

Well Planning Proposal FOR

**Bill Barrett Corp.
70 Ranch 4-63-3-32H
Weld Co., CO**

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

Presented By:

Pat Rasmussen
Regional Manager

Bret Wolford
Well Planner



Sharewell
Energy Services, LP



Bill Barrett Corp.
Project: Weld Co., CO
Site: Sec.3-T4N-R63W
Well: 70 Ranch 4-63-3-32H
Wellbore: Wellbore #1
Design: Design #1
Lat: 40° 20' 22.380 N
Long: 104° 24' 59.004 W
Pad GL: 4541.00
KB: WELL @ 4559.00usft



PROJECT DETAILS: Weld Co., CO

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



Azimuths to True North
Magnetic North: 8.56°

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

WELL DETAILS: 70 Ranch 4-63-3-32H

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude	Slot
0.00	0.00	1368384.383	3302058.195	40° 20' 22.380 N	104° 24' 59.004 W	

WELLBORE TARGET DETAILS (LAT/LONG)

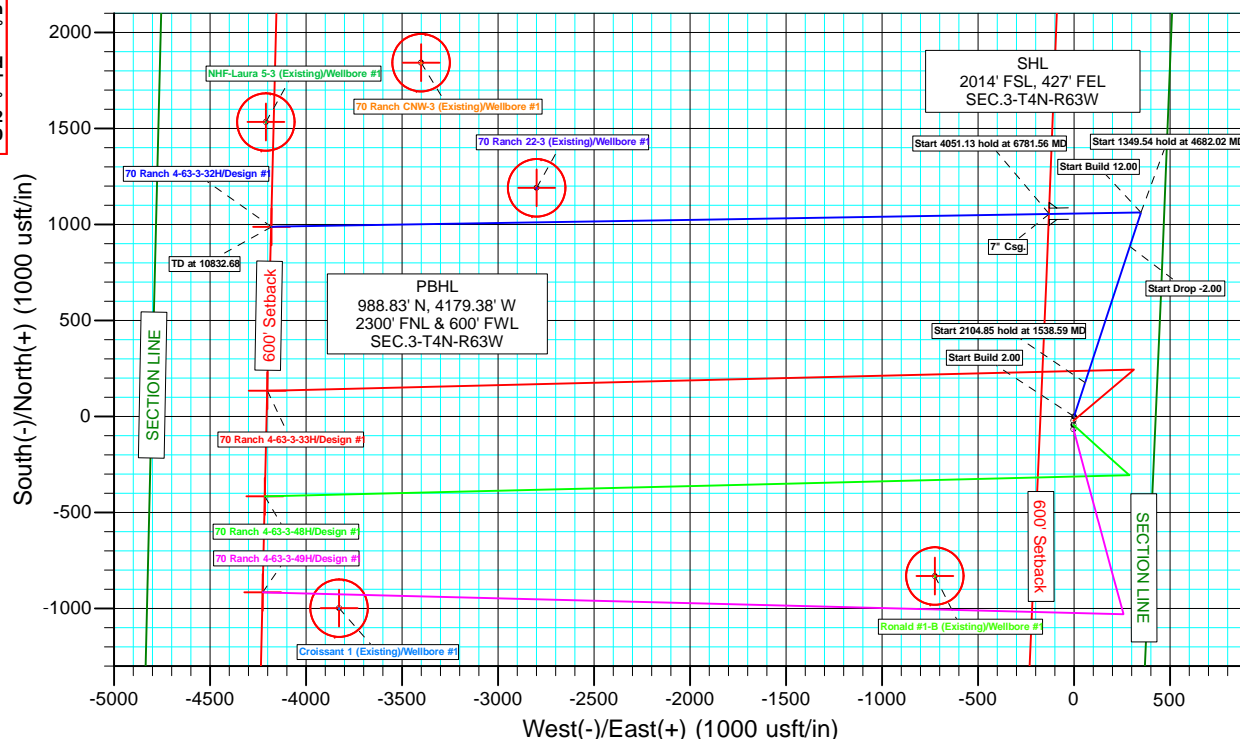
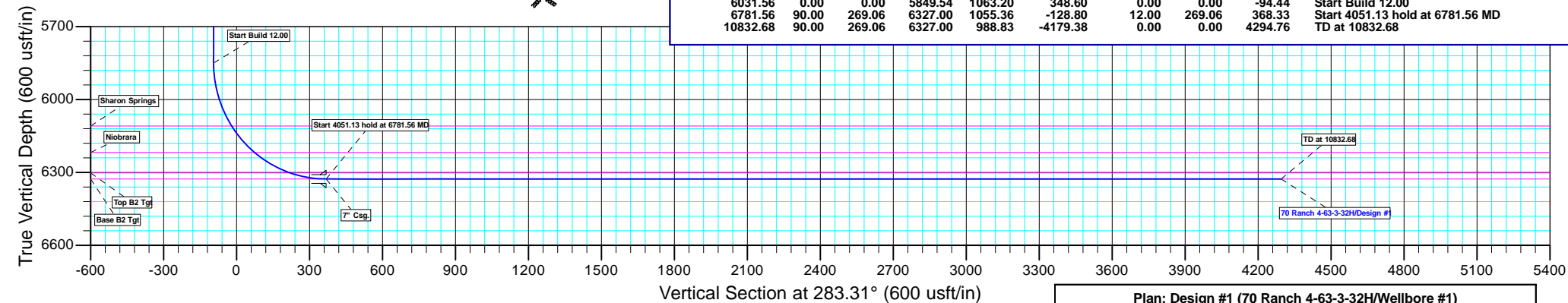
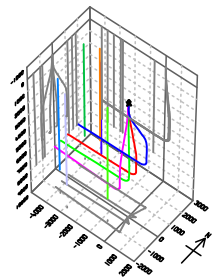
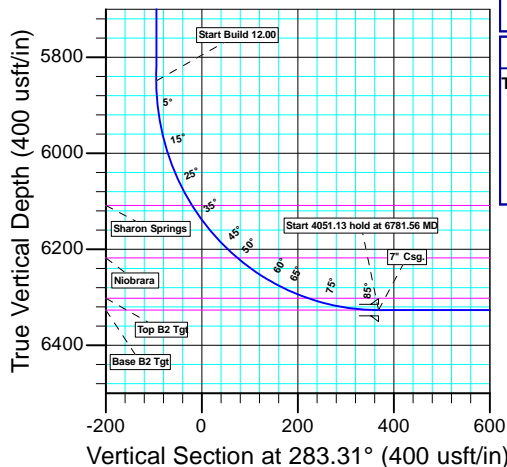
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
4-63-3-32H PBHL	6327.00	988.83	-4179.38	40° 20' 32.148 N	104° 25' 52.980 W	

CASING DETAILS

TVD	MD	Name	Size
6327.00	6781.56	7" Csg.	7

FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation
199.00	199.00	Pierre
3949.00	4127.56	Terry/Sussex
4599.00	4781.02	Shannon
6109.00	6305.86	Sharon Springs
6218.00	6452.45	Niobrara
6302.00	6626.35	Top B2 Tgt
6327.00	6779.41	Base B2 Tgt



