

Well Planning Proposal FOR

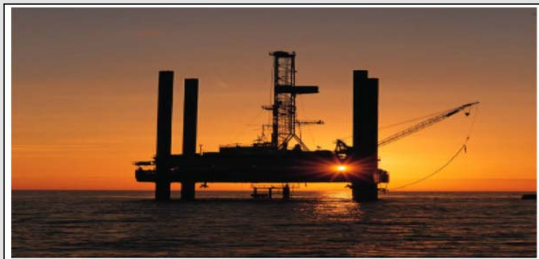
Bill Barrett Corp.
70 Ranch 5-63-27-48H
Weld Co., CO

Well File: Design #1 (2/14/12)

Presented By:

Pat Rasmussen
Regional Manager

Bret Wolford
Well Planner



Sharewell
Energy Services, LP



Bill Barrett Corp.
Project: Weld Co., CO
Site: Sec.27-T5N-R63W
Well: 70 Ranch 5-63-27-48H
Wellbore: Wellbore #1
Design: Design #1
Lat: 40° 22' 6.816 N
Long: 104° 24' 47.412 W
Pad GL: 4594.00
KB: WELL @ 4612.00usft



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: 8.58°

Magnetic Field
Strength: 53083.7nT
Dip Angle: 67.06°
Date: 02/14/2012
Model: IGRF2010

WELL DETAILS: 70 Ranch 5-63-27-48H

	+N/-S	+E/-W	Northing	Ground Level:	Latitude	Longitude	Slot
	0.00	0.00	1378962.724	4594.00	40° 22' 6.816 N	104° 24' 47.412 W	
			3302826.207				

WELLBORE TARGET DETAILS (LAT/LONG)

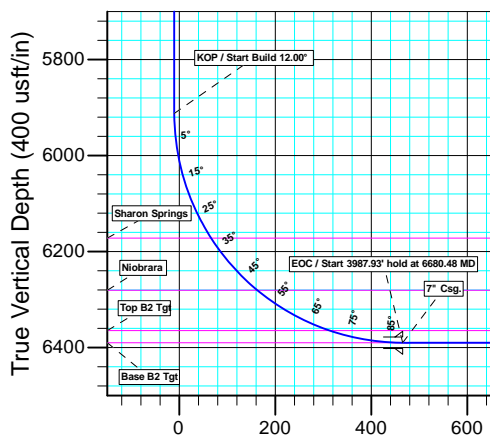
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
70 Ranch 5-63-27-48H PBHL	6390.00	-331.10	-4427.64	40° 22' 3.540 N	104° 25' 44.616 W	

CASING DETAILS

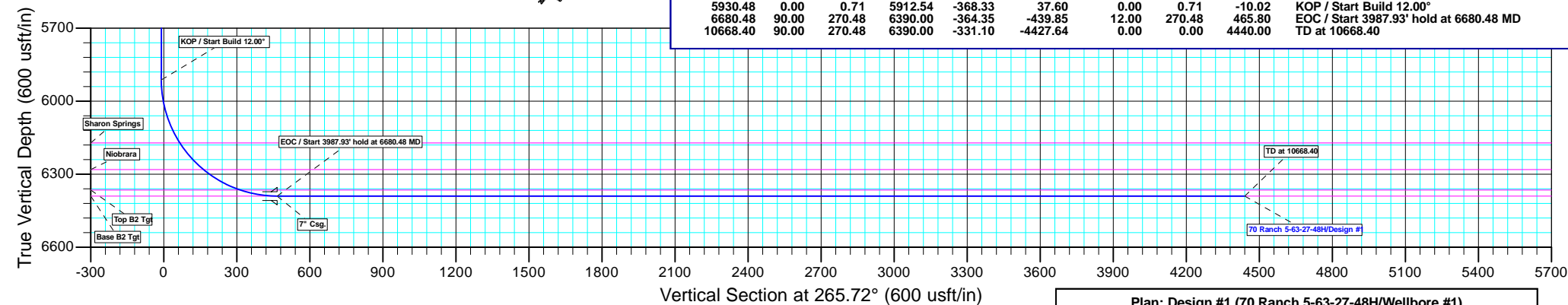
TVD	MD	Name	Size
6390.00	6680.48	7" Csg.	7

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
262.00	262.00	Pierre
4012.00	4028.46	Terry/Sussex
4662.00	4679.94	Shannon
6172.00	6204.78	Sharon Springs
6281.00	6351.37	Niobrara
6365.00	6525.27	Top B2 Tgt
6390.00	6678.33	Base B2 Tgt



Vertical Section at 265.72° (400 usft/in)



Vertical Section at 265.72° (600 usft/in)

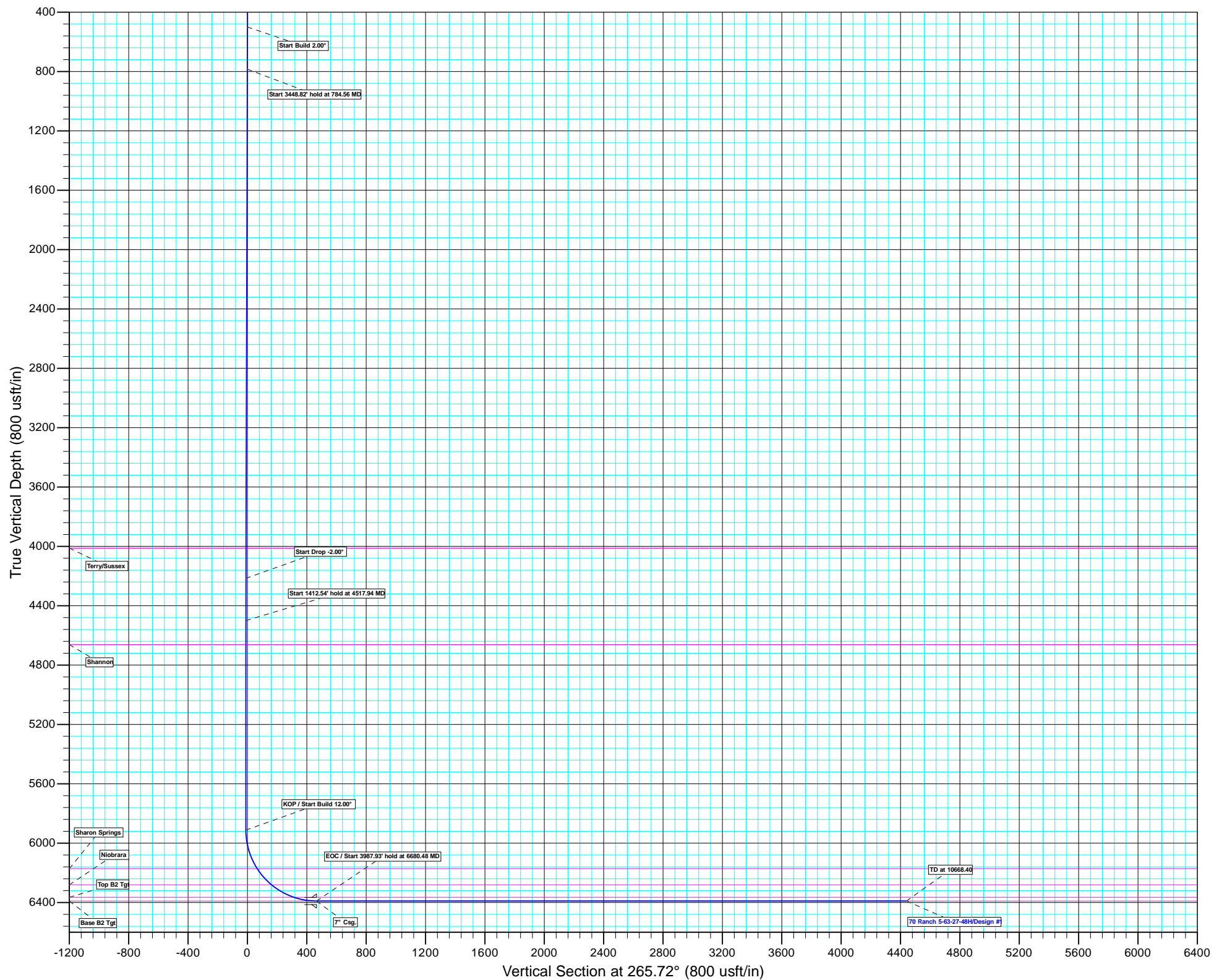
SECTION DETAILS

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	0.71	500.00	0.00	0.00	0.00	0.71	0.00	Start Build 2.00°
784.56	5.69	174.17	784.09	-14.05	1.43	2.00	174.17	-0.38	Start 3448.82' hold at 784.56 MD
4233.38	5.69	174.17	4215.91	-354.29	36.16	0.00	0.00	-9.64	Start Drop -2.00°
4517.94	0.00	0.71	4500.00	-368.33	37.60	2.00	180.00	-10.02	Start 1412.54' hold at 4517.94 MD
5930.48	0.00	0.71	5912.54	-368.33	37.60	0.00	0.71	-10.02	KOP / Start Build 12.00°
6680.48	90.00	270.48	6390.00	-364.35	-439.85	12.00	270.48	465.80	EOC / Start 3987.93' hold at 6680.48 MD
10668.40	90.00	270.48	6390.00	-331.10	-4427.64	0.00	0.00	4440.00	TD at 10668.40

Plan: Design #1 (70 Ranch 5-63-27-48H/Wellbore #1)

Created By: Bret Wolford

Date: 15:16, February 14 2012





Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.27-T5N-R63W

70 Ranch 5-63-27-48H

Wellbore #1

Plan: Design #1

Standard Planning Report

14 February, 2012



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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

Site		Sec.27-T5N-R63W			
Site Position:		Northing:	1,378,940.876 usft	Latitude:	40° 22' 6.600 N
From:	Lat/Long	Easting:	3,302,826.474 usft	Longitude:	104° 24' 47.412 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.70 °

Well	70 Ranch 5-63-27-48H					
Well Position	+N/-S	21.85 usft	Northing:	1,378,962.724 usft	Latitude:	40° 22' 6.816 N
	+E/-W	0.00 usft	Easting:	3,302,826.207 usft	Longitude:	104° 24' 47.412 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,594.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	02/14/12	8.58	67.06	53,084

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	265.72

Plan Sections										
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	0.71	500.00	0.00	0.00	0.00	0.00	0.00	0.71	
784.56	5.69	174.17	784.09	-14.05	1.43	2.00	2.00	0.00	174.17	
4,233.38	5.69	174.17	4,215.91	-354.29	36.16	0.00	0.00	0.00	0.00	
4,517.94	0.00	0.71	4,500.00	-368.33	37.60	2.00	-2.00	0.00	180.00	
5,930.48	0.00	0.71	5,912.54	-368.33	37.60	0.00	0.00	0.00	0.71	
6,680.48	90.00	270.48	6,390.00	-364.35	-439.85	12.00	12.00	0.00	270.48	70 Ranch 5-63-27-48H
10,668.40	90.00	270.48	6,390.00	-331.10	-4,427.64	0.00	0.00	0.00	0.00	70 Ranch 5-63-27-48H

