

Well Planning Proposal FOR

Bill Barrett Corp.
70 Ranch 5-63-27-32H
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 5-63-27-32H
Wellbore: Wellbore #1
Design: Design #1
Lat: 40° 22' 7.248 N
Long: 104° 24' 47.412 W
Pad GL: 4596.00
KB: WELL @ 4614.00usft



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: 53083.8nT
Dip Angle: 67.06°
Date: 02/14/2012
Model: IGRF2010

WELL DETAILS: 70 Ranch 5-63-27-32H

	Ground Level:	4596.00			
+N/-S	+E/-W	Northing	Eastings	Latitude	Longitude
0.00	0.00	1379006.436	3302825.671	40° 22' 7.248 N	104° 24' 47.412 W

WELLBORE TARGET DETAILS (LAT/LONG)

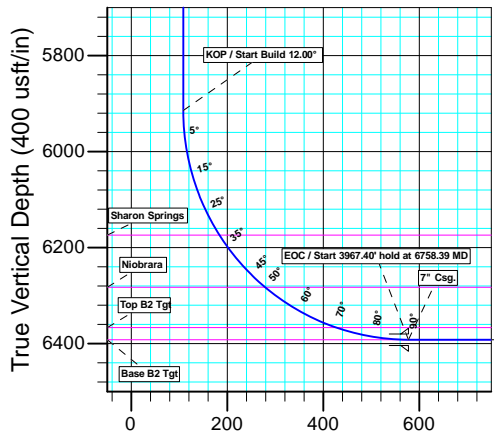
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
70 Ranch 5-63-27-32H PBHL	6392.00	878.35	-4391.19	40° 22' 15.924 N	104° 25' 44.148 W	

CASING DETAILS

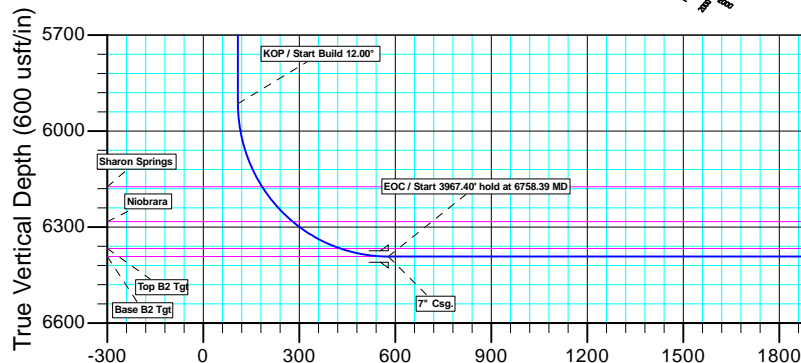
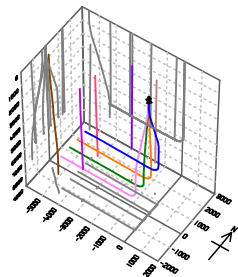
TVD	MD	Name	Size
6392.00	6758.39	7" Csg.	7

FORMATION TOP DETAILS

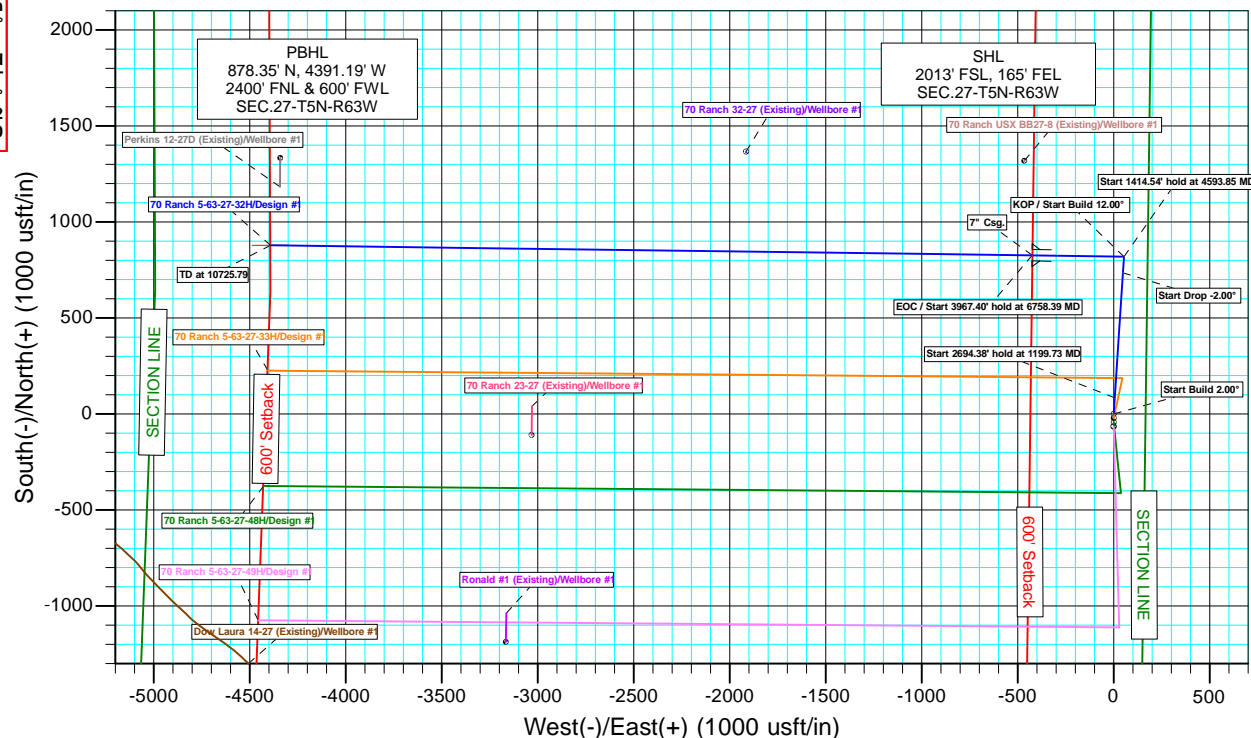
TVDPATH	MDPATH	Formation
264.00	264.00	Pierre
4014.00	4105.49	Terry/Sussex
4664.00	4757.85	Shannon
6174.00	6282.69	Sharon Springs
6283.00	6429.28	Niobrara
6367.00	6603.18	Top B2 Tgt
6392.00	6756.24	Base B2 Tgt



Vertical Section at 281.31° (400 usft/in)



Vertical Section at 281.31° (600 usft/in)



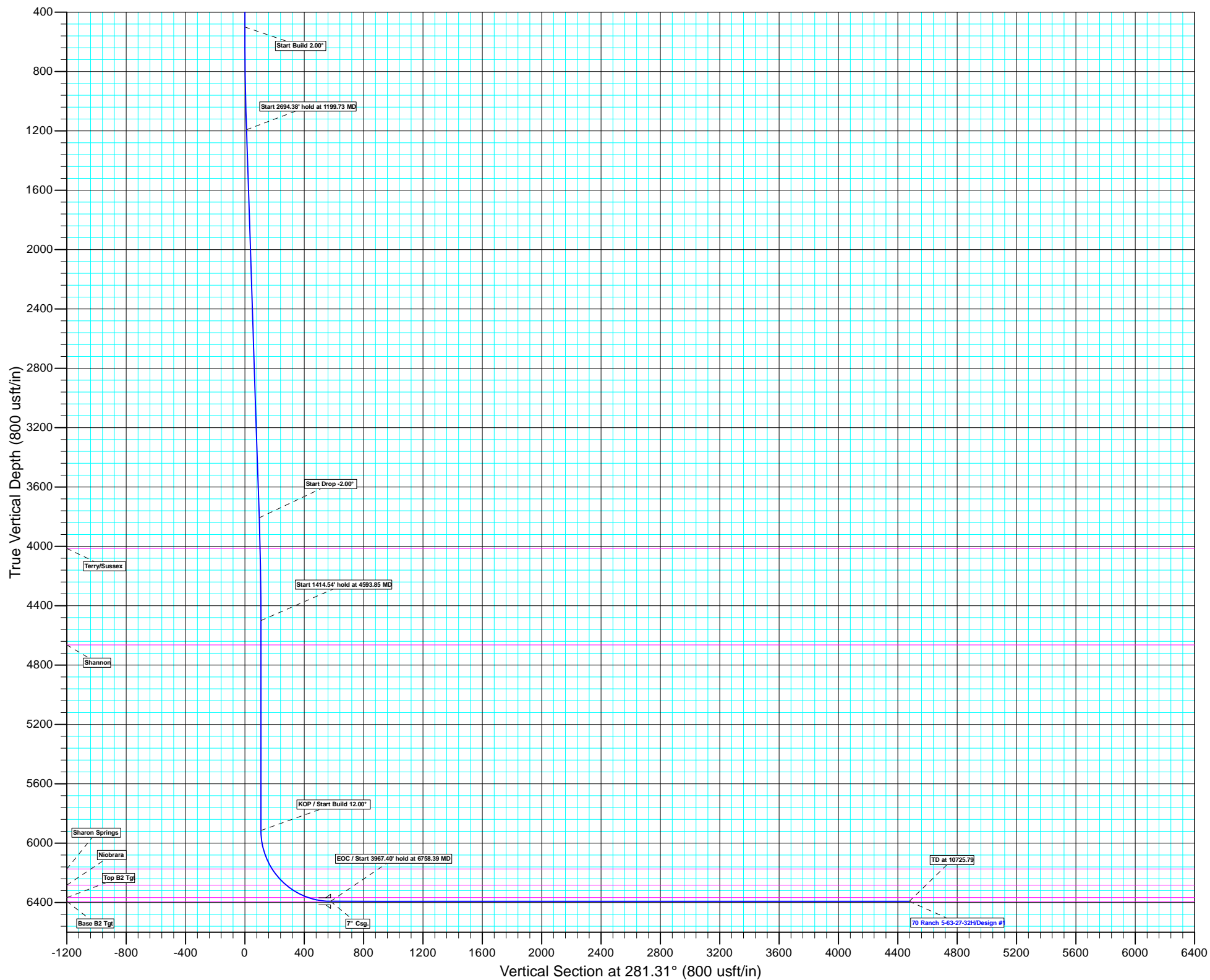
SECTION DETAILS

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°
1199.73	13.99	3.72	1192.80	84.85	5.51	2.00	3.72	11.24	Start 2694.38° hold at 1199.73 MD
3894.11	13.99	3.72	3807.20	735.07	47.77	0.00	0.00	97.33	Start Drop -2.00°
4593.85	0.00	0.71	4500.00	819.92	53.29	2.00	180.00	108.57	Start 1414.54° hold at 4593.85 MD
6008.39	0.00	0.71	5914.54	819.92	53.29	0.00	0.71	108.57	KOP / Start Build 12.00°
6758.39	90.00	270.75	6392.00	826.20	-424.13	12.00	270.75	577.95	EOC / Start 3967.40° hold at 6758.39 MD
10725.79	90.00	270.75	6392.00	878.35	-4391.19	0.00	0.00	4478.18	TD at 10725.79

Plan: Design #1 (70 Ranch 5-63-27-32H/Wellbore #1)

Created By: Bret Wolford

Date: 15:40, February 14 2012





Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.27-T5N-R63W

70 Ranch 5-63-27-32H

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 5-63-27-32H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4614.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4614.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-32H	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 5-63-27-32H					
Well Position	+N/-S	65.56 usft	Northing:	1,379,006.436 usft	Latitude:	40° 22' 7.248 N
	+E/-W	0.00 usft	Easting:	3,302,825.671 usft	Longitude:	104° 24' 47.412 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,596.00 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	281.31

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	
1,199.73	13.99	3.72	1,192.80	84.85	5.51	2.00	2.00	0.00	3.72	
3,894.11	13.99	3.72	3,807.20	735.07	47.77	0.00	0.00	0.00	0.00	
4,593.85	0.00	0.71	4,500.00	819.92	53.29	2.00	-2.00	0.00	180.00	
6,008.39	0.00	0.71	5,914.54	819.92	53.29	0.00	0.00	0.00	0.71	
6,758.39	90.00	270.75	6,392.00	826.20	-424.13	12.00	12.00	0.00	270.75	70 Ranch 5-63-27-32H
10,725.79	90.00	270.75	6,392.00	878.35	-4,391.19	0.00	0.00	0.00	0.00	70 Ranch 5-63-27-32H

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4614.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4614.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-32H	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									
264.00	0.00	0.71	264.00	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	3.72	599.98	1.74	0.11	0.23	2.00	2.00	0.00
700.00	4.00	3.72	699.84	6.96	0.45	0.92	2.00	2.00	0.00
800.00	6.00	3.72	799.45	15.66	1.02	2.07	2.00	2.00	0.00
900.00	8.00	3.72	898.70	27.82	1.81	3.68	2.00	2.00	0.00
1,000.00	10.00	3.72	997.47	43.43	2.82	5.75	2.00	2.00	0.00
1,100.00	12.00	3.72	1,095.62	62.47	4.06	8.27	2.00	2.00	0.00
Start 2694.38' hold at 1199.73 MD									
1,199.73	13.99	3.72	1,192.80	84.85	5.51	11.24	2.00	2.00	0.00
1,300.00	13.99	3.72	1,290.09	109.05	7.09	14.44	0.00	0.00	0.00
1,400.00	13.99	3.72	1,387.12	133.18	8.66	17.63	0.00	0.00	0.00
1,500.00	13.99	3.72	1,484.15	157.31	10.22	20.83	0.00	0.00	0.00
1,600.00	13.99	3.72	1,581.18	181.45	11.79	24.03	0.00	0.00	0.00
1,700.00	13.99	3.72	1,678.21	205.58	13.36	27.22	0.00	0.00	0.00
1,800.00	13.99	3.72	1,775.25	229.71	14.93	30.42	0.00	0.00	0.00
1,900.00	13.99	3.72	1,872.28	253.84	16.50	33.61	0.00	0.00	0.00
2,000.00	13.99	3.72	1,969.31	277.98	18.07	36.81	0.00	0.00	0.00
2,100.00	13.99	3.72	2,066.34	302.11	19.63	40.00	0.00	0.00	0.00
2,200.00	13.99	3.72	2,163.37	326.24	21.20	43.20	0.00	0.00	0.00
2,300.00	13.99	3.72	2,260.41	350.37	22.77	46.39	0.00	0.00	0.00
2,400.00	13.99	3.72	2,357.44	374.50	24.34	49.59	0.00	0.00	0.00
2,500.00	13.99	3.72	2,454.47	398.64	25.91	52.78	0.00	0.00	0.00
2,600.00	13.99	3.72	2,551.50	422.77	27.48	55.98	0.00	0.00	0.00
2,700.00	13.99	3.72	2,648.53	446.90	29.05	59.17	0.00	0.00	0.00
2,800.00	13.99	3.72	2,745.56	471.03	30.61	62.37	0.00	0.00	0.00
2,900.00	13.99	3.72	2,842.60	495.17	32.18	65.56	0.00	0.00	0.00
3,000.00	13.99	3.72	2,939.63	519.30	33.75	68.76	0.00	0.00	0.00
3,100.00	13.99	3.72	3,036.66	543.43	35.32	71.96	0.00	0.00	0.00
3,200.00	13.99	3.72	3,133.69	567.56	36.89	75.15	0.00	0.00	0.00
3,300.00	13.99	3.72	3,230.72	591.69	38.46	78.35	0.00	0.00	0.00
3,400.00	13.99	3.72	3,327.76	615.83	40.02	81.54	0.00	0.00	0.00
3,500.00	13.99	3.72	3,424.79	639.96	41.59	84.74	0.00	0.00	0.00
3,600.00	13.99	3.72	3,521.82	664.09	43.16	87.93	0.00	0.00	0.00
3,700.00	13.99	3.72	3,618.85	688.22	44.73	91.13	0.00	0.00	0.00
3,800.00	13.99	3.72	3,715.88	712.36	46.30	94.32	0.00	0.00	0.00
Start Drop -2.00°									
3,894.11	13.99	3.72	3,807.20	735.07	47.77	97.33	0.00	0.00	0.00
3,900.00	13.88	3.72	3,812.92	736.48	47.87	97.52	2.00	-2.00	0.00
4,000.00	11.88	3.72	3,910.40	758.72	49.31	100.46	2.00	-2.00	0.00
4,100.00	9.88	3.72	4,008.59	777.55	50.53	102.95	2.00	-2.00	0.00
Terry/Sussex									
4,105.49	9.77	3.72	4,014.00	778.48	50.60	103.08	2.00	-2.00	0.00
4,200.00	7.88	3.72	4,107.39	792.95	51.54	104.99	2.00	-2.00	0.00
4,300.00	5.88	3.72	4,206.67	804.89	52.31	106.58	2.00	-2.00	0.00
4,400.00	3.88	3.72	4,306.30	813.38	52.86	107.70	2.00	-2.00	0.00
4,500.00	1.88	3.72	4,406.17	818.39	53.19	108.36	2.00	-2.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4614.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4614.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-32H	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)
Start 1414.54' hold at 4593.85 MD									
4,593.85	0.00	0.71	4,500.00	819.92	53.29	108.57	2.00	-2.00	0.00
4,600.00	0.00	0.71	4,506.15	819.92	53.29	108.57	0.00	0.00	0.00
4,700.00	0.00	0.71	4,606.15	819.92	53.29	108.57	0.00	0.00	0.00
Shannon									
4,757.85	0.00	0.71	4,664.00	819.92	53.29	108.57	0.00	0.00	0.00
4,800.00	0.00	0.71	4,706.15	819.92	53.29	108.57	0.00	0.00	0.00
4,900.00	0.00	0.71	4,806.15	819.92	53.29	108.57	0.00	0.00	0.00
5,000.00	0.00	0.71	4,906.15	819.92	53.29	108.57	0.00	0.00	0.00
5,100.00	0.00	0.71	5,006.15	819.92	53.29	108.57	0.00	0.00	0.00
5,200.00	0.00	0.71	5,106.15	819.92	53.29	108.57	0.00	0.00	0.00
5,300.00	0.00	0.71	5,206.15	819.92	53.29	108.57	0.00	0.00	0.00
5,400.00	0.00	0.71	5,306.15	819.92	53.29	108.57	0.00	0.00	0.00
5,500.00	0.00	0.71	5,406.15	819.92	53.29	108.57	0.00	0.00	0.00
5,600.00	0.00	0.71	5,506.15	819.92	53.29	108.57	0.00	0.00	0.00
5,700.00	0.00	0.71	5,606.15	819.92	53.29	108.57	0.00	0.00	0.00
5,800.00	0.00	0.71	5,706.15	819.92	53.29	108.57	0.00	0.00	0.00
5,900.00	0.00	0.71	5,806.15	819.92	53.29	108.57	0.00	0.00	0.00
KOP / Start Build 12.00°									
6,008.39	0.00	0.71	5,914.54	819.92	53.29	108.57	0.00	0.00	0.00
6,025.00	1.99	270.75	5,931.15	819.92	53.00	108.85	12.00	12.00	0.00
6,050.00	4.99	270.75	5,956.10	819.94	51.48	110.35	12.00	12.00	0.00
6,075.00	7.99	270.75	5,980.94	819.98	48.65	113.13	12.00	12.00	0.00
6,100.00	10.99	270.75	6,005.59	820.04	44.53	117.18	12.00	12.00	0.00
6,125.00	13.99	270.75	6,030.00	820.11	39.12	122.49	12.00	12.00	0.00
6,150.00	16.99	270.75	6,054.09	820.19	32.44	129.06	12.00	12.00	0.00
6,175.00	19.99	270.75	6,077.79	820.30	24.52	136.85	12.00	12.00	0.00
6,200.00	22.99	270.75	6,101.05	820.42	15.36	145.86	12.00	12.00	0.00
6,225.00	25.99	270.75	6,123.80	820.56	4.99	156.05	12.00	12.00	0.00
6,250.00	28.99	270.75	6,145.97	820.71	-6.54	167.39	12.00	12.00	0.00
6,275.00	31.99	270.75	6,167.51	820.87	-19.23	179.86	12.00	12.00	0.00
Sharon Springs									
6,282.69	32.92	270.75	6,174.00	820.93	-23.35	183.92	12.00	12.00	0.00
6,300.00	34.99	270.75	6,188.36	821.05	-33.02	193.42	12.00	12.00	0.00
6,325.00	37.99	270.75	6,208.45	821.25	-47.89	208.04	12.00	12.00	0.00
6,350.00	40.99	270.75	6,227.74	821.46	-63.78	223.66	12.00	12.00	0.00
6,375.00	43.99	270.75	6,246.18	821.68	-80.67	240.26	12.00	12.00	0.00
6,400.00	46.99	270.75	6,263.70	821.92	-98.49	257.79	12.00	12.00	0.00
6,425.00	49.99	270.75	6,280.26	822.16	-117.21	276.19	12.00	12.00	0.00
Niobrara									
6,429.28	50.51	270.75	6,283.00	822.20	-120.50	279.43	12.00	12.00	0.00
6,450.00	52.99	270.75	6,295.83	822.42	-136.77	295.42	12.00	12.00	0.00
6,475.00	55.99	270.75	6,310.35	822.69	-157.12	315.43	12.00	12.00	0.00
6,500.00	58.99	270.75	6,323.78	822.96	-178.20	336.15	12.00	12.00	0.00
6,525.00	61.99	270.75	6,336.09	823.25	-199.95	357.54	12.00	12.00	0.00
6,550.00	64.99	270.75	6,347.25	823.54	-222.32	379.53	12.00	12.00	0.00
6,575.00	67.99	270.75	6,357.22	823.84	-245.24	402.06	12.00	12.00	0.00
6,600.00	70.99	270.75	6,365.97	824.15	-268.65	425.08	12.00	12.00	0.00
Top B2 Tgt									
6,603.18	71.38	270.75	6,367.00	824.19	-271.66	428.04	12.00	12.00	0.00
6,625.00	73.99	270.75	6,373.49	824.47	-292.49	448.52	12.00	12.00	0.00
6,650.00	76.99	270.75	6,379.76	824.78	-316.68	472.31	12.00	12.00	0.00
6,675.00	79.99	270.75	6,384.74	825.11	-341.18	496.39	12.00	12.00	0.00