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1538.59	20.77	18.15	1515.98	176.94	58.01	2.00	18.15	-15.72	Start 2104.85 hold at 1538.59 MD
3643.43	20.77	18.15	3484.02	886.26	290.59	0.00	0.00	-78.73	Start Drop -2.00
4682.02	0.00	0.00	4500.00	1063.20	348.60	2.00	180.00	-94.44	Start 1349.54 hold at 4682.02 MD
6031.56	0.00	0.00	5849.54	1063.20	348.60	0.00	0.00	-94.44	Start Build 12.00
6781.56	90.00	269.06	6327.00	1055.36	-128.80	12.00	269.06	368.33	Start 4051.13 hold at 6781.56 MD
10832.68	90.00	269.06	6327.00	988.83	-4179.38	0.00	0.00	4294.76	TD at 10832.68

Plan: Design #1 (70 Ranch 4-63-3-32H/Wellbore #1)

Created By: Bret Wolford

Date: 13:27, April 20 2012



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO
Sec.3-T4N-R63W
70 Ranch 4-63-3-32H

Wellbore #1

Plan: Design #1

Standard Planning Report

20 April, 2012



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-32H	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.3-T4N-R63W			
Site Position:		Northing:	1,368,318.789 usft	Latitude:	40° 20' 21.732 N
From:	Lat/Long	Easting:	3,302,056.208 usft	Longitude:	104° 24' 59.040 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.70 °

Well	70 Ranch 4-63-3-32H					
Well Position	+N/-S	65.56 usft	Northing:	1,368,384.383 usft	Latitude:	40° 20' 22.380 N
	+E/-W	2.79 usft	Easting:	3,302,058.195 usft	Longitude:	104° 24' 59.004 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,541.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	04/18/12	8.56	67.03	53,050

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	283.31

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	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,538.59	20.77	18.15	1,515.98	176.94	58.01	2.00	2.00	0.00	18.15	
3,643.43	20.77	18.15	3,484.02	886.26	290.59	0.00	0.00	0.00	0.00	
4,682.02	0.00	0.00	4,500.00	1,063.20	348.60	2.00	-2.00	0.00	180.00	
6,031.56	0.00	0.00	5,849.54	1,063.20	348.60	0.00	0.00	0.00	0.00	
6,781.56	90.00	269.06	6,327.00	1,055.36	-128.80	12.00	12.00	0.00	269.06	4-63-3-32H PBHL
10,832.68	90.00	269.06	6,327.00	988.83	-4,179.38	0.00	0.00	0.00	0.00	4-63-3-32H PBHL

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Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-32H	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	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
199.00	0.00	0.00	199.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	18.15	599.98	1.66	0.54	-0.15	2.00	2.00	0.00
700.00	4.00	18.15	699.84	6.63	2.17	-0.59	2.00	2.00	0.00
800.00	6.00	18.15	799.45	14.91	4.89	-1.32	2.00	2.00	0.00
900.00	8.00	18.15	898.70	26.49	8.69	-2.35	2.00	2.00	0.00
1,000.00	10.00	18.15	997.47	41.36	13.56	-3.67	2.00	2.00	0.00
1,100.00	12.00	18.15	1,095.62	59.49	19.50	-5.28	2.00	2.00	0.00
1,200.00	14.00	18.15	1,193.06	80.86	26.51	-7.18	2.00	2.00	0.00
1,300.00	16.00	18.15	1,289.64	105.45	34.58	-9.37	2.00	2.00	0.00
1,400.00	18.00	18.15	1,385.27	133.23	43.68	-11.83	2.00	2.00	0.00
1,500.00	20.00	18.15	1,479.82	164.17	53.83	-14.58	2.00	2.00	0.00
Start 2104.85 hold at 1538.59 MD									
1,538.59	20.77	18.15	1,515.98	176.94	58.01	-15.72	2.00	2.00	0.00
1,600.00	20.77	18.15	1,573.41	197.64	64.80	-17.56	0.00	0.00	0.00
1,700.00	20.77	18.15	1,666.91	231.34	75.85	-20.55	0.00	0.00	0.00
1,800.00	20.77	18.15	1,760.41	265.04	86.90	-23.54	0.00	0.00	0.00
1,900.00	20.77	18.15	1,853.91	298.73	97.95	-26.54	0.00	0.00	0.00
2,000.00	20.77	18.15	1,947.41	332.43	109.00	-29.53	0.00	0.00	0.00
2,100.00	20.77	18.15	2,040.91	366.13	120.05	-32.52	0.00	0.00	0.00
2,200.00	20.77	18.15	2,134.41	399.83	131.10	-35.52	0.00	0.00	0.00
2,300.00	20.77	18.15	2,227.91	433.53	142.15	-38.51	0.00	0.00	0.00
2,400.00	20.77	18.15	2,321.41	467.23	153.20	-41.50	0.00	0.00	0.00
2,500.00	20.77	18.15	2,414.91	500.93	164.24	-44.50	0.00	0.00	0.00
2,600.00	20.77	18.15	2,508.41	534.63	175.29	-47.49	0.00	0.00	0.00
2,700.00	20.77	18.15	2,601.91	568.33	186.34	-50.48	0.00	0.00	0.00
2,800.00	20.77	18.15	2,695.41	602.03	197.39	-53.48	0.00	0.00	0.00
2,900.00	20.77	18.15	2,788.91	635.73	208.44	-56.47	0.00	0.00	0.00
3,000.00	20.77	18.15	2,882.41	669.43	219.49	-59.46	0.00	0.00	0.00
3,100.00	20.77	18.15	2,975.91	703.13	230.54	-62.46	0.00	0.00	0.00
3,200.00	20.77	18.15	3,069.41	736.83	241.59	-65.45	0.00	0.00	0.00
3,300.00	20.77	18.15	3,162.91	770.53	252.64	-68.44	0.00	0.00	0.00
3,400.00	20.77	18.15	3,256.41	804.23	263.69	-71.44	0.00	0.00	0.00
3,500.00	20.77	18.15	3,349.91	837.92	274.74	-74.43	0.00	0.00	0.00
3,600.00	20.77	18.15	3,443.41	871.62	285.79	-77.42	0.00	0.00	0.00
Start Drop -2.00									
3,643.43	20.77	18.15	3,484.02	886.26	290.59	-78.73	0.00	0.00	0.00
3,700.00	19.64	18.15	3,537.10	904.83	296.67	-80.37	2.00	-2.00	0.00
3,800.00	17.64	18.15	3,631.85	935.20	306.63	-83.07	2.00	-2.00	0.00
3,900.00	15.64	18.15	3,727.66	962.41	315.55	-85.49	2.00	-2.00	0.00
4,000.00	13.64	18.15	3,824.41	986.42	323.43	-87.62	2.00	-2.00	0.00
4,100.00	11.64	18.15	3,921.98	1,007.21	330.24	-89.47	2.00	-2.00	0.00
Terry/Sussex									
4,127.56	11.09	18.15	3,949.00	1,012.37	331.94	-89.93	2.00	-2.00	0.00
4,200.00	9.64	18.15	4,020.26	1,024.76	336.00	-91.03	2.00	-2.00	0.00
4,300.00	7.64	18.15	4,119.12	1,039.03	340.68	-92.30	2.00	-2.00	0.00
4,400.00	5.64	18.15	4,218.44	1,050.02	344.28	-93.27	2.00	-2.00	0.00

