 4-63-3-48H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program:      0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-21.86	0.00	21.86					
100.00	100.00	100.00	100.00	0.09	0.09	-180.00	-21.86	0.00	21.86	21.67	0.18	118.592		
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-21.86	0.00	21.86	21.22	0.63	34.484		
300.00	300.00	300.00	300.00	0.54	0.54	-180.00	-21.86	0.00	21.86	20.77	1.08	20.175		
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-21.86	0.00	21.86	20.32	1.53	14.259		
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-21.86	0.00	21.86	19.88	1.98	11.026 CC, ES		
600.00	599.98	599.44	599.42	1.21	1.19	-179.88	-23.01	1.28	24.15	21.74	2.41	10.027		
700.00	699.84	698.57	698.41	1.44	1.39	-179.61	-26.46	5.11	31.00	28.17	2.83	10.947		
800.00	799.45	797.08	796.55	1.67	1.61	-179.27	-32.15	11.44	42.39	39.11	3.29	12.902		
820.21	819.55	817.05	816.40	1.73	1.65	-179.18	-33.55	13.00	45.22	41.83	3.38	13.373		
900.00	898.84	896.02	894.94	1.93	1.85	-178.73	-39.12	19.19	56.56	52.80	3.76	15.037		
1,000.00	998.21	995.00	993.37	2.20	2.11	-178.37	-46.09	26.94	70.79	66.54	4.25	16.653		
1,100.00	1,097.59	1,093.98	1,091.80	2.48	2.38	-178.13	-53.06	34.69	85.02	80.26	4.75	17.886		
1,200.00	1,196.96	1,192.97	1,190.23	2.76	2.66	-177.95	-60.04	42.45	99.25	93.98	5.26	18.850		
1,300.00	1,296.34	1,291.95	1,288.66	3.05	2.94	-177.83	-67.01	50.20	113.47	107.69	5.78	19.619		
1,400.00	1,395.72	1,390.93	1,387.09	3.34	3.22	-177.73	-73.99	57.95	127.70	121.40	6.31	20.245		
1,500.00	1,495.09	1,489.91	1,485.53	3.63	3.51	-177.65	-80.96	65.71	141.93	135.10	6.84	20.763		
1,600.00	1,594.47	1,588.89	1,583.96	3.93	3.80	-177.58	-87.93	73.46	156.16	148.80	7.37	21.197		
1,700.00	1,693.84	1,687.88	1,682.39	4.23	4.09	-177.53	-94.91	81.21	170.40	162.49	7.90	21.566		
1,800.00	1,793.22	1,786.86	1,780.82	4.52	4.38	-177.48	-101.88	88.97	184.63	176.19	8.44	21.883		
1,900.00	1,892.60	1,885.84	1,879.25	4.82	4.68	-177.44	-108.85	96.72	198.86	189.88	8.97	22.157		
2,000.00	1,991.97	1,984.82	1,977.68	5.12	4.97	-177.41	-115.83	104.47	213.09	203.57	9.51	22.398		
2,100.00	2,091.35	2,083.81	2,076.11	5.42	5.27	-177.38	-122.80	112.23	227.32	217.26	10.05	22.610		
2,200.00	2,190.72	2,182.79	2,174.54	5.72	5.57	-177.35	-129.77	119.98	241.55	230.95	10.60	22.798		
2,300.00	2,290.10	2,281.77	2,272.98	6.02	5.86	-177.33	-136.75	127.73	255.78	244.64	11.14	22.966		
2,400.00	2,389.48	2,380.75	2,371.41	6.32	6.16	-177.30	-143.72	135.49	270.01	258.33	11.68	23.117		
2,500.00	2,488.85	2,479.73	2,469.84	6.62	6.46	-177.29	-150.70	143.24	284.24	272.02	12.22	23.254		
2,600.00	2,588.23	2,578.72	2,568.27	6.92	6.76	-177.27	-157.67	150.99	298.47	285.71	12.77	23.378		
2,700.00	2,687.60	2,677.70	2,666.70	7.23	7.05	-177.25	-164.64	158.75	312.70	299.39	13.31	23.490		
2,800.00	2,786.98	2,776.68	2,765.13	7.53	7.35	-177.24	-171.62	166.50	326.94	313.08	13.86	23.594		
2,900.00	2,886.35	2,875.66	2,863.56	7.83	7.65	-177.23	-178.59	174.25	341.17	326.76	14.40	23.688		
3,000.00	2,985.73	2,974.65	2,962.00	8.13	7.95	-177.21	-185.56	182.01	355.40	340.45	14.95	23.776		
3,100.00	3,085.11	3,073.63	3,060.43	8.43	8.25	-177.20	-192.54	189.76	369.63	354.13	15.49	23.856		
3,200.00	3,184.48	3,172.61	3,158.86	8.74	8.55	-177.19	-199.51	197.51	383.86	367.82	16.04	23.931		
3,300.00	3,283.86	3,271.59	3,257.29	9.04	8.85	-177.18	-206.49	205.26	398.09	381.50	16.59	24.001		
3,400.00	3,383.23	3,370.57	3,355.72	9.34	9.15	-177.17	-213.46	213.02	412.32	395.19	17.13	24.065		
3,500.00	3,482.61	3,469.56	3,454.15	9.65	9.45	-177.17	-220.43	220.77	426.55	408.87	17.68	24.126		
3,600.00	3,581.99	3,568.54	3,552.58	9.95	9.75	-177.16	-227.41	228.52	440.78	422.56	18.23	24.182		