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Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-32H	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)
6,700.00	82.99	270.75	6,388.44	825.43	-365.90	520.69	12.00	12.00	0.00
6,725.00	85.99	270.75	6,390.84	825.76	-390.78	545.15	12.00	12.00	0.00
6,750.00	88.99	270.75	6,391.93	826.09	-415.75	569.70	12.00	12.00	0.00
Base B2 Tgt									
6,756.24	89.74	270.75	6,392.00	826.17	-421.99	575.84	12.00	12.00	0.00
EOC / Start 3967.40' hold at 6758.39 MD - 7" Csg.									
6,758.39	90.00	270.75	6,392.00	826.20	-424.14	577.95	11.99	11.99	0.00
6,800.00	90.00	270.75	6,392.00	826.74	-465.74	618.85	0.00	0.00	0.00
6,900.00	90.00	270.75	6,392.00	828.06	-565.73	717.16	0.00	0.00	0.00
7,000.00	90.00	270.75	6,392.00	829.37	-665.73	815.47	0.00	0.00	0.00
7,100.00	90.00	270.75	6,392.00	830.69	-765.72	913.77	0.00	0.00	0.00
7,200.00	90.00	270.75	6,392.00	832.00	-865.71	1,012.08	0.00	0.00	0.00
7,300.00	90.00	270.75	6,392.00	833.32	-965.70	1,110.39	0.00	0.00	0.00
7,400.00	90.00	270.75	6,392.00	834.63	-1,065.69	1,208.70	0.00	0.00	0.00
7,500.00	90.00	270.75	6,392.00	835.95	-1,165.68	1,307.00	0.00	0.00	0.00
7,600.00	90.00	270.75	6,392.00	837.26	-1,265.67	1,405.31	0.00	0.00	0.00
7,700.00	90.00	270.75	6,392.00	838.57	-1,365.67	1,503.62	0.00	0.00	0.00
7,800.00	90.00	270.75	6,392.00	839.89	-1,465.66	1,601.92	0.00	0.00	0.00
7,900.00	90.00	270.75	6,392.00	841.20	-1,565.65	1,700.23	0.00	0.00	0.00
8,000.00	90.00	270.75	6,392.00	842.52	-1,665.64	1,798.54	0.00	0.00	0.00
8,100.00	90.00	270.75	6,392.00	843.83	-1,765.63	1,896.84	0.00	0.00	0.00
8,200.00	90.00	270.75	6,392.00	845.15	-1,865.62	1,995.15	0.00	0.00	0.00
8,300.00	90.00	270.75	6,392.00	846.46	-1,965.61	2,093.46	0.00	0.00	0.00
8,400.00	90.00	270.75	6,392.00	847.78	-2,065.61	2,191.77	0.00	0.00	0.00
8,500.00	90.00	270.75	6,392.00	849.09	-2,165.60	2,290.07	0.00	0.00	0.00
8,600.00	90.00	270.75	6,392.00	850.40	-2,265.59	2,388.38	0.00	0.00	0.00
8,700.00	90.00	270.75	6,392.00	851.72	-2,365.58	2,486.69	0.00	0.00	0.00
8,800.00	90.00	270.75	6,392.00	853.03	-2,465.57	2,584.99	0.00	0.00	0.00
8,900.00	90.00	270.75	6,392.00	854.35	-2,565.56	2,683.30	0.00	0.00	0.00
9,000.00	90.00	270.75	6,392.00	855.66	-2,665.55	2,781.61	0.00	0.00	0.00
9,100.00	90.00	270.75	6,392.00	856.98	-2,765.54	2,879.91	0.00	0.00	0.00
9,200.00	90.00	270.75	6,392.00	858.29	-2,865.54	2,978.22	0.00	0.00	0.00
9,300.00	90.00	270.75	6,392.00	859.61	-2,965.53	3,076.53	0.00	0.00	0.00
9,400.00	90.00	270.75	6,392.00	860.92	-3,065.52	3,174.83	0.00	0.00	0.00
9,500.00	90.00	270.75	6,392.00	862.24	-3,165.51	3,273.14	0.00	0.00	0.00
9,600.00	90.00	270.75	6,392.00	863.55	-3,265.50	3,371.45	0.00	0.00	0.00
9,700.00	90.00	270.75	6,392.00	864.86	-3,365.49	3,469.76	0.00	0.00	0.00
9,800.00	90.00	270.75	6,392.00	866.18	-3,465.48	3,568.06	0.00	0.00	0.00
9,900.00	90.00	270.75	6,392.00	867.49	-3,565.48	3,666.37	0.00	0.00	0.00
10,000.00	90.00	270.75	6,392.00	868.81	-3,665.47	3,764.68	0.00	0.00	0.00
10,100.00	90.00	270.75	6,392.00	870.12	-3,765.46	3,862.98	0.00	0.00	0.00
10,200.00	90.00	270.75	6,392.00	871.44	-3,865.45	3,961.29	0.00	0.00	0.00
10,300.00	90.00	270.75	6,392.00	872.75	-3,965.44	4,059.60	0.00	0.00	0.00
10,400.00	90.00	270.75	6,392.00	874.07	-4,065.43	4,157.90	0.00	0.00	0.00
10,500.00	90.00	270.75	6,392.00	875.38	-4,165.42	4,256.21	0.00	0.00	0.00
10,600.00	90.00	270.75	6,392.00	876.69	-4,265.42	4,354.52	0.00	0.00	0.00
10,700.00	90.00	270.75	6,392.00	878.01	-4,365.41	4,452.83	0.00	0.00	0.00
TD at 10725.79 - 70 Ranch 5-63-27-32H PBHL									
10,725.79	90.00	270.75	6,392.00	878.35	-4,391.19	4,478.18	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4614.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4614.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-32H	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 5-63-27-32H F	0.00	0.00	6,392.00	878.35	-4,391.19	1,379,830.899	3,298,424.041	40° 22' 15.924 N	104° 25' 44.148 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(usft)	(usft)			(")	(")
6,758.39	6,392.00	7" Csg.		7	8-3/4

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(usft)	(usft)				(°)	(°)
264.00	264.00	Pierre			0.00	
4,105.49	4,014.00	Terry/Sussex			0.00	
4,757.85	4,664.00	Shannon			0.00	
6,282.69	6,174.00	Sharon Springs			0.00	
6,429.28	6,283.00	Niobrara			0.00	
6,603.18	6,367.00	Top B2 Tgt			0.00	
6,756.24	6,392.00	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°	
1,199.73	1,192.80	84.85	5.51	Start 2694.38' hold at 1199.73 MD	
3,894.11	3,807.20	735.07	47.77	Start Drop -2.00°	
4,593.85	4,500.00	819.92	53.29	Start 1414.54' hold at 4593.85 MD	
6,008.39	5,914.54	819.92	53.29	KOP / Start Build 12.00°	
6,758.39	6,392.00	826.20	-424.13	EOC / Start 3967.40' hold at 6758.39 MD	
10,725.79	6,392.00	878.35	-4,391.19	TD at 10725.79	



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.27-T5N-R63W

70 Ranch 5-63-27-32H

Wellbore #1

Design #1

Anticollision Report

14 February, 2012



Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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	10,725.79	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning
			Between Centres (usft)	Between Ellipses (usft)		
Sec.27-T5N-R63W						
70 Ranch 32-27 (Existing) - Wellbore #1 - Wellbore #1	8,255.37	6,363.00	520.35	457.77	8.315	CC, ES
70 Ranch 32-27 (Existing) - Wellbore #1 - Wellbore #1	8,400.00	6,363.00	540.08	473.58	8.122	SF
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	500.00	499.00	21.86	19.88	11.038	CC
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	700.00	700.18	22.33	19.45	7.746	ES
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	10,725.79	10,634.29	652.18	405.04	2.639	SF
70 Ranch 5-63-27-48H - Wellbore #1 - Design #1	500.00	498.00	43.72	41.74	22.101	CC, ES
70 Ranch 5-63-27-48H - Wellbore #1 - Design #1	10,725.79	10,642.41	1,253.43	1,006.49	5.076	SF
70 Ranch 5-63-27-49H - Wellbore #1 - Design #1	500.00	498.00	65.57	63.59	33.150	CC, ES
70 Ranch 5-63-27-49H - Wellbore #1 - Design #1	10,725.79	10,778.91	1,953.08	1,706.22	7.912	SF
70 Ranch USX BB27-8 (Existing) - Wellbore #1 - Wellbor	6,806.03	6,352.00	491.97	465.10	18.311	CC, ES
70 Ranch USX BB27-8 (Existing) - Wellbore #1 - Wellbor	7,000.00	6,352.00	528.83	498.12	17.219	SF
Perkins 12-27D (Existing) - Wellbore #1 - Wellbore #1	10,681.42	6,331.94	309.17	174.16	2.290	CC, ES
Perkins 12-27D (Existing) - Wellbore #1 - Wellbore #1	10,700.00	6,331.94	309.73	174.20	2.285	SF