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Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-32H	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)
4,500.00	3.64	18.15	4,318.11	1,057.71	346.80	-93.95	2.00	-2.00	0.00
4,600.00	1.64	18.15	4,418.00	1,062.08	348.23	-94.34	2.00	-2.00	0.00
Start 1349.54 hold at 4682.02 MD									
4,682.02	0.00	0.00	4,500.00	1,063.20	348.60	-94.44	2.00	-2.00	0.00
4,700.00	0.00	0.00	4,517.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
Shannon									
4,781.02	0.00	0.00	4,599.00	1,063.20	348.60	-94.44	0.00	0.00	0.00
4,800.00	0.00	0.00	4,617.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
4,900.00	0.00	0.00	4,717.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,000.00	0.00	0.00	4,817.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,100.00	0.00	0.00	4,917.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,200.00	0.00	0.00	5,017.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,300.00	0.00	0.00	5,117.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,400.00	0.00	0.00	5,217.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,500.00	0.00	0.00	5,317.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,600.00	0.00	0.00	5,417.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,700.00	0.00	0.00	5,517.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,800.00	0.00	0.00	5,617.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
5,900.00	0.00	0.00	5,717.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
6,000.00	0.00	0.00	5,817.98	1,063.20	348.60	-94.44	0.00	0.00	0.00
Start Build 12.00									
6,031.56	0.00	0.00	5,849.54	1,063.20	348.60	-94.44	0.00	0.00	0.00
6,050.00	2.21	269.06	5,867.98	1,063.19	348.24	-94.10	12.00	12.00	0.00
6,075.00	5.21	269.06	5,892.92	1,063.17	346.63	-92.53	12.00	12.00	0.00
6,100.00	8.21	269.06	5,917.75	1,063.12	343.70	-89.70	12.00	12.00	0.00
6,125.00	11.21	269.06	5,942.39	1,063.05	339.49	-85.61	12.00	12.00	0.00
6,150.00	14.21	269.06	5,966.77	1,062.96	333.99	-80.28	12.00	12.00	0.00
6,175.00	17.21	269.06	5,990.84	1,062.85	327.22	-73.71	12.00	12.00	0.00
6,200.00	20.21	269.06	6,014.51	1,062.72	319.20	-65.94	12.00	12.00	0.00
6,225.00	23.21	269.06	6,037.74	1,062.57	309.95	-56.98	12.00	12.00	0.00
6,250.00	26.21	269.06	6,060.44	1,062.39	299.50	-46.85	12.00	12.00	0.00
6,275.00	29.21	269.06	6,082.57	1,062.20	287.88	-35.58	12.00	12.00	0.00
6,300.00	32.21	269.06	6,104.06	1,061.99	275.11	-23.21	12.00	12.00	0.00
Sharon Springs									
6,305.86	32.92	269.06	6,109.00	1,061.94	271.96	-20.15	12.00	12.00	0.00
6,325.00	35.21	269.06	6,124.86	1,061.77	261.24	-9.76	12.00	12.00	0.00
6,350.00	38.21	269.06	6,144.90	1,061.52	246.30	4.72	12.00	12.00	0.00
6,375.00	41.21	269.06	6,164.12	1,061.26	230.33	20.20	12.00	12.00	0.00
6,400.00	44.21	269.06	6,182.49	1,060.98	213.38	36.64	12.00	12.00	0.00
6,425.00	47.21	269.06	6,199.95	1,060.69	195.48	53.98	12.00	12.00	0.00
6,450.00	50.21	269.06	6,216.44	1,060.38	176.70	72.19	12.00	12.00	0.00
Niobrara									
6,452.45	50.51	269.06	6,218.00	1,060.35	174.82	74.01	12.00	12.00	0.00
6,475.00	53.21	269.06	6,231.93	1,060.05	157.08	91.20	12.00	12.00	0.00
6,500.00	56.21	269.06	6,246.37	1,059.72	136.68	110.98	12.00	12.00	0.00
6,525.00	59.21	269.06	6,259.72	1,059.37	115.55	131.46	12.00	12.00	0.00
6,550.00	62.21	269.06	6,271.95	1,059.01	93.75	152.59	12.00	12.00	0.00
6,575.00	65.21	269.06	6,283.02	1,058.65	71.35	174.31	12.00	12.00	0.00
6,600.00	68.21	269.06	6,292.90	1,058.27	48.39	196.57	12.00	12.00	0.00
6,625.00	71.21	269.06	6,301.57	1,057.88	24.94	219.29	12.00	12.00	0.00
Top B2 Tgt									
6,626.35	71.38	269.06	6,302.00	1,057.86	23.67	220.53	12.00	12.00	0.00
6,650.00	74.21	269.06	6,309.00	1,057.49	1.08	242.43	12.00	12.00	0.00