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	0.71	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.71	200.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
262.00	0.00	0.71	262.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.71	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.71	400.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00°									
500.00	0.00	0.71	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	174.17	599.98	-1.74	0.18	-0.05	2.00	2.00	0.00
700.00	4.00	174.17	699.84	-6.94	0.71	-0.19	2.00	2.00	0.00
Start 3448.82' hold at 784.56 MD									
784.56	5.69	174.17	784.09	-14.05	1.43	-0.38	2.00	2.00	0.00
800.00	5.69	174.17	799.46	-15.57	1.59	-0.42	0.00	0.00	0.00
900.00	5.69	174.17	898.96	-25.44	2.60	-0.69	0.00	0.00	0.00
1,000.00	5.69	174.17	998.47	-35.30	3.60	-0.96	0.00	0.00	0.00
1,100.00	5.69	174.17	1,097.98	-45.17	4.61	-1.23	0.00	0.00	0.00
1,200.00	5.69	174.17	1,197.48	-55.03	5.62	-1.50	0.00	0.00	0.00
1,300.00	5.69	174.17	1,296.99	-64.90	6.62	-1.77	0.00	0.00	0.00
1,400.00	5.69	174.17	1,396.50	-74.76	7.63	-2.03	0.00	0.00	0.00
1,500.00	5.69	174.17	1,496.01	-84.63	8.64	-2.30	0.00	0.00	0.00
1,600.00	5.69	174.17	1,595.51	-94.49	9.64	-2.57	0.00	0.00	0.00
1,700.00	5.69	174.17	1,695.02	-104.36	10.65	-2.84	0.00	0.00	0.00
1,800.00	5.69	174.17	1,794.53	-114.23	11.66	-3.11	0.00	0.00	0.00
1,900.00	5.69	174.17	1,894.03	-124.09	12.67	-3.38	0.00	0.00	0.00
2,000.00	5.69	174.17	1,993.54	-133.96	13.67	-3.65	0.00	0.00	0.00
2,100.00	5.69	174.17	2,093.05	-143.82	14.68	-3.91	0.00	0.00	0.00
2,200.00	5.69	174.17	2,192.56	-153.69	15.69	-4.18	0.00	0.00	0.00
2,300.00	5.69	174.17	2,292.06	-163.55	16.69	-4.45	0.00	0.00	0.00
2,400.00	5.69	174.17	2,391.57	-173.42	17.70	-4.72	0.00	0.00	0.00
2,500.00	5.69	174.17	2,491.08	-183.28	18.71	-4.99	0.00	0.00	0.00
2,600.00	5.69	174.17	2,590.58	-193.15	19.71	-5.26	0.00	0.00	0.00
2,700.00	5.69	174.17	2,690.09	-203.01	20.72	-5.52	0.00	0.00	0.00
2,800.00	5.69	174.17	2,789.60	-212.88	21.73	-5.79	0.00	0.00	0.00
2,900.00	5.69	174.17	2,889.11	-222.74	22.74	-6.06	0.00	0.00	0.00
3,000.00	5.69	174.17	2,988.61	-232.61	23.74	-6.33	0.00	0.00	0.00
3,100.00	5.69	174.17	3,088.12	-242.47	24.75	-6.60	0.00	0.00	0.00
3,200.00	5.69	174.17	3,187.63	-252.34	25.76	-6.87	0.00	0.00	0.00
3,300.00	5.69	174.17	3,287.13	-262.21	26.76	-7.14	0.00	0.00	0.00
3,400.00	5.69	174.17	3,386.64	-272.07	27.77	-7.40	0.00	0.00	0.00
3,500.00	5.69	174.17	3,486.15	-281.94	28.78	-7.67	0.00	0.00	0.00
3,600.00	5.69	174.17	3,585.65	-291.80	29.78	-7.94	0.00	0.00	0.00
3,700.00	5.69	174.17	3,685.16	-301.67	30.79	-8.21	0.00	0.00	0.00
3,800.00	5.69	174.17	3,784.67	-311.53	31.80	-8.48	0.00	0.00	0.00
3,900.00	5.69	174.17	3,884.18	-321.40	32.80	-8.75	0.00	0.00	0.00
4,000.00	5.69	174.17	3,983.68	-331.26	33.81	-9.01	0.00	0.00	0.00
Terry/Sussex									
4,028.46	5.69	174.17	4,012.00	-334.07	34.10	-9.09	0.00	0.00	0.00
4,100.00	5.69	174.17	4,083.19	-341.13	34.82	-9.28	0.00	0.00	0.00
4,200.00	5.69	174.17	4,182.70	-350.99	35.83	-9.55	0.00	0.00	0.00
Start Drop -2.00°									
4,233.38	5.69	174.17	4,215.91	-354.29	36.16	-9.64	0.00	0.00	0.00
4,300.00	4.36	174.17	4,282.28	-360.09	36.75	-9.80	2.00	-2.00	0.00
4,400.00	2.36	174.17	4,382.10	-365.92	37.35	-9.96	2.00	-2.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
4,500.00	0.36	174.17	4,482.07	-368.28	37.59	-10.02	2.00	-2.00	0.00
Start 1412.54' hold at 4517.94 MD									
4,517.94	0.00	0.71	4,500.00	-368.33	37.60	-10.02	2.00	-2.00	0.00
4,600.00	0.00	0.71	4,582.06	-368.33	37.60	-10.02	0.00	0.00	0.00
Shannon									
4,679.94	0.00	0.71	4,662.00	-368.33	37.60	-10.02	0.00	0.00	0.00
4,700.00	0.00	0.71	4,682.06	-368.33	37.60	-10.02	0.00	0.00	0.00
4,800.00	0.00	0.71	4,782.06	-368.33	37.60	-10.02	0.00	0.00	0.00
4,900.00	0.00	0.71	4,882.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,000.00	0.00	0.71	4,982.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,100.00	0.00	0.71	5,082.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,200.00	0.00	0.71	5,182.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,300.00	0.00	0.71	5,282.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,400.00	0.00	0.71	5,382.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,500.00	0.00	0.71	5,482.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,600.00	0.00	0.71	5,582.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,700.00	0.00	0.71	5,682.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,800.00	0.00	0.71	5,782.06	-368.33	37.60	-10.02	0.00	0.00	0.00
5,900.00	0.00	0.71	5,882.06	-368.33	37.60	-10.02	0.00	0.00	0.00
KOP / Start Build 12.00°									
5,930.48	0.00	0.71	5,912.54	-368.33	37.60	-10.02	0.00	0.00	0.00
5,950.00	2.34	270.48	5,932.06	-368.33	37.20	-9.63	12.00	12.00	0.00
5,975.00	5.34	270.48	5,957.00	-368.32	35.52	-7.96	12.00	12.00	0.00
6,000.00	8.34	270.48	5,981.82	-368.29	32.54	-4.99	12.00	12.00	0.00
6,025.00	11.34	270.48	6,006.45	-368.26	28.27	-0.73	12.00	12.00	0.00
6,050.00	14.34	270.48	6,030.82	-368.21	22.71	4.81	12.00	12.00	0.00
6,075.00	17.34	270.48	6,054.87	-368.15	15.89	11.61	12.00	12.00	0.00
6,100.00	20.34	270.48	6,078.53	-368.09	7.82	19.65	12.00	12.00	0.00
6,125.00	23.34	270.48	6,101.73	-368.01	-1.48	28.92	12.00	12.00	0.00
6,150.00	26.34	270.48	6,124.41	-367.92	-11.99	39.39	12.00	12.00	0.00
6,175.00	29.34	270.48	6,146.52	-367.82	-23.66	51.02	12.00	12.00	0.00
6,200.00	32.34	270.48	6,167.98	-367.72	-36.48	63.80	12.00	12.00	0.00
Sharon Springs									
6,204.78	32.92	270.48	6,172.00	-367.70	-39.05	66.36	12.00	12.00	0.00
6,225.00	35.34	270.48	6,188.74	-367.60	-50.40	77.67	12.00	12.00	0.00
6,250.00	38.34	270.48	6,208.74	-367.48	-65.38	92.61	12.00	12.00	0.00
6,275.00	41.34	270.48	6,227.94	-367.34	-81.40	108.57	12.00	12.00	0.00
6,300.00	44.34	270.48	6,246.27	-367.20	-98.40	125.51	12.00	12.00	0.00
6,325.00	47.34	270.48	6,263.68	-367.05	-116.33	143.38	12.00	12.00	0.00
6,350.00	50.34	270.48	6,280.13	-366.89	-135.15	162.13	12.00	12.00	0.00
Niobrara									
6,351.37	50.51	270.48	6,281.00	-366.89	-136.20	163.18	12.00	12.00	0.00
6,375.00	53.34	270.48	6,295.57	-366.73	-154.80	181.72	12.00	12.00	0.00
6,400.00	56.34	270.48	6,309.97	-366.56	-175.24	202.09	12.00	12.00	0.00
6,425.00	59.34	270.48	6,323.27	-366.38	-196.40	223.18	12.00	12.00	0.00
6,450.00	62.34	270.48	6,335.45	-366.20	-218.23	244.93	12.00	12.00	0.00
6,475.00	65.34	270.48	6,346.47	-366.01	-240.67	267.29	12.00	12.00	0.00
6,500.00	68.34	270.48	6,356.30	-365.82	-263.65	290.20	12.00	12.00	0.00
6,525.00	71.34	270.48	6,364.91	-365.63	-287.12	313.58	12.00	12.00	0.00
Top B2 Tgt									
6,525.27	71.38	270.48	6,365.00	-365.63	-287.37	313.84	12.00	12.00	0.00
6,550.00	74.34	270.48	6,372.29	-365.43	-311.00	337.38	12.00	12.00	0.00
6,575.00	77.34	270.48	6,378.40	-365.23	-335.24	361.54	12.00	12.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
6,600.00	80.34	270.48	6,383.24	-365.02	-359.76	385.98	12.00	12.00	0.00
6,625.00	83.34	270.48	6,386.79	-364.82	-384.50	410.64	12.00	12.00	0.00
6,650.00	86.34	270.48	6,389.03	-364.61	-409.40	435.45	12.00	12.00	0.00
6,675.00	89.34	270.48	6,389.97	-364.40	-434.38	460.34	12.00	12.00	0.00
Base B2 Tgt									
6,678.33	89.74	270.48	6,390.00	-364.37	-437.71	463.66	12.00	12.00	0.00
EOC / Start 3987.93' hold at 6680.48 MD - 7" Csg.									
6,680.48	90.00	270.48	6,390.00	-364.35	-439.86	465.80	11.97	11.97	0.00
6,700.00	90.00	270.48	6,390.00	-364.19	-459.38	485.26	0.00	0.00	0.00
6,800.00	90.00	270.48	6,390.00	-363.36	-559.37	584.91	0.00	0.00	0.00
6,900.00	90.00	270.48	6,390.00	-362.52	-659.37	684.57	0.00	0.00	0.00
7,000.00	90.00	270.48	6,390.00	-361.69	-759.37	784.22	0.00	0.00	0.00
7,100.00	90.00	270.48	6,390.00	-360.86	-859.36	883.88	0.00	0.00	0.00
7,200.00	90.00	270.48	6,390.00	-360.02	-959.36	983.54	0.00	0.00	0.00
7,300.00	90.00	270.48	6,390.00	-359.19	-1,059.36	1,083.19	0.00	0.00	0.00
7,400.00	90.00	270.48	6,390.00	-358.35	-1,159.35	1,182.85	0.00	0.00	0.00
7,500.00	90.00	270.48	6,390.00	-357.52	-1,259.35	1,282.50	0.00	0.00	0.00
7,600.00	90.00	270.48	6,390.00	-356.69	-1,359.35	1,382.16	0.00	0.00	0.00
7,700.00	90.00	270.48	6,390.00	-355.85	-1,459.34	1,481.82	0.00	0.00	0.00
7,800.00	90.00	270.48	6,390.00	-355.02	-1,559.34	1,581.47	0.00	0.00	0.00
7,900.00	90.00	270.48	6,390.00	-354.19	-1,659.34	1,681.13	0.00	0.00	0.00
8,000.00	90.00	270.48	6,390.00	-353.35	-1,759.33	1,780.78	0.00	0.00	0.00
8,100.00	90.00	270.48	6,390.00	-352.52	-1,859.33	1,880.44	0.00	0.00	0.00
8,200.00	90.00	270.48	6,390.00	-351.68	-1,959.32	1,980.10	0.00	0.00	0.00
8,300.00	90.00	270.48	6,390.00	-350.85	-2,059.32	2,079.75	0.00	0.00	0.00
8,400.00	90.00	270.48	6,390.00	-350.02	-2,159.32	2,179.41	0.00	0.00	0.00
8,500.00	90.00	270.48	6,390.00	-349.18	-2,259.31	2,279.06	0.00	0.00	0.00
8,600.00	90.00	270.48	6,390.00	-348.35	-2,359.31	2,378.72	0.00	0.00	0.00
8,700.00	90.00	270.48	6,390.00	-347.52	-2,459.31	2,478.37	0.00	0.00	0.00
8,800.00	90.00	270.48	6,390.00	-346.68	-2,559.30	2,578.03	0.00	0.00	0.00
8,900.00	90.00	270.48	6,390.00	-345.85	-2,659.30	2,677.69	0.00	0.00	0.00
9,000.00	90.00	270.48	6,390.00	-345.01	-2,759.30	2,777.34	0.00	0.00	0.00
9,100.00	90.00	270.48	6,390.00	-344.18	-2,859.29	2,877.00	0.00	0.00	0.00
9,200.00	90.00	270.48	6,390.00	-343.35	-2,959.29	2,976.65	0.00	0.00	0.00
9,300.00	90.00	270.48	6,390.00	-342.51	-3,059.29	3,076.31	0.00	0.00	0.00
9,400.00	90.00	270.48	6,390.00	-341.68	-3,159.28	3,175.97	0.00	0.00	0.00
9,500.00	90.00	270.48	6,390.00	-340.84	-3,259.28	3,275.62	0.00	0.00	0.00
9,600.00	90.00	270.48	6,390.00	-340.01	-3,359.28	3,375.28	0.00	0.00	0.00
9,700.00	90.00	270.48	6,390.00	-339.18	-3,459.27	3,474.93	0.00	0.00	0.00
9,800.00	90.00	270.48	6,390.00	-338.34	-3,559.27	3,574.59	0.00	0.00	0.00
9,900.00	90.00	270.48	6,390.00	-337.51	-3,659.27	3,674.25	0.00	0.00	0.00
10,000.00	90.00	270.48	6,390.00	-336.68	-3,759.26	3,773.90	0.00	0.00	0.00
10,100.00	90.00	270.48	6,390.00	-335.84	-3,859.26	3,873.56	0.00	0.00	0.00
10,200.00	90.00	270.48	6,390.00	-335.01	-3,959.26	3,973.21	0.00	0.00	0.00
10,300.00	90.00	270.48	6,390.00	-334.17	-4,059.25	4,072.87	0.00	0.00	0.00
10,400.00	90.00	270.48	6,390.00	-333.34	-4,159.25	4,172.53	0.00	0.00	0.00
10,500.00	90.00	270.48	6,390.00	-332.51	-4,259.24	4,272.18	0.00	0.00	0.00
10,600.00	90.00	270.48	6,390.00	-331.67	-4,359.24	4,371.84	0.00	0.00	0.00
TD at 10668.40 - 70 Ranch 5-63-27-48H PBHL									
10,668.40	90.00	270.48	6,390.00	-331.10	-4,427.64	4,440.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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									
70 Ranch 5-63-27-48H F	0.00	0.00	6,390.00	-331.10	-4,427.64	1,378,577.380	3,298,402.956	40° 22' 3.540 N	104° 25' 44.616 W
- plan hits target center									
- Point									

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(usft)	(usft)		(")	(")
6,680.48	6,390.00	7" Csg.	7	8-3/4

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
262.00	262.00	Pierre		0.00	
4,028.46	4,012.00	Terry/Sussex		0.00	
4,679.94	4,662.00	Shannon		0.00	
6,204.78	6,172.00	Sharon Springs		0.00	
6,351.37	6,281.00	Niobrara		0.00	
6,525.27	6,365.00	Top B2 Tgt		0.00	
6,678.33	6,390.00	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°
784.56	784.09	-14.05	1.43	Start 3448.82' hold at 784.56 MD
4,233.38	4,215.91	-354.29	36.16	Start Drop -2.00°
4,517.94	4,500.00	-368.33	37.60	Start 1412.54' hold at 4517.94 MD
5,930.48	5,912.54	-368.33	37.60	KOP / Start Build 12.00°
6,680.48	6,390.00	-364.35	-439.85	EOC / Start 3987.93' hold at 6680.48 MD
10,668.40	6,390.00	-331.10	-4,427.64	TD at 10668.40



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.27-T5N-R63W

70 Ranch 5-63-27-48H

Wellbore #1

Design #1

Anticollision Report

14 February, 2012



Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	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	02/14/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	10,668.40	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured	Offset Measured	Distance		Separation Factor	Warning
	Depth (usft)	Depth (usft)	Between Centres (usft)	Between Ellipses (usft)		
Sec.27-T5N-R63W						
70 Ranch 23-27 (Existing) - Wellbore #1 - Wellbore #1	9,274.05	6,312.74	423.90	326.15	4.336	CC, ES
70 Ranch 23-27 (Existing) - Wellbore #1 - Wellbore #1	9,300.00	6,312.74	424.69	326.22	4.313	SF
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	465.99	467.99	43.72	41.88	23.836	CC
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	500.00	501.97	43.72	41.73	22.002	ES
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	10,668.40	10,725.79	1,253.70	1,005.95	5.060	SF
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	466.33	467.33	21.86	20.02	11.922	CC
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	500.00	500.99	21.86	19.87	11.013	ES
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	10,668.40	10,642.55	601.50	353.80	2.428	SF
70 Ranch 5-63-27-49H - Wellbore #1 - Design #1	751.27	749.37	21.84	18.90	7.422	CC
70 Ranch 5-63-27-49H - Wellbore #1 - Design #1	800.00	797.73	21.88	18.75	6.989	ES
70 Ranch 5-63-27-49H - Wellbore #1 - Design #1	10,668.40	10,804.85	699.65	451.68	2.822	SF

Sec.27-T5N-R63W - 70 Ranch 23-27 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program:		1440-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	68.00	0.00	0.00	-91.24	-65.39	-3,031.61	3,033.07				
100.00	100.00	32.06	100.06	0.09	0.04	-91.24	-65.38	-3,031.61	3,032.31	3,032.18	0.13	N/A	
200.00	200.00	132.25	200.25	0.32	0.15	-91.23	-65.23	-3,031.60	3,032.31	3,031.84	0.47	6,478.539	
300.00	300.00	232.43	300.43	0.54	0.26	-91.23	-64.90	-3,031.60	3,032.29	3,031.49	0.81	3,756.733	
400.00	400.00	332.62	400.61	0.77	0.38	-91.22	-64.38	-3,031.59	3,032.28	3,031.13	1.15	2,645.345	
500.00	500.00	432.80	500.79	0.99	0.49	-91.20	-63.68	-3,031.59	3,032.25	3,030.77	1.49	2,041.409	
509.49	509.49	442.31	510.30	1.01	0.51	-91.20	-63.61	-3,031.58	3,032.25	3,030.74	1.52	2,001.455	
600.00	599.98	532.94	600.93	1.19	0.61	-91.15	-62.80	-3,031.57	3,032.37	3,030.57	1.80	1,687.554	
700.00	699.84	632.91	700.90	1.38	0.72	-91.04	-61.74	-3,031.56	3,032.77	3,030.67	2.10	1,445.973	
784.56	784.09	717.20	785.18	1.55	0.82	-90.88	-60.71	-3,031.55	3,033.34	3,030.97	2.37	1,278.855	
800.00	799.46	732.57	800.55	1.59	0.84	-90.85	-60.51	-3,031.55	3,033.47	3,031.04	2.42	1,251.236	
900.00	898.96	832.07	900.04	1.83	0.95	-90.64	-59.09	-3,031.53	3,034.31	3,031.54	2.78	1,093.113	
1,000.00	998.47	931.52	999.48	2.08	1.06	-90.42	-57.50	-3,031.51	3,035.19	3,032.05	3.14	965.844	
1,100.00	1,097.98	1,030.93	1,098.87	2.34	1.18	-90.20	-55.72	-3,031.49	3,036.12	3,032.60	3.52	862.665	
1,200.00	1,197.48	1,130.30	1,198.22	2.61	1.29	-89.98	-53.77	-3,031.46	3,037.08	3,033.18	3.90	778.042	
1,300.00	1,296.99	1,229.63	1,297.53	2.89	1.40	-89.75	-51.64	-3,031.44	3,038.09	3,033.80	4.29	707.753	