Offset Design		Sec.27-T5N-R63W - 70 Ranch 32-27 (Existing) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.00 usft
Survey Program:		6450-MWD										Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							
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	Warning	
0.00	0.00	0.00	29.00	0.00	0.00	-54.48	1,366.18	-1,914.14	2,351.86					
100.00	100.00	71.00	100.00	0.09	0.08	-54.48	1,366.18	-1,914.14	2,351.68	2,351.51	0.17	N/A		
200.00	200.00	171.00	200.00	0.32	0.19	-54.48	1,366.18	-1,914.14	2,351.68	2,351.17	0.51	4,617.564		
300.00	300.00	271.00	300.00	0.54	0.30	-54.48	1,366.18	-1,914.14	2,351.68	2,350.83	0.85	2,778.331		
400.00	400.00	371.00	400.00	0.77	0.42	-54.48	1,366.18	-1,914.14	2,351.68	2,350.50	1.18	1,986.917		
500.00	500.00	471.00	500.00	0.99	0.53	-54.48	1,366.18	-1,914.14	2,351.68	2,350.16	1.52	1,546.417		
600.00	599.98	570.98	599.98	1.22	0.64	-54.52	1,366.18	-1,914.14	2,350.76	2,348.90	1.86	1,265.631		
700.00	699.84	670.84	699.84	1.45	0.75	-54.63	1,366.18	-1,914.14	2,348.01	2,345.81	2.20	1,069.450		
800.00	799.45	770.45	799.45	1.68	0.87	-54.81	1,366.18	-1,914.14	2,343.45	2,340.91	2.54	921.955		
900.00	898.70	869.70	898.70	1.94	0.98	-55.06	1,366.18	-1,914.14	2,337.11	2,334.20	2.91	804.500		
1,000.00	997.47	968.47	997.47	2.24	1.09	-55.39	1,366.18	-1,914.14	2,329.04	2,325.74	3.29	706.962		
1,100.00	1,095.62	1,066.62	1,095.62	2.58	1.20	-55.80	1,366.18	-1,914.14	2,319.30	2,315.58	3.72	623.650		
1,199.73	1,192.80	1,163.80	1,192.80	2.96	1.31	-56.28	1,366.18	-1,914.14	2,308.01	2,303.82	4.19	551.464		
1,300.00	1,290.09	1,261.09	1,290.09	3.39	1.42	-56.80	1,366.18	-1,914.14	2,295.98	2,291.28	4.69	489.440		
1,400.00	1,387.12	1,358.12	1,387.12	3.84	1.53	-57.33	1,366.18	-1,914.14	2,284.17	2,278.96	5.21	438.136		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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: 6450-MWVD													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		
1,500.00	1,484.15	1,455.15	1,484.15	4.30	1.64	-57.86	1,366.18	-1,914.14	2,272.56	2,266.82	5.75	395.287		
1,600.00	1,581.18	1,552.18	1,581.18	4.77	1.74	-58.40	1,366.18	-1,914.14	2,261.16	2,254.86	6.30	359.175		
1,700.00	1,678.21	1,649.21	1,678.21	5.24	1.85	-58.95	1,366.18	-1,914.14	2,249.95	2,243.10	6.85	328.451		
1,800.00	1,775.25	1,746.25	1,775.25	5.72	1.96	-59.50	1,366.18	-1,914.14	2,238.95	2,231.54	7.41	302.070		
1,900.00	1,872.28	1,843.28	1,872.28	6.20	2.07	-60.05	1,366.18	-1,914.14	2,228.15	2,220.17	7.98	279.220		
2,000.00	1,969.31	1,940.31	1,969.31	6.68	2.18	-60.61	1,366.18	-1,914.14	2,217.57	2,209.02	8.55	259.269		
2,100.00	2,066.34	2,037.34	2,066.34	7.17	2.29	-61.18	1,366.18	-1,914.14	2,207.20	2,198.07	9.13	241.722		
2,200.00	2,163.37	2,134.37	2,163.37	7.66	2.40	-61.75	1,366.18	-1,914.14	2,197.05	2,187.34	9.71	226.187		
2,300.00	2,260.41	2,231.41	2,260.41	8.15	2.51	-62.33	1,366.18	-1,914.14	2,187.12	2,176.82	10.30	212.349		
2,400.00	2,357.44	2,328.44	2,357.44	8.64	2.62	-62.91	1,366.18	-1,914.14	2,177.42	2,166.53	10.89	199.956		
2,500.00	2,454.47	2,425.47	2,454.47	9.13	2.73	-63.49	1,366.18	-1,914.14	2,167.94	2,156.45	11.48	188.800		
2,600.00	2,551.50	2,522.50	2,551.50	9.62	2.83	-64.09	1,366.18	-1,914.14	2,158.68	2,146.60	12.08	178.713		
2,700.00	2,648.53	2,619.53	2,648.53	10.12	2.94	-64.68	1,366.18	-1,914.14	2,149.66	2,136.99	12.68	169.554		
2,800.00	2,745.56	2,716.56	2,745.56	10.61	3.05	-65.28	1,366.18	-1,914.14	2,140.88	2,127.60	13.28	161.206		
2,900.00	2,842.60	2,813.60	2,842.60	11.10	3.16	-65.89	1,366.18	-1,914.14	2,132.33	2,118.45	13.89	153.571		
3,000.00	2,939.63	2,910.63	2,939.63	11.60	3.27	-66.50	1,366.18	-1,914.14	2,124.03	2,109.54	14.49	146.565		
3,100.00	3,036.66	3,007.66	3,036.66	12.09	3.38	-67.12	1,366.18	-1,914.14	2,115.97	2,100.87	15.10	140.117		
3,200.00	3,133.69	3,104.69	3,133.69	12.59	3.49	-67.74	1,366.18	-1,914.14	2,108.15	2,092.44	15.71	134.167		
3,300.00	3,230.72	3,201.72	3,230.72	13.09	3.60	-68.36	1,366.18	-1,914.14	2,100.59	2,084.26	16.33	128.663		
3,400.00	3,327.76	3,298.76	3,327.76	13.58	3.71	-68.99	1,366.18	-1,914.14	2,093.28	2,076.33	16.94	123.558		
3,500.00	3,424.79	3,395.79	3,424.79	14.08	3.82	-69.63	1,366.18	-1,914.14	2,086.22	2,068.66	17.56	118.815		
3,600.00	3,521.82	3,492.82	3,521.82	14.58	3.93	-70.27	1,366.18	-1,914.14	2,079.42	2,061.24	18.18	114.398		
3,700.00	3,618.85	3,589.85	3,618.85	15.08	4.03	-70.91	1,366.18	-1,914.14	2,072.87	2,054.08	18.80	110.277		
3,800.00	3,715.88	3,686.88	3,715.88	15.57	4.14	-71.56	1,366.18	-1,914.14	2,066.60	2,047.18	19.42	106.426		
3,894.11	3,807.20	3,778.20	3,807.20	16.04	4.25	-72.17	1,366.18	-1,914.14	2,060.93	2,040.92	20.00	103.027		
3,900.00	3,812.92	3,783.92	3,812.92	16.07	4.25	-72.21	1,366.18	-1,914.14	2,060.58	2,040.55	20.04	102.839		
4,000.00	3,910.40	3,881.40	3,910.40	16.44	4.36	-72.81	1,366.18	-1,914.14	2,055.28	2,034.75	20.53	100.112		
4,100.00	4,008.59	3,979.59	4,008.59	16.77	4.47	-73.32	1,366.18	-1,914.14	2,050.96	2,029.98	20.98	97.741		
4,200.00	4,107.39	4,078.39	4,107.39	17.06	4.58	-73.74	1,366.18	-1,914.14	2,047.56	2,026.16	21.40	95.697		
4,300.00	4,206.67	4,177.67	4,206.67	17.31	4.70	-74.07	1,366.18	-1,914.14	2,044.99	2,023.23	21.77	93.955		
4,400.00	4,306.30	4,277.30	4,306.30	17.52	4.81	-74.30	1,366.18	-1,914.14	2,043.21	2,021.12	22.09	92.491		
4,500.00	4,406.17	4,377.17	4,406.17	17.68	4.92	-74.44	1,366.18	-1,914.14	2,042.17	2,019.80	22.37	91.286		
4,593.85	4,500.00	4,471.00	4,500.00	17.80	5.02	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
4,600.00	4,506.15	4,477.15	4,506.15	17.81	5.03	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
4,700.00	4,606.15	4,577.15	4,606.15	17.92	5.14	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
4,800.00	4,706.15	4,677.15	4,706.15	18.04	5.26	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
4,900.00	4,806.15	4,777.15	4,806.15	18.16	5.37	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,000.00	4,906.15	4,877.15	4,906.15	18.28	5.48	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,100.00	5,006.15	4,977.15	5,006.15	18.41	5.59	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,200.00	5,106.15	5,077.15	5,106.15	18.53	5.71	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,300.00	5,206.15	5,177.15	5,206.15	18.66	5.82	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,400.00	5,306.15	5,277.15	5,306.15	18.79	5.93	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,500.00	5,406.15	5,377.15	5,406.15	18.92	6.04	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,600.00	5,506.15	5,477.15	5,506.15	19.06	6.16	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,700.00	5,606.15	5,577.15	5,606.15	19.19	6.27	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,800.00	5,706.15	5,677.15	5,706.15	19.33	6.38	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
5,900.00	5,806.15	5,777.15	5,806.15	19.47	6.49	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
6,008.39	5,914.54	5,885.54	5,914.54	19.62	6.61	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
6,025.00	5,931.15	5,902.15	5,931.15	19.64	6.63	-74.48	1,366.18	-1,914.14	2,041.86	2,019.34	22.62	90.377		
6,050.00	5,956.10	5,927.10	5,956.10	19.67	6.66	-74.47	1,366.18	-1,914.14	2,040.11	2,014.03	26.08	78.235		
6,075.00	5,980.94	5,951.94	5,980.94	19.70	6.69	-74.45	1,366.18	-1,914.14	2,037.37	2,011.34	26.04	78.249		
6,100.00	6,005.59	5,976.59	6,005.59	19.74	6.72	-74.42	1,366.18	-1,914.14	2,033.39	2,007.44	25.95	78.373		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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: 6450-MWVD													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		
6,125.00	6,030.00	6,001.00	6,030.00	19.77	6.74	-74.38	1,366.18	-1,914.14	2,028.16	2,002.36	25.80	78.605		
6,150.00	6,054.09	6,025.09	6,054.09	19.80	6.77	-74.33	1,366.18	-1,914.14	2,021.71	1,996.10	25.61	78.947		
6,175.00	6,077.79	6,048.79	6,077.79	19.83	6.80	-74.27	1,366.18	-1,914.14	2,014.05	1,988.68	25.37	79.396		
6,200.00	6,101.05	6,072.05	6,101.05	19.86	6.82	-74.21	1,366.18	-1,914.14	2,005.20	1,980.12	25.08	79.954		
6,225.00	6,123.80	6,094.80	6,123.80	19.90	6.85	-74.13	1,366.18	-1,914.14	1,995.19	1,970.45	24.75	80.620		
6,250.00	6,145.97	6,116.97	6,145.97	19.93	6.87	-74.04	1,366.18	-1,914.14	1,984.06	1,959.68	24.38	81.393		
6,275.00	6,167.51	6,138.51	6,167.51	19.96	6.90	-73.95	1,366.18	-1,914.14	1,971.82	1,947.85	23.97	82.268		
6,300.00	6,188.36	6,159.36	6,188.36	20.00	6.92	-73.84	1,366.18	-1,914.14	1,958.52	1,934.99	23.53	83.238		
6,325.00	6,208.45	6,179.45	6,208.45	20.04	6.94	-73.72	1,366.18	-1,914.14	1,944.19	1,921.12	23.06	84.294		
6,350.00	6,227.74	6,198.74	6,227.74	20.08	6.97	-73.60	1,366.18	-1,914.14	1,928.87	1,906.29	22.58	85.414		
6,375.00	6,246.18	6,217.18	6,246.18	20.13	6.99	-73.46	1,366.18	-1,914.14	1,912.62	1,890.53	22.09	86.570		
6,400.00	6,263.70	6,234.70	6,263.70	20.18	7.01	-73.31	1,366.18	-1,914.14	1,895.47	1,873.86	21.61	87.713		
6,425.00	6,280.26	6,251.26	6,280.26	20.23	7.03	-73.16	1,366.18	-1,914.14	1,877.48	1,856.33	21.15	88.776		
6,450.00	6,295.83	6,266.83	6,295.83	20.29	7.04	-72.99	1,366.18	-1,914.14	1,858.69	1,837.96	20.73	89.661		
6,475.00	6,310.35	6,281.35	6,310.35	20.36	7.06	-72.81	1,366.18	-1,914.14	1,839.16	1,818.78	20.38	90.235		
6,500.00	6,323.78	6,294.78	6,323.78	20.44	7.07	-72.62	1,366.18	-1,914.14	1,818.95	1,798.82	20.14	90.332		
6,525.00	6,336.09	6,307.09	6,336.09	20.53	7.09	-72.43	1,366.18	-1,914.14	1,798.12	1,778.09	20.03	89.765		
6,550.00	6,347.25	6,318.25	6,347.25	20.63	7.10	-72.22	1,366.18	-1,914.14	1,776.72	1,756.61	20.11	88.360		
6,575.00	6,357.22	6,328.22	6,357.22	20.74	7.11	-72.00	1,366.18	-1,914.14	1,754.81	1,734.41	20.40	86.010		
6,600.00	6,365.97	6,336.97	6,365.97	20.87	7.12	-71.77	1,366.18	-1,914.14	1,732.47	1,711.53	20.94	82.739		
6,625.00	6,373.49	6,344.49	6,373.49	21.01	7.13	-71.53	1,366.18	-1,914.14	1,709.74	1,688.03	21.71	78.736		
6,650.00	6,379.76	6,350.76	6,379.76	21.18	7.14	-71.28	1,366.18	-1,914.14	1,686.71	1,664.02	22.69	74.348		
6,675.00	6,384.74	6,355.74	6,384.74	21.36	7.14	-71.02	1,366.18	-1,914.14	1,663.43	1,639.67	23.76	70.012		
6,700.00	6,388.44	6,359.44	6,388.44	21.57	7.15	-70.75	1,366.18	-1,914.14	1,639.96	1,615.18	24.78	66.173		
6,725.00	6,390.84	6,361.84	6,390.84	21.80	7.15	-70.47	1,366.18	-1,914.14	1,616.39	1,590.80	25.58	63.184		
6,750.00	6,391.93	6,362.93	6,391.93	22.06	7.15	-70.18	1,366.18	-1,914.14	1,592.76	1,566.76	26.01	61.247		
6,758.39	6,392.00	6,363.00	6,392.00	22.15	7.15	-70.08	1,366.18	-1,914.14	1,584.84	1,558.79	26.05	60.841		
6,800.00	6,392.00	6,363.00	6,392.00	22.63	7.15	-69.57	1,366.18	-1,914.14	1,545.59	1,518.83	26.77	57.745		
6,900.00	6,392.00	6,363.00	6,392.00	24.05	7.15	-68.24	1,366.18	-1,914.14	1,451.82	1,423.17	28.65	50.669		
7,000.00	6,392.00	6,363.00	6,392.00	25.76	7.15	-66.73	1,366.18	-1,914.14	1,358.94	1,328.21	30.72	44.230		
7,100.00	6,392.00	6,363.00	6,392.00	27.69	7.15	-65.00	1,366.18	-1,914.14	1,267.14	1,234.20	32.94	38.472		
7,200.00	6,392.00	6,363.00	6,392.00	29.80	7.15	-63.00	1,366.18	-1,914.14	1,176.67	1,141.42	35.26	33.376		
7,300.00	6,392.00	6,363.00	6,392.00	32.03	7.15	-60.67	1,366.18	-1,914.14	1,087.88	1,050.23	37.66	28.889		
7,400.00	6,392.00	6,363.00	6,392.00	34.36	7.15	-57.93	1,366.18	-1,914.14	1,001.21	961.08	40.12	24.953		
7,500.00	6,392.00	6,363.00	6,392.00	36.76	7.15	-54.69	1,366.18	-1,914.14	917.25	874.61	42.64	21.510		
7,600.00	6,392.00	6,363.00	6,392.00	39.22	7.15	-50.80	1,366.18	-1,914.14	836.82	791.62	45.20	18.513		
7,700.00	6,392.00	6,363.00	6,392.00	41.73	7.15	-46.11	1,366.18	-1,914.14	761.05	713.26	47.79	15.924		
7,800.00	6,392.00	6,363.00	6,392.00	44.27	7.15	-40.44	1,366.18	-1,914.14	691.46	641.05	50.41	13.716		
7,900.00	6,392.00	6,363.00	6,392.00	46.85	7.15	-33.58	1,366.18	-1,914.14	630.12	577.06	53.05	11.877		
8,000.00	6,392.00	6,363.00	6,392.00	49.46	7.15	-25.39	1,366.18	-1,914.14	579.63	523.92	55.72	10.403		
8,100.00	6,392.00	6,363.00	6,392.00	52.08	7.15	-15.87	1,366.18	-1,914.14	543.05	484.66	58.39	9.300		
8,200.00	6,392.00	6,363.00	6,392.00	54.73	7.15	-5.32	1,366.18	-1,914.14	523.29	462.20	61.08	8.567		
8,255.37	6,392.00	6,363.00	6,392.00	56.20	7.15	0.75	1,366.18	-1,914.14	520.35	457.77	62.58	8.315 CC, ES		
8,300.00	6,392.00	6,363.00	6,392.00	57.39	7.15	5.66	1,366.18	-1,914.14	522.26	458.47	63.79	8.188		
8,400.00	6,392.00	6,363.00	6,392.00	60.07	7.15	16.29	1,366.18	-1,914.14	540.08	473.58	66.50	8.122 SF		
8,500.00	6,392.00	6,363.00	6,392.00	62.76	7.15	25.93	1,366.18	-1,914.14	574.99	505.77	69.22	8.307		
8,600.00	6,392.00	6,363.00	6,392.00	65.45	7.15	34.27	1,366.18	-1,914.14	624.13	552.18	71.95	8.675		
8,700.00	6,392.00	6,363.00	6,392.00	68.16	7.15	41.27	1,366.18	-1,914.14	684.44	609.76	74.68	9.165		
8,800.00	6,392.00	6,363.00	6,392.00	70.88	7.15	47.06	1,366.18	-1,914.14	753.25	675.83	77.42	9.729		
8,900.00	6,392.00	6,363.00	6,392.00	73.60	7.15	51.84	1,366.18	-1,914.14	828.44	748.27	80.17	10.333		
9,000.00	6,392.00	6,363.00	6,392.00	76.33	7.15	55.81	1,366.18	-1,914.14	908.43	825.51	82.92	10.955		
9,100.00	6,392.00	6,363.00	6,392.00	79.07	7.15	59.12	1,366.18	-1,914.14	992.05	906.38	85.68	11.579		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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 32-27 (Existing) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft	
Survey Program: 6450-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		
9,200.00	6,392.00	6,363.00	6,392.00	81.81	7.15	61.91	1,366.18	-1,914.14	1,078.47	990.03	88.44	12.195		
9,300.00	6,392.00	6,363.00	6,392.00	84.55	7.15	64.27	1,366.18	-1,914.14	1,167.06	1,075.86	91.20	12.797		
9,400.00	6,392.00	6,363.00	6,392.00	87.30	7.15	66.31	1,366.18	-1,914.14	1,257.36	1,163.39	93.97	13.381		
9,500.00	6,392.00	6,363.00	6,392.00	90.06	7.15	68.06	1,366.18	-1,914.14	1,349.03	1,252.29	96.73	13.946		
9,600.00	6,392.00	6,363.00	6,392.00	92.81	7.15	69.60	1,366.18	-1,914.14	1,441.81	1,342.30	99.51	14.490		
9,700.00	6,392.00	6,363.00	6,392.00	95.57	7.15	70.94	1,366.18	-1,914.14	1,535.49	1,433.21	102.28	15.013		
9,800.00	6,392.00	6,363.00	6,392.00	98.33	7.15	72.14	1,366.18	-1,914.14	1,629.93	1,524.87	105.05	15.515		
9,900.00	6,392.00	6,363.00	6,392.00	101.10	7.15	73.20	1,366.18	-1,914.14	1,724.99	1,617.16	107.83	15.997		
10,000.00	6,392.00	6,363.00	6,392.00	103.87	7.15	74.15	1,366.18	-1,914.14	1,820.58	1,709.97	110.61	16.459		
10,100.00	6,392.00	6,363.00	6,392.00	106.64	7.15	75.00	1,366.18	-1,914.14	1,916.62	1,803.23	113.39	16.903		
10,200.00	6,392.00	6,363.00	6,392.00	109.41	7.15	75.77	1,366.18	-1,914.14	2,013.05	1,896.87	116.17	17.328		
10,300.00	6,392.00	6,363.00	6,392.00	112.18	7.15	76.47	1,366.18	-1,914.14	2,109.81	1,990.85	118.96	17.736		
10,400.00	6,392.00	6,363.00	6,392.00	114.96	7.15	77.12	1,366.18	-1,914.14	2,206.86	2,085.11	121.74	18.127		
10,500.00	6,392.00	6,363.00	6,392.00	117.74	7.15	77.70	1,366.18	-1,914.14	2,304.16	2,179.63	124.53	18.503		
10,600.00	6,392.00	6,363.00	6,392.00	120.52	7.15	78.24	1,366.18	-1,914.14	2,401.68	2,274.36	127.32	18.864		
10,700.00	6,392.00	6,363.00	6,392.00	123.30	7.15	78.74	1,366.18	-1,914.14	2,499.40	2,369.29	130.11	19.210		
10,725.79	6,392.00	6,363.00	6,392.00	124.02	7.15	78.86	1,366.18	-1,914.14	2,524.63	2,393.80	130.83	19.298		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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	1.00	0.00	0.00	180.00	-21.86	0.00	21.88					
100.00	100.00	99.00	100.00	0.09	0.09	180.00	-21.86	0.00	21.86	21.67	0.18	119.189		
200.00	200.00	199.00	200.00	0.32	0.31	180.00	-21.86	0.00	21.86	21.23	0.63	34.607		
300.00	300.00	299.00	300.00	0.54	0.54	180.00	-21.86	0.00	21.86	20.78	1.08	20.218		
400.00	400.00	399.00	400.00	0.77	0.76	180.00	-21.86	0.00	21.86	20.33	1.53	14.280		
500.00	500.00	499.00	500.00	0.99	0.99	180.00	-21.86	0.00	21.86	19.88	1.98	11.038 CC		
600.00	599.98	599.74	600.72	1.22	1.22	179.33	-20.16	0.37	21.92	19.48	2.43	9.010		
700.00	699.84	700.18	701.04	1.45	1.45	177.52	-15.31	1.42	22.33	19.45	2.88	7.746 ES		
800.00	799.45	800.12	800.82	1.68	1.67	176.47	-9.89	2.59	25.64	22.31	3.33	7.691		
900.00	898.70	899.89	900.43	1.94	1.91	176.53	-4.48	3.77	32.41	28.62	3.79	8.561		
1,000.00	997.47	999.36	999.75	2.24	2.14	177.16	0.91	4.93	42.63	38.39	4.24	10.058		
1,100.00	1,095.62	1,098.41	1,098.65	2.58	2.38	177.92	6.28	6.10	56.31	51.61	4.69	11.999		
1,199.73	1,192.80	1,196.66	1,196.75	2.96	2.61	178.64	11.61	7.25	73.37	68.22	5.15	14.259		
1,300.00	1,290.09	1,295.14	1,295.07	3.39	2.85	179.18	16.95	8.41	92.24	86.62	5.62	16.408		
1,400.00	1,387.12	1,393.35	1,393.13	3.84	3.08	179.53	22.28	9.57	111.07	104.97	6.10	18.203		
1,500.00	1,484.15	1,491.55	1,491.19	4.30	3.32	179.78	27.60	10.72	129.90	123.32	6.59	19.726		
1,600.00	1,581.18	1,589.76	1,589.25	4.77	3.56	179.97	32.93	11.87	148.73	141.66	7.07	21.031		
1,700.00	1,678.21	1,687.97	1,687.31	5.24	3.80	-179.89	38.26	13.03	167.57	160.01	7.56	22.160		
1,800.00	1,775.25	1,786.18	1,785.36	5.72	4.03	-179.77	43.58	14.18	186.40	178.35	8.05	23.147		
1,900.00	1,872.28	1,884.39	1,883.42	6.20	4.27	-179.68	48.91	15.34	205.24	196.69	8.55	24.016		
2,000.00	1,969.31	1,982.60	1,981.48	6.68	4.51	-179.60	54.23	16.49	224.08	215.04	9.04	24.786		
2,100.00	2,066.34	2,080.81	2,079.54	7.17	4.75	-179.53	59.56	17.65	242.91	233.38	9.54	25.474		
2,200.00	2,163.37	2,179.02	2,177.60	7.66	4.99	-179.47	64.89	18.80	261.75	251.72	10.03	26.091		
2,300.00	2,260.41	2,277.23	2,275.66	8.15	5.23	-179.42	70.21	19.95	280.59	270.06	10.53	26.648		
2,400.00	2,357.44	2,375.44	2,373.71	8.64	5.47	-179.38	75.54	21.11	299.42	288.40	11.03	27.153		
2,500.00	2,454.47	2,473.65	2,471.77	9.13	5.70	-179.34	80.87	22.26	318.26	306.74	11.53	27.613		
2,600.00	2,551.50	2,571.86	2,569.83	9.62	5.94	-179.31	86.19	23.42	337.10	325.08	12.03	28.033		
2,700.00	2,648.53	2,670.07	2,667.89	10.12	6.18	-179.28	91.52	24.57	355.94	343.41	12.52	28.419		
2,800.00	2,745.56	2,768.28	2,765.95	10.61	6.42	-179.25	96.84	25.73	374.78	361.75	13.02	28.774		
2,900.00	2,842.60	2,866.49	2,864.00	11.10	6.66	-179.23	102.17	26.88	393.61	380.09	13.53	29.102		
3,000.00	2,939.63	2,964.70	2,962.06	11.60	6.90	-179.20	107.50	28.03	412.45	398.43	14.03	29.406		
3,100.00	3,036.66	3,062.91	3,060.12	12.09	7.14	-179.18	112.82	29.19	431.29	416.76	14.53	29.689		
3,200.00	3,133.69	3,161.12	3,158.18	12.59	7.38	-179.17	118.15	30.34	450.13	435.10	15.03	29.952		
3,300.00	3,230.72	3,259.33	3,256.24	13.09	7.62	-179.15	123.47	31.50	468.97	453.44	15.53	30.197		
3,400.00	3,327.76	3,357.53	3,354.30	13.58	7.86	-179.13	128.80	32.65	487.80	471.77	16.03	30.427		
3,500.00	3,424.79	3,455.74	3,452.35	14.08	8.10	-179.12	134.13	33.81	506.64	490.11	16.53	30.643		
3,600.00	3,521.82	3,553.95	3,550.41	14.58	8.34	-179.10	139.45	34.96	525.48	508.44	17.04	30.845		
3,700.00	3,618.85	3,652.16	3,648.47	15.08	8.58	-179.09	144.78	36.11	544.32	526.78	17.54	31.035		
3,800.00	3,715.88	3,750.37	3,746.53	15.57	8.82	-179.08	150.10	37.27	563.16	545.12	18.04	31.215		
3,894.11	3,807.20	3,842.80	3,838.82	16.04	9.04	-179.07	155.12	38.35	580.89	562.37	18.51	31.375		
3,900.00	3,812.92	3,848.58	3,844.59	16.07	9.05	-179.07	155.43	38.42	581.99	563.44	18.55	31.380		
4,000.00	3,910.40	3,947.14	3,942.99	16.44	9.30	-179.07	160.78	39.58	598.91	579.86	19.05	31.443		
4,100.00	4,008.59	4,046.22	4,041.92	16.77	9.54	-179.08	166.15	40.75	612.39	592.86	19.52	31.370		
4,200.00	4,107.39	4,145.71	4,141.26	17.06	9.78	-179.11	171.54	41.91	622.40	602.43	19.97	31.173		
4,300.00	4,206.67	4,245.49	4,240.88	17.31	10.02	-179.16	176.96	43.09	628.94	608.56	20.38	30.861		
4,400.00	4,306.30	4,345.44	4,340.67	17.52	10.27	-179.22	182.38	44.26	632.00	611.24	20.76	30.442		
4,500.00	4,406.17	4,427.88	4,423.05	17.68	10.43	-179.26	185.73	44.99	632.94	611.90	21.04	30.089		
4,593.85	4,500.00	4,505.85	4,501.00	17.80	10.56	-179.27	186.76	45.21	633.21	604.89	28.32	22.361		
4,596.30	4,502.45	4,507.29	4,502.45	17.80	10.57	-179.27	186.76	45.21	633.21	604.88	28.32	22.357		
4,600.00	4,506.15	4,511.00	4,506.15	17.81	10.57	-179.27	186.76	45.21	633.21	604.87	28.33	22.348		
4,700.00	4,606.15	4,611.00	4,606.15	17.92	10.76	-179.27	186.76	45.21	633.21	604.57	28.64	22.111		
4,800.00	4,706.15	4,711.00	4,706.15	18.04	10.97	-179.27	186.76	45.21	633.21	604.24	28.97	21.861		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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		
4,900.00	4,806.15	4,811.00	4,806.15	18.16	11.18	-179.27	186.76	45.21	633.21	603.91	29.29	21.615		
5,000.00	4,906.15	4,911.00	4,906.15	18.28	11.39	-179.27	186.76	45.21	633.21	603.58	29.63	21.373		
5,100.00	5,006.15	5,011.00	5,006.15	18.41	11.60	-179.27	186.76	45.21	633.21	603.25	29.96	21.134		
5,200.00	5,106.15	5,111.00	5,106.15	18.53	11.81	-179.27	186.76	45.21	633.21	602.91	30.30	20.899		
5,300.00	5,206.15	5,211.00	5,206.15	18.66	12.02	-179.27	186.76	45.21	633.21	602.57	30.64	20.667		
5,400.00	5,306.15	5,311.00	5,306.15	18.79	12.23	-179.27	186.76	45.21	633.21	602.23	30.98	20.439		
5,500.00	5,406.15	5,411.00	5,406.15	18.92	12.44	-179.27	186.76	45.21	633.21	601.88	31.32	20.215		
5,600.00	5,506.15	5,511.00	5,506.15	19.06	12.66	-179.27	186.76	45.21	633.21	601.54	31.67	19.994		
5,700.00	5,606.15	5,611.00	5,606.15	19.19	12.87	-179.27	186.76	45.21	633.21	601.19	32.02	19.776		
5,800.00	5,706.15	5,711.00	5,706.15	19.33	13.08	-179.27	186.76	45.21	633.21	600.84	32.37	19.562		
5,900.00	5,806.15	5,811.00	5,806.15	19.47	13.29	-179.27	186.76	45.21	633.21	600.49	32.72	19.351		
6,008.39	5,914.54	5,919.39	5,914.54	19.62	13.53	-179.27	186.76	45.21	633.21	600.10	33.11	19.127		
6,025.00	5,931.15	5,935.91	5,931.06	19.64	13.56	-179.27	186.77	44.93	633.21	606.02	27.19	23.291		
6,050.00	5,956.10	5,960.79	5,955.89	19.67	13.60	-179.27	186.78	43.42	633.22	605.94	27.28	23.213		