3,700.00	3,681.36	3,667.52	3,651.01	10.25	10.05	-177.15	-234.38	236.28	455.02	436.24	18.77	24.235		
3,800.00	3,780.74	3,766.50	3,749.45	10.56	10.35	-177.14	-241.35	244.03	469.25	449.92	19.32	24.285		
3,900.00	3,880.11	3,865.48	3,847.88	10.86	10.65	-177.14	-248.33	251.78	483.48	463.61	19.87	24.332		
4,000.00	3,979.49	3,964.47	3,946.31	11.16	10.95	-177.13	-255.30	259.54	497.71	477.29	20.42	24.376		
4,100.00	4,078.87	4,063.45	4,044.74	11.47	11.25	-177.13	-262.27	267.29	511.94	490.97	20.97	24.418		
4,202.22	4,180.45	4,164.63	4,145.36	11.78	11.56	-177.12	-269.40	275.22	526.49	504.96	21.53	24.458		
4,300.00	4,277.79	4,267.49	4,247.69	12.03	11.84	-177.26	-276.36	282.95	539.04	517.00	22.04	24.455		
4,400.00	4,377.60	4,360.76	4,360.69	12.22	12.07	-177.43	-281.54	288.71	547.46	525.00	22.47	24.369		
4,500.00	4,477.56	4,494.57	4,474.44	12.38	12.26	-177.50	-283.73	291.15	551.01	528.18	22.83	24.139		
4,522.44	4,500.00	4,520.13	4,500.00	12.41	12.30	-177.50	-283.81	291.23	551.13	528.86	22.28	24.742		
4,600.00	4,577.56	4,597.69	4,577.56	12.54	12.42	-177.50	-283.81	291.23	551.13	528.58	22.55	24.444		
4,700.00	4,677.56	4,697.69	4,677.56	12.71	12.57	-177.50	-283.81	291.23	551.13	528.23	22.90	24.067		
4,800.00	4,777.56	4,797.69	4,777.56	12.88	12.73	-177.50	-283.81	291.23	551.13	527.88	23.26	23.699		
4,900.00	4,877.56	4,897.69	4,877.56	13.06	12.88	-177.50	-283.81	291.23	551.13	527.52	23.62	23.338		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,977.56	4,997.69	4,977.56	13.24	13.04	-177.50	-283.81	291.23	551.13	527.15	23.98	22.985		
5,100.00	5,077.56	5,097.69	5,077.56	13.42	13.20	-177.50	-283.81	291.23	551.13	526.79	24.34	22.641		
5,200.00	5,177.56	5,197.69	5,177.56	13.60	13.36	-177.50	-283.81	291.23	551.13	526.42	24.71	22.303		
5,300.00	5,277.56	5,297.69	5,277.56	13.78	13.53	-177.50	-283.81	291.23	551.13	526.05	25.08	21.974		
5,400.00	5,377.56	5,397.69	5,377.56	13.96	13.69	-177.50	-283.81	291.23	551.13	525.68	25.45	21.652		
5,500.00	5,477.56	5,497.69	5,477.56	14.15	13.86	-177.50	-283.81	291.23	551.13	525.30	25.83	21.337		
5,600.00	5,577.56	5,597.69	5,577.56	14.33	14.03	-177.50	-283.81	291.23	551.13	524.92	26.21	21.029		
5,700.00	5,677.56	5,697.69	5,677.56	14.52	14.20	-177.50	-283.81	291.23	551.13	524.54	26.59	20.729		
5,800.00	5,777.56	5,797.69	5,777.56	14.71	14.37	-177.50	-283.81	291.23	551.13	524.16	26.97	20.435		
5,871.98	5,849.54	5,869.67	5,849.54	14.84	14.50	-177.50	-283.81	291.23	551.13	523.88	27.25	20.228		
5,875.00	5,852.56	5,872.47	5,852.34	14.85	14.50	-177.50	-283.81	291.22	551.13	523.25	27.88	19.766		
5,900.00	5,877.55	5,895.65	5,875.51	14.89	14.53	-177.51	-283.82	290.52	551.13	523.17	27.96	19.715		
5,925.00	5,902.45	5,918.84	5,898.62	14.91	14.56	-177.54	-283.87	288.70	551.12	523.10	28.01	19.673		
5,950.00	5,927.22	5,942.03	5,921.63	14.94	14.58	-177.59	-283.94	285.76	551.10	523.04	28.06	19.641		
5,975.00	5,951.76	5,965.24	5,944.47	14.95	14.60	-177.66	-284.04	281.70	551.08	522.99	28.09	19.617		
6,000.00	5,976.03	5,988.46	5,967.11	14.96	14.62	-177.75	-284.17	276.53	551.05	522.94	28.11	19.601		
6,025.00	5,999.96	6,011.70	5,989.49	14.96	14.63	-177.85	-284.32	270.27	551.01	522.89	28.12	19.592		
6,050.00	6,023.47	6,034.97	6,011.56	14.96	14.63	-177.97	-284.50	262.91	550.97	522.85	28.13	19.589		
6,075.00	6,046.50	6,058.27	6,033.27	14.95	14.63	-178.10	-284.71	254.48	550.93	522.81	28.12	19.590		
6,100.00	6,068.99	6,081.59	6,054.57	14.94	14.63	-178.25	-284.94	244.98	550.88	522.77	28.11	19.594		
6,125.00	6,090.88	6,104.95	6,075.42	14.92	14.63	-178.40	-285.20	234.44	550.83	522.72	28.10	19.599		