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Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-32H	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)
6,675.00	77.21	269.06	6,315.16	1,057.09	-23.14	265.91	12.00	12.00	0.00
6,700.00	80.21	269.06	6,320.06	1,056.69	-47.65	289.66	12.00	12.00	0.00
6,725.00	83.21	269.06	6,323.66	1,056.29	-72.38	313.64	12.00	12.00	0.00
6,750.00	86.21	269.06	6,325.96	1,055.88	-97.27	337.76	12.00	12.00	0.00
6,775.00	89.21	269.06	6,326.96	1,055.47	-122.25	361.97	12.00	12.00	0.00
Base B2 Tgt									
6,779.41	89.74	269.06	6,327.00	1,055.39	-126.65	366.25	12.00	12.00	0.00
Start 4051.13 hold at 6781.56 MD - 7" Csg.									
6,781.56	90.00	269.06	6,327.00	1,055.36	-128.80	368.33	11.98	11.98	0.00
6,800.00	90.00	269.06	6,327.00	1,055.06	-147.24	386.20	0.00	0.00	0.00
6,900.00	90.00	269.06	6,327.00	1,053.41	-247.23	483.13	0.00	0.00	0.00
7,000.00	90.00	269.06	6,327.00	1,051.77	-347.22	580.05	0.00	0.00	0.00
7,100.00	90.00	269.06	6,327.00	1,050.13	-447.20	676.97	0.00	0.00	0.00
7,200.00	90.00	269.06	6,327.00	1,048.49	-547.19	773.89	0.00	0.00	0.00
7,300.00	90.00	269.06	6,327.00	1,046.84	-647.17	870.81	0.00	0.00	0.00
7,400.00	90.00	269.06	6,327.00	1,045.20	-747.16	967.74	0.00	0.00	0.00
7,500.00	90.00	269.06	6,327.00	1,043.56	-847.15	1,064.66	0.00	0.00	0.00
7,600.00	90.00	269.06	6,327.00	1,041.92	-947.13	1,161.58	0.00	0.00	0.00
7,700.00	90.00	269.06	6,327.00	1,040.28	-1,047.12	1,258.50	0.00	0.00	0.00
7,800.00	90.00	269.06	6,327.00	1,038.63	-1,147.11	1,355.42	0.00	0.00	0.00
7,900.00	90.00	269.06	6,327.00	1,036.99	-1,247.09	1,452.35	0.00	0.00	0.00
8,000.00	90.00	269.06	6,327.00	1,035.35	-1,347.08	1,549.27	0.00	0.00	0.00
8,100.00	90.00	269.06	6,327.00	1,033.71	-1,447.07	1,646.19	0.00	0.00	0.00
8,200.00	90.00	269.06	6,327.00	1,032.06	-1,547.05	1,743.11	0.00	0.00	0.00
8,300.00	90.00	269.06	6,327.00	1,030.42	-1,647.04	1,840.04	0.00	0.00	0.00
8,400.00	90.00	269.06	6,327.00	1,028.78	-1,747.03	1,936.96	0.00	0.00	0.00
8,500.00	90.00	269.06	6,327.00	1,027.14	-1,847.01	2,033.88	0.00	0.00	0.00
8,600.00	90.00	269.06	6,327.00	1,025.50	-1,947.00	2,130.80	0.00	0.00	0.00
8,700.00	90.00	269.06	6,327.00	1,023.85	-2,046.99	2,227.72	0.00	0.00	0.00
8,800.00	90.00	269.06	6,327.00	1,022.21	-2,146.97	2,324.65	0.00	0.00	0.00
8,900.00	90.00	269.06	6,327.00	1,020.57	-2,246.96	2,421.57	0.00	0.00	0.00
9,000.00	90.00	269.06	6,327.00	1,018.93	-2,346.95	2,518.49	0.00	0.00	0.00
9,100.00	90.00	269.06	6,327.00	1,017.28	-2,446.93	2,615.41	0.00	0.00	0.00
9,200.00	90.00	269.06	6,327.00	1,015.64	-2,546.92	2,712.33	0.00	0.00	0.00
9,300.00	90.00	269.06	6,327.00	1,014.00	-2,646.90	2,809.26	0.00	0.00	0.00
9,400.00	90.00	269.06	6,327.00	1,012.36	-2,746.89	2,906.18	0.00	0.00	0.00
9,500.00	90.00	269.06	6,327.00	1,010.72	-2,846.88	3,003.10	0.00	0.00	0.00
9,600.00	90.00	269.06	6,327.00	1,009.07	-2,946.86	3,100.02	0.00	0.00	0.00
9,700.00	90.00	269.06	6,327.00	1,007.43	-3,046.85	3,196.95	0.00	0.00	0.00
9,800.00	90.00	269.06	6,327.00	1,005.79	-3,146.84	3,293.87	0.00	0.00	0.00
9,900.00	90.00	269.06	6,327.00	1,004.15	-3,246.82	3,390.79	0.00	0.00	0.00
10,000.00	90.00	269.06	6,327.00	1,002.50	-3,346.81	3,487.71	0.00	0.00	0.00
10,100.00	90.00	269.06	6,327.00	1,000.86	-3,446.80	3,584.63	0.00	0.00	0.00
10,200.00	90.00	269.06	6,327.00	999.22	-3,546.78	3,681.56	0.00	0.00	0.00
10,300.00	90.00	269.06	6,327.00	997.58	-3,646.77	3,778.48	0.00	0.00	0.00
10,400.00	90.00	269.06	6,327.00	995.94	-3,746.76	3,875.40	0.00	0.00	0.00
10,500.00	90.00	269.06	6,327.00	994.29	-3,846.74	3,972.32	0.00	0.00	0.00
10,600.00	90.00	269.06	6,327.00	992.65	-3,946.73	4,069.24	0.00	0.00	0.00
10,700.00	90.00	269.06	6,327.00	991.01	-4,046.72	4,166.17	0.00	0.00	0.00
10,800.00	90.00	269.06	6,327.00	989.37	-4,146.70	4,263.09	0.00	0.00	0.00
TD at 10832.68 - 4-63-3-32H PBHL									
10,832.68	90.00	269.06	6,327.00	988.83	-4,179.38	4,294.76	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-32H	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									
4-63-3-32H PBHL	0.00	0.00	6,327.00	988.83	-4,179.38	1,369,322.068	3,297,867.043	40° 20' 32.148 N	104° 25' 52.980 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(usft)	(usft)			(")	(")
6,781.56	6,327.00	7" Csg.		7	8-3/4

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(usft)	(usft)				(°)	(°)
199.00	199.00	Pierre			0.00	
4,127.56	3,949.00	Terry/Sussex			0.00	
4,781.02	4,599.00	Shannon			0.00	
6,305.86	6,109.00	Sharon Springs			0.00	
6,452.45	6,218.00	Niobrara			0.00	
6,626.35	6,302.00	Top B2 Tgt			0.00	
6,779.41	6,327.00	Base B2 Tgt			0.00	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)		
500.00	500.00	0.00	0.00	Start Build 2.00	
1,538.59	1,515.98	176.94	58.01	Start 2104.85 hold at 1538.59 MD	
3,643.43	3,484.02	886.26	290.59	Start Drop -2.00	
4,682.02	4,500.00	1,063.20	348.60	Start 1349.54 hold at 4682.02 MD	
6,031.56	5,849.54	1,063.20	348.60	Start Build 12.00	
6,781.56	6,327.00	1,055.36	-128.80	Start 4051.13 hold at 6781.56 MD	
10,832.68	6,327.00	988.83	-4,179.38	TD at 10832.68	



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.3-T4N-R63W

70 Ranch 4-63-3-32H

Wellbore #1

Design #1

Anticollision Report

20 April, 2012



Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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	04/20/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	10,832.68	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Site Name Offset Well - Wellbore - Design						
Sec.3-T4N-R63W						
70 Ranch 22-3 (Existing) - Wellbore #1 - Wellbore #1	9,448.77	6,298.00	179.86	88.40	1.967	CC, ES, SF
70 Ranch 4-63-3-33H - Wellbore #1 - Design #1	500.00	500.00	22.03	20.05	11.115	CC
70 Ranch 4-63-3-33H - Wellbore #1 - Design #1	600.00	600.56	22.47	20.04	9.247	ES
70 Ranch 4-63-3-33H - Wellbore #1 - Design #1	10,832.68	10,616.81	853.57	609.51	3.497	SF
70 Ranch 4-63-3-48H - Wellbore #1 - Design #1	500.00	500.00	43.80	41.82	22.096	CC, ES
70 Ranch 4-63-3-48H - Wellbore #1 - Design #1	10,832.68	10,577.02	1,403.42	1,160.20	5.770	SF
70 Ranch 4-63-3-49H - Wellbore #1 - Design #1	500.00	500.00	65.63	63.65	33.107	CC, ES
70 Ranch 4-63-3-49H - Wellbore #1 - Design #1	10,832.68	10,749.48	1,904.55	1,658.95	7.755	SF
70 Ranch CNW-3 (Existing) - Wellbore #1 - Wellbore #1	10,039.97	6,297.00	841.82	734.04	7.811	CC, ES
70 Ranch CNW-3 (Existing) - Wellbore #1 - Wellbore #1	10,200.00	6,297.00	856.89	744.69	7.637	SF
NHF-Laura 5-3 (Existing) - Wellbore #1 - Wellbore #1	10,832.68	6,326.00	546.00	416.20	4.206	CC, ES, SF