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 1440-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		
1,400.00	1,396.50	1,328.91	1,396.78	3.17	1.52	-89.52	-49.33	-3,031.41	3,039.15	3,034.46	4.69	648.645		
1,500.00	1,496.01	1,428.15	1,495.99	3.45	1.63	-89.29	-46.84	-3,031.38	3,040.25	3,035.17	5.08	598.365		
1,600.00	1,595.51	1,527.37	1,595.17	3.74	1.84	-89.05	-44.25	-3,031.35	3,041.41	3,035.83	5.58	545.165		
1,700.00	1,695.02	1,626.58	1,694.35	4.03	2.07	-88.82	-41.65	-3,031.32	3,042.61	3,036.52	6.09	499.490		
1,800.00	1,794.53	1,725.80	1,793.54	4.32	2.30	-88.58	-39.05	-3,031.28	3,043.87	3,037.27	6.61	460.822		
1,900.00	1,894.03	1,825.01	1,892.72	4.61	2.52	-88.35	-36.46	-3,031.25	3,045.18	3,038.06	7.12	427.682		
2,000.00	1,993.54	1,924.23	1,991.90	4.90	2.75	-88.12	-33.86	-3,031.22	3,046.54	3,038.90	7.64	398.976		
2,100.00	2,093.05	2,023.44	2,091.08	5.19	2.98	-87.88	-31.26	-3,031.19	3,047.95	3,039.79	8.15	373.878		
2,200.00	2,192.56	2,122.66	2,190.26	5.48	3.20	-87.65	-28.66	-3,031.16	3,049.41	3,040.74	8.67	351.755		
2,300.00	2,292.06	2,221.87	2,289.44	5.77	3.43	-87.42	-26.07	-3,031.12	3,050.92	3,041.73	9.19	332.112		
2,400.00	2,391.57	2,321.09	2,388.62	6.06	3.66	-87.18	-23.47	-3,031.09	3,052.48	3,042.78	9.70	314.557		
2,500.00	2,491.08	2,420.30	2,487.80	6.36	3.88	-86.95	-20.87	-3,031.06	3,054.09	3,043.87	10.22	298.778		
2,600.00	2,590.58	2,519.52	2,586.98	6.65	4.11	-86.72	-18.28	-3,031.03	3,055.75	3,045.01	10.74	284.521		
2,700.00	2,690.09	2,618.73	2,686.17	6.95	4.34	-86.49	-15.68	-3,031.00	3,057.47	3,046.21	11.26	271.576		
2,800.00	2,789.60	2,717.95	2,785.35	7.24	4.56	-86.26	-13.08	-3,030.96	3,059.23	3,047.45	11.78	259.773		
2,900.00	2,889.11	2,817.16	2,884.53	7.54	4.79	-86.02	-10.49	-3,030.93	3,061.04	3,048.74	12.29	248.967		
3,000.00	2,988.61	2,916.38	2,983.71	7.83	5.02	-85.79	-7.89	-3,030.90	3,062.90	3,050.09	12.81	239.039		
3,100.00	3,088.12	3,015.59	3,082.89	8.13	5.24	-85.56	-5.29	-3,030.87	3,064.81	3,051.48	13.33	229.887		
3,200.00	3,187.63	3,114.81	3,182.07	8.42	5.47	-85.33	-2.70	-3,030.84	3,066.78	3,052.93	13.85	221.424		
3,300.00	3,287.13	3,214.02	3,281.25	8.72	5.70	-85.10	-0.10	-3,030.81	3,068.79	3,054.42	14.37	213.576		
3,400.00	3,386.64	3,313.24	3,380.43	9.01	5.92	-84.87	2.50	-3,030.77	3,070.85	3,055.96	14.89	206.279		
3,500.00	3,486.15	3,412.45	3,479.61	9.31	6.15	-84.64	5.10	-3,030.74	3,072.96	3,057.56	15.41	199.476		
3,600.00	3,585.65	3,511.67	3,578.80	9.60	6.37	-84.41	7.69	-3,030.71	3,075.12	3,059.20	15.92	193.121		
3,700.00	3,685.16	3,610.88	3,677.98	9.90	6.60	-84.18	10.29	-3,030.68	3,077.33	3,060.89	16.44	187.171		
3,800.00	3,784.67	3,710.10	3,777.16	10.19	6.83	-83.95	12.89	-3,030.65	3,079.59	3,062.63	16.96	181.588		
3,900.00	3,884.18	3,809.31	3,876.34	10.49	7.05	-83.72	15.48	-3,030.61	3,081.90	3,064.42	17.48	176.341		
4,000.00	3,983.68	3,908.53	3,975.52	10.79	7.28	-83.50	18.08	-3,030.58	3,084.25	3,066.26	17.99	171.400		
4,100.00	4,083.19	4,007.74	4,074.70	11.08	7.51	-83.27	20.68	-3,030.55	3,086.66	3,068.15	18.51	166.739		
4,200.00	4,182.70	4,106.96	4,173.88	11.38	7.73	-83.04	23.27	-3,030.52	3,089.11	3,070.08	19.03	162.335		
4,233.38	4,215.91	4,140.07	4,206.99	11.48	7.81	-82.97	24.14	-3,030.51	3,089.94	3,070.74	19.20	160.919		
4,300.00	4,282.28	4,206.27	4,273.15	11.64	7.96	-82.83	25.87	-3,030.49	3,091.44	3,071.93	19.51	158.427		
4,400.00	4,382.10	4,305.90	4,372.76	11.82	8.19	-82.67	28.48	-3,030.46	3,093.07	3,073.15	19.92	155.271		
4,500.00	4,482.07	4,405.77	4,472.59	11.98	8.42	-82.58	31.10	-3,030.42	3,093.91	3,073.61	20.30	152.373		
4,517.94	4,500.00	4,423.70	4,490.51	12.01	8.46	-82.57	31.56	-3,030.42	3,093.98	3,075.56	18.42	167.942		
4,600.00	4,582.07	4,505.74	4,572.52	12.15	8.64	-82.53	33.71	-3,030.39	3,094.23	3,075.47	18.77	164.876		
4,700.00	4,682.07	4,605.70	4,672.45	12.29	8.87	-82.49	36.33	-3,030.36	3,094.54	3,075.37	19.17	161.439		
4,800.00	4,782.07	4,705.67	4,772.39	12.44	9.10	-82.44	38.95	-3,030.33	3,094.85	3,075.28	19.57	158.127		
4,900.00	4,882.07	4,805.63	4,872.32	12.59	9.33	-82.39	41.56	-3,030.30	3,095.17	3,075.19	19.98	154.936		
5,000.00	4,982.07	4,905.60	4,972.25	12.74	9.56	-82.34	44.18	-3,030.26	3,095.48	3,075.10	20.38	151.859		
5,100.00	5,082.07	5,005.57	5,072.18	12.89	9.79	-82.29	46.80	-3,030.23	3,095.80	3,075.01	20.79	148.891		
5,200.00	5,182.07	5,105.53	5,172.11	13.05	10.01	-82.25	49.41	-3,030.20	3,096.12	3,074.92	21.20	146.028		
5,300.00	5,282.07	5,205.50	5,272.04	13.20	10.24	-82.20	52.03	-3,030.17	3,096.45	3,074.83	21.61	143.263		
5,400.00	5,382.07	5,305.46	5,371.97	13.36	10.47	-82.15	54.65	-3,030.13	3,096.77	3,074.74	22.03	140.593		
5,500.00	5,482.07	5,405.43	5,471.91	13.52	10.70	-82.10	57.26	-3,030.10	3,097.10	3,074.66	22.44	138.014		
5,600.00	5,582.07	5,505.39	5,571.84	13.69	10.93	-82.05	59.88	-3,030.07	3,097.43	3,074.57	22.86	135.521		
5,700.00	5,682.07	5,605.36	5,671.77	13.85	11.16	-82.01	62.49	-3,030.04	3,097.76	3,074.48	23.27	133.110		
5,800.00	5,782.07	5,705.33	5,771.70	14.02	11.38	-81.96	65.11	-3,030.01	3,098.09	3,074.40	23.69	130.777		
5,900.00	5,882.07	5,805.29	5,871.63	14.18	11.61	-81.91	67.73	-3,029.97	3,098.43	3,074.32	24.11	128.520		
5,930.48	5,912.54	5,835.76	5,902.09	14.24	11.68	-81.89	68.53	-3,029.96	3,098.53	3,074.29	24.24	127.846		
5,950.00	5,932.06	5,855.27	5,921.59	14.27	11.73	-81.88	69.04	-3,029.96	3,098.20	3,072.32	25.88	119.703		
5,975.00	5,957.00	5,880.20	5,946.52	14.31	11.78	-81.87	69.69	-3,029.95	3,096.62	3,070.72	25.91	119.525		
6,000.00	5,981.82	5,905.01	5,971.32	14.36	11.84	-81.85	70.34	-3,029.94	3,093.76	3,067.88	25.88	119.551		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 1440-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		
6,025.00	6,006.45	5,929.63	5,995.93	14.40	11.90	-81.83	70.98	-3,029.93	3,089.60	3,063.81	25.79	119.782		
6,050.00	6,030.82	5,954.00	6,020.28	14.44	11.95	-81.80	71.62	-3,029.93	3,084.18	3,058.53	25.65	120.221		
6,075.00	6,054.87	5,978.03	6,044.31	14.49	12.01	-81.77	72.25	-3,029.92	3,077.50	3,052.04	25.46	120.871		
6,100.00	6,078.53	6,001.68	6,067.95	14.53	12.06	-81.74	72.87	-3,029.91	3,069.58	3,044.37	25.22	121.736		
6,125.00	6,101.73	6,024.88	6,091.14	14.57	12.11	-81.71	73.48	-3,029.90	3,060.45	3,035.53	24.92	122.821		
6,150.00	6,124.41	6,047.55	6,113.81	14.62	12.17	-81.67	74.07	-3,029.90	3,050.12	3,025.55	24.57	124.132		
6,175.00	6,146.52	6,069.65	6,135.89	14.66	12.22	-81.63	74.65	-3,029.89	3,038.64	3,014.46	24.18	125.673		
6,200.00	6,167.98	6,091.10	6,157.34	14.71	12.26	-81.58	75.21	-3,029.88	3,026.02	3,002.28	23.74	127.451		
6,225.00	6,188.74	6,111.85	6,178.09	14.75	12.31	-81.54	75.75	-3,029.88	3,012.30	2,989.04	23.27	129.467		
6,250.00	6,208.74	6,131.85	6,198.08	14.80	12.36	-81.49	76.28	-3,029.87	2,997.53	2,974.78	22.76	131.721		
6,275.00	6,227.94	6,151.03	6,217.25	14.86	12.40	-81.43	76.78	-3,029.86	2,981.74	2,959.53	22.22	134.207		
6,300.00	6,246.27	6,169.35	6,235.57	14.91	12.44	-81.38	77.26	-3,029.86	2,964.98	2,943.33	21.66	136.910		
6,325.00	6,263.68	6,186.76	6,252.97	14.98	12.48	-81.32	77.71	-3,029.85	2,947.29	2,926.21	21.08	139.800		
6,350.00	6,280.13	6,203.20	6,269.41	15.05	12.52	-81.26	78.14	-3,029.85	2,928.73	2,908.22	20.51	142.823		
6,375.00	6,295.57	6,218.64	6,284.84	15.13	12.56	-81.20	78.55	-3,029.84	2,909.33	2,889.39	19.94	145.895		
6,400.00	6,309.97	6,233.03	6,299.22	15.22	12.59	-81.13	78.92	-3,029.84	2,889.17	2,869.76	19.41	148.878		
6,425.00	6,323.27	6,246.32	6,312.51	15.34	12.62	-81.06	79.27	-3,029.83	2,868.28	2,849.36	18.92	151.564		
6,450.00	6,335.45	6,258.50	6,324.68	15.48	12.65	-80.99	79.59	-3,029.83	2,846.74	2,828.21	18.53	153.643		
6,475.00	6,346.47	6,269.51	6,335.69	15.65	12.67	-80.92	79.88	-3,029.83	2,824.59	2,806.33	18.26	154.676		
6,500.00	6,356.30	6,279.33	6,345.51	15.85	12.69	-80.84	80.14	-3,029.82	2,801.91	2,783.72	18.19	154.072		
6,525.00	6,364.91	6,287.94	6,354.12	16.08	12.71	-80.76	80.36	-3,029.82	2,778.75	2,760.36	18.39	151.113		
6,550.00	6,372.29	6,295.31	6,361.48	16.36	12.73	-80.68	80.55	-3,029.82	2,755.17	2,736.18	18.99	145.082		
6,575.00	6,378.40	6,301.42	6,367.59	16.66	12.74	-80.60	80.71	-3,029.82	2,731.25	2,711.10	20.15	135.547		
6,600.00	6,383.24	6,306.25	6,372.42	17.00	12.76	-80.52	80.84	-3,029.81	2,707.05	2,685.01	22.04	122.841		
6,625.00	6,386.79	6,309.80	6,375.96	17.36	12.76	-80.44	80.93	-3,029.81	2,682.62	2,657.91	24.71	108.545		
6,650.00	6,389.03	6,312.04	6,378.21	17.75	12.77	-80.35	80.99	-3,029.81	2,658.05	2,630.25	27.80	95.619		
6,675.00	6,389.97	6,312.98	6,379.14	18.16	12.77	-80.26	81.02	-3,029.81	2,633.40	2,603.31	30.08	87.533		
6,680.48	6,390.00	6,313.01	6,379.17	18.25	12.77	-80.24	81.02	-3,029.81	2,628.00	2,597.67	30.33	86.651		
6,700.00	6,390.00	6,313.01	6,379.17	18.58	12.77	-80.17	81.02	-3,029.81	2,608.73	2,578.05	30.68	85.032		
6,800.00	6,390.00	6,313.00	6,379.16	20.45	12.77	-79.80	81.02	-3,029.81	2,510.11	2,477.49	32.62	76.960		
6,900.00	6,390.00	6,312.99	6,379.15	22.53	12.77	-79.40	81.02	-3,029.81	2,411.61	2,376.86	34.74	69.418		
7,000.00	6,390.00	6,312.98	6,379.14	24.75	12.77	-78.97	81.02	-3,029.81	2,313.23	2,276.23	37.00	62.513		
7,100.00	6,390.00	6,312.97	6,379.13	27.09	12.77	-78.49	81.02	-3,029.81	2,215.00	2,175.63	39.37	56.260		
7,200.00	6,390.00	6,312.96	6,379.12	29.51	12.77	-77.97	81.02	-3,029.81	2,116.93	2,075.12	41.82	50.625		
7,300.00	6,390.00	6,312.95	6,379.11	31.99	12.77	-77.41	81.02	-3,029.81	2,019.06	1,974.74	44.32	45.555		
7,400.00	6,390.00	6,312.94	6,379.10	34.52	12.77	-76.78	81.02	-3,029.81	1,921.40	1,874.53	46.87	40.990		
7,500.00	6,390.00	6,312.92	6,379.09	37.10	12.77	-76.09	81.02	-3,029.81	1,824.00	1,774.53	49.46	36.875		
7,600.00	6,390.00	6,312.91	6,379.08	39.70	12.77	-75.32	81.02	-3,029.81	1,726.89	1,674.81	52.08	33.156		
7,700.00	6,390.00	6,312.90	6,379.07	42.34	12.77	-74.45	81.01	-3,029.81	1,630.14	1,575.41	54.73	29.786		
7,800.00	6,390.00	6,312.89	6,379.06	44.99	12.77	-73.48	81.01	-3,029.81	1,533.80	1,476.40	57.39	26.724		
7,900.00	6,390.00	6,312.88	6,379.05	47.66	12.77	-72.38	81.01	-3,029.81	1,437.96	1,377.88	60.07	23.936		
8,000.00	6,390.00	6,312.87	6,379.04	50.35	12.77	-71.12	81.01	-3,029.81	1,342.73	1,279.96	62.77	21.391		