6,150.00	6,112.12	6,128.36	6,095.76	14.90	14.62	-178.57	-285.48	222.87	550.77	522.67	28.10	19.603		
6,175.00	6,132.63	6,151.80	6,115.54	14.88	14.62	-178.75	-285.79	210.30	550.71	522.62	28.09	19.603		
6,200.00	6,152.36	6,175.00	6,134.48	14.87	14.61	-178.95	-286.12	196.91	550.65	522.55	28.10	19.596		
6,225.00	6,171.27	6,198.84	6,153.25	14.85	14.60	-179.13	-286.48	182.22	550.58	522.46	28.12	19.580		
6,250.00	6,189.29	6,222.44	6,171.08	14.83	14.60	-179.32	-286.85	166.77	550.52	522.36	28.16	19.552		
6,275.00	6,206.38	6,246.09	6,188.16	14.82	14.59	-179.52	-287.25	150.42	550.45	522.24	28.22	19.508		
6,300.00	6,222.49	6,269.81	6,204.46	14.82	14.59	-179.71	-287.68	133.19	550.39	522.08	28.31	19.445		
6,325.00	6,237.59	6,293.60	6,219.92	14.83	14.59	-179.91	-288.12	115.13	550.33	521.90	28.43	19.360		
6,350.00	6,251.61	6,317.45	6,234.51	14.85	14.59	-179.91	-288.58	96.26	550.26	521.68	28.58	19.252		
6,375.00	6,264.54	6,341.37	6,248.17	14.89	14.60	-179.72	-289.06	76.63	550.20	521.42	28.78	19.118		
6,400.00	6,276.33	6,365.37	6,260.87	14.96	14.62	-179.55	-289.56	56.28	550.15	521.13	29.02	18.957		
6,425.00	6,286.95	6,389.45	6,272.57	15.07	14.66	-179.38	-290.07	35.24	550.09	520.78	29.31	18.768		
6,450.00	6,296.37	6,413.61	6,283.23	15.22	14.71	-179.23	-290.60	13.57	550.04	520.40	29.65	18.552		
6,475.00	6,304.56	6,437.86	6,292.81	15.41	14.81	-179.09	-291.15	-8.70	550.00	519.96	30.04	18.309		
6,500.00	6,311.51	6,462.19	6,301.27	15.63	14.95	-178.96	-291.71	-31.50	549.96	519.48	30.48	18.043		
6,525.00	6,317.19	6,486.62	6,308.59	15.88	15.14	-178.85	-292.28	-54.80	549.93	518.95	30.97	17.755		
6,550.00	6,321.59	6,511.14	6,314.72	16.17	15.37	-178.76	-292.86	-78.52	549.90	518.38	31.52	17.448		
6,575.00	6,324.70	6,535.75	6,319.65	16.47	15.64	-178.69	-293.45	-102.63	549.88	517.77	32.11	17.127		
6,600.00	6,326.50	6,560.46	6,323.34	16.80	15.95	-178.64	-294.04	-127.05	549.86	517.12	32.74	16.795		
6,621.98	6,327.00	6,582.26	6,325.54	17.11	16.24	-178.61	-294.58	-148.73	549.86	516.53	33.33	16.497		
6,656.53	6,327.00	6,616.74	6,327.00	17.64	16.73	-178.60	-295.42	-183.16	549.85	515.51	34.34	16.010		
6,700.00	6,327.00	6,660.21	6,327.00	18.31	17.43	-178.60	-296.48	-226.62	549.85	514.16	35.70	15.404		
6,800.00	6,327.00	6,760.21	6,327.00	20.10	19.19	-178.60	-298.93	-326.59	549.85	510.64	39.21	14.023		
6,900.00	6,327.00	6,860.21	6,327.00	22.09	21.17	-178.60	-301.37	-426.56	549.85	506.69	43.16	12.740		
7,000.00	6,327.00	6,960.21	6,327.00	24.24	23.31	-178.60	-303.82	-526.53	549.85	502.41	47.44	11.590		
7,100.00	6,327.00	7,060.21	6,327.00	26.51	25.58	-178.60	-306.27	-626.50	549.85	497.87	51.98	10.578		
7,200.00	6,327.00	7,160.21	6,327.00	28.88	27.95	-178.60	-308.71	-726.47	549.85	493.15	56.71	9.696		
7,300.00	6,327.00	7,260.21	6,327.00	31.31	30.39	-178.60	-311.16	-826.44	549.85	488.27	61.58	8.928		
7,400.00	6,327.00	7,360.21	6,327.00	33.80	32.89	-178.60	-313.61	-926.41	549.85	483.28	66.57	8.259		
7,500.00	6,327.00	7,460.21	6,327.00	36.34	35.43	-178.60	-316.06	-1,026.38	549.85	478.20	71.66	7.673		
7,600.00	6,327.00	7,560.21	6,327.00	38.91	38.01	-178.60	-318.50	-1,126.35	549.85	473.04	76.81	7.159		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,700.00	6,327.00	7,660.21	6,327.00	41.51	40.62	178.60	-320.95	-1,226.32	549.85	467.83	82.02	6.704		
7,800.00	6,327.00	7,760.21	6,327.00	44.14	43.25	178.60	-323.40	-1,326.29	549.85	462.57	87.29	6.299		
7,900.00	6,327.00	7,860.21	6,327.00	46.78	45.90	178.60	-325.84	-1,426.26	549.85	457.27	92.59	5.939		
8,000.00	6,327.00	7,960.21	6,327.00	49.45	48.57	178.60	-328.29	-1,526.23	549.85	451.93	97.92	5.615		