Sec.3-T4N-R63W - 70 Ranch 22-3 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 8000-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	29.00	0.00	0.00	-66.94	1,191.39	-2,798.60	3,041.78				
100.00	100.00	71.00	100.00	0.09	0.08	-66.94	1,191.39	-2,798.60	3,041.64	3,041.47	0.17	N/A	
200.00	200.00	171.00	200.00	0.32	0.19	-66.94	1,191.39	-2,798.60	3,041.64	3,041.13	0.51	5,972.311	
300.00	300.00	271.00	300.00	0.54	0.30	-66.94	1,191.39	-2,798.60	3,041.64	3,040.80	0.85	3,593.465	
400.00	400.00	371.00	400.00	0.77	0.42	-66.94	1,191.39	-2,798.60	3,041.64	3,040.46	1.18	2,569.859	
500.00	500.00	471.00	500.00	0.99	0.53	-66.94	1,191.39	-2,798.60	3,041.64	3,040.12	1.52	2,000.120	
600.00	599.98	570.98	599.98	1.22	0.64	-66.97	1,191.39	-2,798.60	3,041.50	3,039.64	1.86	1,638.266	
700.00	699.84	670.84	699.84	1.45	0.75	-67.07	1,191.39	-2,798.60	3,041.05	3,038.86	2.19	1,385.731	
800.00	799.45	770.45	799.45	1.68	0.87	-67.23	1,191.39	-2,798.60	3,040.34	3,037.80	2.54	1,194.861	
900.00	898.70	869.70	898.70	1.94	0.98	-67.46	1,191.39	-2,798.60	3,039.39	3,036.47	2.92	1,041.845	
1,000.00	997.47	968.47	997.47	2.24	1.09	-67.76	1,191.39	-2,798.60	3,038.23	3,034.91	3.32	914.094	
1,100.00	1,095.62	1,066.62	1,095.62	2.57	1.20	-68.12	1,191.39	-2,798.60	3,036.93	3,033.16	3.77	804.831	
1,200.00	1,193.06	1,164.06	1,193.06	2.97	1.31	-68.54	1,191.39	-2,798.60	3,035.55	3,031.28	4.27	710.294	
1,300.00	1,289.64	1,260.64	1,289.64	3.41	1.42	-69.03	1,191.39	-2,798.60	3,034.17	3,029.34	4.83	628.199	
1,400.00	1,385.27	1,356.27	1,385.27	3.92	1.52	-69.58	1,191.39	-2,798.60	3,032.87	3,027.42	5.45	556.935	
1,500.00	1,479.82	1,450.82	1,479.82	4.49	1.63	-70.19	1,191.39	-2,798.60	3,031.76	3,025.63	6.12	495.180	