6,075.00	5,980.94	5,985.66	5,980.60	19.70	13.65	-179.27	186.80	40.62	633.23	605.86	27.37	23.136		
6,100.00	6,005.59	6,010.53	6,005.13	19.74	13.69	-179.28	186.84	36.54	633.25	605.78	27.46	23.060		
6,125.00	6,030.00	6,035.41	6,029.42	19.77	13.74	-179.28	186.89	31.19	633.27	605.72	27.55	22.985		
6,150.00	6,054.09	6,060.28	6,053.40	19.80	13.78	-179.29	186.95	24.57	633.30	605.65	27.64	22.909		
6,175.00	6,077.79	6,085.16	6,077.01	19.83	13.83	-179.30	187.02	16.72	633.33	605.59	27.74	22.832		
6,200.00	6,101.05	6,110.04	6,100.17	19.86	13.87	-179.30	187.10	7.65	633.37	605.53	27.84	22.752		
6,225.00	6,123.80	6,134.93	6,122.83	19.90	13.92	-179.31	187.19	-2.62	633.41	605.47	27.94	22.667		
6,250.00	6,145.97	6,159.81	6,144.93	19.93	13.97	-179.32	187.29	-14.05	633.46	605.40	28.06	22.577		
6,275.00	6,167.51	6,184.70	6,166.41	19.96	14.02	-179.33	187.40	-26.62	633.52	605.33	28.18	22.478		
6,300.00	6,188.36	6,209.59	6,187.21	20.00	14.07	-179.34	187.52	-40.30	633.58	605.25	28.33	22.368		
6,325.00	6,208.45	6,234.49	6,207.27	20.04	14.14	-179.35	187.65	-55.04	633.64	605.15	28.48	22.245		
6,350.00	6,227.74	6,259.39	6,226.53	20.08	14.21	-179.36	187.79	-70.81	633.71	605.04	28.67	22.106		
6,375.00	6,246.18	6,284.30	6,244.95	20.13	14.29	-179.38	187.94	-87.57	633.78	604.90	28.87	21.950		
6,400.00	6,263.70	6,309.21	6,262.47	20.18	14.40	-179.39	188.10	-105.27	633.85	604.74	29.11	21.773		
6,425.00	6,280.26	6,334.12	6,279.06	20.23	14.52	-179.40	188.26	-123.86	633.93	604.55	29.38	21.575		
6,450.00	6,295.83	6,359.04	6,294.65	20.29	14.66	-179.41	188.44	-143.30	634.02	604.32	29.69	21.353		
6,475.00	6,310.35	6,383.97	6,309.21	20.36	14.83	-179.42	188.62	-163.52	634.10	604.06	30.04	21.108		
6,500.00	6,323.78	6,408.90	6,322.69	20.44	15.02	-179.43	188.80	-184.48	634.19	603.76	30.43	20.838		
6,525.00	6,336.09	6,433.83	6,335.07	20.53	15.23	-179.44	188.99	-206.13	634.29	603.41	30.87	20.544		
6,550.00	6,347.25	6,458.77	6,346.30	20.63	15.47	-179.45	189.19	-228.39	634.38	603.02	31.36	20.228		
6,575.00	6,357.22	6,483.72	6,356.36	20.74	15.74	-179.46	189.39	-251.22	634.48	602.58	31.90	19.892		
6,600.00	6,365.97	6,508.68	6,365.21	20.87	16.03	-179.47	189.60	-274.55	634.58	602.10	32.48	19.538		
6,625.00	6,373.49	6,533.64	6,372.84	21.01	16.35	-179.47	189.81	-298.31	634.68	601.57	33.11	19.169		
6,650.00	6,379.76	6,558.60	6,379.21	21.18	16.68	-179.48	190.03	-322.45	634.78	601.00	33.78	18.789		
6,675.00	6,384.74	6,583.58	6,384.32	21.36	17.04	-179.48	190.24	-346.89	634.89	600.39	34.50	18.401		
6,700.00	6,388.44	6,608.56	6,388.14	21.57	17.42	-179.49	190.46	-371.57	634.99	599.73	35.26	18.009		
6,725.00	6,390.84	6,633.54	6,390.66	21.80	17.82	-179.49	190.68	-396.43	635.10	599.05	36.05	17.616		
6,750.00	6,391.93	6,658.54	6,391.88	22.06	18.24	-179.49	190.90	-421.39	635.21	598.33	36.88	17.225		
6,758.39	6,392.00	6,666.93	6,392.00	22.15	18.38	-179.49	190.98	-429.77	635.24	598.08	37.16	17.095		
6,800.00	6,392.00	6,708.54	6,392.00	22.63	19.12	-179.49	191.35	-471.38	635.42	596.80	38.62	16.453		
6,900.00	6,392.00	6,808.54	6,392.00	24.05	21.03	-179.49	192.24	-571.38	635.85	593.41	42.44	14.983		
7,000.00	6,392.00	6,908.54	6,392.00	25.76	23.13	-179.49	193.12	-671.37	636.27	589.65	46.62	13.647		
7,100.00	6,392.00	7,008.53	6,392.00	27.69	25.37	-179.49	194.01	-771.37	636.70	585.62	51.08	12.464		
7,200.00	6,392.00	7,108.53	6,392.00	29.80	27.71	-179.49	194.90	-871.36	637.13	581.37	55.75	11.428		
7,300.00	6,392.00	7,208.53	6,392.00	32.03	30.13	-179.49	195.79	-971.36	637.55	576.97	60.59	10.523		
7,400.00	6,392.00	7,308.53	6,392.00	34.36	32.62	-179.49	196.67	-1,071.35	637.98	572.44	65.54	9.734		
7,500.00	6,392.00	7,408.53	6,392.00	36.76	35.15	-179.49	197.56	-1,171.35	638.41	567.81	70.60	9.042		
7,600.00	6,392.00	7,508.53	6,392.00	39.22	37.73	-179.49	198.45	-1,271.34	638.84	563.10	75.74	8.435		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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		
7,700.00	6,392.00	7,608.53	6,392.00	41.73	40.33	-179.49	199.34	-1,371.34	639.26	558.32	80.94	7.898		
7,800.00	6,392.00	7,708.53	6,392.00	44.27	42.96	-179.49	200.22	-1,471.33	639.69	553.50	86.19	7.422		
7,900.00	6,392.00	7,808.53	6,392.00	46.85	45.61	-179.49	201.11	-1,571.33	640.12	548.63	91.49	6.997		
8,000.00	6,392.00	7,908.53	6,392.00	49.46	48.28	-179.49	202.00	-1,671.32	640.54	543.72	96.82	6.616		
8,100.00	6,392.00	8,008.53	6,392.00	52.08	50.97	-179.49	202.89	-1,771.32	640.97	538.78	102.19	6.273		
8,200.00	6,392.00	8,108.52	6,392.00	54.73	53.66	-179.49	203.77	-1,871.32	641.40	533.82	107.58	5.962		
8,300.00	6,392.00	8,208.52	6,392.00	57.39	56.37	-179.49	204.66	-1,971.31	641.83	528.83	112.99	5.680		
8,400.00	6,392.00	8,308.52	6,392.00	60.07	59.09	-179.49	205.55	-2,071.31	642.25	523.83	118.42	5.423		
8,500.00	6,392.00	8,408.52	6,392.00	62.76	61.82	-179.49	206.44	-2,171.30	642.68	518.81	123.87	5.188		
8,600.00	6,392.00	8,508.52	6,392.00	65.45	64.55	-179.49	207.32	-2,271.30	643.11	513.77	129.34	4.972		
8,700.00	6,392.00	8,608.52	6,392.00	68.16	67.29	-179.49	208.21	-2,371.29	643.53	508.72	134.81	4.774		
8,800.00	6,392.00	8,708.52	6,392.00	70.88	70.04	-179.49	209.10	-2,471.29	643.96	503.66	140.30	4.590		
8,900.00	6,392.00	8,808.52	6,392.00	73.60	72.79	-179.49	209.99	-2,571.28	644.39	498.59	145.80	4.420		
9,000.00	6,392.00	8,908.52	6,392.00	76.33	75.54	-179.49	210.87	-2,671.28	644.81	493.51	151.30	4.262		
9,100.00	6,392.00	9,008.52	6,392.00	79.07	78.30	-179.49	211.76	-2,771.27	645.24	488.42	156.82	4.115		
9,200.00	6,392.00	9,108.52	6,392.00	81.81	81.06	-179.49	212.65	-2,871.27	645.67	483.33	162.34	3.977		
9,300.00	6,392.00	9,208.51	6,392.00	84.55	83.83	-179.49	213.54	-2,971.26	646.10	478.23	167.87	3.849		
9,400.00	6,392.00	9,308.51	6,392.00	87.30	86.59	-179.49	214.42	-3,071.26	646.52	473.12	173.40	3.728		
9,500.00	6,392.00	9,408.51	6,392.00	90.06	89.36	-179.49	215.31	-3,171.25	646.95	468.01	178.94	3.615		
9,600.00	6,392.00	9,508.51	6,392.00	92.81	92.14	-179.49	216.20	-3,271.25	647.38	462.89	184.49	3.509		
9,700.00	6,392.00	9,608.51	6,392.00	95.57	94.91	-179.49	217.09	-3,371.24	647.80	457.77	190.04	3.409		
9,800.00	6,392.00	9,708.51	6,392.00	98.33	97.69	-179.49	217.97	-3,471.24	648.23	452.64	195.59	3.314		
9,900.00	6,392.00	9,808.51	6,392.00	101.10	100.47	-179.49	218.86	-3,571.23	648.66	447.51	201.15	3.225		
10,000.00	6,392.00	9,908.51	6,392.00	103.87	103.25	-179.49	219.75	-3,671.23	649.08	442.38	206.71	3.140		
10,100.00	6,392.00	10,008.51	6,392.00	106.64	106.03	-179.49	220.64	-3,771.22	649.51	437.24	212.27	3.060		
10,200.00	6,392.00	10,108.51	6,392.00	109.41	108.82	-179.49	221.52	-3,871.22	649.94	432.10	217.84	2.984		
10,300.00	6,392.00	10,208.51	6,392.00	112.18	111.60	-179.49	222.41	-3,971.21	650.37	426.96	223.41	2.911		
10,400.00	6,392.00	10,308.50	6,392.00	114.96	114.39	-179.49	223.30	-4,071.21	650.79	421.81	228.98	2.842		
10,500.00	6,392.00	10,408.50	6,392.00	117.74	117.17	-179.49	224.19	-4,171.20	651.22	416.67	234.55	2.776		
10,600.00	6,392.00	10,508.50	6,392.00	120.52	119.96	-179.49	225.07	-4,271.20	651.65	411.52	240.13	2.714		
10,700.00	6,392.00	10,608.50	6,392.00	123.30	122.75	-179.49	225.96	-4,371.19	652.07	406.37	245.71	2.654		
10,725.79	6,392.00	10,634.29	6,392.00	124.02	123.47	-179.49	226.19	-4,396.98	652.18	405.04	247.15	2.639 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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	2.00	0.00	0.00	180.00	-43.72	0.00	43.76					
100.00	100.00	98.00	100.00	0.09	0.09	180.00	-43.72	0.00	43.72	43.53	0.18	239.582		
200.00	200.00	198.00	200.00	0.32	0.31	180.00	-43.72	0.00	43.72	43.09	0.63	69.462		
300.00	300.00	298.00	300.00	0.54	0.54	180.00	-43.72	0.00	43.72	42.64	1.08	40.519		
400.00	400.00	398.00	400.00	0.77	0.76	180.00	-43.72	0.00	43.72	42.19	1.53	28.602		
500.00	500.00	498.00	500.00	0.99	0.99	180.00	-43.72	0.00	43.72	41.74	1.98	22.101	CC, ES	
600.00	599.98	596.42	598.40	1.22	1.18	179.94	-45.33	0.16	47.10	44.69	2.40	19.590		
700.00	699.84	694.12	695.97	1.45	1.37	179.78	-50.26	0.67	57.35	54.52	2.83	20.272		
800.00	799.45	790.61	792.11	1.68	1.57	179.63	-58.36	1.49	74.39	71.11	3.27	22.739		
900.00	898.70	888.17	889.20	1.94	1.80	179.60	-67.99	2.48	96.28	92.57	3.71	25.985		
1,000.00	997.47	984.92	985.47	2.24	2.04	179.70	-77.53	3.45	121.56	117.42	4.14	29.395		
1,100.00	1,095.62	1,080.73	1,080.80	2.58	2.29	179.86	-86.98	4.42	150.19	145.62	4.57	32.889		
1,199.73	1,192.80	1,175.23	1,174.84	2.96	2.55	-179.95	-96.30	5.37	182.05	177.05	5.00	36.430		
1,300.00	1,290.09	1,269.67	1,268.81	3.39	2.81	-179.79	-105.62	6.32	215.72	210.28	5.44	39.622		
1,400.00	1,387.12	1,363.86	1,362.54	3.84	3.07	-179.68	-114.91	7.27	249.31	243.42	5.90	42.268		
1,500.00	1,484.15	1,458.05	1,456.26	4.30	3.34	-179.59	-124.21	8.22	282.90	276.55	6.36	44.493		
1,600.00	1,581.18	1,552.24	1,549.98	4.77	3.60	-179.52	-133.50	9.16	316.50	309.67	6.82	46.377		
1,700.00	1,678.21	1,646.43	1,643.71	5.24	3.87	-179.47	-142.79	10.11	350.09	342.80	7.29	48.005		
1,800.00	1,775.25	1,740.61	1,737.43	5.72	4.14	-179.42	-152.08	11.06	383.68	375.92	7.76	49.414		
1,900.00	1,872.28	1,834.80	1,831.16	6.20	4.42	-179.38	-161.37	12.01	417.27	409.03	8.24	50.644		
2,000.00	1,969.31	1,928.99	1,924.88	6.68	4.69	-179.35	-170.67	12.96	450.86	442.15	8.72	51.728		
2,100.00	2,066.34	2,023.18	2,018.61	7.17	4.96	-179.32	-179.96	13.91	484.46	475.26	9.19	52.688		
2,200.00	2,163.37	2,117.37	2,112.33	7.66	5.24	-179.29	-189.25	14.85	518.05	508.37	9.68	53.544		
2,300.00	2,260.41	2,211.56	2,206.06	8.15	5.51	-179.27	-198.54	15.80	551.64	541.49	10.16	54.312		
2,400.00	2,357.44	2,305.75	2,299.78	8.64	5.79	-179.25	-207.83	16.75	585.23	574.59	10.64	55.004		
2,500.00	2,454.47	2,399.93	2,393.50	9.13	6.06	-179.24	-217.13	17.70	618.83	607.70	11.12	55.630		
2,600.00	2,551.50	2,494.12	2,487.23	9.62	6.34	-179.22	-226.42	18.65	652.42	640.81	11.61	56.199		
2,700.00	2,648.53	2,588.31	2,580.95	10.12	6.62	-179.21	-235.71	19.60	686.01	673.92	12.09	56.719		
2,800.00	2,745.56	2,682.50	2,674.68	10.61	6.89	-179.19	-245.00	20.55	719.61	707.02	12.58	57.195		
2,900.00	2,842.60	2,776.69	2,768.40	11.10	7.17	-179.18	-254.29	21.49	753.20	740.13	13.07	57.633		
3,000.00	2,939.63	2,870.88	2,862.13	11.60	7.45	-179.17	-263.59	22.44	786.79	773.24	13.56	58.036		
3,100.00	3,036.66	2,965.07	2,955.85	12.09	7.73	-179.16	-272.88	23.39	820.38	806.34	14.05	58.410		
3,200.00	3,133.69	3,059.25	3,049.57	12.59	8.01	-179.15	-282.17	24.34	853.98	839.44	14.53	58.756		
3,300.00	3,230.72	3,153.44	3,143.30	13.09	8.28	-179.15	-291.46	25.29	887.57	872.55	15.02	59.077		
3,400.00	3,327.76	3,247.63	3,237.02	13.58	8.56	-179.14	-300.75	26.24	921.16	905.65	15.51	59.377		
3,500.00	3,424.79	3,341.82	3,330.75	14.08	8.84	-179.13	-310.05	27.18	954.76	938.75	16.00	59.657		
3,600.00	3,521.82	3,436.01	3,424.47	14.58	9.12	-179.12	-319.34	28.13	988.35	971.86	16.49	59.918		
3,700.00	3,618.85	3,530.20	3,518.20	15.08	9.40	-179.12	-328.63	29.08	1,021.94	1,004.96	16.99	60.164		
3,800.00	3,715.88	3,624.39	3,611.92	15.57	9.68	-179.11	-337.92	30.03	1,055.54	1,038.06	17.48	60.394		
3,894.11	3,807.20	3,713.03	3,700.13	16.04	9.94	-179.11	-346.67	30.92	1,087.15	1,069.21	17.94	60.599		
3,900.00	3,812.92	3,718.58	3,705.65	16.07	9.95	-179.11	-347.22	30.98	1,089.12	1,071.15	17.97	60.598		
4,000.00	3,910.40	3,813.40	3,800.00	16.44	10.23	-179.11	-356.57	31.93	1,120.87	1,102.38	18.49	60.612		
4,100.00	4,008.59	3,909.27	3,895.40	16.77	10.52	-179.12	-366.03	32.90	1,149.30	1,130.31	18.99	60.525		
4,200.00	4,107.39	4,006.07	3,991.72	17.06	10.81	-179.13	-375.58	33.87	1,174.37	1,154.91	19.46	60.349		
4,300.00	4,206.67	4,103.68	4,088.85	17.31	11.09	-179.16	-385.21	34.86	1,196.05	1,176.14	19.90	60.093		
4,400.00	4,306.30	4,201.99	4,186.68	17.52	11.39	-179.19	-394.91	35.85	1,214.31	1,193.99	20.32	59.763		
4,500.00	4,406.17	4,350.96	4,335.12	17.68	11.74	-179.25	-407.21	37.10	1,227.76	1,206.98	20.78	59.088		
4,593.85	4,500.00	4,514.44	4,498.51	17.80	12.01	-179.27	-412.05	37.60	1,232.07	1,202.30	29.77	41.390		
4,600.00	4,506.15	4,522.09	4,506.15	17.81	12.02	-179.27	-412.05	37.60	1,232.07	1,202.28	29.79	41.363		
4,700.00	4,606.15	4,622.09	4,606.15	17.92	12.18	-179.27	-412.05	37.60	1,232.07	1,202.01	30.06	40.985		
4,800.00	4,706.15	4,722.09	4,706.15	18.04	12.32	-179.27	-412.05	37.60	1,232.07	1,201.75	30.33	40.629		
4,900.00	4,806.15	4,822.09	4,806.15	18.16	12.47	-179.27	-412.05	37.60	1,232.07	1,201.48	30.59	40.273		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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		
5,000.00	4,906.15	4,922.09	4,906.15	18.28	12.62	-179.27	-412.05	37.60	1,232.07	1,201.21	30.86	39.919		
5,100.00	5,006.15	5,022.09	5,006.15	18.41	12.77	-179.27	-412.05	37.60	1,232.07	1,200.93	31.14	39.565		
5,200.00	5,106.15	5,122.09	5,106.15	18.53	12.92	-179.27	-412.05	37.60	1,232.07	1,200.65	31.42	39.212		
5,300.00	5,206.15	5,222.09	5,206.15	18.66	13.08	-179.27	-412.05	37.60	1,232.07	1,200.37	31.70	38.861		
5,400.00	5,306.15	5,322.09	5,306.15	18.79	13.24	-179.27	-412.05	37.60	1,232.07	1,200.08	31.99	38.511		
5,500.00	5,406.15	5,422.09	5,406.15	18.92	13.40	-179.27	-412.05	37.60	1,232.07	1,199.79	32.28	38.164		
5,600.00	5,506.15	5,522.09	5,506.15	19.06	13.56	-179.27	-412.05	37.60	1,232.07	1,199.49	32.58	37.818		
5,700.00	5,606.15	5,622.09	5,606.15	19.19	13.72	-179.27	-412.05	37.60	1,232.07	1,199.19	32.88	37.475		
5,800.00	5,706.15	5,722.09	5,706.15	19.33	13.89	-179.27	-412.05	37.60	1,232.07	1,198.89	33.18	37.133		
5,900.00	5,806.15	5,822.09	5,806.15	19.47	14.05	-179.27	-412.05	37.60	1,232.07	1,198.59	33.48	36.795		
6,008.39	5,914.54	5,930.48	5,914.54	19.62	14.24	-179.27	-412.05	37.60	1,232.07	1,198.25	33.82	36.431		
6,025.00	5,931.15	5,946.90	5,930.96	19.64	14.26	-179.27	-412.05	37.31	1,232.07	1,205.41	26.66	46.212		
6,050.00	5,956.10	5,971.62	5,955.63	19.67	14.31	-179.27	-412.04	35.82	1,232.08	1,205.33	26.75	46.053		
6,075.00	5,980.94	5,996.34	5,980.20	19.70	14.35	-179.27	-412.01	33.06	1,232.09	1,205.25	26.84	45.898		
6,100.00	6,005.59	6,021.07	6,004.59	19.74	14.39	-179.28	-411.98	29.03	1,232.11	1,205.18	26.93	45.748		
6,125.00	6,030.00	6,045.79	6,028.74	19.77	14.44	-179.28	-411.93	23.74	1,232.14	1,205.12	27.02	45.600		
6,150.00	6,054.09	6,070.52	6,052.59	19.80	14.48	-179.29	-411.88	17.20	1,232.17	1,205.06	27.11	45.453		
6,175.00	6,077.79	6,095.25	6,076.07	19.83	14.52	-179.30	-411.82	9.44	1,232.21	1,205.01	27.20	45.304		
6,200.00	6,101.05	6,119.99	6,099.12	19.86	14.56	-179.31	-411.74	0.48	1,232.25	1,204.96	27.29	45.152		
6,225.00	6,123.80	6,144.74	6,121.68	19.90	14.61	-179.32	-411.66	-9.68	1,232.30	1,204.91	27.39	44.991		
6,250.00	6,145.97	6,169.49	6,143.69	19.93	14.65	-179.33	-411.56	-20.99	1,232.36	1,204.86	27.50	44.819		
6,275.00	6,167.51	6,194.24	6,165.09	19.96	14.70	-179.34	-411.46	-33.42	1,232.42	1,204.80	27.61	44.630		
6,300.00	6,188.36	6,219.01	6,185.83	20.00	14.74	-179.35	-411.34	-46.96	1,232.48	1,204.74	27.75	44.420		
6,325.00	6,208.45	6,243.78	6,205.84	20.04	14.79	-179.36	-411.22	-61.56	1,232.55	1,204.66	27.90	44.184		
6,350.00	6,227.74	6,268.56	6,225.07	20.08	14.84	-179.38	-411.09	-77.18	1,232.63	1,204.56	28.07	43.916		
6,375.00	6,246.18	6,293.35	6,243.48	20.13	14.90	-179.39	-410.95	-93.78	1,232.71	1,204.44	28.27	43.612		
6,400.00	6,263.70	6,318.15	6,261.00	20.18	14.96	-179.40	-410.81	-111.33	1,232.79	1,204.30	28.49	43.266		
6,425.00	6,280.26	6,342.96	6,277.60	20.23	15.03	-179.42	-410.65	-129.77	1,232.88	1,204.13	28.76	42.874		
6,450.00	6,295.83	6,367.79	6,293.22	20.29	15.10	-179.43	-410.49	-149.05	1,232.98	1,203.92	29.06	42.433		
6,475.00	6,310.35	6,392.62	6,307.83	20.36	15.19	-179.44	-410.33	-169.13	1,233.07	1,203.67	29.40	41.942		
6,500.00	6,323.78	6,417.47	6,321.38	20.44	15.30	-179.45	-410.15	-189.95	1,233.17	1,203.39	29.79	41.400		
6,525.00	6,336.09	6,442.32	6,333.83	20.53	15.43	-179.47	-409.97	-211.46	1,233.28	1,203.06	30.22	40.809		
6,550.00	6,347.25	6,467.20	6,345.16	20.63	15.59	-179.48	-409.79	-233.60	1,233.39	1,202.68	30.70	40.170		
6,575.00	6,357.22	6,492.08	6,355.32	20.74	15.78	-179.49	-409.60	-256.31	1,233.50	1,202.26	31.24	39.488		
6,600.00	6,365.97	6,516.98	6,364.28	20.87	16.00	-179.49	-409.41	-279.54	1,233.61	1,201.79	31.82	38.769		
6,625.00	6,373.49	6,541.89	6,372.03	21.01	16.26	-179.50	-409.21	-303.21	1,233.72	1,201.27	32.45	38.018		
6,650.00	6,379.76	6,566.82	6,378.54	21.18	16.56	-179.51	-409.01	-327.27	1,233.84	1,200.71	33.13	37.244		
6,675.00	6,384.74	6,591.76	6,383.79	21.36	16.88	-179.51	-408.80	-351.65	1,233.96	1,200.10	33.85	36.452		
6,700.00	6,388.44	6,616.71	6,387.75	21.57	17.24	-179.52	-408.60	-376.28	1,234.07	1,199.46	34.61	35.652		
6,725.00	6,390.84	6,641.68	6,390.43	21.80	17.62	-179.52	-408.39	-401.10	1,234.19	1,198.78	35.42	34.849		
6,750.00	6,391.93	6,666.66	6,391.81	22.06	18.02	-179.52	-408.18	-426.04	1,234.31	1,198.07	36.25	34.052		
6,758.39	6,392.00	6,675.05	6,391.97	22.15	18.16	-179.52	-408.11	-434.43	1,234.35	1,197.82	36.53	33.788		
6,800.00	6,392.00	6,716.66	6,392.00	22.63	18.89	-179.52	-407.77	-476.04	1,234.55	1,196.54	38.02	32.472		
6,900.00	6,392.00	6,816.66	6,392.00	24.05	20.80	-179.52	-406.93	-576.03	1,235.03	1,193.16	41.87	29.495		
7,000.00	6,392.00	6,916.66	6,392.00	25.76	22.90	-179.52	-406.10	-676.03	1,235.52	1,189.42	46.09	26.806		
7,100.00	6,392.00	7,016.66	6,392.00	27.69	25.14	-179.52	-405.27	-776.02	1,236.00	1,185.41	50.58	24.435		
7,200.00	6,392.00	7,116.66	6,392.00	29.80	27.49	-179.52	-404.43	-876.02	1,236.48	1,181.19	55.28	22.367		
7,300.00	6,392.00	7,216.66	6,392.00	32.03	29.92	-179.52	-403.60	-976.01	1,236.96	1,176.82	60.14	20.568		
7,400.00	6,392.00	7,316.65	6,392.00	34.36	32.41	-179.52	-402.76	-1,076.01	1,237.44	1,172.32	65.12	19.003		
7,500.00	6,392.00	7,416.65	6,392.00	36.76	34.95	-179.52	-401.93	-1,176.00	1,237.92	1,167.72	70.20	17.635		
7,600.00	6,392.00	7,516.65	6,392.00	39.22	37.53	-179.52	-401.10	-1,276.00	1,238.40	1,163.05	75.35	16.435		
7,700.00	6,392.00	7,616.65	6,392.00	41.73	40.14	-179.52	-400.26	-1,376.00	1,238.88	1,158.31	80.57	15.377		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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 5-63-27-48H - 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					
7,800.00	6,392.00	7,716.65	6,392.00	44.27	42.78	-179.52	-399.43	-1,475.99	1,239.36	1,153.53	85.83	14.439					
7,900.00	6,392.00	7,816.65	6,392.00	46.85	45.43	-179.52	-398.60	-1,575.99	1,239.84	1,148.70	91.14	13.603					
8,000.00	6,392.00	7,916.65	6,392.00	49.46	48.11	-179.52	-397.76	-1,675.98	1,240.32	1,143.83	96.49	12.855					
8,100.00	6,392.00	8,016.65	6,392.00	52.08	50.80	-179.52	-396.93	-1,775.98	1,240.80	1,138.94	101.86	12.181					
8,200.00	6,392.00	8,116.64	6,392.00	54.73	53.50	-179.52	-396.09	-1,875.97	1,241.28	1,134.02	107.26	11.572					
8,300.00	6,392.00	8,216.64	6,392.00	57.39	56.21	-179.52	-395.26	-1,975.97	1,241.76	1,129.08	112.68	11.020					
8,400.00	6,392.00	8,316.64	6,392.00	60.07	58.93	-179.52	-394.43	-2,075.96	1,242.25	1,124.12	118.12	10.516					
8,500.00	6,392.00	8,416.64	6,392.00	62.76	61.66	-179.52	-393.59	-2,175.96	1,242.73	1,119.15	123.58	10.056					
8,600.00	6,392.00	8,516.64	6,392.00	65.45	64.40	-179.52	-392.76	-2,275.95	1,243.21	1,114.16	129.05	9.634					
8,700.00	6,392.00	8,616.64	6,392.00	68.16	67.14	-179.52	-391.93	-2,375.95	1,243.69	1,109.16	134.53	9.245					
8,800.00	6,392.00	8,716.64	6,392.00	70.88	69.89	-179.52	-391.09	-2,475.94	1,244.17	1,104.14	140.03	8.885					
8,900.00	6,392.00	8,816.64	6,392.00	73.60	72.64	-179.52	-390.26	-2,575.94	1,244.65	1,099.12	145.53	8.553					
9,000.00	6,392.00	8,916.64	6,392.00	76.33	75.39	-179.52	-389.42	-2,675.94	1,245.13	1,094.09	151.04	8.244					
9,100.00	6,392.00	9,016.63	6,392.00	79.07	78.15	-179.52	-388.59	-2,775.93	1,245.61	1,089.05	156.56	7.956					
9,200.00	6,392.00	9,116.63	6,392.00	81.81	80.92	-179.52	-387.76	-2,875.93	1,246.09	1,084.01	162.09	7.688					
9,300.00	6,392.00	9,216.63	6,392.00	84.55	83.69	-179.52	-386.92	-2,975.92	1,246.57	1,078.95	167.62	7.437					
9,400.00	6,392.00	9,316.63	6,392.00	87.30	86.45	-179.52	-386.09	-3,075.92	1,247.05	1,073.90	173.16	7.202					
9,500.00	6,392.00	9,416.63	6,392.00	90.06	89.23	-179.52	-385.26	-3,175.91	1,247.53	1,068.83	178.70	6.981					
9,600.00	6,392.00	9,516.63	6,392.00	92.81	92.00	-179.52	-384.42	-3,275.91	1,248.01	1,063.77	184.25	6.774					
9,700.00	6,392.00	9,616.63	6,392.00	95.57	94.78	-179.52	-383.59	-3,375.90	1,248.50	1,058.69	189.80	6.578					
9,800.00	6,392.00	9,716.63	6,392.00	98.33	97.56	-179.52	-382.75	-3,475.90	1,248.98	1,053.62	195.36	6.393					
9,900.00	6,392.00	9,816.63	6,392.00	101.10	100.34	-179.52	-381.92	-3,575.89	1,249.46	1,048.54	200.92	6.219					
10,000.00	6,392.00	9,916.62	6,392.00	103.87	103.12	-179.52	-381.09	-3,675.89	1,249.94	1,043.46	206.48	6.054					
10,100.00	6,392.00	10,016.62	6,392.00	106.64	105.90	-179.52	-380.25	-3,775.88	1,250.42	1,038.37	212.05	5.897					
10,200.00	6,392.00	10,116.62	6,392.00	109.41	108.68	-179.52	-379.42	-3,875.88	1,250.90	1,033.28	217.62	5.748					
10,300.00	6,392.00	10,216.62	6,392.00	112.18	111.47	-179.52	-378.59	-3,975.88	1,251.38	1,028.19	223.19	5.607					
10,400.00	6,392.00	10,316.62	6,392.00	114.96	114.26	-179.52	-377.75	-4,075.87	1,251.86	1,023.10	228.76	5.472					
10,500.00	6,392.00	10,416.62	6,392.00	117.74	117.05	-179.52	-376.92	-4,175.87	1,252.34	1,018.00	234.34	5.344					
10,600.00	6,392.00	10,516.62	6,392.00	120.52	119.83	-179.52	-376.08	-4,275.86	1,252.82	1,012.91	239.91	5.222					
10,700.00	6,392.00	10,616.62	6,392.00	123.30	122.62	-179.52	-375.25	-4,375.86	1,253.30	1,007.81	245.49	5.105					
10,725.79	6,392.00	10,642.41	6,392.00	124.02	123.34	-179.52	-375.04	-4,401.65	1,253.43	1,006.49	246.93	5.076 SF					