8,100.00	6,327.00	8,060.21	6,327.00	52.13	51.26	178.60	-330.74	-1,626.20	549.85	446.57	103.29	5.324		
8,200.00	6,327.00	8,160.21	6,327.00	54.82	53.95	178.60	-333.18	-1,726.17	549.85	441.18	108.68	5.060		
8,300.00	6,327.00	8,260.21	6,327.00	57.52	56.66	178.60	-335.63	-1,826.14	549.85	435.77	114.09	4.820		
8,400.00	6,327.00	8,360.21	6,327.00	60.23	59.37	178.60	-338.08	-1,926.11	549.85	430.34	119.51	4.601		
8,500.00	6,327.00	8,460.21	6,327.00	62.94	62.09	178.60	-340.52	-2,026.08	549.85	424.90	124.96	4.400		
8,600.00	6,327.00	8,560.21	6,327.00	65.67	64.82	178.60	-342.97	-2,126.05	549.85	419.44	130.41	4.216		
8,700.00	6,327.00	8,660.21	6,327.00	68.40	67.56	178.60	-345.42	-2,226.02	549.85	413.97	135.88	4.047		
8,800.00	6,327.00	8,760.21	6,327.00	71.14	70.30	178.60	-347.86	-2,325.99	549.85	408.49	141.36	3.890		
8,900.00	6,327.00	8,860.21	6,327.00	73.88	73.04	178.60	-350.31	-2,425.96	549.85	403.00	146.85	3.744		
9,000.00	6,327.00	8,960.21	6,327.00	76.63	75.79	178.60	-352.76	-2,525.93	549.85	397.51	152.34	3.609		
9,100.00	6,327.00	9,060.21	6,327.00	79.37	78.54	178.60	-355.20	-2,625.90	549.85	392.00	157.85	3.483		
9,200.00	6,327.00	9,160.21	6,327.00	82.13	81.30	178.60	-357.65	-2,725.87	549.85	386.49	163.36	3.366		
9,300.00	6,327.00	9,260.21	6,327.00	84.88	84.06	178.60	-360.10	-2,825.84	549.85	380.97	168.88	3.256		
9,400.00	6,327.00	9,360.21	6,327.00	87.64	86.82	178.60	-362.54	-2,925.81	549.85	375.45	174.40	3.153		
9,500.00	6,327.00	9,460.21	6,327.00	90.41	89.58	178.60	-364.99	-3,025.78	549.85	369.92	179.93	3.056		
9,600.00	6,327.00	9,560.21	6,327.00	93.17	92.35	178.60	-367.44	-3,125.75	549.85	364.39	185.46	2.965		
9,700.00	6,327.00	9,660.21	6,327.00	95.94	95.12	178.60	-369.88	-3,225.72	549.85	358.86	191.00	2.879		
9,800.00	6,327.00	9,760.21	6,327.00	98.71	97.89	178.60	-372.33	-3,325.69	549.85	353.31	196.54	2.798		
9,900.00	6,327.00	9,860.21	6,327.00	101.48	100.66	178.60	-374.78	-3,425.66	549.85	347.77	202.08	2.721		
10,000.00	6,327.00	9,960.21	6,327.00	104.25	103.44	178.60	-377.22	-3,525.63	549.85	342.22	207.63	2.648		
10,100.00	6,327.00	10,060.21	6,327.00	107.02	106.21	178.60	-379.67	-3,625.60	549.85	336.67	213.18	2.579		
10,200.00	6,327.00	10,160.21	6,327.00	109.80	108.99	178.60	-382.12	-3,725.57	549.85	331.12	218.73	2.514		
10,300.00	6,327.00	10,260.21	6,327.00	112.57	111.77	178.60	-384.56	-3,825.54	549.85	325.57	224.29	2.452		
10,400.00	6,327.00	10,360.21	6,327.00	115.35	114.54	178.60	-387.01	-3,925.51	549.85	320.01	229.84	2.392		
10,500.00	6,327.00	10,460.21	6,327.00	118.13	117.32	178.60	-389.46	-4,025.48	549.85	314.45	235.40	2.336		
10,600.00	6,327.00	10,560.21	6,327.00	120.91	120.11	178.60	-391.90	-4,125.45	549.85	308.89	240.97	2.282		
10,659.81	6,327.00	10,620.01	6,327.00	122.57	121.77	178.60	-393.37	-4,185.24	549.85	305.56	244.29	2.251 SF		

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Offset Design      Sec.3-T4N-R63W - 70 Ranch 4-63-3-49H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program:      0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-43.72	0.00	43.72					
100.00	100.00	100.00	100.00	0.09	0.09	-180.00	-43.72	0.00	43.72	43.53	0.18	237.184		
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-43.72	0.00	43.72	43.08	0.63	68.969		
300.00	300.00	300.00	300.00	0.54	0.54	-180.00	-43.72	0.00	43.72	42.63	1.08	40.351		
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-43.72	0.00	43.72	42.18	1.53	28.518		
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-43.72	0.00	43.72	41.73	1.98	22.051	CC, ES	
600.00	599.98	598.46	598.45	1.21	1.19	-178.90	-45.35	0.44	46.51	44.11	2.40	19.360		