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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.3-T4N-R63W - 70 Ranch 22-3 (Existing) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.00 usft	
Survey Program: 8000-MWD														Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
1,538.59	1,515.98	1,486.98	1,515.98	4.73	1.67	-70.45	1,191.39	-2,798.60	3,031.40	3,025.00	6.40	473.637					
1,600.00	1,573.41	1,544.41	1,573.41	5.12	1.74	-70.86	1,191.39	-2,798.60	3,030.95	3,024.09	6.85	442.271					
1,700.00	1,666.91	1,637.91	1,666.91	5.76	1.84	-71.53	1,191.39	-2,798.60	3,030.54	3,022.94	7.60	398.609					
1,747.13	1,710.97	1,681.97	1,710.97	6.07	1.89	-71.85	1,191.39	-2,798.60	3,030.50	3,022.54	7.96	380.660					
1,800.00	1,760.41	1,731.41	1,760.41	6.42	1.95	-72.20	1,191.39	-2,798.60	3,030.55	3,022.19	8.36	362.359					
1,900.00	1,853.91	1,824.91	1,853.91	7.08	2.05	-72.87	1,191.39	-2,798.60	3,030.98	3,021.85	9.13	331.921					
2,000.00	1,947.41	1,918.41	1,947.41	7.75	2.16	-73.54	1,191.39	-2,798.60	3,031.82	3,021.92	9.91	306.084					
2,100.00	2,040.91	2,011.91	2,040.91	8.43	2.26	-74.21	1,191.39	-2,798.60	3,033.08	3,022.40	10.68	283.931					
2,200.00	2,134.41	2,105.41	2,134.41	9.11	2.37	-74.88	1,191.39	-2,798.60	3,034.75	3,023.29	11.46	264.761					
2,300.00	2,227.91	2,198.91	2,227.91	9.79	2.47	-75.55	1,191.39	-2,798.60	3,036.83	3,024.59	12.24	248.036					
2,400.00	2,321.41	2,292.41	2,321.41	10.47	2.58	-76.22	1,191.39	-2,798.60	3,039.33	3,026.30	13.03	233.334					
2,500.00	2,414.91	2,385.91	2,414.91	11.16	2.68	-76.88	1,191.39	-2,798.60	3,042.24	3,028.43	13.81	220.325					
2,600.00	2,508.41	2,479.41	2,508.41	11.84	2.79	-77.55	1,191.39	-2,798.60	3,045.55	3,030.96	14.59	208.742					
2,700.00	2,601.91	2,572.91	2,601.91	12.53	2.89	-78.21	1,191.39	-2,798.60	3,049.28	3,033.91	15.37	198.375					
2,800.00	2,695.41	2,666.41	2,695.41	13.22	3.00	-78.87	1,191.39	-2,798.60	3,053.41	3,037.26	16.15	189.048					
2,900.00	2,788.91	2,759.91	2,788.91	13.91	3.10	-79.53	1,191.39	-2,798.60	3,057.95	3,041.02	16.93	180.620					
3,000.00	2,882.41	2,853.41	2,882.41	14.60	3.21	-80.19	1,191.39	-2,798.60	3,062.90	3,045.19	17.71	172.973					
3,100.00	2,975.91	2,946.91	2,975.91	15.29	3.31	-80.84	1,191.39	-2,798.60	3,068.24	3,049.76	18.48	166.009					
3,200.00	3,069.41	3,040.41	3,069.41	15.98	3.42	-81.50	1,191.39	-2,798.60	3,073.99	3,054.73	19.26	159.644					
3,300.00	3,162.91	3,133.91	3,162.91	16.68	3.52	-82.15	1,191.39	-2,798.60	3,080.13	3,060.10	20.03	153.810					
3,400.00	3,256.41	3,227.41	3,256.41	17.37	3.63	-82.79	1,191.39	-2,798.60	3,086.67	3,065.88	20.79	148.445					
3,500.00	3,349.91	3,320.91	3,349.91	18.06	3.73	-83.44	1,191.39	-2,798.60	3,093.60	3,072.04	21.56	143.500					
3,600.00	3,443.41	3,414.41	3,443.41	18.76	3.84	-84.08	1,191.39	-2,798.60	3,100.92	3,078.60	22.32	138.931					
3,643.43	3,484.02	3,455.02	3,484.02	19.06	3.88	-84.36	1,191.39	-2,798.60	3,104.22	3,081.57	22.65	137.053					
3,700.00	3,537.10	3,508.10	3,537.10	19.40	3.94	-84.71	1,191.39	-2,798.60	3,108.51	3,085.49	23.02	135.007					
3,800.00	3,631.85	3,602.85	3,631.85	19.90	4.05	-85.28	1,191.39	-2,798.60	3,115.78	3,092.20	23.58	132.117					
3,900.00	3,727.66	3,698.66	3,727.66	20.36	4.16	-85.79	1,191.39	-2,798.60	3,122.56	3,098.45	24.11	129.530					
4,000.00	3,824.41	3,795.41	3,824.41	20.77	4.27	-86.24	1,191.39	-2,798.60	3,128.75	3,104.16	24.59	127.220					
4,100.00	3,921.98	3,892.98	3,921.98	21.15	4.38	-86.63	1,191.39	-2,798.60	3,134.26	3,109.22	25.04	125.166					
4,200.00	4,020.26	3,991.26	4,020.26	21.48	4.49	-86.96	1,191.39	-2,798.60	3,139.02	3,113.58	25.45	123.346					
4,300.00	4,119.12	4,090.12	4,119.12	21.77	4.60	-87.22	1,191.39	-2,798.60	3,142.97	3,117.16	25.82	121.740					
4,400.00	4,218.44	4,189.44	4,218.44	22.01	4.71	-87.42	1,191.39	-2,798.60	3,146.06	3,119.91	26.14	120.331					
4,500.00	4,318.11	4,289.11	4,318.11	22.21	4.82	-87.57	1,191.39	-2,798.60	3,148.24	3,121.81	26.43	119.105					
4,600.00	4,418.00	4,389.00	4,418.00	22.35	4.93	-87.65	1,191.39	-2,798.60	3,149.49	3,122.81	26.68	118.048					
4,682.02	4,500.00	4,471.00	4,500.00	22.44	5.02	-87.67	1,191.39	-2,798.60	3,149.81	3,131.72	18.09	174.120					
4,700.00	4,517.98	4,488.98	4,517.98	22.45	5.04	-87.67	1,191.39	-2,798.60	3,149.81	3,131.68	18.14	173.678					
4,800.00	4,617.98	4,588.98	4,617.98	22.54	5.16	-87.67	1,191.39	-2,798.60	3,149.81	3,131.41	18.41	171.137					
4,900.00	4,717.98	4,688.98	4,717.98	22.64	5.27	-87.67	1,191.39	-2,798.60	3,149.81	3,131.14	18.68	168.652					
5,000.00	4,817.98	4,788.98	4,817.98	22.73	5.38	-87.67	1,191.39	-2,798.60	3,149.81	3,130.86	18.95	166.222					
5,100.00	4,917.98	4,888.98	4,917.98	22.83	5.49	-87.67	1,191.39	-2,798.60	3,149.81	3,130.59	19.22	163.845					
5,200.00	5,017.98	4,988.98	5,017.98	22.92	5.61	-87.67	1,191.39	-2,798.60	3,149.81	3,130.31	19.50	161.521					
5,300.00	5,117.98	5,088.98	5,117.98	23.02	5.72	-87.67	1,191.39	-2,798.60	3,149.81	3,130.03	19.78	159.249					
5,400.00	5,217.98	5,188.98	5,217.98	23.12	5.83	-87.67	1,191.39	-2,798.60	3,149.81	3,129.75	20.06	157.027					
5,500.00	5,317.98	5,288.98	5,317.98	23.23	5.94	-87.67	1,191.39	-2,798.60	3,149.81	3,129.47	20.34	154.854					
5,600.00	5,417.98	5,388.98	5,417.98	23.33	6.06	-87.67	1,191.39	-2,798.60	3,149.81	3,129.19	20.62	152.729					
5,700.00	5,517.98	5,488.98	5,517.98	23.44	6.17	-87.67	1,191.39	-2,798.60	3,149.81	3,128.90	20.91	150.652					
5,800.00	5,617.98	5,588.98	5,617.98	23.55	6.28	-87.67	1,191.39	-2,798.60	3,149.81	3,128.62	21.19	148.620					
5,900.00	5,717.98	5,688.98	5,717.98	23.66	6.39	-87.67	1,191.39	-2,798.60	3,149.81	3,128.33	21.48	146.633					
6,000.00	5,817.98	5,788.98	5,817.98	23.77	6.51	-87.67	1,191.39	-2,798.60	3,149.81	3,128.04	21.77	144.690					
6,031.56	5,849.54	5,820.54	5,849.54	23.80	6.54	-87.67	1,191.39	-2,798.60	3,149.81	3,127.95	21.86	144.086					
6,050.00	5,867.98	5,838.98	5,867.98	23.82	6.56	-87.67	1,191.39	-2,798.60	3,149.46	3,119.69	29.77	105.793					
6,075.00	5,892.92	5,863.92	5,892.92	23.84	6.59	-87.67	1,191.39	-2,798.60	3,147.84	3,118.11	29.73	105.880					