8,100.00	6,390.00	6,312.86	6,379.03	53.05	12.77	-69.68	81.01	-3,029.81	1,248.24	1,182.76	65.48	19.064		
8,200.00	6,390.00	6,312.85	6,379.02	55.76	12.77	-67.99	81.01	-3,029.81	1,154.68	1,086.49	68.19	16.932		
8,300.00	6,390.00	6,312.84	6,379.01	58.48	12.77	-66.01	81.01	-3,029.81	1,062.30	991.38	70.92	14.979		
8,400.00	6,390.00	6,312.83	6,379.00	61.21	12.77	-63.66	81.01	-3,029.81	971.43	897.77	73.65	13.189		
8,500.00	6,390.00	6,312.82	6,378.99	63.94	12.77	-60.82	81.01	-3,029.81	882.53	806.14	76.39	11.553		
8,600.00	6,390.00	6,312.81	6,378.98	66.68	12.77	-57.37	81.01	-3,029.81	796.27	717.13	79.14	10.062		
8,700.00	6,390.00	6,312.80	6,378.97	69.43	12.77	-53.09	81.01	-3,029.81	713.61	631.72	81.89	8.714		
8,800.00	6,390.00	6,312.79	6,378.96	72.18	12.77	-47.73	81.01	-3,029.81	635.94	551.30	84.64	7.513		
8,900.00	6,390.00	6,312.78	6,378.95	74.94	12.77	-40.96	81.01	-3,029.81	565.34	477.94	87.40	6.468		
9,000.00	6,390.00	6,312.77	6,378.94	77.70	12.77	-32.41	81.01	-3,029.81	504.78	414.61	90.17	5.598		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.27-T5N-R63W - 70 Ranch 23-27 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 1440-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	
9,100.00	6,390.00	6,312.76	6,378.93	80.46	12.77	-21.85	81.01	-3,029.81	458.24	365.31	92.93	4.931	
9,200.00	6,390.00	6,312.75	6,378.92	83.22	12.77	-9.44	81.01	-3,029.81	430.32	334.62	95.70	4.497	
9,274.05	6,390.00	6,312.74	6,378.91	85.28	12.77	0.48	81.01	-3,029.81	423.90	326.15	97.75	4.336 CC, ES	
9,300.00	6,390.00	6,312.74	6,378.91	85.99	12.77	3.98	81.01	-3,029.81	424.69	326.22	98.47	4.313 SF	
9,400.00	6,390.00	6,312.73	6,378.90	88.77	12.77	17.03	81.01	-3,029.81	442.21	340.97	101.25	4.368	
9,500.00	6,390.00	6,312.72	6,378.89	91.54	12.77	28.54	81.01	-3,029.81	480.35	376.33	104.02	4.618	
9,600.00	6,390.00	6,312.71	6,378.88	94.32	12.77	38.04	81.01	-3,029.81	534.72	427.92	106.80	5.007	
9,700.00	6,390.00	6,312.70	6,378.86	97.09	12.77	45.63	81.01	-3,029.81	600.93	491.35	109.58	5.484	
9,800.00	6,390.00	6,312.69	6,378.85	99.87	12.77	51.62	81.01	-3,029.81	675.50	563.14	112.36	6.012	
9,900.00	6,390.00	6,312.68	6,378.84	102.65	12.77	56.38	81.01	-3,029.81	755.97	640.83	115.14	6.566	
10,000.00	6,390.00	6,312.67	6,378.83	105.44	12.77	60.20	81.01	-3,029.81	840.64	722.72	117.93	7.129	
10,100.00	6,390.00	6,312.66	6,378.82	108.22	12.77	63.32	81.01	-3,029.81	928.37	807.66	120.71	7.691	
10,200.00	6,390.00	6,312.65	6,378.81	111.01	12.77	65.89	81.01	-3,029.81	1,018.36	894.86	123.50	8.246	
10,300.00	6,390.00	6,312.64	6,378.80	113.79	12.77	68.04	81.01	-3,029.81	1,110.07	983.78	126.29	8.790	
10,400.00	6,390.00	6,312.63	6,378.79	116.58	12.77	69.85	81.01	-3,029.81	1,203.09	1,074.02	129.08	9.321	
10,500.00	6,390.00	6,312.62	6,378.78	119.37	12.77	71.41	81.01	-3,029.81	1,297.16	1,165.30	131.87	9.837	
10,600.00	6,390.00	6,312.61	6,378.77	122.16	12.77	72.75	81.01	-3,029.81	1,392.05	1,257.40	134.66	10.338	
10,668.40	6,390.00	6,312.60	6,378.77	124.07	12.77	73.57	81.01	-3,029.81	1,457.36	1,320.79	136.56	10.672	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.27-T5N-R63W - 70 Ranch 5-63-27-32H - 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	2.00	0.00	0.00	0.00	0.00	43.72	0.00	43.72					
100.00	100.00	102.00	100.00	0.09	0.10	0.00	43.72	0.00	43.72	43.53	0.19	231.539		
200.00	200.00	202.00	200.00	0.32	0.32	0.00	43.72	0.00	43.72	43.08	0.64	68.483		
300.00	300.00	302.00	300.00	0.54	0.55	0.00	43.72	0.00	43.72	42.63	1.09	40.184		
400.00	400.00	402.00	400.00	0.77	0.77	0.00	43.72	0.00	43.72	42.18	1.54	28.435		
465.99	465.99	467.99	465.99	0.91	0.92	0.00	43.72	0.00	43.72	41.88	1.83	23.836 CC		
500.00	500.00	501.97	499.97	0.99	1.00	0.00	43.72	0.00	43.72	41.73	1.99	22.002 ES		
600.00	599.98	600.00	597.98	1.19	1.22	-0.08	45.46	0.11	47.24	44.82	2.41	19.589		
700.00	699.84	698.02	695.87	1.38	1.44	-0.26	50.54	0.44	57.62	54.79	2.83	20.331		
784.56	784.09	779.57	777.12	1.55	1.64	-0.44	57.32	0.88	71.71	68.50	3.20	22.397		
800.00	799.46	794.33	791.81	1.59	1.67	-0.47	58.79	0.98	74.76	71.49	3.27	22.877		
900.00	898.96	889.14	885.95	1.83	1.91	-0.53	70.05	1.71	96.37	92.67	3.70	26.051		
1,000.00	998.47	982.49	978.21	2.08	2.18	-0.47	84.16	2.63	121.18	117.04	4.14	29.293		
1,100.00	1,097.98	1,074.20	1,068.37	2.34	2.49	-0.35	100.95	3.72	149.09	144.51	4.58	32.565		
1,200.00	1,197.48	1,164.15	1,156.21	2.61	2.83	-0.21	120.19	4.97	180.02	175.00	5.02	35.842		
1,300.00	1,296.99	1,256.11	1,245.50	2.89	3.21	-0.06	142.17	6.40	213.38	207.91	5.47	38.990		
1,400.00	1,396.50	1,350.29	1,336.89	3.17	3.62	0.06	164.90	7.88	246.97	241.04	5.93	41.681		
1,500.00	1,496.01	1,444.48	1,428.28	3.45	4.04	0.15	187.63	9.35	280.56	274.18	6.38	43.993		
1,600.00	1,595.51	1,538.67	1,519.67	3.74	4.48	0.22	210.36	10.83	314.15	307.31	6.84	45.933		
1,700.00	1,695.02	1,632.86	1,611.07	4.03	4.92	0.28	233.09	12.31	347.74	340.44	7.30	47.626		
1,800.00	1,794.53	1,727.05	1,702.46	4.32	5.37	0.33	255.82	13.79	381.33	373.57	7.77	49.095		
1,900.00	1,894.03	1,821.24	1,793.85	4.61	5.82	0.37	278.55	15.26	414.93	406.69	8.24	50.382		
2,000.00	1,993.54	1,915.43	1,885.25	4.90	6.27	0.40	301.28	16.74	448.52	439.81	8.71	51.516		
2,100.00	2,093.05	2,009.61	1,976.64	5.19	6.73	0.43	324.01	18.22	482.11	472.93	9.18	52.523		
2,200.00	2,192.56	2,103.80	2,068.03	5.48	7.19	0.46	346.74	19.69	515.70	506.05	9.65	53.422		
2,300.00	2,292.06	2,197.99	2,159.43	5.77	7.65	0.48	369.47	21.17	549.30	539.17	10.13	54.229		
2,400.00	2,391.57	2,292.18	2,250.82	6.06	8.11	0.50	392.20	22.65	582.89	572.28	10.61	54.957		
2,500.00	2,491.08	2,386.37	2,342.21	6.36	8.57	0.52	414.93	24.13	616.48	605.40	11.08	55.618		
2,600.00	2,590.58	2,480.56	2,433.60	6.65	9.03	0.53	437.66	25.60	650.07	638.51	11.56	56.219		
2,700.00	2,690.09	2,574.75	2,525.00	6.95	9.50	0.55	460.39	27.08	683.67	671.62	12.04	56.768		
2,800.00	2,789.60	2,668.94	2,616.39	7.24	9.96	0.56	483.12	28.56	717.26	704.74	12.52	57.272		
2,900.00	2,889.11	2,763.12	2,707.78	7.54	10.43	0.57	505.85	30.04	750.85	737.85	13.01	57.735		
3,000.00	2,988.61	2,857.31	2,799.18	7.83	10.89	0.58	528.58	31.51	784.45	770.96	13.49	58.163		
3,100.00	3,088.12	2,951.50	2,890.57	8.13	11.36	0.59	551.31	32.99	818.04	804.07	13.97	58.559		
3,200.00	3,187.63	3,045.69	2,981.96	8.42	11.83	0.60	574.04	34.47	851.63	837.18	14.45	58.927		
3,300.00	3,287.13	3,139.88	3,073.35	8.72	12.29	0.61	596.77	35.94	885.22	870.29	14.94	59.269		
3,400.00	3,386.64	3,234.07	3,164.75	9.01	12.76	0.62	619.50	37.42	918.82	903.40	15.42	59.587		
3,500.00	3,486.15	3,328.26	3,256.14	9.31	13.23	0.63	642.23	38.90	952.41	936.51	15.90	59.885		
3,600.00	3,585.65	3,422.44	3,347.53	9.60	13.70	0.63	664.96	40.38	986.00	969.62	16.39	60.164		
3,700.00	3,685.16	3,516.63	3,438.93	9.90	14.16	0.64	687.69	41.85	1,019.60	1,002.72	16.87	60.426		
3,800.00	3,784.67	3,610.82	3,530.32	10.19	14.63	0.65	710.42	43.33	1,053.19	1,035.83	17.36	60.672		
3,900.00	3,884.18	3,705.01	3,621.71	10.49	15.10	0.65	733.15	44.81	1,086.78	1,068.94	17.84	60.903		
4,000.00	3,983.68	3,799.20	3,713.10	10.79	15.57	0.66	755.88	46.29	1,120.38	1,102.05	18.33	61.121		
4,100.00	4,083.19	3,893.39	3,804.50	11.08	16.04	0.66	778.61	47.76	1,153.97	1,135.15	18.82	61.327		
4,200.00	4,182.70	4,053.44	3,960.79	11.38	16.61	0.70	812.92	49.99	1,184.97	1,165.57	19.39	61.108		
4,233.38	4,215.91	4,108.28	4,014.75	11.48	16.79	0.70	822.67	50.63	1,194.11	1,174.53	19.58	60.983		
4,300.00	4,282.28	4,219.74	4,124.96	11.64	17.11	0.71	839.30	51.71	1,209.75	1,189.75	20.00	60.486		
4,400.00	4,382.10	4,391.33	4,295.65	11.82	17.50	0.73	856.50	52.82	1,225.57	1,204.99	20.58	59.562		
4,500.00	4,482.07	4,565.92	4,470.07	11.98	17.76	0.73	863.50	53.28	1,231.94	1,210.84	21.10	58.385		
4,517.94	4,500.00	4,595.85	4,500.00	12.01	17.80	0.73	863.64	53.29	1,232.07	1,202.29	29.78	41.367		
4,600.00	4,582.07	4,677.91	4,582.07	12.15	17.90	0.73	863.64	53.29	1,232.07	1,202.06	30.01	41.052		
4,700.00	4,682.07	4,777.91	4,682.07	12.29	18.01	0.73	863.64	53.29	1,232.07	1,201.80	30.27	40.696		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	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		
4,800.00	4,782.07	4,877.91	4,782.07	12.44	18.13	0.73	863.64	53.29	1,232.07	1,201.53	30.54	40.341		
4,900.00	4,882.07	4,977.91	4,882.07	12.59	18.26	0.73	863.64	53.29	1,232.07	1,201.26	30.81	39.986		
5,000.00	4,982.07	5,077.91	4,982.07	12.74	18.38	0.73	863.64	53.29	1,232.07	1,200.98	31.09	39.632		
5,100.00	5,082.07	5,177.91	5,082.07	12.89	18.50	0.73	863.64	53.29	1,232.07	1,200.70	31.37	39.280		
5,200.00	5,182.07	5,277.91	5,182.07	13.05	18.63	0.73	863.64	53.29	1,232.07	1,200.42	31.65	38.928		
5,300.00	5,282.07	5,377.91	5,282.07	13.20	18.76	0.73	863.64	53.29	1,232.07	1,200.13	31.94	38.579		
5,400.00	5,382.07	5,477.91	5,382.07	13.36	18.89	0.73	863.64	53.29	1,232.07	1,199.84	32.23	38.231		
5,500.00	5,482.07	5,577.91	5,482.07	13.52	19.03	0.73	863.64	53.29	1,232.07	1,199.55	32.52	37.885		
5,600.00	5,582.07	5,677.91	5,582.07	13.69	19.16	0.73	863.64	53.29	1,232.07	1,199.25	32.82	37.541		
5,700.00	5,682.07	5,777.91	5,682.07	13.85	19.30	0.73	863.64	53.29	1,232.07	1,198.95	33.12	37.200		
5,800.00	5,782.07	5,877.91	5,782.07	14.02	19.43	0.73	863.64	53.29	1,232.07	1,198.65	33.42	36.861		
5,900.00	5,882.07	5,977.91	5,882.07	14.18	19.57	0.73	863.64	53.29	1,232.07	1,198.34	33.73	36.525		
5,930.48	5,912.54	6,008.39	5,912.54	14.24	19.62	0.73	863.64	53.29	1,232.07	1,198.24	33.83	36.423		
5,950.00	5,932.06	6,027.89	5,932.04	14.27	19.64	0.73	863.64	52.89	1,232.07	1,205.41	26.67	46.205		
5,975.00	5,957.00	6,052.87	5,956.95	14.31	19.68	0.73	863.66	51.22	1,232.08	1,205.32	26.76	46.046		
6,000.00	5,981.82	6,077.84	5,981.75	14.36	19.71	0.73	863.70	48.25	1,232.09	1,205.25	26.85	45.891		
6,025.00	6,006.45	6,102.81	6,006.35	14.40	19.74	0.73	863.76	43.98	1,232.11	1,205.18	26.94	45.739		
6,050.00	6,030.82	6,127.79	6,030.70	14.44	19.77	0.73	863.83	38.44	1,232.14	1,205.11	27.03	45.589		
6,075.00	6,054.87	6,152.76	6,054.73	14.49	19.80	0.73	863.92	31.63	1,232.17	1,205.06	27.12	45.440		
6,100.00	6,078.53	6,177.74	6,078.36	14.53	19.83	0.73	864.03	23.57	1,232.21	1,205.01	27.21	45.288		
6,125.00	6,101.73	6,202.71	6,101.55	14.57	19.87	0.73	864.15	14.29	1,232.26	1,204.95	27.30	45.131		
6,150.00	6,124.41	6,227.69	6,124.21	14.62	19.90	0.73	864.29	3.81	1,232.31	1,204.90	27.41	44.966		