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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	2.00	0.00	0.00	-180.00	-65.57	0.00	65.60					
100.00	100.00	98.00	100.00	0.09	0.09	-180.00	-65.57	0.00	65.57	65.39	0.18	359.350		
200.00	200.00	198.00	200.00	0.32	0.31	-180.00	-65.57	0.00	65.57	64.94	0.63	104.186		
300.00	300.00	298.00	300.00	0.54	0.54	-180.00	-65.57	0.00	65.57	64.49	1.08	60.775		
400.00	400.00	398.00	400.00	0.77	0.76	-180.00	-65.57	0.00	65.57	64.04	1.53	42.900		
500.00	500.00	498.00	500.00	0.99	0.99	-180.00	-65.57	0.00	65.57	63.59	1.98	33.150 CC, ES		
600.00	599.98	595.70	597.68	1.22	1.18	-179.94	-67.17	0.04	68.95	66.54	2.40	28.696		
700.00	699.84	692.66	694.52	1.45	1.37	-179.80	-72.04	0.18	79.19	76.36	2.83	28.021		
800.00	799.45	788.28	789.79	1.68	1.56	-179.63	-80.06	0.40	96.20	92.94	3.26	29.488		
900.00	898.70	881.91	882.78	1.94	1.79	-179.46	-90.98	0.70	119.87	116.16	3.71	32.349		
1,000.00	997.47	972.98	972.83	2.24	2.05	-179.32	-104.51	1.07	149.99	145.84	4.15	36.143		
1,100.00	1,095.62	1,060.98	1,059.40	2.58	2.34	-179.20	-120.30	1.50	186.34	181.75	4.59	40.574		
1,199.73	1,192.80	1,145.24	1,141.80	2.96	2.66	-179.09	-137.90	1.98	228.54	223.51	5.03	45.433		
1,300.00	1,290.09	1,226.86	1,221.09	3.39	3.01	-179.02	-157.25	2.51	275.13	269.66	5.47	50.254		
1,400.00	1,387.12	1,305.83	1,297.25	3.84	3.38	-178.97	-178.12	3.08	324.06	318.14	5.92	54.732		
1,500.00	1,484.15	1,382.36	1,370.47	4.30	3.78	-178.95	-200.33	3.69	375.33	368.96	6.37	58.934		
1,600.00	1,581.18	1,457.51	1,441.78	4.77	4.21	-178.95	-224.03	4.34	428.83	422.01	6.82	62.835		
1,700.00	1,678.21	1,541.42	1,521.13	5.24	4.72	-178.96	-251.32	5.09	483.22	475.94	7.28	66.346		
1,800.00	1,775.25	1,625.34	1,600.48	5.72	5.23	-178.97	-278.62	5.83	537.61	529.86	7.75	69.355		
1,900.00	1,872.28	1,709.26	1,679.83	6.20	5.75	-178.98	-305.91	6.58	592.00	583.78	8.22	72.030		
2,000.00	1,969.31	1,793.17	1,759.18	6.68	6.28	-178.99	-333.21	7.33	646.38	637.69	8.69	74.361		
2,100.00	2,066.34	1,877.09	1,838.54	7.17	6.82	-179.00	-360.50	8.07	700.77	691.60	9.17	76.413		
2,200.00	2,163.37	1,961.01	1,917.89	7.66	7.35	-179.01	-387.79	8.82	755.16	745.50	9.65	78.233		
2,300.00	2,260.41	2,044.92	1,997.24	8.15	7.89	-179.01	-415.09	9.57	809.54	799.41	10.14	79.856		
2,400.00	2,357.44	2,128.84	2,076.59	8.64	8.43	-179.02	-442.38	10.32	863.93	853.31	10.63	81.311		
2,500.00	2,454.47	2,212.76	2,155.94	9.13	8.97	-179.02	-469.68	11.06	918.32	907.20	11.12	82.619		
2,600.00	2,551.50	2,296.68	2,235.29	9.62	9.52	-179.02	-496.97	11.81	972.70	961.10	11.61	83.802		
2,700.00	2,648.53	2,380.59	2,314.64	10.12	10.06	-179.03	-524.26	12.56	1,027.09	1,014.99	12.10	84.873		
2,800.00	2,745.56	2,464.51	2,393.99	10.61	10.61	-179.03	-551.56	13.31	1,081.48	1,068.88	12.60	85.849		
2,900.00	2,842.60	2,548.43	2,473.34	11.10	11.16	-179.03	-578.85	14.05	1,135.87	1,122.77	13.09	86.741		
3,000.00	2,939.63	2,632.34	2,552.69	11.60	11.70	-179.04	-606.15	14.80	1,190.25	1,176.66	13.59	87.559		
3,100.00	3,036.66	2,716.26	2,632.04	12.09	12.25	-179.04	-633.44	15.55	1,244.64	1,230.55	14.09	88.312		
3,200.00	3,133.69	2,800.18	2,711.39	12.59	12.80	-179.04	-660.73	16.29	1,299.03	1,284.43	14.59	89.007		
3,300.00	3,230.72	2,884.09	2,790.74	13.09	13.35	-179.04	-688.03	17.04	1,353.41	1,338.32	15.10	89.648		
3,400.00	3,327.76	2,968.01	2,870.09	13.58	13.90	-179.04	-715.32	17.79	1,407.80	1,392.20	15.60	90.243		
3,500.00	3,424.79	3,051.93	2,949.44	14.08	14.45	-179.04	-742.62	18.54	1,462.19	1,446.08	16.10	90.796		
3,600.00	3,521.82	3,135.84	3,028.79	14.58	15.00	-179.05	-769.91	19.28	1,516.58	1,499.97	16.61	91.311		
3,700.00	3,618.85	3,219.76	3,108.14	15.08	15.55	-179.05	-797.20	20.03	1,570.96	1,553.85	17.11	91.792		
3,800.00	3,715.88	3,303.68	3,187.50	15.57	16.11	-179.05	-824.50	20.78	1,625.35	1,607.73	17.62	92.241		
3,894.11	3,807.20	3,382.66	3,262.18	16.04	16.63	-179.05	-850.19	21.48	1,676.54	1,658.44	18.10	92.638		
3,900.00	3,812.92	3,387.60	3,266.85	16.07	16.66	-179.05	-851.79	21.53	1,679.73	1,661.60	18.13	92.625		
4,000.00	3,910.40	3,472.55	3,347.18	16.44	17.22	-179.05	-879.43	22.28	1,732.47	1,713.74	18.73	92.489		
4,100.00	4,008.59	3,559.30	3,429.20	16.77	17.79	-179.07	-907.64	23.05	1,782.22	1,762.91	19.31	92.283		
4,200.00	4,107.39	3,647.72	3,512.81	17.06	18.37	-179.08	-936.40	23.84	1,828.91	1,809.04	19.88	92.018		
4,300.00	4,206.67	3,733.50	3,651.07	17.31	19.23	-179.13	-982.61	25.11	1,872.05	1,851.49	20.56	91.041		
4,400.00	4,306.30	4,070.02	3,918.66	17.52	20.29	-179.21	-1,051.85	27.00	1,905.26	1,883.78	21.48	88.697		
4,500.00	4,406.17	4,365.16	4,210.20	17.68	21.09	-179.25	-1,096.96	28.24	1,925.50	1,903.18	22.33	86.242		
4,593.85	4,500.00	4,651.34	4,495.87	17.80	21.52	-179.27	-1,111.85	28.64	1,931.93	1,892.64	39.29	49.174		
4,600.00	4,506.15	4,661.62	4,506.15	17.81	21.53	-179.27	-1,111.85	28.65	1,931.93	1,892.62	39.30	49.153		
4,700.00	4,606.15	4,761.62	4,606.15	17.92	21.62	-179.27	-1,111.85	28.65	1,931.93	1,892.42	39.51	48.903		
4,800.00	4,706.15	4,861.62	4,706.15	18.04	21.70	-179.27	-1,111.85	28.65	1,931.93	1,892.22	39.71	48.655		
4,900.00	4,806.15	4,961.62	4,806.15	18.16	21.78	-179.27	-1,111.85	28.65	1,931.93	1,892.02	39.91	48.405		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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		
5,000.00	4,906.15	5,061.62	4,906.15	18.28	21.87	-179.27	-1,111.85	28.65	1,931.93	1,891.81	40.12	48.153		
5,100.00	5,006.15	5,161.62	5,006.15	18.41	21.96	-179.27	-1,111.85	28.65	1,931.93	1,891.60	40.33	47.898		
5,200.00	5,106.15	5,261.62	5,106.15	18.53	22.05	-179.27	-1,111.85	28.65	1,931.93	1,891.38	40.55	47.642		
5,300.00	5,206.15	5,361.62	5,206.15	18.66	22.14	-179.27	-1,111.85	28.65	1,931.93	1,891.16	40.77	47.384		
5,400.00	5,306.15	5,461.62	5,306.15	18.79	22.24	-179.27	-1,111.85	28.65	1,931.93	1,890.93	41.00	47.125		
5,500.00	5,406.15	5,561.62	5,406.15	18.92	22.33	-179.27	-1,111.85	28.65	1,931.93	1,890.71	41.22	46.865		
5,600.00	5,506.15	5,661.62	5,506.15	19.06	22.43	-179.27	-1,111.85	28.65	1,931.93	1,890.47	41.46	46.603		
5,700.00	5,606.15	5,761.62	5,606.15	19.19	22.53	-179.27	-1,111.85	28.65	1,931.93	1,890.24	41.69	46.340		
5,800.00	5,706.15	5,861.62	5,706.15	19.33	22.63	-179.27	-1,111.85	28.65	1,931.93	1,890.00	41.93	46.077		
5,900.00	5,806.15	5,961.62	5,806.15	19.47	22.74	-179.27	-1,111.85	28.65	1,931.93	1,889.76	42.17	45.812		
6,008.39	5,914.54	6,070.01	5,914.54	19.62	22.85	-179.27	-1,111.85	28.65	1,931.93	1,889.49	42.44	45.525		
6,025.00	5,931.15	6,086.33	5,930.86	19.64	22.87	-179.27	-1,111.85	28.37	1,931.93	1,903.76	28.17	68.587		
6,050.00	5,956.10	6,110.90	5,955.38	19.67	22.89	-179.27	-1,111.84	26.90	1,931.94	1,903.68	28.25	68.378		
6,075.00	5,980.94	6,135.47	5,979.79	19.70	22.92	-179.27	-1,111.81	24.17	1,931.95	1,903.61	28.34	68.175		
6,100.00	6,005.59	6,160.04	6,004.04	19.74	22.95	-179.28	-1,111.78	20.18	1,931.97	1,903.55	28.42	67.977		
6,125.00	6,030.00	6,184.61	6,028.05	19.77	22.98	-179.28	-1,111.74	14.96	1,932.00	1,903.49	28.50	67.783		
6,150.00	6,054.09	6,209.19	6,051.76	19.80	23.00	-179.29	-1,111.68	8.50	1,932.03	1,903.44	28.58	67.590		
6,175.00	6,077.79	6,233.78	6,075.12	19.83	23.03	-179.30	-1,111.62	0.83	1,932.06	1,903.40	28.67	67.395		
6,200.00	6,101.05	6,258.38	6,098.06	19.86	23.06	-179.31	-1,111.54	-8.03	1,932.11	1,903.35	28.75	67.194		
6,225.00	6,123.80	6,282.98	6,120.52	19.90	23.08	-179.32	-1,111.46	-18.07	1,932.16	1,903.31	28.85	66.983		
6,250.00	6,145.97	6,307.59	6,142.44	19.93	23.11	-179.33	-1,111.37	-29.25	1,932.21	1,903.27	28.94	66.757		
6,275.00	6,167.51	6,332.21	6,163.76	19.96	23.14	-179.34	-1,111.26	-41.56	1,932.27	1,903.22	29.05	66.510		
6,300.00	6,188.36	6,356.85	6,184.43	20.00	23.17	-179.35	-1,111.15	-54.95	1,932.33	1,903.16	29.17	66.234		
6,325.00	6,208.45	6,381.49	6,204.39	20.04	23.20	-179.36	-1,111.03	-69.40	1,932.40	1,903.09	29.31	65.924		
6,350.00	6,227.74	6,406.15	6,223.60	20.08	23.24	-179.37	-1,110.90	-84.87	1,932.48	1,903.01	29.47	65.571		
6,375.00	6,246.18	6,430.83	6,241.98	20.13	23.27	-179.39	-1,110.76	-101.32	1,932.56	1,902.90	29.65	65.168		
6,400.00	6,263.70	6,455.52	6,259.51	20.18	23.31	-179.40	-1,110.62	-118.71	1,932.64	1,902.78	29.87	64.709		
6,425.00	6,280.26	6,480.22	6,276.12	20.23	23.35	-179.41	-1,110.46	-136.99	1,932.73	1,902.62	30.11	64.188		
6,450.00	6,295.83	6,504.95	6,291.77	20.29	23.40	-179.43	-1,110.30	-156.12	1,932.82	1,902.43	30.39	63.599		
6,475.00	6,310.35	6,529.69	6,306.42	20.36	23.45	-179.44	-1,110.14	-176.05	1,932.92	1,902.21	30.71	62.940		
6,500.00	6,323.78	6,554.45	6,320.04	20.44	23.50	-179.45	-1,109.96	-196.73	1,933.02	1,901.95	31.07	62.209		
6,525.00	6,336.09	6,579.22	6,332.57	20.53	23.56	-179.46	-1,109.78	-218.10	1,933.12	1,901.64	31.48	61.407		
6,550.00	6,347.25	6,604.02	6,343.98	20.63	23.63	-179.47	-1,109.60	-240.11	1,933.23	1,901.29	31.94	60.536		
6,575.00	6,357.22	6,628.84	6,354.24	20.74	23.70	-179.48	-1,109.41	-262.70	1,933.34	1,900.90	32.44	59.601		
6,600.00	6,365.97	6,653.68	6,363.32	20.87	23.78	-179.49	-1,109.22	-285.82	1,933.45	1,900.46	32.99	58.609		
6,625.00	6,373.49	6,678.54	6,371.20	21.01	23.87	-179.50	-1,109.02	-309.40	1,933.56	1,899.97	33.59	57.567		
6,650.00	6,379.76	6,703.42	6,377.84	21.18	23.97	-179.51	-1,108.82	-333.37	1,933.67	1,899.44	34.23	56.485		
6,675.00	6,384.74	6,728.32	6,383.23	21.36	24.09	-179.51	-1,108.61	-357.68	1,933.79	1,898.87	34.92	55.373		
6,700.00	6,388.44	6,753.25	6,387.35	21.57	24.21	-179.52	-1,108.41	-382.26	1,933.91	1,898.25	35.65	54.242		
6,725.00	6,390.84	6,778.20	6,390.18	21.80	24.36	-179.52	-1,108.20	-407.05	1,934.03	1,897.60	36.42	53.101		
6,750.00	6,391.93	6,803.17	6,391.71	22.06	24.52	-179.52	-1,107.99	-431.97	1,934.14	1,896.92	37.22	51.962		
6,758.39	6,392.00	6,811.56	6,391.93	22.15	24.57	-179.52	-1,107.92	-440.35	1,934.18	1,896.69	37.50	51.580		
6,800.00	6,392.00	6,853.17	6,392.00	22.63	24.88	-179.52	-1,107.57	-481.96	1,934.38	1,895.45	38.94	49.681		
6,900.00	6,392.00	6,953.17	6,392.00	24.05	25.86	-179.52	-1,106.73	-581.95	1,934.86	1,892.18	42.68	45.331		
7,000.00	6,392.00	7,053.17	6,392.00	25.76	27.17	-179.52	-1,105.89	-681.95	1,935.34	1,888.54	46.80	41.356		
7,100.00	6,392.00	7,153.16	6,392.00	27.69	28.78	-179.52	-1,105.06	-781.95	1,935.81	1,884.61	51.20	37.810		
7,200.00	6,392.00	7,253.16	6,392.00	29.80	30.64	-179.52	-1,104.22	-881.94	1,936.29	1,880.47	55.82	34.688		
7,300.00	6,392.00	7,353.16	6,392.00	32.03	32.69	-179.52	-1,103.38	-981.94	1,936.76	1,876.15	60.61	31.954		
7,400.00	6,392.00	7,453.16	6,392.00	34.36	34.88	-179.52	-1,102.54	-1,081.93	1,937.24	1,871.71	65.53	29.561		
7,500.00	6,392.00	7,553.16	6,392.00	36.76	37.18	-179.52	-1,101.70	-1,181.93	1,937.72	1,867.15	70.56	27.461		
7,600.00	6,392.00	7,653.16	6,392.00	39.22	39.56	-179.52	-1,100.86	-1,281.92	1,938.19	1,862.52	75.67	25.613		
7,700.00	6,392.00	7,753.16	6,392.00	41.73	42.00	-179.52	-1,100.03	-1,381.92	1,938.67	1,857.82	80.85	23.978		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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		
7,800.00	6,392.00	7,853.16	6,392.00	44.27	44.50	-179.52	-1,099.19	-1,481.91	1,939.14	1,853.06	86.09	22.526		
7,900.00	6,392.00	7,953.16	6,392.00	46.85	47.03	-179.52	-1,098.35	-1,581.91	1,939.62	1,848.26	91.37	21.229		
8,000.00	6,392.00	8,053.15	6,392.00	49.46	49.60	-179.52	-1,097.51	-1,681.90	1,940.10	1,843.41	96.68	20.066		
8,100.00	6,392.00	8,153.15	6,392.00	52.08	52.20	-179.52	-1,096.67	-1,781.90	1,940.57	1,838.54	102.03	19.019		
8,200.00	6,392.00	8,253.15	6,392.00	54.73	54.81	-179.52	-1,095.83	-1,881.89	1,941.05	1,833.64	107.41	18.071		
8,300.00	6,392.00	8,353.15	6,392.00	57.39	57.45	-179.52	-1,095.00	-1,981.89	1,941.53	1,828.71	112.81	17.210		
8,400.00	6,392.00	8,453.15	6,392.00	60.07	60.11	-179.52	-1,094.16	-2,081.89	1,942.00	1,823.77	118.24	16.425		
8,500.00	6,392.00	8,553.15	6,392.00	62.76	62.78	-179.52	-1,093.32	-2,181.88	1,942.48	1,818.80	123.68	15.706		
8,600.00	6,392.00	8,653.15	6,392.00	65.45	65.46	-179.52	-1,092.48	-2,281.88	1,942.95	1,813.82	129.13	15.046		
8,700.00	6,392.00	8,753.15	6,392.00	68.16	68.15	-179.52	-1,091.64	-2,381.87	1,943.43	1,808.83	134.60	14.438		
8,800.00	6,392.00	8,853.15	6,392.00	70.88	70.86	-179.52	-1,090.81	-2,481.87	1,943.91	1,803.83	140.08	13.877		
8,900.00	6,392.00	8,953.14	6,392.00	73.60	73.57	-179.52	-1,089.97	-2,581.86	1,944.38	1,798.81	145.57	13.357		
9,000.00	6,392.00	9,053.14	6,392.00	76.33	76.28	-179.52	-1,089.13	-2,681.86	1,944.86	1,793.79	151.07	12.874		
9,100.00	6,392.00	9,153.14	6,392.00	79.07	79.01	-179.52	-1,088.29	-2,781.85	1,945.34	1,788.75	156.58	12.424		
9,200.00	6,392.00	9,253.14	6,392.00	81.81	81.74	-179.52	-1,087.45	-2,881.85	1,945.81	1,783.71	162.10	12.004		
9,300.00	6,392.00	9,353.14	6,392.00	84.55	84.48	-179.52	-1,086.61	-2,981.84	1,946.29	1,778.66	167.62	11.611		
9,400.00	6,392.00	9,453.14	6,392.00	87.30	87.22	-179.52	-1,085.78	-3,081.84	1,946.76	1,773.61	173.15	11.243		
9,500.00	6,392.00	9,553.14	6,392.00	90.06	89.96	-179.52	-1,084.94	-3,181.83	1,947.24	1,768.55	178.69	10.897		
9,600.00	6,392.00	9,653.14	6,392.00	92.81	92.71	-179.52	-1,084.10	-3,281.83	1,947.72	1,763.49	184.23	10.572		
9,700.00	6,392.00	9,753.14	6,392.00	95.57	95.46	-179.52	-1,083.26	-3,381.82	1,948.19	1,758.42	189.78	10.266		
9,800.00	6,392.00	9,853.13	6,392.00	98.33	98.22	-179.52	-1,082.42	-3,481.82	1,948.67	1,753.34	195.33	9.977		
9,900.00	6,392.00	9,953.13	6,392.00	101.10	100.98	-179.52	-1,081.58	-3,581.82	1,949.15	1,748.27	200.88	9.703		
10,000.00	6,392.00	10,053.13	6,392.00	103.87	103.74	-179.52	-1,080.75	-3,681.81	1,949.62	1,743.19	206.44	9.444		
10,100.00	6,392.00	10,153.13	6,392.00	106.64	106.51	-179.52	-1,079.91	-3,781.81	1,950.10	1,738.10	212.00	9.199		
10,200.00	6,392.00	10,253.13	6,392.00	109.41	109.27	-179.52	-1,079.07	-3,881.80	1,950.57	1,733.01	217.56	8.966		
10,300.00	6,392.00	10,353.13	6,392.00	112.18	112.04	-179.52	-1,078.23	-3,981.80	1,951.05	1,727.92	223.13	8.744		
10,400.00	6,392.00	10,453.13	6,392.00	114.96	114.81	-179.52	-1,077.39	-4,081.79	1,951.53	1,722.83	228.70	8.533		
10,500.00	6,392.00	10,553.13	6,392.00	117.74	117.59	-179.52	-1,076.55	-4,181.79	1,952.00	1,717.74	234.27	8.332		
10,600.00	6,392.00	10,653.13	6,392.00	120.52	120.36	-179.52	-1,075.72	-4,281.78	1,952.48	1,712.64	239.84	8.141		
10,700.00	6,392.00	10,753.12	6,392.00	123.30	123.14	-179.52	-1,074.88	-4,381.78	1,952.96	1,707.54	245.42	7.958		
10,725.79	6,392.00	10,778.91	6,392.00	124.02	123.85	-179.52	-1,074.66	-4,407.57	1,953.08	1,706.22	246.86	7.912 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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: 6450-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	40.00	0.00	0.00	-19.43	1,318.75	-465.30	1,399.00					
100.00	100.00	60.00	100.00	0.09	0.07	-19.43	1,318.75	-465.30	1,398.43	1,398.27	0.16	8,752.113		
200.00	200.00	160.00	200.00	0.32	0.18	-19.43	1,318.75	-465.30	1,398.43	1,397.93	0.50	2,814.152		
300.00	300.00	260.00	300.00	0.54	0.29	-19.43	1,318.75	-465.30	1,398.43	1,397.60	0.83	1,676.627		
400.00	400.00	360.00	400.00	0.77	0.40	-19.43	1,318.75	-465.30	1,398.43	1,397.26	1.17	1,193.995		
500.00	500.00	460.00	500.00	0.99	0.52	-19.43	1,318.75	-465.30	1,398.43	1,396.92	1.51	927.117		
600.00	599.98	559.98	599.98	1.22	0.63	-19.46	1,318.75	-465.30	1,396.83	1,394.98	1.85	756.734		
700.00	699.84	659.84	699.84	1.45	0.74	-19.55	1,318.75	-465.30	1,392.02	1,389.83	2.18	637.578		
800.00	799.45	759.45	799.45	1.68	0.85	-19.69	1,318.75	-465.30	1,384.02	1,381.49	2.52	548.830		
900.00	898.70	858.70	898.70	1.94	0.97	-19.89	1,318.75	-465.30	1,372.84	1,369.98	2.86	479.282		
1,000.00	997.47	957.47	997.47	2.24	1.08	-20.16	1,318.75	-465.30	1,358.52	1,355.31	3.21	422.598		
1,100.00	1,095.62	1,055.62	1,095.62	2.58	1.19	-20.49	1,318.75	-465.30	1,341.10	1,337.52	3.58	374.955		
1,199.73	1,192.80	1,152.80	1,192.80	2.96	1.30	-20.89	1,318.75	-465.30	1,320.67	1,316.72	3.95	334.035		
1,300.00	1,290.09	1,250.09	1,290.09	3.39	1.41	-21.33	1,318.75	-465.30	1,298.66	1,294.31	4.36	297.941		
1,400.00	1,387.12	1,347.12	1,387.12	3.84	1.51	-21.79	1,318.75	-465.30	1,276.80	1,272.02	4.77	267.479		
1,500.00	1,484.15	1,444.15	1,484.15	4.30	1.62	-22.27	1,318.75	-465.30	1,255.01	1,249.82	5.20	241.481		
1,600.00	1,581.18	1,541.18	1,581.18	4.77	1.73	-22.76	1,318.75	-465.30	1,233.32	1,227.69	5.63	219.108		
1,700.00	1,678.21	1,638.21	1,678.21	5.24	1.84	-23.27	1,318.75	-465.30	1,211.72	1,205.65	6.07	199.696		
1,800.00	1,775.25	1,735.25	1,775.25	5.72	1.95	-23.80	1,318.75	-465.30	1,190.22	1,183.71	6.51	182.726		
1,900.00	1,872.28	1,832.28	1,872.28	6.20	2.06	-24.34	1,318.75	-465.30	1,168.83	1,161.86	6.97	167.785		
2,000.00	1,969.31	1,929.31	1,969.31	6.68	2.17	-24.91	1,318.75	-465.30	1,147.54	1,140.12	7.43	154.545		
2,100.00	2,066.34	2,026.34	2,066.34	7.17	2.28	-25.50	1,318.75	-465.30	1,126.38	1,118.49	7.89	142.742		
2,200.00	2,163.37	2,123.37	2,163.37	7.66	2.39	-26.11	1,318.75	-465.30	1,105.34	1,096.97	8.36	132.165		
2,300.00	2,260.41	2,220.41	2,260.41	8.15	2.50	-26.75	1,318.75	-465.30	1,084.42	1,075.58	8.84	122.639		
2,400.00	2,357.44	2,317.44	2,357.44	8.64	2.60	-27.41	1,318.75	-465.30	1,063.65	1,054.32	9.33	114.020		
2,500.00	2,454.47	2,414.47	2,454.47	9.13	2.71	-28.10	1,318.75	-465.30	1,043.02	1,033.20	9.82	106.192		