700.00	699.84	696.43	696.27	1.44	1.37	-176.27	-50.21	1.76	54.95	52.13	2.82	19.491		
800.00	799.45	793.40	792.89	1.67	1.58	-173.27	-58.21	3.92	69.13	65.87	3.26	21.196		
820.21	819.55	812.84	812.22	1.73	1.62	-172.70	-60.19	4.46	72.69	69.34	3.35	21.675		
900.00	898.84	889.11	887.91	1.93	1.81	-171.10	-69.18	6.89	88.22	84.50	3.72	23.724		
1,000.00	998.21	983.63	981.34	2.20	2.09	-170.33	-83.03	10.64	110.38	106.19	4.19	26.342		
1,100.00	1,097.59	1,076.80	1,072.91	2.48	2.40	-170.34	-99.58	15.11	135.44	130.77	4.68	28.960		
1,200.00	1,196.96	1,168.46	1,162.41	2.76	2.76	-170.73	-118.66	20.27	163.35	158.17	5.18	31.554		
1,300.00	1,296.34	1,258.45	1,249.63	3.05	3.17	-171.32	-140.07	26.07	194.05	188.37	5.69	34.117		
1,400.00	1,395.72	1,346.66	1,334.39	3.34	3.61	-171.98	-163.61	32.44	227.50	221.29	6.21	36.648		
1,500.00	1,495.09	1,436.44	1,419.95	3.63	4.11	-172.72	-189.83	39.53	263.35	256.61	6.74	39.051		
1,600.00	1,594.47	1,529.58	1,508.61	3.93	4.64	-173.39	-217.39	46.99	299.61	292.33	7.28	41.149		
1,700.00	1,693.84	1,622.72	1,597.27	4.23	5.20	-173.91	-244.95	54.44	335.90	328.07	7.83	42.918		
1,800.00	1,793.22	1,715.86	1,685.93	4.52	5.75	-174.34	-272.52	61.90	372.21	363.83	8.38	44.440		
1,900.00	1,892.60	1,809.00	1,774.58	4.82	6.32	-174.68	-300.08	69.35	408.53	399.60	8.93	45.753		
2,000.00	1,991.97	1,902.14	1,863.24	5.12	6.89	-174.98	-327.64	76.81	444.87	435.38	9.49	46.896		
2,100.00	2,091.35	1,995.28	1,951.90	5.42	7.46	-175.22	-355.20	84.27	481.21	471.17	10.05	47.898		
2,200.00	2,190.72	2,088.42	2,040.56	5.72	8.04	-175.44	-382.76	91.72	517.56	506.95	10.61	48.783		
2,300.00	2,290.10	2,181.57	2,129.21	6.02	8.61	-175.62	-410.32	99.18	553.92	542.75	11.17	49.571		
2,400.00	2,389.48	2,274.71	2,217.87	6.32	9.19	-175.78	-437.88	106.63	590.29	578.54	11.74	50.276		
2,500.00	2,488.85	2,367.85	2,306.53	6.62	9.77	-175.93	-465.44	114.09	626.65	614.34	12.31	50.909		
2,600.00	2,588.23	2,460.99	2,395.19	6.92	10.36	-176.06	-493.00	121.55	663.02	650.14	12.88	51.482		
2,700.00	2,687.60	2,554.13	2,483.84	7.23	10.94	-176.17	-520.56	129.00	699.39	685.95	13.45	52.002		
2,800.00	2,786.98	2,647.27	2,572.50	7.53	11.52	-176.27	-548.12	136.46	735.77	721.75	14.02	52.475		
2,900.00	2,886.35	2,740.41	2,661.16	7.83	12.11	-176.37	-575.68	143.91	772.15	757.55	14.59	52.908		
3,000.00	2,985.73	2,833.56	2,749.82	8.13	12.69	-176.45	-603.24	151.37	808.53	793.36	15.17	53.306		
3,100.00	3,085.11	2,926.70	2,838.47	8.43	13.28	-176.53	-630.80	158.82	844.91	829.16	15.74	53.672		
3,200.00	3,184.48	3,019.84	2,927.13	8.74	13.87	-176.60	-658.36	166.28	881.29	864.97	16.32	54.011		
3,300.00	3,283.86	3,112.98	3,015.79	9.04	14.45	-176.67	-685.92	173.74	917.67	900.78	16.89	54.324		
3,400.00	3,383.23	3,206.12	3,104.45	9.34	15.04	-176.73	-713.48	181.19	954.05	936.59	17.47	54.615		
3,500.00	3,482.61	3,299.26	3,193.10	9.65	15.63	-176.78	-741.04	188.65	990.44	972.39	18.05	54.886		
3,600.00	3,581.99	3,392.40	3,281.76	9.95	16.21	-176.83	-768.60	196.10	1,026.82	1,008.20	18.62	55.139		
3,700.00	3,681.36	3,485.55	3,370.42	10.25	16.80	-176.88	-796.16	203.56	1,063.21	1,044.01	19.20	55.375		
3,800.00	3,780.74	3,578.69	3,459.08	10.56	17.39	-176.93	-823.72	211.02	1,099.60	1,079.82	19.78	55.596		
3,900.00	3,880.11	3,671.83	3,547.73	10.86	17.98	-176.97	-851.28	218.47	1,135.99	1,115.63	20.36	55.804		
4,000.00	3,979.49	3,774.77	3,645.75	11.16	18.60	-177.06	-881.64	226.69	1,172.31	1,151.35	20.96	55.931		
4,100.00	4,078.87	3,931.03	3,796.10	11.47	19.27	-177.30	-922.67	237.79	1,205.48	1,183.83	21.66	56.066		
4,202.22	4,180.45	4,096.31	3,957.40	11.78	19.85	-177.43	-957.39	247.18	1,234.19	1,211.83	22.35	55.216		