6,175.00	6,146.52	6,252.67	6,146.30	14.66	19.93	0.74	864.44	-7.84	1,232.36	1,204.85	27.52	44.788		
6,200.00	6,167.98	6,277.64	6,167.75	14.71	19.97	0.74	864.61	-20.63	1,232.43	1,204.79	27.64	44.593		
6,225.00	6,188.74	6,302.62	6,188.50	14.75	20.00	0.74	864.79	-34.53	1,232.49	1,204.72	27.77	44.375		
6,250.00	6,208.74	6,327.60	6,208.50	14.80	20.04	0.74	864.99	-49.49	1,232.57	1,204.63	27.93	44.129		
6,275.00	6,227.94	6,352.58	6,227.69	14.86	20.09	0.74	865.20	-65.48	1,232.64	1,204.53	28.11	43.851		
6,300.00	6,246.27	6,377.56	6,246.01	14.91	20.13	0.74	865.42	-82.45	1,232.72	1,204.41	28.32	43.534		
6,325.00	6,263.68	6,402.54	6,263.43	14.98	20.18	0.74	865.66	-100.36	1,232.81	1,204.26	28.55	43.175		
6,350.00	6,280.13	6,427.52	6,279.88	15.05	20.24	0.74	865.90	-119.15	1,232.90	1,204.07	28.83	42.769		
6,375.00	6,295.57	6,452.51	6,295.33	15.13	20.30	0.74	866.16	-138.78	1,233.00	1,203.86	29.14	42.314		
6,400.00	6,309.97	6,477.49	6,309.73	15.22	20.37	0.75	866.43	-159.19	1,233.09	1,203.60	29.49	41.808		
6,425.00	6,323.27	6,502.48	6,323.05	15.34	20.45	0.75	866.71	-180.32	1,233.20	1,203.30	29.89	41.252		
6,450.00	6,335.45	6,527.47	6,335.24	15.48	20.54	0.75	866.99	-202.13	1,233.30	1,202.96	30.34	40.646		
6,475.00	6,346.47	6,552.45	6,346.28	15.65	20.64	0.75	867.29	-224.54	1,233.41	1,202.57	30.84	39.994		
6,500.00	6,356.30	6,577.44	6,356.13	15.85	20.75	0.75	867.59	-247.51	1,233.52	1,202.13	31.39	39.300		
6,525.00	6,364.91	6,602.43	6,364.76	16.08	20.88	0.75	867.90	-270.95	1,233.63	1,201.65	31.98	38.571		
6,550.00	6,372.29	6,627.43	6,372.16	16.36	21.03	0.75	868.21	-294.82	1,233.75	1,201.12	32.63	37.811		
6,575.00	6,378.40	6,652.42	6,378.29	16.66	21.20	0.75	868.53	-319.04	1,233.86	1,200.54	33.32	37.030		
6,600.00	6,383.24	6,677.41	6,383.15	17.00	21.38	0.75	868.85	-343.55	1,233.98	1,199.92	34.06	36.234		
6,625.00	6,386.79	6,702.41	6,386.73	17.36	21.59	0.75	869.18	-368.29	1,234.10	1,199.27	34.83	35.431		
6,650.00	6,389.03	6,727.41	6,389.00	17.75	21.83	0.75	869.50	-393.18	1,234.22	1,198.58	35.64	34.628		
6,675.00	6,389.97	6,752.40	6,389.97	18.16	22.08	0.75	869.83	-418.15	1,234.34	1,197.86	36.48	33.833		
6,680.48	6,390.00	6,757.88	6,390.00	18.25	22.14	0.75	869.91	-423.63	1,234.37	1,197.69	36.67	33.660		
6,700.00	6,390.00	6,777.40	6,390.00	18.58	22.36	0.75	870.16	-443.15	1,234.46	1,197.10	37.36	33.042		
6,800.00	6,390.00	6,877.40	6,390.00	20.45	23.70	0.75	871.48	-543.14	1,234.94	1,193.79	41.15	30.009		
6,900.00	6,390.00	6,977.40	6,390.00	22.53	25.35	0.75	872.79	-643.13	1,235.42	1,190.11	45.31	27.265		
7,000.00	6,390.00	7,077.40	6,390.00	24.75	27.24	0.75	874.11	-743.12	1,235.90	1,186.14	49.76	24.838		
7,100.00	6,390.00	7,177.40	6,390.00	27.09	29.31	0.75	875.42	-843.11	1,236.38	1,181.96	54.42	22.718		
7,200.00	6,390.00	7,277.40	6,390.00	29.51	31.52	0.75	876.73	-943.10	1,236.86	1,177.61	59.25	20.874		
7,300.00	6,390.00	7,377.40	6,390.00	31.99	33.83	0.75	878.05	-1,043.09	1,237.34	1,173.13	64.21	19.269		
7,400.00	6,390.00	7,477.40	6,390.00	34.52	36.21	0.75	879.36	-1,143.08	1,237.82	1,168.55	69.27	17.869		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.27-T5N-R63W - 70 Ranch 5-63-27-32H - 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	
7,500.00	6,390.00	7,577.40	6,390.00	37.10	38.66	0.75	880.68	-1,243.07	1,238.31	1,163.89	74.42	16.641	
7,600.00	6,390.00	7,677.39	6,390.00	39.70	41.16	0.75	881.99	-1,343.06	1,238.79	1,159.17	79.62	15.559	
7,700.00	6,390.00	7,777.39	6,390.00	42.34	43.70	0.75	883.31	-1,443.05	1,239.27	1,154.39	84.88	14.600	
7,800.00	6,390.00	7,877.39	6,390.00	44.99	46.27	0.75	884.62	-1,543.04	1,239.75	1,149.57	90.18	13.747	
7,900.00	6,390.00	7,977.39	6,390.00	47.66	48.87	0.75	885.94	-1,643.03	1,240.23	1,144.71	95.52	12.984	
8,000.00	6,390.00	8,077.39	6,390.00	50.35	51.49	0.75	887.25	-1,743.02	1,240.71	1,139.82	100.89	12.298	
8,100.00	6,390.00	8,177.39	6,390.00	53.05	54.13	0.75	888.56	-1,843.01	1,241.19	1,134.90	106.28	11.678	
8,200.00	6,390.00	8,277.39	6,390.00	55.76	56.79	0.75	889.88	-1,943.00	1,241.67	1,129.97	111.70	11.116	
8,300.00	6,390.00	8,377.39	6,390.00	58.48	59.46	0.75	891.19	-2,042.99	1,242.15	1,125.01	117.14	10.604	
8,400.00	6,390.00	8,477.38	6,390.00	61.21	62.15	0.75	892.51	-2,142.98	1,242.63	1,120.04	122.59	10.136	
8,500.00	6,390.00	8,577.38	6,390.00	63.94	64.84	0.75	893.82	-2,242.97	1,243.11	1,115.05	128.06	9.707	
8,600.00	6,390.00	8,677.38	6,390.00	66.68	67.55	0.75	895.14	-2,342.96	1,243.59	1,110.05	133.54	9.313	
8,700.00	6,390.00	8,777.38	6,390.00	69.43	70.26	0.75	896.45	-2,442.95	1,244.07	1,105.04	139.03	8.948	
8,800.00	6,390.00	8,877.38	6,390.00	72.18	72.99	0.75	897.77	-2,542.94	1,244.56	1,100.02	144.53	8.611	
8,900.00	6,390.00	8,977.38	6,390.00	74.94	75.71	0.75	899.08	-2,642.93	1,245.04	1,094.99	150.04	8.298	
9,000.00	6,390.00	9,077.38	6,390.00	77.70	78.45	0.75	900.40	-2,742.92	1,245.52	1,089.96	155.56	8.007	
9,100.00	6,390.00	9,177.38	6,390.00	80.46	81.19	0.75	901.71	-2,842.91	1,246.00	1,084.91	161.09	7.735	
9,200.00	6,390.00	9,277.38	6,390.00	83.22	83.93	0.75	903.02	-2,942.90	1,246.48	1,079.86	166.62	7.481	
9,300.00	6,390.00	9,377.37	6,390.00	85.99	86.68	0.75	904.34	-3,042.90	1,246.96	1,074.80	172.15	7.243	
9,400.00	6,390.00	9,477.37	6,390.00	88.77	89.43	0.75	905.65	-3,142.89	1,247.44	1,069.74	177.70	7.020	
9,500.00	6,390.00	9,577.37	6,390.00	91.54	92.19	0.75	906.97	-3,242.88	1,247.92	1,064.68	183.24	6.810	
9,600.00	6,390.00	9,677.37	6,390.00	94.32	94.95	0.75	908.28	-3,342.87	1,248.40	1,059.60	188.80	6.612	
9,700.00	6,390.00	9,777.37	6,390.00	97.09	97.71	0.75	909.60	-3,442.86	1,248.88	1,054.53	194.35	6.426	
9,800.00	6,390.00	9,877.37	6,390.00	99.87	100.47	0.75	910.91	-3,542.85	1,249.36	1,049.45	199.91	6.250	
9,900.00	6,390.00	9,977.37	6,390.00	102.65	103.24	0.75	912.23	-3,642.84	1,249.84	1,044.37	205.47	6.083	
10,000.00	6,390.00	10,077.37	6,390.00	105.44	106.01	0.75	913.54	-3,742.83	1,250.32	1,039.29	211.04	5.925	
10,100.00	6,390.00	10,177.37	6,390.00	108.22	108.78	0.75	914.85	-3,842.82	1,250.80	1,034.20	216.61	5.775	
10,200.00	6,390.00	10,277.36	6,390.00	111.01	111.56	0.75	916.17	-3,942.81	1,251.29	1,029.11	222.18	5.632	
10,300.00	6,390.00	10,377.36	6,390.00	113.79	114.33	0.75	917.48	-4,042.80	1,251.77	1,024.02	227.75	5.496	
10,400.00	6,390.00	10,477.36	6,390.00	116.58	117.11	0.75	918.80	-4,142.79	1,252.25	1,018.92	233.33	5.367	
10,500.00	6,390.00	10,577.36	6,390.00	119.37	119.89	0.75	920.11	-4,242.78	1,252.73	1,013.82	238.90	5.244	
10,600.00	6,390.00	10,677.36	6,390.00	122.16	122.67	0.75	921.43	-4,342.77	1,253.21	1,008.72	244.48	5.126	
10,668.40	6,390.00	10,725.79	6,390.00	124.07	124.02	1.67	922.06	-4,391.20	1,253.70	1,005.95	247.74	5.060 SF	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	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		
0.00	0.00	1.00	0.00	0.00	0.00	0.00	21.86	0.00	21.86					
100.00	100.00	101.00	100.00	0.09	0.09	0.00	21.86	0.00	21.86	21.67	0.19	117.164		
200.00	200.00	201.00	200.00	0.32	0.32	0.00	21.86	0.00	21.86	21.22	0.64	34.363		
300.00	300.00	301.00	300.00	0.54	0.54	0.00	21.86	0.00	21.86	20.77	1.09	20.134		
400.00	400.00	401.00	400.00	0.77	0.77	0.00	21.86	0.00	21.86	20.32	1.54	14.238		
466.33	466.33	467.33	466.33	0.92	0.92	0.00	21.86	0.00	21.86	20.02	1.83	11.922 CC		
500.00	500.00	500.99	499.99	0.99	0.99	0.00	21.86	0.00	21.86	19.87	1.98	11.013 ES		
600.00	599.98	600.00	598.98	1.19	1.22	0.44	23.56	0.37	25.32	22.91	2.41	10.502		
700.00	699.84	699.06	697.91	1.38	1.45	1.13	28.34	1.41	35.34	32.51	2.84	12.459		
784.56	784.09	782.80	781.53	1.55	1.63	1.17	32.88	2.39	47.01	43.82	3.19	14.721		
800.00	799.46	798.06	796.77	1.59	1.67	1.14	33.71	2.57	49.36	46.11	3.26	15.153		
900.00	898.96	896.89	895.45	1.83	1.90	1.01	39.07	3.73	64.61	60.93	3.68	17.555		
1,000.00	998.47	995.72	994.12	2.08	2.13	0.93	44.43	4.89	79.86	75.75	4.11	19.423		
1,100.00	1,097.98	1,094.56	1,092.80	2.34	2.37	0.87	49.79	6.05	95.11	90.56	4.55	20.910		
1,200.00	1,197.48	1,193.39	1,191.48	2.61	2.60	0.83	55.15	7.22	110.36	105.37	4.99	22.117		
1,300.00	1,296.99	1,292.22	1,290.16	2.89	2.84	0.80	60.51	8.38	125.61	120.17	5.43	23.115		
1,400.00	1,396.50	1,391.05	1,388.84	3.17	3.08	0.78	65.87	9.54	140.85	134.97	5.88	23.951		
1,500.00	1,496.01	1,489.88	1,487.52	3.45	3.32	0.76	71.23	10.70	156.10	149.77	6.33	24.662		
1,600.00	1,595.51	1,588.71	1,586.19	3.74	3.56	0.74	76.59	11.86	171.35	164.57	6.78	25.273		
1,700.00	1,695.02	1,687.54	1,684.87	4.03	3.80	0.73	81.95	13.02	186.60	179.37	7.23	25.803		
1,800.00	1,794.53	1,786.37	1,783.55	4.32	4.03	0.72	87.31	14.18	201.85	194.16	7.68	26.268		
1,900.00	1,894.03	1,885.20	1,882.23	4.61	4.27	0.71	92.67	15.35	217.10	208.96	8.14	26.678		
2,000.00	1,993.54	1,984.03	1,980.91	4.90	4.51	0.70	98.03	16.51	232.34	223.75	8.59	27.042		
2,100.00	2,093.05	2,082.86	2,079.59	5.19	4.75	0.69	103.39	17.67	247.59	238.55	9.05	27.368		
2,200.00	2,192.56	2,181.69	2,178.26	5.48	4.99	0.69	108.75	18.83	262.84	253.34	9.50	27.662		
2,300.00	2,292.06	2,280.52	2,276.94	5.77	5.23	0.68	114.11	19.99	278.09	268.13	9.96	27.927		
2,400.00	2,391.57	2,379.35	2,375.62	6.06	5.47	0.68	119.47	21.15	293.34	282.92	10.41	28.168		
2,500.00	2,491.08	2,478.18	2,474.30	6.36	5.72	0.67	124.83	22.32	308.59	297.72	10.87	28.388		
2,600.00	2,590.58	2,577.01	2,572.98	6.65	5.96	0.67	130.19	23.48	323.84	312.51	11.33	28.589		
2,700.00	2,690.09	2,675.84	2,671.66	6.95	6.20	0.66	135.55	24.64	339.08	327.30	11.78	28.774		
2,800.00	2,789.60	2,774.68	2,770.33	7.24	6.44	0.66	140.91	25.80	354.33	342.09	12.24	28.944		
2,900.00	2,889.11	2,873.51	2,869.01	7.54	6.68	0.66	146.27	26.96	369.58	356.88	12.70	29.102		
3,000.00	2,988.61	2,972.34	2,967.69	7.83	6.92	0.65	151.63	28.12	384.83	371.67	13.16	29.249		
3,100.00	3,088.12	3,071.17	3,066.37	8.13	7.16	0.65	156.99	29.29	400.08	386.46	13.62	29.385		
3,200.00	3,187.63	3,170.00	3,165.05	8.42	7.40	0.65	162.35	30.45	415.33	401.25	14.07	29.512		
3,300.00	3,287.13	3,268.83	3,263.73	8.72	7.64	0.65	167.70	31.61	430.57	416.04	14.53	29.630		
3,400.00	3,386.64	3,367.66	3,362.40	9.01	7.88	0.64	173.06	32.77	445.82	430.83	14.99	29.741		
3,500.00	3,486.15	3,466.49	3,461.08	9.31	8.12	0.64	178.42	33.93	461.07	445.62	15.45	29.846		