2,600.00	2,551.50	2,511.50	2,551.50	9.62	2.82	-28.81	1,318.75	-465.30	1,022.55	1,012.23	10.32	99.055		
2,700.00	2,648.53	2,608.53	2,648.53	10.12	2.93	-29.55	1,318.75	-465.30	1,002.25	991.42	10.83	92.526		
2,800.00	2,745.56	2,705.56	2,745.56	10.61	3.04	-30.33	1,318.75	-465.30	982.12	970.77	11.35	86.534		
2,900.00	2,842.60	2,802.60	2,842.60	11.10	3.15	-31.13	1,318.75	-465.30	962.18	950.30	11.88	81.022		
3,000.00	2,939.63	2,899.63	2,939.63	11.60	3.26	-31.97	1,318.75	-465.30	942.43	930.02	12.41	75.937		
3,100.00	3,036.66	2,996.66	3,036.66	12.09	3.37	-32.85	1,318.75	-465.30	922.90	909.94	12.96	71.236		
3,200.00	3,133.69	3,093.69	3,133.69	12.59	3.48	-33.76	1,318.75	-465.30	903.59	890.08	13.51	66.881		
3,300.00	3,230.72	3,190.72	3,230.72	13.09	3.59	-34.72	1,318.75	-465.30	884.52	870.45	14.08	62.840		
3,400.00	3,327.76	3,287.76	3,327.76	13.58	3.69	-35.71	1,318.75	-465.30	865.71	851.06	14.65	59.083		
3,500.00	3,424.79	3,384.79	3,424.79	14.08	3.80	-36.75	1,318.75	-465.30	847.17	831.93	15.24	55.588		
3,600.00	3,521.82	3,481.82	3,521.82	14.58	3.91	-37.84	1,318.75	-465.30	828.92	813.08	15.84	52.330		
3,700.00	3,618.85	3,578.85	3,618.85	15.08	4.02	-38.97	1,318.75	-465.30	810.99	794.53	16.45	49.292		
3,800.00	3,715.88	3,675.88	3,715.88	15.57	4.13	-40.15	1,318.75	-465.30	793.38	776.30	17.08	46.457		
3,894.11	3,807.20	3,767.20	3,807.20	16.04	4.23	-41.32	1,318.75	-465.30	777.13	759.45	17.68	43.960		
3,900.00	3,812.92	3,772.92	3,812.92	16.07	4.24	-41.39	1,318.75	-465.30	776.13	758.42	17.71	43.818		
4,000.00	3,910.40	3,870.40	3,910.40	16.44	4.35	-42.58	1,318.75	-465.30	760.57	742.33	18.24	41.708		
4,100.00	4,008.59	3,968.59	4,008.59	16.77	4.46	-43.63	1,318.75	-465.30	747.65	728.94	18.72	39.940		
4,200.00	4,107.39	4,067.39	4,107.39	17.06	4.57	-44.51	1,318.75	-465.30	737.29	718.13	19.16	38.482		
4,300.00	4,206.67	4,166.67	4,206.67	17.31	4.68	-45.21	1,318.75	-465.30	729.36	709.81	19.55	37.305		
4,400.00	4,306.30	4,266.30	4,306.30	17.52	4.79	-45.72	1,318.75	-465.30	723.81	703.92	19.89	36.388		
4,500.00	4,406.17	4,366.17	4,406.17	17.68	4.91	-46.02	1,318.75	-465.30	720.55	700.38	20.18	35.709		
4,593.85	4,500.00	4,460.00	4,500.00	17.80	5.01	-46.11	1,318.75	-465.30	719.56	700.31	19.25	37.384		
4,600.00	4,506.15	4,466.15	4,506.15	17.81	5.02	-46.11	1,318.75	-465.30	719.56	700.30	19.26	37.354		
4,700.00	4,606.15	4,566.15	4,606.15	17.92	5.13	-46.11	1,318.75	-465.30	719.56	700.04	19.52	36.857		
4,800.00	4,706.15	4,666.15	4,706.15	18.04	5.24	-46.11	1,318.75	-465.30	719.56	699.78	19.79	36.369		
4,900.00	4,806.15	4,766.15	4,806.15	18.16	5.36	-46.11	1,318.75	-465.30	719.56	699.51	20.05	35.890		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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: 6450-MWVD													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	4,906.15	4,866.15	4,906.15	18.28	5.47	-46.11	1,318.75	-465.30	719.56	699.25	20.31	35.421		
5,100.00	5,006.15	4,966.15	5,006.15	18.41	5.58	-46.11	1,318.75	-465.30	719.56	698.98	20.58	34.961		
5,200.00	5,106.15	5,066.15	5,106.15	18.53	5.69	-46.11	1,318.75	-465.30	719.56	698.71	20.85	34.509		
5,300.00	5,206.15	5,166.15	5,206.15	18.66	5.81	-46.11	1,318.75	-465.30	719.56	698.44	21.12	34.067		
5,400.00	5,306.15	5,266.15	5,306.15	18.79	5.92	-46.11	1,318.75	-465.30	719.56	698.17	21.39	33.633		
5,500.00	5,406.15	5,366.15	5,406.15	18.92	6.03	-46.11	1,318.75	-465.30	719.56	697.89	21.67	33.207		
5,600.00	5,506.15	5,466.15	5,506.15	19.06	6.14	-46.11	1,318.75	-465.30	719.56	697.62	21.94	32.790		
5,700.00	5,606.15	5,566.15	5,606.15	19.19	6.26	-46.11	1,318.75	-465.30	719.56	697.34	22.22	32.381		
5,800.00	5,706.15	5,666.15	5,706.15	19.33	6.37	-46.11	1,318.75	-465.30	719.56	697.06	22.50	31.980		
5,900.00	5,806.15	5,766.15	5,806.15	19.47	6.48	-46.11	1,318.75	-465.30	719.56	696.78	22.78	31.587		
6,008.39	5,914.54	5,874.54	5,914.54	19.62	6.60	-46.11	1,318.75	-465.30	719.56	696.48	23.09	31.169		
6,025.00	5,931.15	5,891.15	5,931.15	19.64	6.62	-46.10	1,318.75	-465.30	719.35	695.22	24.13	29.806		
6,050.00	5,956.10	5,916.10	5,956.10	19.67	6.65	-46.01	1,318.75	-465.30	718.24	694.06	24.18	29.709		
6,075.00	5,980.94	5,940.94	5,980.94	19.70	6.68	-45.86	1,318.75	-465.30	716.18	692.02	24.17	29.636		
6,100.00	6,005.59	5,965.59	6,005.59	19.74	6.70	-45.63	1,318.75	-465.30	713.19	689.09	24.11	29.584		
6,125.00	6,030.00	5,990.00	6,030.00	19.77	6.73	-45.33	1,318.75	-465.30	709.29	685.28	24.00	29.550		
6,150.00	6,054.09	6,014.09	6,054.09	19.80	6.76	-44.95	1,318.75	-465.30	704.49	680.64	23.86	29.531		
6,175.00	6,077.79	6,037.79	6,077.79	19.83	6.79	-44.50	1,318.75	-465.30	698.84	675.16	23.67	29.519		
6,200.00	6,101.05	6,061.05	6,101.05	19.86	6.81	-43.97	1,318.75	-465.30	692.36	668.90	23.46	29.509		
6,225.00	6,123.80	6,083.80	6,123.80	19.90	6.84	-43.35	1,318.75	-465.30	685.11	661.88	23.23	29.492		
6,250.00	6,145.97	6,105.97	6,145.97	19.93	6.86	-42.65	1,318.75	-465.30	677.13	654.14	22.99	29.457		
6,275.00	6,167.51	6,127.51	6,167.51	19.96	6.89	-41.86	1,318.75	-465.30	668.48	645.73	22.74	29.391		
6,300.00	6,188.36	6,148.36	6,188.36	20.00	6.91	-40.98	1,318.75	-465.30	659.22	636.70	22.52	29.279		
6,325.00	6,208.45	6,168.45	6,208.45	20.04	6.93	-40.00	1,318.75	-465.30	649.42	627.10	22.31	29.104		
6,350.00	6,227.74	6,187.74	6,227.74	20.08	6.95	-38.92	1,318.75	-465.30	639.15	617.00	22.15	28.852		
6,375.00	6,246.18	6,206.18	6,246.18	20.13	6.97	-37.73	1,318.75	-465.30	628.51	606.46	22.05	28.510		
6,400.00	6,263.70	6,223.70	6,263.70	20.18	6.99	-36.44	1,318.75	-465.30	617.57	595.57	22.00	28.070		
6,425.00	6,280.26	6,240.26	6,280.26	20.23	7.01	-35.03	1,318.75	-465.30	606.44	584.41	22.03	27.533		
6,450.00	6,295.83	6,255.83	6,295.83	20.29	7.03	-33.50	1,318.75	-465.30	595.21	573.09	22.12	26.908		
6,475.00	6,310.35	6,270.35	6,310.35	20.36	7.05	-31.85	1,318.75	-465.30	584.00	561.72	22.28	26.211		
6,500.00	6,323.78	6,283.78	6,323.78	20.44	7.06	-30.07	1,318.75	-465.30	572.92	550.42	22.50	25.463		
6,525.00	6,336.09	6,296.09	6,336.09	20.53	7.08	-28.17	1,318.75	-465.30	562.08	539.31	22.76	24.691		
6,550.00	6,347.25	6,307.25	6,347.25	20.63	7.09	-26.14	1,318.75	-465.30	551.61	528.54	23.06	23.916		
6,575.00	6,357.22	6,317.22	6,357.22	20.74	7.10	-23.97	1,318.75	-465.30	541.63	518.24	23.39	23.159		
6,600.00	6,365.97	6,325.97	6,365.97	20.87	7.11	-21.68	1,318.75	-465.30	532.26	508.54	23.72	22.436		
6,625.00	6,373.49	6,333.49	6,373.49	21.01	7.12	-19.27	1,318.75	-465.30	523.62	499.56	24.07	21.755		
6,650.00	6,379.76	6,339.76	6,379.76	21.18	7.12	-16.74	1,318.75	-465.30	515.84	491.42	24.42	21.125		
6,675.00	6,384.74	6,344.74	6,384.74	21.36	7.13	-14.11	1,318.75	-465.30	509.01	484.24	24.77	20.546		
6,700.00	6,388.44	6,348.44	6,388.44	21.57	7.13	-11.39	1,318.75	-465.30	503.24	478.10	25.14	20.019		
6,725.00	6,390.84	6,350.84	6,390.84	21.80	7.14	-8.60	1,318.75	-465.30	498.59	473.08	25.51	19.544		
6,750.00	6,391.93	6,351.93	6,391.93	22.06	7.14	-5.74	1,318.75	-465.30	495.15	469.25	25.90	19.117		
6,758.39	6,392.00	6,352.00	6,392.00	22.15	7.14	-4.78	1,318.75	-465.30	494.27	468.24	26.04	18.984		
6,800.00	6,392.00	6,352.00	6,392.00	22.63	7.14	0.05	1,318.75	-465.30	492.01	465.25	26.75	18.390		
6,806.03	6,392.00	6,352.00	6,392.00	22.71	7.14	0.75	1,318.75	-465.30	491.97	465.10	26.87	18.311 CC, ES		
6,900.00	6,392.00	6,352.00	6,392.00	24.05	7.14	11.57	1,318.75	-465.30	500.87	472.22	28.64	17.488		
7,000.00	6,392.00	6,352.00	6,392.00	25.76	7.14	22.27	1,318.75	-465.30	528.83	498.12	30.71	17.219 SF		
7,100.00	6,392.00	6,352.00	6,392.00	27.69	7.14	31.61	1,318.75	-465.30	573.11	540.19	32.92	17.407		
7,200.00	6,392.00	6,352.00	6,392.00	29.80	7.14	39.44	1,318.75	-465.30	630.28	595.03	35.24	17.884		
7,300.00	6,392.00	6,352.00	6,392.00	32.03	7.14	45.87	1,318.75	-465.30	697.17	659.52	37.65	18.520		
7,400.00	6,392.00	6,352.00	6,392.00	34.36	7.14	51.12	1,318.75	-465.30	771.26	731.15	40.11	19.228		
7,500.00	6,392.00	6,352.00	6,392.00	36.76	7.14	55.42	1,318.75	-465.30	850.67	808.04	42.63	19.955		
7,600.00	6,392.00	6,352.00	6,392.00	39.22	7.14	58.97	1,318.75	-465.30	934.04	888.85	45.19	20.670		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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: 6450-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	6,392.00	6,352.00	6,392.00	41.73	7.14	61.93	1,318.75	-465.30	1,020.40	972.62	47.78	21.356		
7,800.00	6,392.00	6,352.00	6,392.00	44.27	7.14	64.42	1,318.75	-465.30	1,109.06	1,058.66	50.40	22.005		
7,900.00	6,392.00	6,352.00	6,392.00	46.85	7.14	66.54	1,318.75	-465.30	1,199.51	1,146.46	53.04	22.614		
8,000.00	6,392.00	6,352.00	6,392.00	49.46	7.14	68.36	1,318.75	-465.30	1,291.36	1,235.66	55.70	23.183		
8,100.00	6,392.00	6,352.00	6,392.00	52.08	7.14	69.94	1,318.75	-465.30	1,384.34	1,325.96	58.38	23.713		
8,200.00	6,392.00	6,352.00	6,392.00	54.73	7.14	71.31	1,318.75	-465.30	1,478.24	1,417.17	61.07	24.205		
8,300.00	6,392.00	6,352.00	6,392.00	57.39	7.14	72.53	1,318.75	-465.30	1,572.89	1,509.12	63.77	24.664		
8,400.00	6,392.00	6,352.00	6,392.00	60.07	7.14	73.60	1,318.75	-465.30	1,668.17	1,601.68	66.49	25.091		
8,500.00	6,392.00	6,352.00	6,392.00	62.76	7.14	74.56	1,318.75	-465.30	1,763.97	1,694.76	69.21	25.489		
8,600.00	6,392.00	6,352.00	6,392.00	65.45	7.14	75.42	1,318.75	-465.30	1,860.21	1,788.27	71.94	25.860		
8,700.00	6,392.00	6,352.00	6,392.00	68.16	7.14	76.19	1,318.75	-465.30	1,956.83	1,882.16	74.67	26.206		
8,800.00	6,392.00	6,352.00	6,392.00	70.88	7.14	76.89	1,318.75	-465.30	2,053.77	1,976.36	77.41	26.530		
8,900.00	6,392.00	6,352.00	6,392.00	73.60	7.14	77.53	1,318.75	-465.30	2,150.99	2,070.83	80.16	26.834		
9,000.00	6,392.00	6,352.00	6,392.00	76.33	7.14	78.11	1,318.75	-465.30	2,248.46	2,165.55	82.91	27.119		
9,100.00	6,392.00	6,352.00	6,392.00	79.07	7.14	78.65	1,318.75	-465.30	2,346.14	2,260.47	85.67	27.387		
9,200.00	6,392.00	6,352.00	6,392.00	81.81	7.14	79.14	1,318.75	-465.30	2,444.00	2,355.58	88.42	27.639		
9,300.00	6,392.00	6,352.00	6,392.00	84.55	7.14	79.59	1,318.75	-465.30	2,542.03	2,450.85	91.19	27.877		
9,400.00	6,392.00	6,352.00	6,392.00	87.30	7.14	80.01	1,318.75	-465.30	2,640.21	2,546.26	93.95	28.101		
9,500.00	6,392.00	6,352.00	6,392.00	90.06	7.14	80.40	1,318.75	-465.30	2,738.53	2,641.80	96.72	28.313		
9,600.00	6,392.00	6,352.00	6,392.00	92.81	7.14	80.77	1,318.75	-465.30	2,836.96	2,737.46	99.49	28.514		
9,700.00	6,392.00	6,352.00	6,392.00	95.57	7.14	81.11	1,318.75	-465.30	2,935.49	2,833.23	102.27	28.704		
9,800.00	6,392.00	6,352.00	6,392.00	98.33	7.14	81.42	1,318.75	-465.30	3,034.12	2,929.08	105.04	28.885		
9,900.00	6,392.00	6,352.00	6,392.00	101.10	7.14	81.72	1,318.75	-465.30	3,132.84	3,025.02	107.82	29.056		
10,000.00	6,392.00	6,352.00	6,392.00	103.87	7.14	82.00	1,318.75	-465.30	3,231.64	3,121.04	110.60	29.219		
10,100.00	6,392.00	6,352.00	6,392.00	106.64	7.14	82.26	1,318.75	-465.30	3,330.51	3,217.13	113.38	29.375		
10,200.00	6,392.00	6,352.00	6,392.00	109.41	7.14	82.51	1,318.75	-465.30	3,429.45	3,313.28	116.16	29.523		
10,300.00	6,392.00	6,352.00	6,392.00	112.18	7.14	82.74	1,318.75	-465.30	3,528.44	3,409.49	118.95	29.664		
10,400.00	6,392.00	6,352.00	6,392.00	114.96	7.14	82.96	1,318.75	-465.30	3,627.49	3,505.76	121.73	29.799		
10,500.00	6,392.00	6,352.00	6,392.00	117.74	7.14	83.17	1,318.75	-465.30	3,726.59	3,602.07	124.52	29.928		
10,600.00	6,392.00	6,352.00	6,392.00	120.52	7.14	83.36	1,318.75	-465.30	3,825.74	3,698.43	127.31	30.052		
10,700.00	6,392.00	6,352.00	6,392.00	123.30	7.14	83.55	1,318.75	-465.30	3,924.93	3,794.83	130.09	30.170		
10,725.79	6,392.00	6,352.00	6,392.00	124.02	7.14	83.60	1,318.75	-465.30	3,950.52	3,819.70	130.81	30.200		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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		
0.00	0.00	0.00	70.00	0.00	0.00	-72.92	1,333.70	-4,340.96	4,541.76					
100.00	100.00	30.72	100.72	0.09	0.04	-72.92	1,333.69	-4,340.96	4,541.22	4,541.09	0.13	N/A		
200.00	200.00	133.10	203.10	0.32	0.15	-72.92	1,333.54	-4,340.96	4,541.18	4,540.71	0.47	9,636.989		
300.00	300.00	235.48	305.48	0.54	0.27	-72.93	1,333.20	-4,340.97	4,541.08	4,540.27	0.81	5,575.096		
400.00	400.00	337.86	407.86	0.77	0.39	-72.93	1,332.66	-4,340.97	4,540.94	4,539.78	1.16	3,921.921		
500.00	500.00	440.24	510.24	0.99	0.51	-72.94	1,331.94	-4,340.98	4,540.74	4,539.24	1.50	3,024.864		
600.00	599.98	542.58	612.57	1.22	0.63	-72.98	1,331.02	-4,340.99	4,540.08	4,538.24	1.84	2,463.265		
700.00	699.84	644.74	714.73	1.45	0.75	-73.05	1,329.92	-4,341.01	4,538.58	4,536.39	2.19	2,074.610		
800.00	799.45	746.58	816.56	1.68	0.87	-73.18	1,328.63	-4,341.02	4,536.24	4,533.70	2.54	1,783.701		
900.00	898.70	847.95	917.92	1.94	0.98	-73.34	1,327.16	-4,341.04	4,533.10	4,530.18	2.92	1,552.314		
1,000.00	997.47	948.72	1,018.67	2.24	1.10	-73.56	1,325.52	-4,341.06	4,529.19	4,525.86	3.33	1,360.318		
1,100.00	1,095.62	1,048.73	1,118.66	2.58	1.22	-73.81	1,323.70	-4,341.08	4,524.55	4,520.76	3.78	1,196.808		
1,199.73	1,192.80	1,147.58	1,217.50	2.96	1.33	-74.12	1,321.73	-4,341.11	4,519.25	4,514.97	4.28	1,056.024		
1,300.00	1,290.09	1,246.43	1,316.32	3.39	1.45	-74.44	1,319.57	-4,341.13	4,513.66	4,508.84	4.82	936.659		
1,400.00	1,387.12	1,344.91	1,414.78	3.84	1.56	-74.77	1,317.25	-4,341.16	4,508.18	4,502.81	5.37	838.819		
1,500.00	1,484.15	1,443.23	1,513.06	4.30	1.68	-75.10	1,314.76	-4,341.19	4,502.82	4,496.87	5.95	757.219		
1,600.00	1,581.18	1,539.59	1,609.39	4.77	1.90	-75.44	1,312.24	-4,341.22	4,497.58	4,490.95	6.63	678.154		
1,700.00	1,678.21	1,635.96	1,705.73	5.24	2.12	-75.77	1,309.72	-4,341.26	4,492.50	4,485.18	7.32	613.343		
1,800.00	1,775.25	1,732.33	1,802.06	5.72	2.35	-76.11	1,307.19	-4,341.29	4,487.57	4,479.55	8.02	559.374		
1,900.00	1,872.28	1,828.69	1,898.39	6.20	2.57	-76.44	1,304.67	-4,341.32	4,482.80	4,474.07	8.72	513.812		
2,000.00	1,969.31	1,925.06	1,994.73	6.68	2.79	-76.78	1,302.15	-4,341.35	4,478.18	4,468.75	9.43	474.881		
2,100.00	2,066.34	2,021.42	2,091.06	7.17	3.02	-77.12	1,299.63	-4,341.38	4,473.71	4,463.57	10.14	441.263		
2,200.00	2,163.37	2,117.79	2,187.39	7.66	3.24	-77.45	1,297.10	-4,341.41	4,469.40	4,458.55	10.85	411.960		
2,300.00	2,260.41	2,214.16	2,283.73	8.15	3.47	-77.79	1,294.58	-4,341.44	4,465.25	4,453.69	11.56	386.206		
2,400.00	2,357.44	2,310.52	2,380.06	8.64	3.69	-78.13	1,292.06	-4,341.47	4,461.25	4,448.97	12.28	363.406		
2,500.00	2,454.47	2,406.89	2,476.39	9.13	3.91	-78.47	1,289.54	-4,341.50	4,457.41	4,444.41	12.99	343.086		
2,600.00	2,551.50	2,503.26	2,572.73	9.62	4.14	-78.81	1,287.02	-4,341.53	4,453.72	4,440.01	13.71	324.870		
2,700.00	2,648.53	2,599.62	2,669.06	10.12	4.36	-79.15	1,284.49	-4,341.56	4,450.19	4,435.77	14.43	308.452		
2,800.00	2,745.56	2,695.99	2,765.39	10.61	4.58	-79.49	1,281.97	-4,341.60	4,446.82	4,431.68	15.15	293.582		
2,900.00	2,842.60	2,792.36	2,861.73	11.10	4.81	-79.83	1,279.45	-4,341.63	4,443.61	4,427.74	15.87	280.056		
3,000.00	2,939.63	2,888.72	2,958.06	11.60	5.03	-80.18	1,276.93	-4,341.66	4,440.56	4,423.97	16.59	267.702		
3,100.00	3,036.66	2,985.09	3,054.40	12.09	5.25	-80.52	1,274.40	-4,341.69	4,437.66	4,420.35	17.31	256.376		
3,200.00	3,133.69	3,081.46	3,150.73	12.59	5.48	-80.86	1,271.88	-4,341.72	4,434.92	4,416.89	18.03	245.958		
3,300.00	3,230.72	3,177.82	3,247.06	13.09	5.70	-81.21	1,269.36	-4,341.75	4,432.35	4,413.59	18.75	236.344		
3,400.00	3,327.76	3,274.19	3,343.40	13.58	5.92	-81.55	1,266.84	-4,341.78	4,429.93	4,410.45	19.48	227.448		
3,500.00	3,424.79	3,370.55	3,439.73	14.08	6.15	-81.89	1,264.31	-4,341.81	4,427.67	4,407.47	20.20	219.192		
3,600.00	3,521.82	3,466.92	3,536.06	14.58	6.37	-82.24	1,261.79	-4,341.84	4,425.57	4,404.65	20.92	211.512		
3,700.00	3,618.85	3,563.29	3,632.40	15.08	6.59	-82.58	1,259.27	-4,341.87	4,423.64	4,401.99	21.65	204.351		
3,800.00	3,715.88	3,659.65	3,728.73	15.57	6.82	-82.93	1,256.75	-4,341.91	4,421.86	4,399.49	22.37	197.659		
3,894.11	3,807.20	3,750.35	3,819.39	16.04	7.03	-83.25	1,254.37	-4,341.93	4,420.34	4,397.28	23.05	191.750		
3,900.00	3,812.92	3,756.02	3,825.06	16.07	7.04	-83.27	1,254.22	-4,341.94	4,420.24	4,397.15	23.09	191.420		
4,000.00	3,910.40	3,852.89	3,921.89	16.44	7.26	-83.59	1,251.69	-4,341.97	4,418.88	4,395.19	23.69	186.544		
4,100.00	4,008.59	3,950.56	4,019.53	16.77	7.49	-83.87	1,249.13	-4,342.00	4,417.79	4,393.54	24.25	182.191		
4,200.00	4,107.39	4,048.92	4,117.86	17.06	7.72	-84.11	1,246.56	-4,342.03	4,416.93	4,392.16	24.77	178.323		
4,300.00	4,206.67	4,147.85	4,216.75	17.31	7.95	-84.29	1,243.97	-4,342.06	4,416.27	4,391.02	25.25	174.901		
4,400.00	4,306.30	4,247.22	4,316.10	17.52	8.18	-84.44	1,241.37	-4,342.09	4,415.76	4,390.07	25.69	171.892		
4,500.00	4,406.17	4,346.93	4,415.77	17.68	8.41	-84.54	1,238.76	-4,342.13	4,415.38	4,389.30	26.09	169.262		
4,593.85	4,500.00	4,440.68	4,509.49	17.80	8.63	-84.59	1,236.30	-4,342.16	4,415.13	4,395.56	19.58	225.532		
4,600.00	4,506.15	4,446.83	4,515.64	17.81	8.64	-84.59	1,236.14	-4,342.16	4,415.12	4,395.52	19.60	225.251		
4,700.00	4,606.15	4,546.80	4,615.57	17.92	8.87	-84.62	1,233.53	-4,342.19	4,414.91	4,394.89	20.02	220.578		
4,800.00	4,706.15	4,646.77	4,715.50	18.04	9.11	-84.66	1,230.91	-4,342.22	4,414.69	4,394.26	20.43	216.081		
4,900.00	4,806.15	4,746.73	4,815.43	18.16	9.34	-84.69	1,228.29	-4,342.25	4,414.48	4,393.63	20.85	211.751		