4,300.00	4,277.79	4,259.31	4,118.24	12.03	20.31	-177.49	-982.78	254.05	1,255.38	1,232.33	23.05	54.467		
4,400.00	4,377.60	4,430.10	4,288.08	12.22	20.68	-177.53	-999.87	258.67	1,269.32	1,245.67	23.65	53.677		
4,500.00	4,477.56	4,603.23	4,461.02	12.38	20.92	-177.55	-1,007.19	260.65	1,275.21	1,251.05	24.15	52.794		
4,522.44	4,500.00	4,642.21	4,500.00	12.41	20.96	-177.55	-1,007.45	260.72	1,275.41	1,243.96	31.45	40.549		
4,600.00	4,577.56	4,719.77	4,577.56	12.54	21.03	-177.55	-1,007.45	260.72	1,275.41	1,243.75	31.66	40.284		
4,700.00	4,677.56	4,819.77	4,677.56	12.71	21.12	-177.55	-1,007.45	260.72	1,275.41	1,243.48	31.94	39.937		
4,800.00	4,777.56	4,919.77	4,777.56	12.88	21.20	-177.55	-1,007.45	260.72	1,275.41	1,243.20	32.21	39.591		
4,900.00	4,877.56	5,019.77	4,877.56	13.06	21.29	-177.55	-1,007.45	260.72	1,275.41	1,242.91	32.50	39.248		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,977.56	5,119.77	4,977.56	13.24	21.39	-177.55	-1,007.45	260.72	1,275.41	1,242.63	32.78	38.906		
5,100.00	5,077.56	5,219.77	5,077.56	13.42	21.48	-177.55	-1,007.45	260.72	1,275.41	1,242.34	33.07	38.567		
5,200.00	5,177.56	5,319.77	5,177.56	13.60	21.58	-177.55	-1,007.45	260.72	1,275.41	1,242.05	33.36	38.230		
5,300.00	5,277.56	5,419.77	5,277.56	13.78	21.67	-177.55	-1,007.45	260.72	1,275.41	1,241.76	33.66	37.896		
5,400.00	5,377.56	5,519.77	5,377.56	13.96	21.77	-177.55	-1,007.45	260.72	1,275.41	1,241.46	33.95	37.564		
5,500.00	5,477.56	5,619.77	5,477.56	14.15	21.87	-177.55	-1,007.45	260.72	1,275.41	1,241.16	34.25	37.235		
5,600.00	5,577.56	5,719.77	5,577.56	14.33	21.98	-177.55	-1,007.45	260.72	1,275.41	1,240.86	34.56	36.909		
5,700.00	5,677.56	5,819.77	5,677.56	14.52	22.08	-177.55	-1,007.45	260.72	1,275.41	1,240.55	34.86	36.585		
5,800.00	5,777.56	5,919.77	5,777.56	14.71	22.19	-177.55	-1,007.45	260.72	1,275.41	1,240.24	35.17	36.265		
5,871.98	5,849.54	5,991.75	5,849.54	14.84	22.27	-177.55	-1,007.45	260.72	1,275.41	1,240.02	35.39	36.036		
5,875.00	5,852.56	5,994.64	5,852.43	14.85	22.27	-177.55	-1,007.44	260.71	1,275.41	1,246.44	28.97	44.027		
5,900.00	5,877.55	6,018.54	5,876.31	14.89	22.29	-177.55	-1,007.43	259.97	1,275.37	1,246.32	29.05	43.910		
5,925.00	5,902.45	6,042.43	5,900.13	14.91	22.31	-177.56	-1,007.38	258.03	1,275.26	1,246.16	29.11	43.814		
5,950.00	5,927.22	6,066.34	5,923.82	14.94	22.33	-177.57	-1,007.30	254.91	1,275.09	1,245.94	29.15	43.739		
5,975.00	5,951.76	6,090.25	5,947.34	14.95	22.34	-177.59	-1,007.19	250.60	1,274.85	1,245.67	29.18	43.683		
6,000.00	5,976.03	6,114.17	5,970.62	14.96	22.35	-177.61	-1,007.05	245.12	1,274.55	1,245.34	29.20	43.645		
6,025.00	5,999.96	6,138.10	5,993.61	14.96	22.35	-177.64	-1,006.88	238.47	1,274.18	1,244.97	29.21	43.622		
6,050.00	6,023.47	6,162.05	6,016.25	14.96	22.36	-177.67	-1,006.68	230.68	1,273.75	1,244.54	29.21	43.611		
6,075.00	6,046.50	6,186.01	6,038.49	14.95	22.35	-177.70	-1,006.45	221.76	1,273.26	1,244.06	29.20	43.609		
6,100.00	6,068.99	6,210.00	6,060.27	14.94	22.35	-177.74	-1,006.20	211.72	1,272.71	1,243.53	29.18	43.612		
6,125.00	6,090.88	6,234.00	6,081.53	14.92	22.35	-177.78	-1,005.91	200.59	1,272.10	1,242.93	29.17	43.615		
6,150.00	6,112.12	6,258.03	6,102.23	14.90	22.34	-177.83	-1,005.60	188.40	1,271.43	1,242.28	29.15	43.613		
6,175.00	6,132.63	6,282.09	6,122.31	14.88	22.33	-177.87	-1,005.27	175.16	1,270.71	1,241.56	29.14	43.601		
6,200.00	6,152.36	6,306.18	6,141.73	14.87	22.32	-177.92	-1,004.90	160.91	1,269.93	1,240.79	29.15	43.572		
6,225.00	6,171.27	6,330.29	6,160.42	14.85	22.30	-177.97	-1,004.52	145.68	1,269.11	1,239.95	29.16	43.518		
6,250.00	6,189.29	6,354.44	6,178.34	14.83	22.29	-178.02	-1,004.10	129.51	1,268.23	1,239.04	29.20	43.434		