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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: 8000-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		
6,100.00	5,917.75	5,888.75	5,917.75	23.86	6.62	-87.66	1,191.39	-2,798.60	3,144.92	3,115.29	29.64	106.121		
6,125.00	5,942.39	5,913.39	5,942.39	23.87	6.65	-87.66	1,191.39	-2,798.60	3,140.71	3,111.23	29.49	106.518		
6,150.00	5,966.77	5,937.77	5,966.77	23.87	6.67	-87.65	1,191.39	-2,798.60	3,135.22	3,105.94	29.28	107.072		
6,175.00	5,990.84	5,961.84	5,990.84	23.87	6.70	-87.65	1,191.39	-2,798.60	3,128.46	3,099.44	29.02	107.786		
6,200.00	6,014.51	5,985.51	6,014.51	23.86	6.73	-87.64	1,191.39	-2,798.60	3,120.46	3,091.74	28.72	108.665		
6,225.00	6,037.74	6,008.74	6,037.74	23.85	6.75	-87.63	1,191.39	-2,798.60	3,111.22	3,082.86	28.36	109.713		
6,250.00	6,060.44	6,031.44	6,060.44	23.84	6.78	-87.62	1,191.39	-2,798.60	3,100.79	3,072.84	27.95	110.936		
6,275.00	6,082.57	6,053.57	6,082.57	23.82	6.80	-87.60	1,191.39	-2,798.60	3,089.18	3,061.69	27.50	112.340		
6,300.00	6,104.06	6,075.06	6,104.06	23.80	6.83	-87.59	1,191.39	-2,798.60	3,076.44	3,049.44	27.00	113.933		
6,325.00	6,124.86	6,095.86	6,124.86	23.77	6.85	-87.57	1,191.39	-2,798.60	3,062.59	3,036.12	26.47	115.722		
6,350.00	6,144.90	6,115.90	6,144.90	23.75	6.87	-87.56	1,191.39	-2,798.60	3,047.67	3,021.78	25.89	117.714		
6,375.00	6,164.12	6,135.12	6,164.12	23.72	6.89	-87.54	1,191.39	-2,798.60	3,031.73	3,006.44	25.28	119.914		
6,400.00	6,182.49	6,153.49	6,182.49	23.69	6.92	-87.52	1,191.39	-2,798.60	3,014.80	2,990.15	24.65	122.326		
6,425.00	6,199.95	6,170.95	6,199.95	23.66	6.94	-87.50	1,191.39	-2,798.60	2,996.94	2,972.95	23.99	124.950		
6,450.00	6,216.44	6,187.44	6,216.44	23.62	6.95	-87.48	1,191.39	-2,798.60	2,978.19	2,954.88	23.31	127.776		
6,475.00	6,231.93	6,202.93	6,231.93	23.59	6.97	-87.46	1,191.39	-2,798.60	2,958.60	2,935.98	22.62	130.786		
6,500.00	6,246.37	6,217.37	6,246.37	23.56	6.99	-87.43	1,191.39	-2,798.60	2,938.24	2,916.30	21.94	133.941		
6,525.00	6,259.72	6,230.72	6,259.72	23.53	7.00	-87.41	1,191.39	-2,798.60	2,917.15	2,895.88	21.27	137.174		
6,550.00	6,271.95	6,242.95	6,271.95	23.50	7.02	-87.38	1,191.39	-2,798.60	2,895.39	2,874.76	20.63	140.378		
6,575.00	6,283.02	6,254.02	6,283.02	23.47	7.03	-87.35	1,191.39	-2,798.60	2,873.02	2,852.98	20.04	143.379		
6,600.00	6,292.90	6,263.90	6,292.90	23.44	7.04	-87.32	1,191.39	-2,798.60	2,850.10	2,830.57	19.53	145.914		
6,625.00	6,301.57	6,272.57	6,301.57	23.42	7.05	-87.29	1,191.39	-2,798.60	2,826.70	2,807.55	19.15	147.591		
6,650.00	6,309.00	6,280.00	6,309.00	23.40	7.06	-87.26	1,191.39	-2,798.60	2,802.88	2,783.92	18.96	147.844		
6,675.00	6,315.16	6,286.16	6,315.16	23.39	7.06	-87.23	1,191.39	-2,798.60	2,778.71	2,759.66	19.05	145.881		
6,700.00	6,320.06	6,291.06	6,320.06	23.38	7.07	-87.20	1,191.39	-2,798.60	2,754.25	2,734.66	19.58	140.635		
6,725.00	6,323.66	6,294.66	6,323.66	23.38	7.07	-87.16	1,191.39	-2,798.60	2,729.56	2,708.70	20.87	130.815		
6,750.00	6,325.96	6,296.96	6,325.96	23.38	7.08	-87.13	1,191.39	-2,798.60	2,704.73	2,681.43	23.30	116.070		
6,775.00	6,326.96	6,297.96	6,326.96	23.40	7.08	-87.09	1,191.39	-2,798.60	2,679.81	2,654.35	25.46	105.273		
6,781.56	6,327.00	6,298.00	6,327.00	23.41	7.08	-87.08	1,191.39	-2,798.60	2,673.27	2,648.17	25.09	106.534		
6,800.00	6,327.00	6,298.00	6,327.00	23.43	7.08	-87.06	1,191.39	-2,798.60	2,654.86	2,629.53	25.33	104.812		
6,900.00	6,327.00	6,298.00	6,327.00	23.71	7.08	-86.90	1,191.39	-2,798.60	2,555.10	2,528.30	26.80	95.339		
7,000.00	6,327.00	6,298.00	6,327.00	24.41	7.08	-86.74	1,191.39	-2,798.60	2,455.36	2,426.82	28.54	86.039		
7,100.00	6,327.00	6,298.00	6,327.00	25.66	7.08	-86.56	1,191.39	-2,798.60	2,355.64	2,325.16	30.48	77.277		
7,200.00	6,327.00	6,298.00	6,327.00	27.36	7.08	-86.37	1,191.39	-2,798.60	2,255.95	2,223.36	32.59	69.224		
7,300.00	6,327.00	6,298.00	6,327.00	29.35	7.08	-86.16	1,191.39	-2,798.60	2,156.28	2,121.46	34.82	61.929		
7,400.00	6,327.00	6,298.00	6,327.00	31.52	7.08	-85.92	1,191.39	-2,798.60	2,056.64	2,019.50	37.14	55.369		
7,500.00	6,327.00	6,298.00	6,327.00	33.80	7.08	-85.67	1,191.39	-2,798.60	1,957.05	1,917.50	39.55	49.488		
7,600.00	6,327.00	6,298.00	6,327.00	36.17	7.08	-85.38	1,191.39	-2,798.60	1,857.49	1,815.48	42.01	44.218		
7,700.00	6,327.00	6,298.00	6,327.00	38.60	7.08	-85.07	1,191.39	-2,798.60	1,757.99	1,713.47	44.52	39.490		
7,800.00	6,327.00	6,298.00	6,327.00	41.08	7.08	-84.72	1,191.39	-2,798.60	1,658.55	1,611.48	47.07	35.238		
7,900.00	6,327.00	6,298.00	6,327.00	43.60	7.08	-84.32	1,191.39	-2,798.60	1,559.17	1,509.53	49.65	31.405		
8,000.00	6,327.00	6,298.00	6,327.00	46.16	7.08	-83.86	1,191.39	-2,798.60	1,459.89	1,407.63	52.25	27.938		
8,100.00	6,327.00	6,298.00	6,327.00	48.74	7.08	-83.35	1,191.39	-2,798.60	1,360.70	1,305.82	54.88	24.792		
8,200.00	6,327.00	6,298.00	6,327.00	51.35	7.08	-82.74	1,191.39	-2,798.60	1,261.65	1,204.12	57.53	21.929		
8,300.00	6,327.00	6,298.00	6,327.00	53.98	7.08	-82.04	1,191.39	-2,798.60	1,162.76	1,102.56	60.20	19.316		
8,400.00	6,327.00	6,298.00	6,327.00	56.62	7.08	-81.21	1,191.39	-2,798.60	1,064.08	1,001.20	62.88	16.923		
8,500.00	6,327.00	6,298.00	6,327.00	59.28	7.08	-80.21	1,191.39	-2,798.60	965.66	900.10	65.57	14.728		