3,600.00	3,585.65	3,565.32	3,559.76	9.60	8.36	0.64	183.78	35.09	476.32	460.41	15.91	29.944		
3,700.00	3,685.16	3,664.15	3,658.44	9.90	8.61	0.64	189.14	36.25	491.57	475.20	16.37	30.036		
3,800.00	3,784.67	3,762.98	3,757.12	10.19	8.85	0.64	194.50	37.42	506.82	489.99	16.82	30.123		
3,900.00	3,884.18	3,861.81	3,855.80	10.49	9.09	0.63	199.86	38.58	522.07	504.78	17.28	30.205		
4,000.00	3,983.68	3,960.64	3,954.47	10.79	9.33	0.63	205.22	39.74	537.31	519.57	17.74	30.283		
4,100.00	4,083.19	4,059.47	4,053.15	11.08	9.57	0.63	210.58	40.90	552.56	534.36	18.20	30.357		
4,200.00	4,182.70	4,158.30	4,151.83	11.38	9.81	0.63	215.94	42.06	567.81	549.15	18.66	30.427		
4,233.38	4,215.91	4,191.29	4,184.77	11.48	9.89	0.63	217.73	42.45	572.90	554.09	18.81	30.450		
4,300.00	4,282.28	4,257.25	4,250.62	11.64	10.05	0.64	221.31	43.23	582.30	563.17	19.13	30.440		
4,400.00	4,382.10	4,359.11	4,352.32	11.82	10.30	0.68	226.81	44.42	593.52	573.95	19.56	30.340		
4,500.00	4,482.07	4,484.55	4,477.70	11.98	10.53	0.73	230.40	45.20	598.74	578.78	19.96	29.990		
4,517.94	4,500.00	4,506.85	4,500.00	12.01	10.57	0.73	230.48	45.21	598.86	576.32	22.54	26.570		
4,600.00	4,582.07	4,588.91	4,582.07	12.15	10.72	0.73	230.48	45.21	598.86	576.04	22.82	26.238		
4,700.00	4,682.07	4,688.91	4,682.07	12.29	10.92	0.73	230.48	45.21	598.86	575.69	23.17	25.841		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	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		
4,800.00	4,782.07	4,788.91	4,782.07	12.44	11.13	0.73	230.48	45.21	598.86	575.33	23.53	25.451		
4,900.00	4,882.07	4,888.91	4,882.07	12.59	11.34	0.73	230.48	45.21	598.86	574.97	23.89	25.069		
5,000.00	4,982.07	4,988.91	4,982.07	12.74	11.55	0.73	230.48	45.21	598.86	574.61	24.25	24.695		
5,100.00	5,082.07	5,088.91	5,082.07	12.89	11.76	0.73	230.48	45.21	598.86	574.25	24.61	24.330		
5,200.00	5,182.07	5,188.91	5,182.07	13.05	11.97	0.73	230.48	45.21	598.86	573.88	24.98	23.973		
5,300.00	5,282.07	5,288.91	5,282.07	13.20	12.18	0.73	230.48	45.21	598.86	573.51	25.35	23.624		
5,400.00	5,382.07	5,388.91	5,382.07	13.36	12.40	0.73	230.48	45.21	598.86	573.14	25.72	23.283		
5,500.00	5,482.07	5,488.91	5,482.07	13.52	12.61	0.73	230.48	45.21	598.86	572.77	26.10	22.949		
5,600.00	5,582.07	5,588.91	5,582.07	13.69	12.82	0.73	230.48	45.21	598.86	572.39	26.47	22.623		
5,700.00	5,682.07	5,688.91	5,682.07	13.85	13.03	0.73	230.48	45.21	598.86	572.01	26.85	22.304		
5,800.00	5,782.07	5,788.91	5,782.07	14.02	13.25	0.73	230.48	45.21	598.86	571.63	27.23	21.993		
5,900.00	5,882.07	5,888.91	5,882.07	14.18	13.46	0.73	230.48	45.21	598.86	571.25	27.61	21.689		
5,930.48	5,912.54	5,919.39	5,912.54	14.24	13.53	0.73	230.48	45.21	598.86	571.13	27.73	21.597		
5,950.00	5,932.06	5,939.01	5,932.15	14.27	13.56	0.73	230.48	44.81	598.86	573.01	25.85	23.163		
5,975.00	5,957.00	5,964.13	5,957.22	14.31	13.61	0.73	230.50	43.12	598.86	572.91	25.95	23.078		
6,000.00	5,981.82	5,989.25	5,982.15	14.36	13.66	0.72	230.52	40.11	598.86	572.82	26.04	22.994		
6,025.00	6,006.45	6,014.37	6,006.89	14.40	13.70	0.72	230.56	35.80	598.87	572.73	26.14	22.913		
6,050.00	6,030.82	6,039.48	6,031.38	14.44	13.75	0.72	230.61	30.19	598.87	572.64	26.23	22.833		
6,075.00	6,054.87	6,064.60	6,055.53	14.49	13.79	0.71	230.67	23.30	598.87	572.55	26.32	22.753		
6,100.00	6,078.53	6,089.71	6,079.28	14.53	13.84	0.70	230.75	15.15	598.88	572.46	26.42	22.672		
6,125.00	6,101.73	6,114.83	6,102.57	14.57	13.88	0.69	230.83	5.77	598.88	572.37	26.51	22.588		
6,150.00	6,124.41	6,139.94	6,125.33	14.62	13.93	0.69	230.92	-4.82	598.89	572.27	26.62	22.500		
6,175.00	6,146.52	6,165.04	6,147.50	14.66	13.98	0.68	231.03	-16.60	598.89	572.16	26.73	22.405		
6,200.00	6,167.98	6,190.15	6,169.02	14.71	14.03	0.67	231.14	-29.52	598.90	572.04	26.86	22.300		
6,225.00	6,188.74	6,215.25	6,189.83	14.75	14.09	0.65	231.27	-43.55	598.91	571.91	27.00	22.184		
6,250.00	6,208.74	6,240.34	6,209.87	14.80	14.15	0.64	231.40	-58.66	598.92	571.76	27.16	22.054		
6,275.00	6,227.94	6,265.44	6,229.08	14.86	14.23	0.63	231.54	-74.79	598.92	571.58	27.34	21.906		
6,300.00	6,246.27	6,290.53	6,247.42	14.91	14.32	0.62	231.70	-91.91	598.93	571.38	27.55	21.738		
6,325.00	6,263.68	6,315.61	6,264.83	14.98	14.42	0.61	231.86	-109.96	598.94	571.15	27.80	21.548		
6,350.00	6,280.13	6,340.69	6,281.26	15.05	14.55	0.60	232.02	-128.90	598.95	570.88	28.08	21.333		
6,375.00	6,295.57	6,365.76	6,296.68	15.13	14.70	0.59	232.20	-148.67	598.96	570.57	28.40	21.093		
6,400.00	6,309.97	6,390.83	6,311.03	15.22	14.88	0.58	232.38	-169.22	598.97	570.21	28.76	20.826		
6,425.00	6,323.27	6,415.90	6,324.28	15.34	15.08	0.57	232.57	-190.49	598.98	569.81	29.17	20.534		
6,450.00	6,335.45	6,440.95	6,336.40	15.48	15.30	0.56	232.77	-212.43	599.00	569.37	29.63	20.216		
6,475.00	6,346.47	6,466.01	6,347.34	15.65	15.55	0.55	232.97	-234.96	599.01	568.87	30.14	19.875		
6,500.00	6,356.30	6,491.05	6,357.09	15.85	15.82	0.54	233.17	-258.03	599.02	568.32	30.70	19.513		
6,525.00	6,364.91	6,516.10	6,365.61	16.08	16.12	0.53	233.38	-281.57	599.03	567.72	31.31	19.133		
6,550.00	6,372.29	6,541.13	6,372.88	16.36	16.44	0.52	233.59	-305.52	599.05	567.08	31.97	18.740		
6,575.00	6,378.40	6,566.16	6,378.89	16.66	16.79	0.52	233.81	-329.81	599.06	566.39	32.67	18.336		
6,600.00	6,383.24	6,591.18	6,383.61	17.00	17.16	0.51	234.03	-354.38	599.07	565.65	33.42	17.925		
6,625.00	6,386.79	6,616.20	6,387.05	17.36	17.54	0.51	234.25	-379.16	599.08	564.87	34.21	17.512		
6,650.00	6,389.03	6,641.21	6,389.17	17.75	17.95	0.51	234.47	-404.07	599.10	564.06	35.03	17.100		
6,675.00	6,389.97	6,666.21	6,389.99	18.16	18.36	0.51	234.69	-429.06	599.11	563.22	35.89	16.694		
6,680.48	6,390.00	6,671.69	6,390.00	18.25	18.46	0.51	234.74	-434.54	599.11	563.03	36.08	16.605		
6,700.00	6,390.00	6,691.21	6,390.00	18.58	18.80	0.51	234.91	-454.06	599.12	562.35	36.77	16.292		
6,800.00	6,390.00	6,791.21	6,390.00	20.45	20.69	0.51	235.80	-554.06	599.18	558.57	40.61	14.753		
6,900.00	6,390.00	6,891.21	6,390.00	22.53	22.76	0.51	236.69	-654.05	599.23	554.41	44.82	13.369		
7,000.00	6,390.00	6,991.21	6,390.00	24.75	24.98	0.51	237.57	-754.05	599.29	549.97	49.31	12.153		
7,100.00	6,390.00	7,091.21	6,390.00	27.09	27.30	0.51	238.46	-854.04	599.34	545.32	54.01	11.096		
7,200.00	6,390.00	7,191.21	6,390.00	29.51	29.71	0.51	239.35	-954.04	599.39	540.51	58.88	10.180		
7,300.00	6,390.00	7,291.21	6,390.00	31.99	32.19	0.51	240.24	-1,054.04	599.45	535.58	63.87	9.386		
7,400.00	6,390.00	7,391.21	6,390.00	34.52	34.71	0.51	241.12	-1,154.03	599.50	530.55	68.95	8.695		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Sec.27-T5N-R63W - 70 Ranch 5-63-27-33H - 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					
7,500.00	6,390.00	7,491.21	6,390.00	37.10	37.28	0.51	242.01	-1,254.03	599.55	525.44	74.11	8.090					
7,600.00	6,390.00	7,591.21	6,390.00	39.70	39.88	0.51	242.90	-1,354.02	599.61	520.27	79.34	7.558					
7,700.00	6,390.00	7,691.21	6,390.00	42.34	42.50	0.51	243.79	-1,454.02	599.66	515.05	84.61	7.087					
7,800.00	6,390.00	7,791.21	6,390.00	44.99	45.15	0.51	244.67	-1,554.02	599.72	509.79	89.93	6.669					
7,900.00	6,390.00	7,891.21	6,390.00	47.66	47.82	0.51	245.56	-1,654.01	599.77	504.49	95.28	6.295					
8,000.00	6,390.00	7,991.21	6,390.00	50.35	50.50	0.51	246.45	-1,754.01	599.82	499.16	100.66	5.959					
8,100.00	6,390.00	8,091.21	6,390.00	53.05	53.20	0.51	247.34	-1,854.00	599.88	493.81	106.07	5.656					
8,200.00	6,390.00	8,191.21	6,390.00	55.76	55.90	0.51	248.22	-1,954.00	599.93	488.44	111.49	5.381					
8,300.00	6,390.00	8,291.21	6,390.00	58.48	58.62	0.51	249.11	-2,054.00	599.98	483.05	116.94	5.131					
8,400.00	6,390.00	8,391.21	6,390.00	61.21	61.34	0.51	250.00	-2,153.99	600.04	477.64	122.40	4.902					
8,500.00	6,390.00	8,491.21	6,390.00	63.94	64.08	0.51	250.89	-2,253.99	600.09	472.22	127.87	4.693					
8,600.00	6,390.00	8,591.21	6,390.00	66.68	66.82	0.51	251.77	-2,353.98	600.15	466.78	133.36	4.500					
8,700.00	6,390.00	8,691.21	6,390.00	69.43	69.56	0.51	252.66	-2,453.98	600.20	461.34	138.86	4.322					
8,800.00	6,390.00	8,791.21	6,390.00	72.18	72.31	0.51	253.55	-2,553.98	600.25	455.89	144.36	4.158					
8,900.00	6,390.00	8,891.21	6,390.00	74.94	75.06	0.51	254.44	-2,653.97	600.31	450.43	149.88	4.005					
9,000.00	6,390.00	8,991.21	6,390.00	77.70	77.82	0.51	255.32	-2,753.97	600.36	444.96	155.40	3.863					
9,100.00	6,390.00	9,091.21	6,390.00	80.46	80.58	0.51	256.21	-2,853.96	600.41	439.48	160.93	3.731					
9,200.00	6,390.00	9,191.21	6,390.00	83.22	83.35	0.51	257.10	-2,953.96	600.47	434.00	166.47	3.607					
9,300.00	6,390.00	9,291.21	6,390.00	85.99	86.11	0.51	257.99	-3,053.96	600.52	428.52	172.01	3.491					
9,400.00	6,390.00	9,391.21	6,390.00	88.77	88.88	0.51	258.87	-3,153.95	600.58	423.02	177.55	3.383					
9,500.00	6,390.00	9,491.21	6,390.00	91.54	91.66	0.51	259.76	-3,253.95	600.63	417.53	183.10	3.280					
9,600.00	6,390.00	9,591.21	6,390.00	94.32	94.43	0.51	260.65	-3,353.95	600.68	412.03	188.66	3.184					
9,700.00	6,390.00	9,691.21	6,390.00	97.09	97.21	0.51	261.54	-3,453.94	600.74	406.52	194.21	3.093					
9,800.00	6,390.00	9,791.21	6,390.00	99.87	99.99	0.51	262.42	-3,553.94	600.79	401.02	199.78	3.007					
9,900.00	6,390.00	9,891.21	6,390.00	102.65	102.77	0.51	263.31	-3,653.93	600.84	395.50	205.34	2.926					
10,000.00	6,390.00	9,991.21	6,390.00	105.44	105.55	0.51	264.20	-3,753.93	600.90	389.99	210.91	2.849					
10,100.00	6,390.00	10,091.21	6,390.00	108.22	108.33	0.51	265.09	-3,853.93	600.95	384.47	216.48	2.776					
10,200.00	6,390.00	10,191.21	6,390.00	111.01	111.12	0.51	265.97	-3,953.92	601.01	378.96	222.05	2.707					
10,300.00	6,390.00	10,291.21	6,390.00	113.79	113.90	0.51	266.86	-4,053.92	601.06	373.43	227.62	2.641					
10,400.00	6,390.00	10,391.21	6,390.00	116.58	116.69	0.51	267.75	-4,153.91	601.11	367.91	233.20	2.578					
10,500.00	6,390.00	10,491.21	6,390.00	119.37	119.48	0.51	268.64	-4,253.91	601.17	362.39	238.78	2.518					
10,600.00	6,390.00	10,591.21	6,390.00	122.16	122.27	0.51	269.52	-4,353.91	601.22	356.86	244.36	2.460					
10,631.41	6,390.00	10,622.62	6,390.00	123.04	123.14	0.51	269.80	-4,385.31	601.24	355.12	246.11	2.443					
10,668.40	6,390.00	10,642.55	6,390.00	124.07	123.70	2.13	269.98	-4,405.24	601.50	353.80	247.70	2.428 SF					