6,275.00	6,206.38	6,378.63	6,195.45	14.82	22.28	-178.07	-1,003.67	112.42	1,267.31	1,238.05	29.26	43.313		
6,300.00	6,222.49	6,402.85	6,211.70	14.82	22.26	-178.12	-1,003.21	94.46	1,266.35	1,237.00	29.35	43.147		
6,325.00	6,237.59	6,427.11	6,227.03	14.83	22.25	-178.17	-1,002.73	75.67	1,265.35	1,235.87	29.47	42.931		
6,350.00	6,251.61	6,451.42	6,241.42	14.85	22.23	-178.22	-1,002.24	56.09	1,264.30	1,234.67	29.64	42.660		
6,375.00	6,264.54	6,475.77	6,254.82	14.89	22.22	-178.27	-1,001.72	35.76	1,263.23	1,233.38	29.84	42.329		
6,400.00	6,276.33	6,500.00	6,267.10	14.96	22.21	-178.32	-1,001.19	14.89	1,262.12	1,232.03	30.09	41.939		
6,425.00	6,286.95	6,524.61	6,278.47	15.07	22.19	-178.35	-1,000.63	-6.92	1,260.98	1,230.59	30.40	41.484		
6,450.00	6,296.37	6,549.10	6,288.66	15.22	22.18	-178.39	-1,000.06	-29.19	1,259.82	1,229.07	30.75	40.971		
6,475.00	6,304.56	6,573.65	6,297.72	15.41	22.17	-178.43	-999.48	-51.99	1,258.63	1,227.48	31.15	40.400		
6,500.00	6,311.51	6,598.25	6,305.60	15.63	22.17	-178.46	-998.89	-75.28	1,257.43	1,225.82	31.61	39.779		
6,525.00	6,317.19	6,622.90	6,312.29	15.88	22.16	-178.48	-998.29	-99.00	1,256.21	1,224.09	32.12	39.113		
6,550.00	6,321.59	6,647.62	6,317.76	16.17	22.16	-178.51	-997.67	-123.09	1,254.98	1,222.30	32.67	38.410		
6,575.00	6,324.70	6,672.39	6,321.98	16.47	22.17	-178.52	-997.05	-147.49	1,253.74	1,220.46	33.28	37.677		
6,600.00	6,326.50	6,697.21	6,324.93	16.80	22.18	-178.53	-996.43	-172.13	1,252.49	1,218.57	33.92	36.923		
6,621.98	6,327.00	6,719.09	6,326.47	17.11	22.20	-178.54	-995.87	-193.95	1,251.39	1,216.87	34.52	36.250		
6,700.00	6,327.00	6,797.00	6,327.00	18.31	22.36	-178.54	-993.89	-271.82	1,247.50	1,210.59	36.91	33.801		
6,800.00	6,327.00	6,896.88	6,327.00	20.10	22.89	-178.54	-991.35	-371.66	1,242.51	1,202.05	40.45	30.713		
6,900.00	6,327.00	6,996.75	6,327.00	22.09	24.03	-178.54	-988.80	-471.51	1,237.52	1,193.09	44.43	27.855		
7,000.00	6,327.00	7,096.63	6,327.00	24.24	25.74	-178.54	-986.26	-571.35	1,232.53	1,183.81	48.72	25.297		
7,100.00	6,327.00	7,196.50	6,327.00	26.51	27.77	-178.54	-983.72	-671.19	1,227.54	1,174.28	53.26	23.047		
7,200.00	6,327.00	7,296.38	6,327.00	28.88	29.98	-178.54	-981.18	-771.04	1,222.55	1,164.56	57.99	21.082		
7,300.00	6,327.00	7,396.25	6,327.00	31.31	32.31	-178.54	-978.64	-870.88	1,217.56	1,154.70	62.86	19.369		
7,400.00	6,327.00	7,496.13	6,327.00	33.80	34.72	-178.54	-976.09	-970.72	1,212.57	1,144.72	67.85	17.872		
7,500.00	6,327.00	7,596.00	6,327.00	36.34	37.19	-178.54	-973.55	-1,070.56	1,207.58	1,134.65	72.92	16.559		
7,600.00	6,327.00	7,695.88	6,327.00	38.91	39.71	-178.54	-971.01	-1,170.41	1,202.59	1,124.51	78.07	15.403		
7,700.00	6,327.00	7,795.75	6,327.00	41.51	42.26	-178.54	-968.47	-1,270.25	1,197.60	1,114.31	83.28	14.380		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

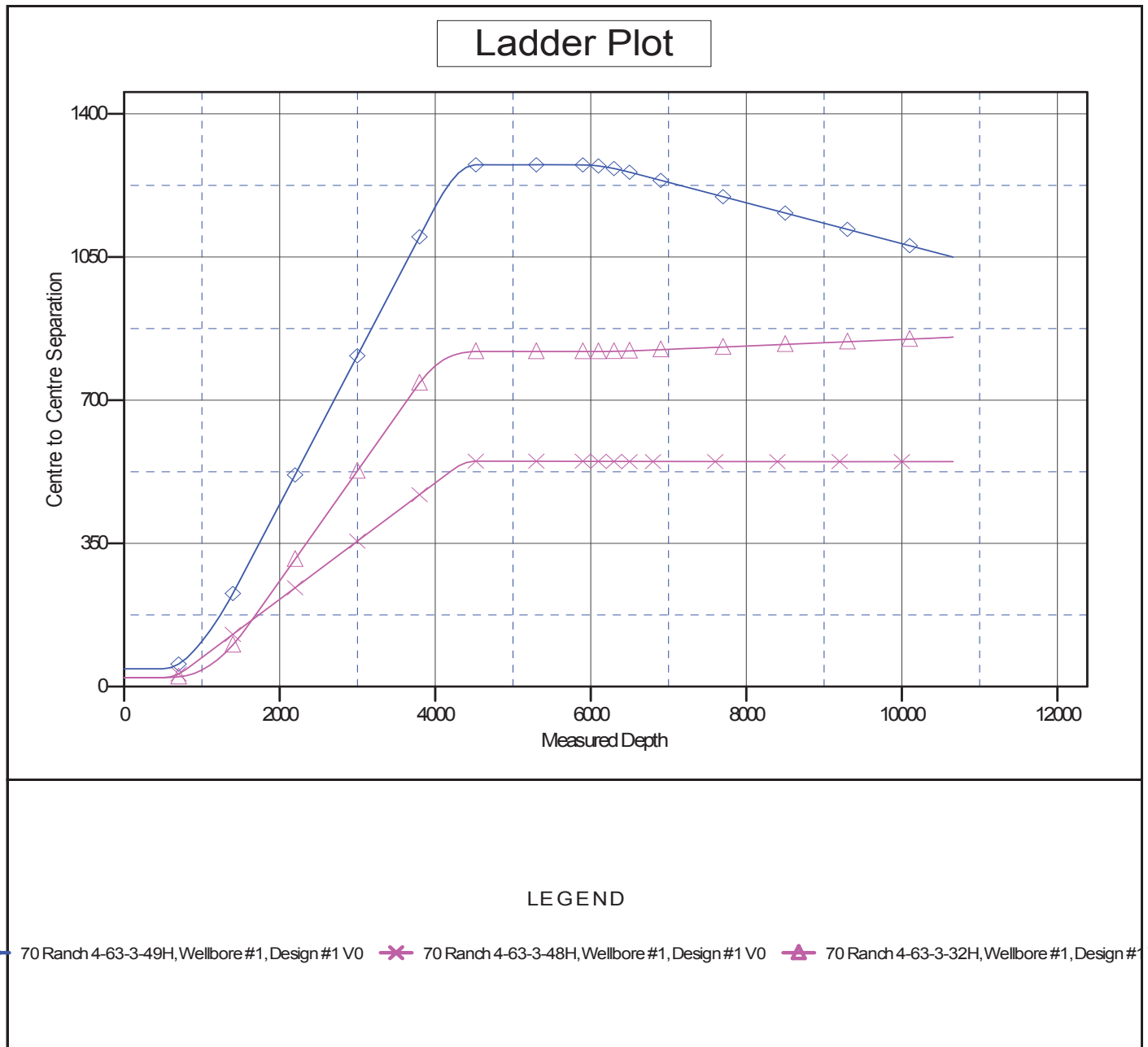
<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,800.00	6,327.00	7,895.63	6,327.00	44.14	44.85	-178.54	-965.93	-1,370.09	1,192.61	1,104.07	88.54	13.470		
7,900.00	6,327.00	7,995.50	6,327.00	46.78	47.46	-178.54	-963.38	-1,469.94	1,187.62	1,093.78	93.84	12.656		
8,000.00	6,327.00	8,095.38	6,327.00	49.45	50.10	-178.54	-960.84	-1,569.78	1,182.63	1,083.46	99.17	11.925		
8,100.00	6,327.00	8,195.26	6,327.00	52.13	52.75	-178.54	-958.30	-1,669.62	1,177.64	1,073.11	104.53	11.266		
8,200.00	6,327.00	8,295.13	6,327.00	54.82	55.41	-178.54	-955.76	-1,769.47	1,172.65	1,062.73	109.92	10.669		
8,300.00	6,327.00	8,395.01	6,327.00	57.52	58.10	-178.54	-953.22	-1,869.31	1,167.66	1,052.33	115.32	10.125		