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 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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		
5,000.00	4,906.15	4,846.70	4,915.37	18.28	9.57	-84.73	1,225.68	-4,342.29	4,414.27	4,393.01	21.27	207.580		
5,100.00	5,006.15	4,946.66	5,015.30	18.41	9.80	-84.76	1,223.06	-4,342.32	4,414.06	4,392.38	21.68	203.559		
5,200.00	5,106.15	5,046.63	5,115.23	18.53	10.03	-84.79	1,220.44	-4,342.35	4,413.86	4,391.75	22.10	199.681		
5,300.00	5,206.15	5,146.60	5,215.16	18.66	10.26	-84.83	1,217.83	-4,342.38	4,413.65	4,391.13	22.53	195.939		
5,400.00	5,306.15	5,246.56	5,315.09	18.79	10.50	-84.86	1,215.21	-4,342.41	4,413.45	4,390.50	22.95	192.326		
5,500.00	5,406.15	5,346.53	5,415.02	18.92	10.73	-84.90	1,212.59	-4,342.45	4,413.25	4,389.88	23.37	188.836		
5,600.00	5,506.15	5,446.49	5,514.95	19.06	10.96	-84.93	1,209.98	-4,342.48	4,413.05	4,389.25	23.79	185.464		
5,700.00	5,606.15	5,546.46	5,614.89	19.19	11.19	-84.96	1,207.36	-4,342.51	4,412.85	4,388.63	24.22	182.203		
5,800.00	5,706.15	5,646.42	5,714.82	19.33	11.42	-85.00	1,204.74	-4,342.54	4,412.65	4,388.01	24.64	179.050		
5,900.00	5,806.15	5,746.39	5,814.75	19.47	11.66	-85.03	1,202.13	-4,342.57	4,412.46	4,387.38	25.07	175.997		
6,008.39	5,914.54	5,854.74	5,923.06	19.62	11.91	-85.07	1,199.29	-4,342.61	4,412.25	4,386.71	25.53	172.799		
6,025.00	5,931.15	5,871.34	5,939.66	19.64	11.95	-85.07	1,198.86	-4,342.61	4,411.93	4,386.36	31.57	139.772		
6,050.00	5,956.10	5,896.29	5,964.59	19.67	12.00	-85.08	1,198.20	-4,342.62	4,410.36	4,378.79	31.57	139.697		
6,075.00	5,980.94	5,921.11	5,989.41	19.70	12.06	-85.09	1,197.55	-4,342.63	4,407.49	4,375.99	31.50	139.906		
6,100.00	6,005.59	5,945.76	6,014.05	19.74	12.12	-85.09	1,196.91	-4,342.64	4,403.33	4,371.97	31.36	140.403		
6,125.00	6,030.00	5,970.16	6,038.44	19.77	12.17	-85.09	1,196.27	-4,342.65	4,397.89	4,366.74	31.15	141.193		
6,150.00	6,054.09	5,994.24	6,062.51	19.80	12.23	-85.10	1,195.64	-4,342.65	4,391.19	4,360.32	30.86	142.284		
6,175.00	6,077.79	6,017.94	6,086.20	19.83	12.29	-85.10	1,195.02	-4,342.66	4,383.23	4,352.73	30.51	143.687		
6,200.00	6,101.05	6,041.19	6,109.44	19.86	12.34	-85.10	1,194.41	-4,342.67	4,374.05	4,343.97	30.08	145.415		
6,225.00	6,123.80	6,063.93	6,132.18	19.90	12.39	-85.09	1,193.81	-4,342.68	4,363.67	4,334.09	29.59	147.486		
6,250.00	6,145.97	6,086.09	6,154.33	19.93	12.44	-85.09	1,193.23	-4,342.68	4,352.12	4,323.09	29.03	149.918		
6,275.00	6,167.51	6,107.62	6,175.86	19.96	12.49	-85.08	1,192.67	-4,342.69	4,339.43	4,311.02	28.41	152.733		
6,300.00	6,188.36	6,128.46	6,196.69	20.00	12.54	-85.08	1,192.13	-4,342.70	4,325.63	4,297.89	27.74	155.957		
6,325.00	6,208.45	6,148.55	6,216.77	20.04	12.59	-85.07	1,191.60	-4,342.70	4,310.76	4,283.76	27.01	159.616		
6,350.00	6,227.74	6,167.83	6,236.05	20.08	12.63	-85.06	1,191.09	-4,342.71	4,294.87	4,268.64	26.23	163.738		
6,375.00	6,246.18	6,186.26	6,254.47	20.13	12.68	-85.05	1,190.61	-4,342.72	4,277.99	4,252.58	25.41	168.349		
6,400.00	6,263.70	6,203.78	6,271.98	20.18	12.72	-85.04	1,190.15	-4,342.72	4,260.18	4,235.62	24.56	173.471		
6,425.00	6,280.26	6,220.34	6,288.53	20.23	12.75	-85.03	1,189.72	-4,342.73	4,241.48	4,217.80	23.68	179.119		
6,450.00	6,295.83	6,235.89	6,304.08	20.29	12.79	-85.01	1,189.31	-4,342.73	4,221.94	4,199.15	22.79	185.284		
6,475.00	6,310.35	6,250.41	6,318.59	20.36	12.82	-85.00	1,188.93	-4,342.74	4,201.62	4,179.73	21.89	191.927		
6,500.00	6,323.78	6,263.83	6,332.02	20.44	12.86	-84.98	1,188.58	-4,342.74	4,180.57	4,159.56	21.01	198.948		
6,525.00	6,336.09	6,276.14	6,344.32	20.53	12.88	-84.96	1,188.26	-4,342.74	4,158.85	4,138.68	20.17	206.148		
6,550.00	6,347.25	6,287.29	6,355.47	20.63	12.91	-84.95	1,187.97	-4,342.75	4,136.52	4,117.12	19.41	213.165		
6,575.00	6,357.22	6,297.26	6,365.43	20.74	12.93	-84.93	1,187.71	-4,342.75	4,113.64	4,094.89	18.75	219.382		
6,600.00	6,365.97	6,306.01	6,374.18	20.87	12.95	-84.90	1,187.48	-4,342.75	4,090.28	4,072.00	18.28	223.786		
6,625.00	6,373.49	6,313.53	6,381.69	21.01	12.97	-84.88	1,187.28	-4,342.76	4,066.50	4,048.41	18.09	224.810		
6,650.00	6,379.76	6,319.79	6,387.95	21.18	12.98	-84.86	1,187.12	-4,342.76	4,042.35	4,024.00	18.36	220.198		
6,675.00	6,384.74	6,324.77	6,392.93	21.36	13.00	-84.83	1,186.99	-4,342.76	4,017.92	3,998.52	19.40	207.135		
6,700.00	6,388.44	6,328.47	6,396.63	21.57	13.01	-84.81	1,186.89	-4,342.76	3,993.26	3,971.47	21.79	183.258		
6,725.00	6,390.84	6,330.86	6,399.02	21.80	13.01	-84.78	1,186.83	-4,342.76	3,968.45	3,942.10	26.35	150.577		
6,750.00	6,391.93	6,331.96	6,400.12	22.06	13.01	-84.75	1,186.80	-4,342.76	3,943.55	3,912.21	31.34	125.816		
6,758.39	6,392.00	6,332.03	6,400.19	22.15	13.01	-84.74	1,186.80	-4,342.76	3,935.19	3,903.71	31.49	124.984		
6,800.00	6,392.00	6,332.03	6,400.19	22.63	13.01	-84.69	1,186.80	-4,342.76	3,893.71	3,861.51	32.20	120.913		
6,900.00	6,392.00	6,332.03	6,400.19	24.05	13.01	-84.57	1,186.80	-4,342.76	3,794.03	3,759.95	34.09	111.298		
7,000.00	6,392.00	6,332.02	6,400.18	25.76	13.01	-84.45	1,186.80	-4,342.76	3,694.38	3,658.22	36.16	102.166		
7,100.00	6,392.00	6,332.02	6,400.18	27.69	13.01	-84.31	1,186.80	-4,342.76	3,594.74	3,556.36	38.37	93.680		
7,200.00	6,392.00	6,332.02	6,400.18	29.80	13.01	-84.17	1,186.80	-4,342.76	3,495.12	3,454.43	40.69	85.892		
7,300.00	6,392.00	6,332.02	6,400.18	32.03	13.01	-84.02	1,186.80	-4,342.76	3,395.52	3,352.43	43.09	78.794		
7,400.00	6,392.00	6,332.02	6,400.17	34.36	13.01	-83.87	1,186.80	-4,342.76	3,295.95	3,250.39	45.56	72.342		
7,500.00	6,392.00	6,332.01	6,400.17	36.76	13.01	-83.70	1,186.80	-4,342.76	3,196.40	3,148.33	48.08	66.483		
7,600.00	6,392.00	6,332.01	6,400.17	39.22	13.01	-83.52	1,186.80	-4,342.76	3,096.89	3,046.25	50.64	61.159		
7,700.00	6,392.00	6,332.01	6,400.17	41.73	13.01	-83.33	1,186.80	-4,342.76	2,997.40	2,944.17	53.23	56.311		