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	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		
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-21.85	0.00	21.85					
100.00	100.00	100.00	100.00	0.09	0.09	-180.00	-21.85	0.00	21.85	21.67	0.18	118.571		
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-21.85	0.00	21.85	21.22	0.63	34.478		
300.00	300.00	300.00	300.00	0.54	0.54	-180.00	-21.85	0.00	21.85	20.77	1.08	20.172		
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-21.85	0.00	21.85	20.32	1.53	14.256		
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-21.85	0.00	21.85	19.87	1.98	11.024		
600.00	599.98	599.24	599.22	1.19	1.19	-179.66	-23.57	0.05	21.85	19.47	2.38	9.189		
700.00	699.84	698.49	698.33	1.38	1.38	-178.63	-28.72	0.19	21.84	19.10	2.74	7.962		
751.27	750.95	749.37	749.06	1.48	1.48	-177.84	-32.70	0.30	21.84	18.90	2.94	7.422 CC		
784.56	784.09	782.40	781.95	1.55	1.55	-177.22	-35.76	0.38	21.84	18.77	3.07	7.114		
800.00	799.46	797.73	797.19	1.59	1.58	-176.93	-37.30	0.42	21.88	18.75	3.13	6.989 ES		
900.00	898.96	896.91	895.64	1.83	1.83	-175.58	-49.30	0.75	24.16	20.61	3.54	6.815		
1,000.00	998.47	995.83	993.36	2.08	2.12	-175.26	-64.64	1.17	29.88	25.90	3.98	7.509		
1,100.00	1,097.98	1,094.24	1,089.98	2.34	2.46	-175.60	-83.24	1.68	39.01	34.59	4.43	8.810		
1,200.00	1,197.48	1,191.92	1,185.21	2.61	2.85	-176.17	-104.97	2.28	51.54	46.65	4.89	10.539		
1,300.00	1,296.99	1,288.65	1,278.73	2.89	3.30	-176.76	-129.68	2.95	67.41	62.05	5.36	12.569		
1,400.00	1,396.50	1,384.24	1,370.26	3.17	3.79	-177.27	-157.19	3.71	86.59	80.74	5.85	14.810		
1,500.00	1,496.01	1,479.59	1,460.66	3.45	4.34	-177.72	-187.50	4.53	108.85	102.51	6.34	17.164		
1,600.00	1,595.51	1,576.90	1,552.68	3.74	4.93	-178.05	-219.15	5.40	131.88	125.04	6.84	19.285		
1,700.00	1,695.02	1,674.21	1,644.69	4.03	5.54	-178.29	-250.80	6.27	154.91	147.56	7.34	21.099		
1,800.00	1,794.53	1,771.52	1,736.71	4.32	6.15	-178.46	-282.45	7.13	177.94	170.09	7.85	22.665		
1,900.00	1,894.03	1,868.83	1,828.72	4.61	6.76	-178.59	-314.10	8.00	200.97	192.61	8.36	24.028		
2,000.00	1,993.54	1,966.14	1,920.74	4.90	7.38	-178.70	-345.75	8.87	224.01	215.13	8.88	25.223		
2,100.00	2,093.05	2,063.45	2,012.75	5.19	8.01	-178.79	-377.40	9.73	247.04	237.64	9.40	26.279		
2,200.00	2,192.56	2,160.76	2,104.77	5.48	8.64	-178.86	-409.05	10.60	270.08	260.15	9.92	27.216		
2,300.00	2,292.06	2,258.07	2,196.78	5.77	9.27	-178.92	-440.70	11.47	293.11	282.67	10.45	28.054		
2,400.00	2,391.57	2,355.38	2,288.80	6.06	9.90	-178.97	-472.35	12.33	316.15	305.18	10.97	28.808		
2,500.00	2,491.08	2,452.69	2,380.81	6.36	10.53	-179.02	-504.00	13.20	339.19	327.68	11.50	29.488		
2,600.00	2,590.58	2,550.00	2,472.83	6.65	11.17	-179.06	-535.65	14.07	362.22	350.19	12.03	30.104		
2,700.00	2,690.09	2,647.31	2,564.84	6.95	11.80	-179.09	-567.30	14.93	385.26	372.70	12.56	30.666		
2,800.00	2,789.60	2,744.62	2,656.86	7.24	12.44	-179.12	-598.95	15.80	408.30	395.20	13.09	31.180		
2,900.00	2,889.11	2,841.93	2,748.87	7.54	13.08	-179.15	-630.60	16.67	431.33	417.71	13.63	31.652		
3,000.00	2,988.61	2,939.24	2,840.89	7.83	13.71	-179.17	-662.25	17.53	454.37	440.21	14.16	32.086		
3,100.00	3,088.12	3,036.55	2,932.90	8.13	14.35	-179.19	-693.90	18.40	477.41	462.71	14.70	32.488		
3,200.00	3,187.63	3,133.86	3,024.92	8.42	14.99	-179.21	-725.55	19.27	500.44	485.21	15.23	32.859		
3,300.00	3,287.13	3,231.17	3,116.93	8.72	15.63	-179.23	-757.20	20.13	523.48	507.71	15.77	33.204		
3,400.00	3,386.64	3,328.48	3,208.95	9.01	16.27	-179.25	-788.85	21.00	546.52	530.22	16.30	33.526		
3,500.00	3,486.15	3,425.79	3,300.96	9.31	16.91	-179.26	-820.50	21.87	569.55	552.72	16.84	33.826		
3,600.00	3,585.65	3,523.10	3,392.98	9.60	17.55	-179.28	-852.15	22.73	592.59	575.22	17.37	34.106		
3,700.00	3,685.16	3,620.41	3,484.99	9.90	18.19	-179.29	-883.80	23.60	615.63	597.72	17.91	34.369		
3,800.00	3,784.67	3,720.49	3,579.64	10.19	18.83	-179.31	-916.33	24.49	638.64	620.19	18.46	34.604		
3,900.00	3,884.18	3,847.02	3,700.32	10.49	19.46	-179.34	-954.30	25.33	659.11	640.07	19.04	34.611		
4,000.00	3,983.68	3,975.67	3,824.61	10.79	19.96	-179.36	-987.42	26.44	675.20	655.59	19.61	34.438		
4,100.00	4,083.19	4,105.95	3,951.88	11.08	20.41	-179.35	-1,015.23	27.20	686.82	666.66	20.15	34.078		
4,200.00	4,182.70	4,237.34	4,081.38	11.38	20.79	-179.33	-1,037.40	27.80	693.89	673.21	20.68	33.554		
4,233.38	4,215.91	4,281.36	4,124.96	11.48	20.91	-179.32	-1,043.49	27.97	695.23	674.38	20.85	33.342		
4,300.00	4,282.28	4,369.31	4,212.32	11.64	21.10	-179.30	-1,053.66	28.25	697.14	676.02	21.12	33.004		
4,400.00	4,382.10	4,501.47	4,344.08	11.82	21.34	-179.28	-1,063.89	28.53	699.06	677.60	21.47	32.567		
4,500.00	4,482.07	4,633.74	4,476.27	11.98	21.50	-179.27	-1,068.04	28.64	699.84	678.09	21.75	32.169		
4,517.94	4,500.00	4,657.47	4,500.00	12.01	21.53	-179.27	-1,068.14	28.65	699.86	666.35	33.51	20.886		
4,600.00	4,582.07	4,739.54	4,582.07	12.15	21.60	-179.27	-1,068.14	28.65	699.86	666.15	33.71	20.759		
4,700.00	4,682.07	4,839.54	4,682.07	12.29	21.68	-179.27	-1,068.14	28.65	699.86	665.92	33.94	20.621		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	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		
4,800.00	4,782.07	4,939.54	4,782.07	12.44	21.76	-179.27	-1,068.14	28.65	699.86	665.69	34.17	20.481		
4,900.00	4,882.07	5,039.54	4,882.07	12.59	21.85	-179.27	-1,068.14	28.65	699.86	665.45	34.41	20.341		
5,000.00	4,982.07	5,139.54	4,982.07	12.74	21.94	-179.27	-1,068.14	28.65	699.86	665.21	34.65	20.201		
5,100.00	5,082.07	5,239.54	5,082.07	12.89	22.03	-179.27	-1,068.14	28.65	699.86	664.97	34.89	20.060		
5,200.00	5,182.07	5,339.54	5,182.07	13.05	22.12	-179.27	-1,068.14	28.65	699.86	664.72	35.14	19.919		
5,300.00	5,282.07	5,439.54	5,282.07	13.20	22.22	-179.27	-1,068.14	28.65	699.86	664.47	35.39	19.777		
5,400.00	5,382.07	5,539.54	5,382.07	13.36	22.31	-179.27	-1,068.14	28.65	699.86	664.22	35.64	19.635		
5,500.00	5,482.07	5,639.54	5,482.07	13.52	22.41	-179.27	-1,068.14	28.65	699.86	663.96	35.90	19.494		
5,600.00	5,582.07	5,739.54	5,582.07	13.69	22.51	-179.27	-1,068.14	28.65	699.86	663.70	36.16	19.352		
5,700.00	5,682.07	5,839.54	5,682.07	13.85	22.61	-179.27	-1,068.14	28.65	699.86	663.43	36.43	19.211		
5,800.00	5,782.07	5,939.54	5,782.07	14.02	22.71	-179.27	-1,068.14	28.65	699.86	663.16	36.70	19.070		
5,900.00	5,882.07	6,039.54	5,882.07	14.18	22.82	-179.27	-1,068.14	28.65	699.86	662.89	36.97	18.929		
5,930.48	5,912.54	6,070.01	5,912.54	14.24	22.85	-179.27	-1,068.14	28.65	699.86	662.80	37.06	18.887		
5,950.00	5,932.06	6,089.41	5,931.93	14.27	22.87	-179.27	-1,068.13	28.25	699.86	673.02	26.84	26.080		
5,975.00	5,957.00	6,114.25	5,956.72	14.31	22.90	-179.27	-1,068.12	26.60	699.86	672.93	26.93	25.992		
6,000.00	5,981.82	6,139.09	5,981.38	14.36	22.93	-179.27	-1,068.09	23.66	699.86	672.85	27.01	25.908		
6,025.00	6,006.45	6,163.93	6,005.86	14.40	22.95	-179.28	-1,068.06	19.44	699.86	672.76	27.10	25.826		
6,050.00	6,030.82	6,188.78	6,030.08	14.44	22.98	-179.28	-1,068.01	13.95	699.86	672.68	27.18	25.747		
6,075.00	6,054.87	6,213.62	6,054.00	14.49	23.01	-179.29	-1,067.96	7.21	699.86	672.59	27.26	25.670		
6,100.00	6,078.53	6,238.47	6,077.53	14.53	23.03	-179.30	-1,067.89	-0.76	699.86	672.51	27.35	25.592		
6,125.00	6,101.73	6,263.32	6,100.61	14.57	23.06	-179.31	-1,067.81	-9.95	699.86	672.42	27.43	25.512		
6,150.00	6,124.41	6,288.17	6,123.19	14.62	23.09	-179.32	-1,067.73	-20.33	699.86	672.33	27.52	25.428		
6,175.00	6,146.52	6,313.03	6,145.20	14.66	23.12	-179.33	-1,067.63	-31.88	699.85	672.23	27.62	25.339		
6,200.00	6,167.98	6,337.89	6,166.59	14.71	23.15	-179.34	-1,067.52	-44.55	699.85	672.13	27.73	25.240		
6,225.00	6,188.74	6,362.76	6,187.29	14.75	23.18	-179.35	-1,067.41	-58.32	699.85	672.00	27.85	25.129		
6,250.00	6,208.74	6,387.63	6,207.25	14.80	23.21	-179.36	-1,067.28	-73.16	699.85	671.86	27.99	25.003		
6,275.00	6,227.94	6,412.51	6,226.41	14.86	23.25	-179.38	-1,067.15	-89.01	699.85	671.70	28.15	24.859		
6,300.00	6,246.27	6,437.39	6,244.73	14.91	23.28	-179.39	-1,067.01	-105.85	699.85	671.51	28.34	24.694		
6,325.00	6,263.68	6,462.28	6,262.14	14.98	23.32	-179.40	-1,066.86	-123.62	699.85	671.29	28.56	24.504		
6,350.00	6,280.13	6,487.17	6,278.62	15.05	23.37	-179.42	-1,066.70	-142.28	699.85	671.03	28.81	24.288		
6,375.00	6,295.57	6,512.07	6,294.10	15.13	23.41	-179.43	-1,066.54	-161.78	699.85	670.74	29.11	24.044		
6,400.00	6,309.97	6,536.98	6,308.54	15.22	23.46	-179.44	-1,066.37	-182.07	699.84	670.40	29.44	23.769		
6,425.00	6,323.27	6,561.89	6,321.92	15.34	23.52	-179.45	-1,066.19	-203.08	699.84	670.02	29.82	23.465		
6,450.00	6,335.45	6,586.81	6,334.18	15.48	23.58	-179.46	-1,066.01	-224.77	699.84	669.59	30.25	23.132		
6,475.00	6,346.47	6,611.74	6,345.30	15.65	23.65	-179.47	-1,065.82	-247.08	699.84	669.11	30.73	22.771		
6,500.00	6,356.30	6,636.68	6,355.24	15.85	23.72	-179.48	-1,065.63	-269.95	699.84	668.58	31.26	22.385		
6,525.00	6,364.91	6,661.62	6,363.97	16.08	23.81	-179.49	-1,065.44	-293.31	699.84	667.99	31.84	21.977		
6,550.00	6,372.29	6,686.57	6,371.48	16.36	23.90	-179.50	-1,065.24	-317.10	699.84	667.36	32.47	21.550		
6,575.00	6,378.40	6,711.53	6,377.73	16.66	24.01	-179.51	-1,065.04	-341.26	699.84	666.68	33.15	21.109		
6,600.00	6,383.24	6,736.50	6,382.72	17.00	24.13	-179.51	-1,064.83	-365.72	699.83	665.96	33.88	20.659		
6,625.00	6,386.79	6,761.47	6,386.42	17.36	24.26	-179.52	-1,064.62	-390.42	699.83	665.19	34.64	20.203		
6,650.00	6,389.03	6,786.46	6,388.83	17.75	24.41	-179.52	-1,064.41	-415.28	699.83	664.39	35.44	19.746		
6,675.00	6,389.97	6,811.45	6,389.93	18.16	24.57	-179.52	-1,064.21	-440.25	699.83	663.56	36.27	19.293		
6,680.48	6,390.00	6,816.93	6,390.00	18.25	24.61	-179.52	-1,064.16	-445.72	699.83	663.37	36.46	19.194		
6,700.00	6,390.00	6,836.45	6,390.00	18.58	24.75	-179.52	-1,064.00	-465.24	699.83	662.68	37.15	18.837		
6,800.00	6,390.00	6,936.45	6,390.00	20.45	25.68	-179.52	-1,063.16	-565.24	699.83	658.90	40.92	17.102		
6,900.00	6,390.00	7,036.45	6,390.00	22.53	26.93	-179.52	-1,062.32	-665.24	699.82	654.76	45.06	15.530		
7,000.00	6,390.00	7,136.45	6,390.00	24.75	28.49	-179.52	-1,061.48	-765.23	699.82	650.32	49.50	14.138		
7,100.00	6,390.00	7,236.45	6,390.00	27.09	30.31	-179.52	-1,060.64	-865.23	699.81	645.66	54.15	12.923		
7,200.00	6,390.00	7,336.45	6,390.00	29.51	32.33	-179.52	-1,059.80	-965.23	699.81	640.83	58.98	11.866		
7,300.00	6,390.00	7,436.45	6,390.00	31.99	34.50	-179.52	-1,058.97	-1,065.22	699.80	635.87	63.93	10.946		
7,400.00	6,390.00	7,536.45	6,390.00	34.52	36.79	-179.52	-1,058.13	-1,165.22	699.80	630.81	68.99	10.144		