8,400.00	6,327.00	8,494.88	6,327.00	60.23	60.79	-178.54	-950.68	-1,969.15	1,162.66	1,041.92	120.75	9.629		
8,500.00	6,327.00	8,594.76	6,327.00	62.94	63.49	-178.54	-948.13	-2,069.00	1,157.67	1,031.49	126.19	9.174		
8,600.00	6,327.00	8,694.63	6,327.00	65.67	66.20	-178.54	-945.59	-2,168.84	1,152.68	1,021.04	131.64	8.756		
8,700.00	6,327.00	8,794.51	6,327.00	68.40	68.92	-178.54	-943.05	-2,268.68	1,147.69	1,010.58	137.11	8.371		
8,800.00	6,327.00	8,894.38	6,327.00	71.14	71.64	-178.54	-940.51	-2,368.52	1,142.70	1,000.12	142.59	8.014		
8,900.00	6,327.00	8,994.26	6,327.00	73.88	74.38	-178.54	-937.97	-2,468.37	1,137.71	989.64	148.08	7.683		
9,000.00	6,327.00	9,094.13	6,327.00	76.63	77.11	-178.54	-935.42	-2,568.21	1,132.72	979.15	153.57	7.376		
9,100.00	6,327.00	9,194.01	6,327.00	79.37	79.86	-178.54	-932.88	-2,668.05	1,127.73	968.66	159.08	7.089		
9,200.00	6,327.00	9,293.88	6,327.00	82.13	82.60	-178.54	-930.34	-2,767.90	1,122.74	958.15	164.59	6.822		
9,300.00	6,327.00	9,393.76	6,327.00	84.88	85.35	-178.54	-927.80	-2,867.74	1,117.75	947.65	170.11	6.571		
9,400.00	6,327.00	9,493.64	6,327.00	87.64	88.11	-178.54	-925.26	-2,967.58	1,112.76	937.13	175.63	6.336		
9,500.00	6,327.00	9,593.51	6,327.00	90.41	90.86	-178.54	-922.71	-3,067.43	1,107.77	926.61	181.16	6.115		
9,600.00	6,327.00	9,693.39	6,327.00	93.17	93.63	-178.54	-920.17	-3,167.27	1,102.78	916.09	186.69	5.907		
9,700.00	6,327.00	9,793.26	6,327.00	95.94	96.39	-178.54	-917.63	-3,267.11	1,097.79	905.56	192.23	5.711		
9,800.00	6,327.00	9,893.14	6,327.00	98.71	99.15	-178.54	-915.09	-3,366.95	1,092.80	895.03	197.77	5.526		
9,900.00	6,327.00	9,993.01	6,327.00	101.48	101.92	-178.54	-912.55	-3,466.80	1,087.81	884.50	203.32	5.350		
10,000.00	6,327.00	10,092.89	6,327.00	104.25	104.69	-178.54	-910.01	-3,566.64	1,082.82	873.96	208.86	5.184		
10,100.00	6,327.00	10,192.76	6,327.00	107.02	107.47	-178.54	-907.46	-3,666.48	1,077.83	863.41	214.42	5.027		
10,200.00	6,327.00	10,292.64	6,327.00	109.80	110.24	-178.54	-904.92	-3,766.33	1,072.84	852.87	219.97	4.877		
10,300.00	6,327.00	10,392.51	6,327.00	112.57	113.02	-178.54	-902.38	-3,866.17	1,067.85	842.32	225.53	4.735		
10,400.00	6,327.00	10,492.39	6,327.00	115.35	115.79	-178.54	-899.84	-3,966.01	1,062.86	831.77	231.09	4.599		
10,500.00	6,327.00	10,592.27	6,327.00	118.13	118.57	-178.54	-897.30	-4,065.86	1,057.87	821.22	236.65	4.470		
10,600.00	6,327.00	10,692.14	6,327.00	120.91	121.35	-178.54	-894.75	-4,165.70	1,052.88	810.67	242.21	4.347		
10,659.81	6,327.00	10,749.48	6,327.00	122.57	122.95	-178.67	-893.30	-4,223.02	1,049.90	804.42	245.47	4.277 SF		

<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Reference Depths are relative to WELL @ 4559.00usft  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 4-63-3-33H  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.70°

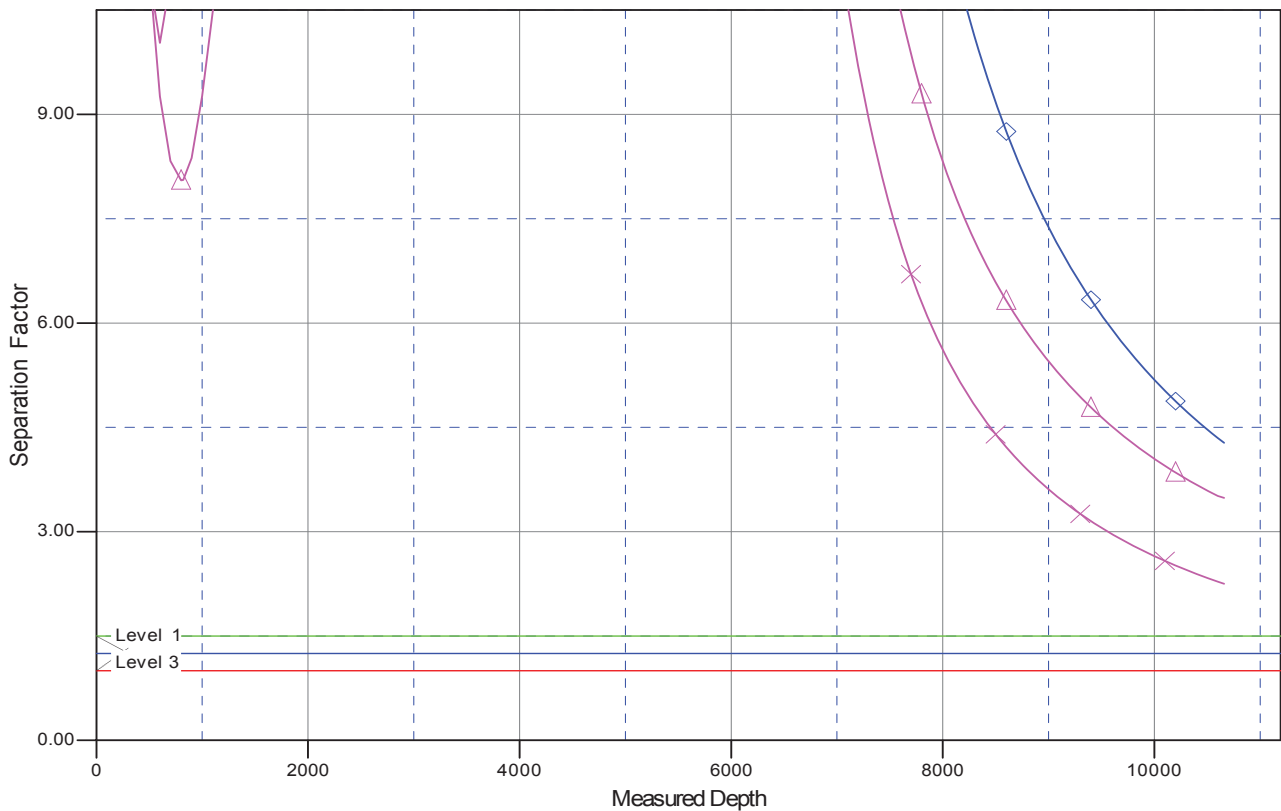


<b>Company:</b>	Bill Barrett Corp.	<b>Local Co-ordinate Reference:</b>	Well 70 Ranch 4-63-3-33H
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4559.00usft
<b>Reference Site:</b>	Sec.3-T4N-R63W	<b>MD Reference:</b>	WELL @ 4559.00usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	70 Ranch 4-63-3-33H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Design #1	<b>Offset TVD Reference:</b>	Reference Datum

Reference Depths are relative to WELL @ 4559.00usft  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 4-63-3-33H  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.70°

## Separation Factor Plot



## LEGEND

70 Ranch 4-63-3-49H, Wellbore #1, Design #1 V0    70 Ranch 4-63-3-48H, Wellbore #1, Design #1 V0    70 Ranch 4-63-3-32H, Wellbore #1, Design #1 V