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

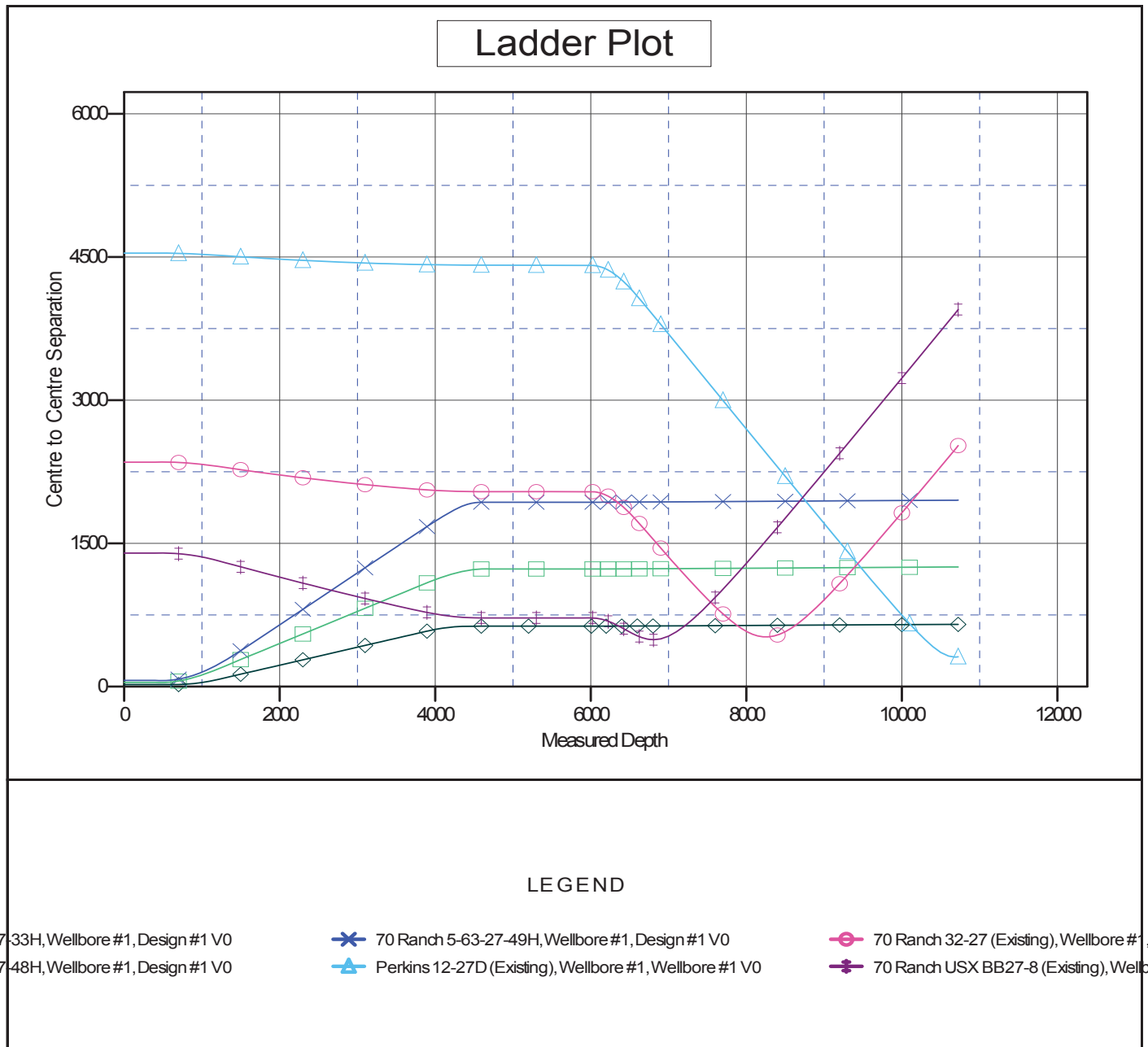
Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	Survey Calculation 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		
7,800.00	6,392.00	6,332.01	6,400.17	44.27	13.01	-83.12	1,186.80	-4,342.76	2,897.96	2,842.11	55.85	51.890		
7,900.00	6,392.00	6,332.00	6,400.16	46.85	13.01	-82.91	1,186.80	-4,342.76	2,798.55	2,740.06	58.49	47.847		
8,000.00	6,392.00	6,332.00	6,400.16	49.46	13.01	-82.67	1,186.80	-4,342.76	2,699.18	2,638.03	61.15	44.140		
8,100.00	6,392.00	6,332.00	6,400.16	52.08	13.01	-82.42	1,186.80	-4,342.76	2,599.86	2,536.04	63.83	40.733		
8,200.00	6,392.00	6,332.00	6,400.16	54.73	13.01	-82.15	1,186.80	-4,342.76	2,500.60	2,434.09	66.52	37.593		
8,300.00	6,392.00	6,331.99	6,400.15	57.39	13.01	-81.85	1,186.80	-4,342.76	2,401.40	2,332.18	69.22	34.693		
8,400.00	6,392.00	6,331.99	6,400.15	60.07	13.01	-81.53	1,186.80	-4,342.76	2,302.27	2,230.34	71.93	32.007		
8,500.00	6,392.00	6,331.99	6,400.15	62.76	13.01	-81.18	1,186.80	-4,342.76	2,203.22	2,128.57	74.65	29.513		
8,600.00	6,392.00	6,331.99	6,400.15	65.45	13.01	-80.80	1,186.80	-4,342.76	2,104.25	2,026.87	77.38	27.194		
8,700.00	6,392.00	6,331.99	6,400.14	68.16	13.01	-80.38	1,186.80	-4,342.76	2,005.39	1,925.28	80.11	25.032		
8,800.00	6,392.00	6,331.98	6,400.14	70.88	13.01	-79.92	1,186.80	-4,342.76	1,906.65	1,823.79	82.86	23.012		
8,900.00	6,392.00	6,331.98	6,400.14	73.60	13.01	-79.40	1,186.80	-4,342.76	1,808.05	1,722.44	85.60	21.122		
9,000.00	6,392.00	6,331.98	6,400.14	76.33	13.01	-78.83	1,186.80	-4,342.76	1,709.60	1,621.25	88.35	19.350		
9,100.00	6,392.00	6,331.98	6,400.13	79.07	13.01	-78.19	1,186.80	-4,342.76	1,611.35	1,520.25	91.11	17.686		
9,200.00	6,392.00	6,331.97	6,400.13	81.81	13.01	-77.46	1,186.80	-4,342.76	1,513.33	1,419.47	93.87	16.122		
9,300.00	6,392.00	6,331.97	6,400.13	84.55	13.01	-76.64	1,186.80	-4,342.76	1,415.59	1,318.96	96.63	14.650		
9,400.00	6,392.00	6,331.97	6,400.13	87.30	13.01	-75.69	1,186.80	-4,342.76	1,318.19	1,218.79	99.39	13.262		
9,500.00	6,392.00	6,331.97	6,400.13	90.06	13.01	-74.59	1,186.80	-4,342.76	1,221.20	1,119.04	102.16	11.954		
9,600.00	6,392.00	6,331.96	6,400.12	92.81	13.01	-73.30	1,186.80	-4,342.76	1,124.74	1,019.81	104.93	10.719		
9,700.00	6,392.00	6,331.96	6,400.12	95.57	13.01	-71.77	1,186.80	-4,342.76	1,028.96	921.26	107.70	9.554		
9,800.00	6,392.00	6,331.96	6,400.12	98.33	13.01	-69.92	1,186.80	-4,342.76	934.07	823.59	110.48	8.455		
9,900.00	6,392.00	6,331.96	6,400.12	101.10	13.01	-67.67	1,186.80	-4,342.76	840.35	727.10	113.25	7.420		
10,000.00	6,392.00	6,331.95	6,400.11	103.87	13.01	-64.85	1,186.80	-4,342.76	748.27	632.24	116.03	6.449		
10,100.00	6,392.00	6,331.95	6,400.11	106.64	13.01	-61.25	1,186.80	-4,342.76	658.51	539.69	118.81	5.542		
10,200.00	6,392.00	6,331.95	6,400.11	109.41	13.01	-56.55	1,186.80	-4,342.76	572.14	450.55	121.59	4.705		
10,300.00	6,392.00	6,331.95	6,400.11	112.18	13.01	-50.23	1,186.80	-4,342.76	490.98	366.60	124.38	3.948		
10,400.00	6,392.00	6,331.95	6,400.10	114.96	13.01	-41.57	1,186.80	-4,342.76	418.07	290.90	127.16	3.288		
10,500.00	6,392.00	6,331.94	6,400.10	117.74	13.01	-29.66	1,186.80	-4,342.76	358.46	228.52	129.95	2.759		
10,600.00	6,392.00	6,331.94	6,400.10	120.52	13.01	-14.01	1,186.80	-4,342.76	319.71	186.97	132.73	2.409		
10,681.42	6,392.00	6,331.94	6,400.10	122.78	13.01	0.75	1,186.80	-4,342.76	309.17	174.16	135.00	2.290 CC, ES		
10,700.00	6,392.00	6,331.94	6,400.10	123.30	13.01	4.19	1,186.80	-4,342.76	309.73	174.20	135.52	2.285 SF		
10,725.79	6,392.00	6,331.94	6,400.10	124.02	13.01	8.92	1,186.80	-4,342.76	312.34	176.09	136.24	2.293		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	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 @ 4614.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 5-63-27-32H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

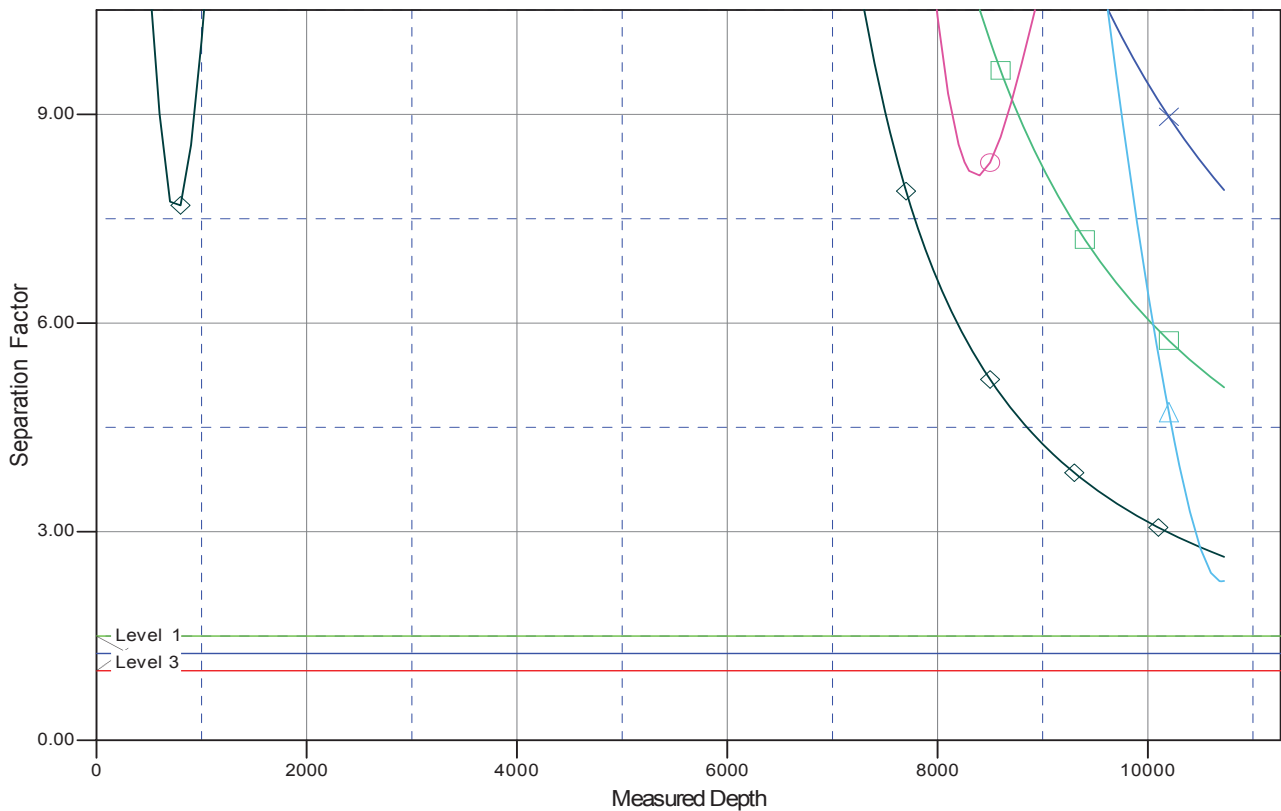


Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4614.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4614.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-32H	Survey Calculation 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 @ 4614.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 5-63-27-32H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

Separation Factor Plot



LEGEND

27-33H, Wellbore #1, Design #1 V0
27-48H, Wellbore #1, Design #1 V0

✕ 70 Ranch 5-63-27-49H, Wellbore #1, Design #1 V0
▲ Perkins 12-27D (Existing), Wellbore #1, Wellbore #1 V0

○ 70 Ranch 32-27 (Existing), Wellbore #1, V0
✱ 70 Ranch USX BB27-8 (Existing), Wellbore #1, V0