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

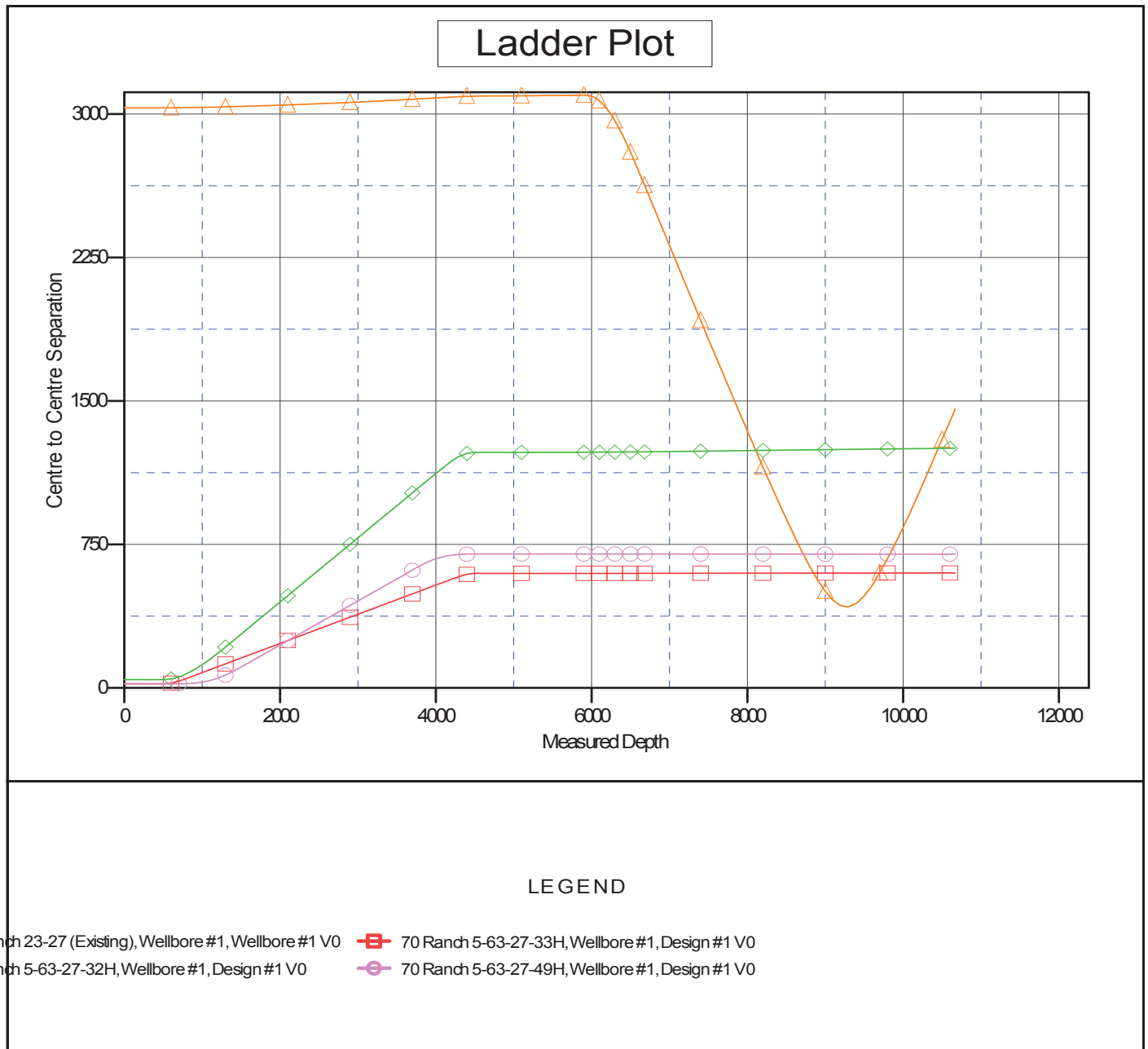
Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.27-T5N-R63W - 70 Ranch 5-63-27-49H - 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
7,500.00	6,390.00	7,636.45	6,390.00	37.10	39.15	-179.52	-1,057.29	-1,265.22	699.79	625.67	74.12	9.441	
7,600.00	6,390.00	7,736.45	6,390.00	39.70	41.59	-179.52	-1,056.45	-1,365.21	699.79	620.46	79.33	8.822	
7,700.00	6,390.00	7,836.45	6,390.00	42.34	44.08	-179.52	-1,055.61	-1,465.21	699.78	615.20	84.58	8.273	
7,800.00	6,390.00	7,936.45	6,390.00	44.99	46.60	-179.52	-1,054.77	-1,565.20	699.78	609.90	89.88	7.785	
7,900.00	6,390.00	8,036.45	6,390.00	47.66	49.17	-179.52	-1,053.94	-1,665.20	699.78	604.56	95.22	7.349	
8,000.00	6,390.00	8,136.45	6,390.00	50.35	51.76	-179.52	-1,053.10	-1,765.20	699.77	599.18	100.59	6.957	
8,100.00	6,390.00	8,236.45	6,390.00	53.05	54.38	-179.52	-1,052.26	-1,865.19	699.77	593.79	105.98	6.603	
8,200.00	6,390.00	8,336.45	6,390.00	55.76	57.01	-179.52	-1,051.42	-1,965.19	699.76	588.36	111.40	6.282	
8,300.00	6,390.00	8,436.45	6,390.00	58.48	59.66	-179.52	-1,050.58	-2,065.19	699.76	582.93	116.83	5.989	
8,400.00	6,390.00	8,536.45	6,390.00	61.21	62.33	-179.52	-1,049.74	-2,165.18	699.75	577.47	122.28	5.722	
8,500.00	6,390.00	8,636.45	6,390.00	63.94	65.01	-179.52	-1,048.91	-2,265.18	699.75	572.00	127.75	5.477	
8,600.00	6,390.00	8,736.45	6,390.00	66.68	67.70	-179.52	-1,048.07	-2,365.18	699.74	566.51	133.23	5.252	
8,700.00	6,390.00	8,836.45	6,390.00	69.43	70.40	-179.52	-1,047.23	-2,465.17	699.74	561.02	138.72	5.044	
8,800.00	6,390.00	8,936.45	6,390.00	72.18	73.11	-179.52	-1,046.39	-2,565.17	699.73	555.52	144.22	4.852	
8,900.00	6,390.00	9,036.45	6,390.00	74.94	75.83	-179.52	-1,045.55	-2,665.17	699.73	550.00	149.73	4.673	
9,000.00	6,390.00	9,136.45	6,390.00	77.70	78.55	-179.52	-1,044.71	-2,765.16	699.73	544.48	155.25	4.507	
9,100.00	6,390.00	9,236.45	6,390.00	80.46	81.28	-179.52	-1,043.88	-2,865.16	699.72	538.95	160.77	4.352	
9,200.00	6,390.00	9,336.45	6,390.00	83.22	84.02	-179.52	-1,043.04	-2,965.16	699.72	533.42	166.30	4.208	
9,300.00	6,390.00	9,436.45	6,390.00	85.99	86.76	-179.52	-1,042.20	-3,065.15	699.71	527.88	171.84	4.072	
9,400.00	6,390.00	9,536.45	6,390.00	88.77	89.50	-179.52	-1,041.36	-3,165.15	699.71	522.33	177.38	3.945	
9,500.00	6,390.00	9,636.45	6,390.00	91.54	92.25	-179.52	-1,040.52	-3,265.15	699.70	516.78	182.92	3.825	
9,600.00	6,390.00	9,736.45	6,390.00	94.32	95.01	-179.52	-1,039.69	-3,365.14	699.70	511.22	188.47	3.712	
9,700.00	6,390.00	9,836.45	6,390.00	97.09	97.76	-179.52	-1,038.85	-3,465.14	699.69	505.67	194.03	3.606	
9,800.00	6,390.00	9,936.45	6,390.00	99.87	100.52	-179.52	-1,038.01	-3,565.13	699.69	500.10	199.59	3.506	
9,900.00	6,390.00	10,036.45	6,390.00	102.65	103.28	-179.52	-1,037.17	-3,665.13	699.68	494.54	205.15	3.411	
10,000.00	6,390.00	10,136.45	6,390.00	105.44	106.05	-179.52	-1,036.33	-3,765.13	699.68	488.97	210.71	3.321	
10,100.00	6,390.00	10,236.45	6,390.00	108.22	108.81	-179.52	-1,035.49	-3,865.12	699.68	483.40	216.28	3.235	
10,200.00	6,390.00	10,336.45	6,390.00	111.01	111.58	-179.52	-1,034.66	-3,965.12	699.67	477.82	221.85	3.154	
10,300.00	6,390.00	10,436.45	6,390.00	113.79	114.35	-179.52	-1,033.82	-4,065.12	699.67	472.25	227.42	3.077	
10,400.00	6,390.00	10,536.45	6,390.00	116.58	117.12	-179.52	-1,032.98	-4,165.11	699.66	466.67	233.00	3.003	
10,500.00	6,390.00	10,636.45	6,390.00	119.37	119.90	-179.52	-1,032.14	-4,265.11	699.66	461.08	238.57	2.933	
10,600.00	6,390.00	10,736.45	6,390.00	122.16	122.67	-179.52	-1,031.30	-4,365.11	699.65	455.50	244.15	2.866	
10,668.40	6,390.00	10,804.85	6,390.00	124.07	124.57	-179.52	-1,030.73	-4,433.51	699.65	451.68	247.97	2.822 SF	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 4612.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 5-63-27-48H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

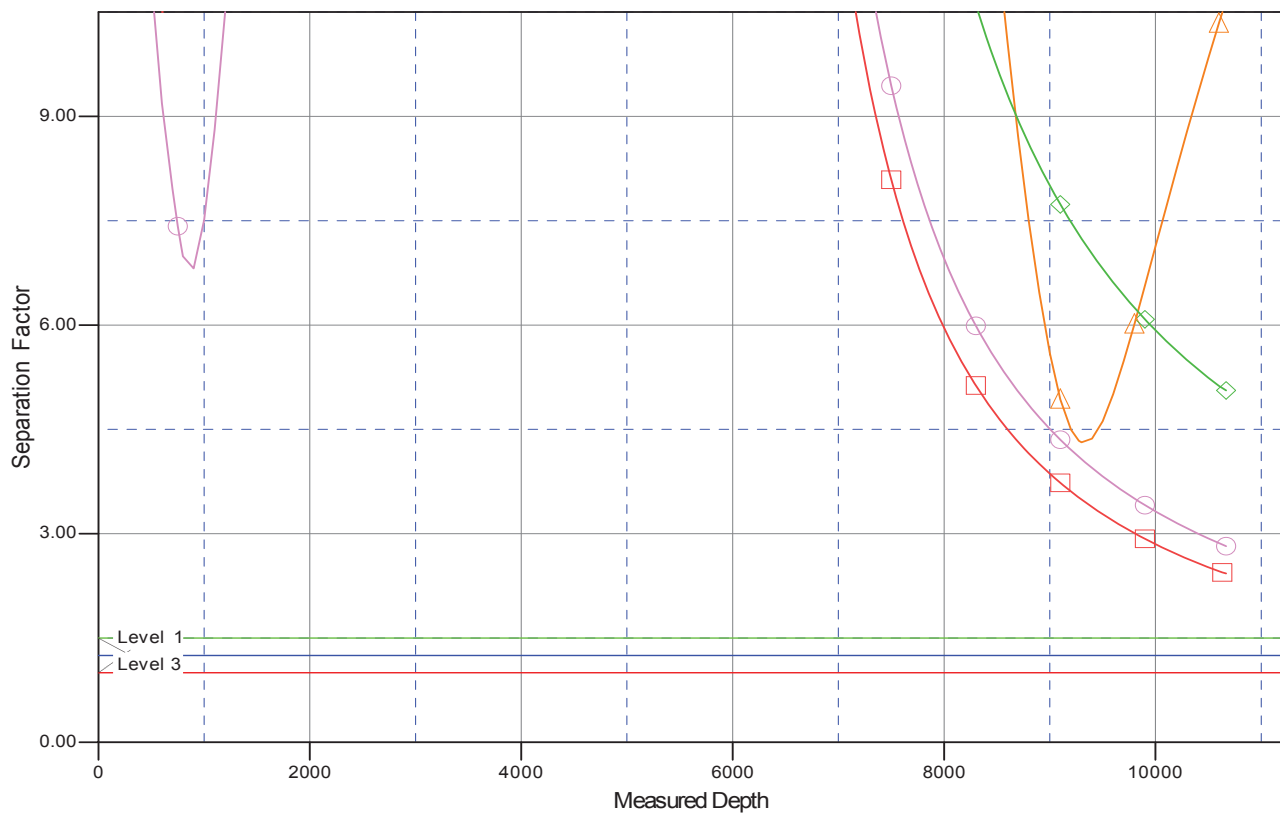


Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 4612.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 5-63-27-48H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

Separation Factor Plot



LEGEND

70 Ranch 5-63-27-32H, Wellbore #1, Design #1 V0 —■— 70 Ranch 5-63-27-33H, Wellbore #1, Design #1 V0
 70 Ranch 5-63-27-49H, Wellbore #1, Design #1 V0 —○—