8,600.00	6,327.00	6,298.00	6,327.00	61.95	7.08	-78.98	1,191.39	-2,798.60	867.61	799.35	68.27	12.709		
8,700.00	6,327.00	6,298.00	6,327.00	64.63	7.08	-77.43	1,191.39	-2,798.60	770.06	699.09	70.97	10.850		
8,800.00	6,327.00	6,298.00	6,327.00	67.32	7.08	-75.45	1,191.39	-2,798.60	673.23	599.54	73.69	9.136		
8,900.00	6,327.00	6,298.00	6,327.00	70.02	7.08	-72.79	1,191.39	-2,798.60	577.49	501.07	76.42	7.557		
9,000.00	6,327.00	6,298.00	6,327.00	72.73	7.08	-69.10	1,191.39	-2,798.60	483.47	404.32	79.15	6.109		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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.3-T4N-R63W - 70 Ranch 22-3 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 8000-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,100.00	6,327.00	6,298.00	6,327.00	75.44	7.08	-63.66	1,191.39	-2,798.60	392.41	310.53	81.88	4.792	
9,200.00	6,327.00	6,298.00	6,327.00	78.16	7.08	-55.07	1,191.39	-2,798.60	306.98	222.35	84.62	3.628	
9,300.00	6,327.00	6,298.00	6,327.00	80.89	7.08	-40.54	1,191.39	-2,798.60	233.41	146.04	87.37	2.672	
9,400.00	6,327.00	6,298.00	6,327.00	83.62	7.08	-16.11	1,191.39	-2,798.60	186.35	96.24	90.12	2.068	
9,448.77	6,327.00	6,298.00	6,327.00	84.95	7.08	-0.94	1,191.39	-2,798.60	179.86	88.40	91.46	1.967	CC, ES, SF
9,500.00	6,327.00	6,298.00	6,327.00	86.36	7.08	14.96	1,191.39	-2,798.60	187.02	94.15	92.87	2.014	
9,600.00	6,327.00	6,298.00	6,327.00	89.10	7.08	39.12	1,191.39	-2,798.60	234.99	139.37	95.62	2.458	
9,700.00	6,327.00	6,298.00	6,327.00	91.84	7.08	53.46	1,191.39	-2,798.60	308.98	210.60	98.38	3.141	
9,800.00	6,327.00	6,298.00	6,327.00	94.59	7.08	61.94	1,191.39	-2,798.60	394.61	293.47	101.14	3.902	
9,900.00	6,327.00	6,298.00	6,327.00	97.34	7.08	67.33	1,191.39	-2,798.60	485.76	381.86	103.91	4.675	
10,000.00	6,327.00	6,298.00	6,327.00	100.09	7.08	70.99	1,191.39	-2,798.60	579.84	473.17	106.67	5.436	
10,100.00	6,327.00	6,298.00	6,327.00	102.85	7.08	73.62	1,191.39	-2,798.60	675.62	566.18	109.44	6.173	
10,200.00	6,327.00	6,298.00	6,327.00	105.60	7.08	75.59	1,191.39	-2,798.60	772.47	660.26	112.21	6.884	
10,300.00	6,327.00	6,298.00	6,327.00	108.37	7.08	77.13	1,191.39	-2,798.60	870.03	755.05	114.98	7.567	
10,400.00	6,327.00	6,298.00	6,327.00	111.13	7.08	78.35	1,191.39	-2,798.60	968.09	850.34	117.76	8.221	
10,500.00	6,327.00	6,298.00	6,327.00	113.89	7.08	79.35	1,191.39	-2,798.60	1,066.51	945.98	120.53	8.849	
10,600.00	6,327.00	6,298.00	6,327.00	116.66	7.08	80.18	1,191.39	-2,798.60	1,165.20	1,041.90	123.31	9.450	
10,700.00	6,327.00	6,298.00	6,327.00	119.43	7.08	80.88	1,191.39	-2,798.60	1,264.10	1,138.01	126.08	10.026	
10,800.00	6,327.00	6,298.00	6,327.00	122.20	7.08	81.48	1,191.39	-2,798.60	1,363.15	1,234.29	128.86	10.578	
10,832.68	6,327.00	6,298.00	6,327.00	123.10	7.08	81.65	1,191.39	-2,798.60	1,395.56	1,265.79	129.77	10.754	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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.3-T4N-R63W - 70 Ranch 4-63-3-32H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-172.73	-21.86	-2.79	22.03					
100.00	100.00	100.00	100.00	0.09	0.09	-172.73	-21.86	-2.79	22.03	21.85	0.18	119.553		
200.00	200.00	200.00	200.00	0.32	0.32	-172.73	-21.86	-2.79	22.03	21.40	0.63	34.764		
300.00	300.00	300.00	300.00	0.54	0.54	-172.73	-21.86	-2.79	22.03	20.95	1.08	20.339		
400.00	400.00	400.00	400.00	0.77	0.77	-172.73	-21.86	-2.79	22.03	20.50	1.53	14.374		
500.00	500.00	500.00	500.00	0.99	0.99	-172.73	-21.86	-2.79	22.03	20.05	1.98	11.115 CC		
600.00	599.98	600.56	600.54	1.22	1.21	-174.93	-20.72	-1.44	22.47	20.04	2.43	9.247 ES		
700.00	699.84	701.07	700.90	1.45	1.44	178.99	-17.30	2.60	23.96	21.08	2.88	8.325		
800.00	799.45	801.46	800.91	1.68	1.68	170.54	-11.62	9.31	26.94	23.60	3.34	8.060		
900.00	898.70	901.34	900.17	1.94	1.93	163.65	-4.46	17.77	32.29	28.46	3.84	8.416		
1,000.00	997.47	1,000.97	999.18	2.24	2.20	161.82	2.72	26.25	40.71	36.35	4.36	9.341		
1,100.00	1,095.62	1,100.33	1,097.92	2.57	2.48	162.96	9.88	34.71	51.94	47.05	4.89	10.615		
1,200.00	1,193.06	1,199.29	1,196.26	2.97	2.76	165.41	17.01	43.14	66.06	60.63	5.43	12.155		
1,300.00	1,289.64	1,297.74	1,294.09	3.41	3.04	168.24	24.10	51.52	83.22	77.24	5.98	13.923		
1,400.00	1,385.27	1,395.54	1,391.29	3.92	3.33	171.00	31.15	59.84	103.53	97.01	6.52	15.887		
1,500.00	1,479.82	1,492.59	1,487.73	4.49	3.61	173.54	38.14	68.11	127.08	120.03	7.05	18.020		
1,538.59	1,515.98	1,529.81	1,524.72	4.73	3.72	174.44	40.82	71.28	137.04	129.78	7.26	18.879		
1,600.00	1,573.41	1,588.95	1,583.48	5.12	3.90	175.68	45.09	76.31	153.32	145.71	7.61	20.154		
1,700.00	1,666.91	1,685.23	1,679.17	5.76	4.18	177.24	52.02	84.51	179.94	171.76	8.18	21.994		
1,800.00	1,760.41	1,781.52	1,774.85	6.42	4.47	178.39	58.96	92.71	206.66	197.90	8.76	23.586		
1,900.00	1,853.91	1,877.80	1,870.54	7.08	4.75	179.27	65.90	100.91	233.45	224.10	9.35	24.972		
2,000.00	1,947.41	1,974.09	1,966.22	7.75	5.04	179.98	72.84	109.10	260.28	250.34	9.94	26.188		
2,100.00	2,040.91	2,070.37	2,061.91	8.43	5.33	-179.45	79.78	117.30	287.14	276.61	10.53	27.262		
2,200.00	2,134.41	2,166.66	2,157.59	9.11	5.62	-178.98	86.71	125.50	314.03	302.90	11.13	28.216		
2,300.00	2,227.91	2,262.95	2,253.28	9.79	5.91	-178.58	93.65	133.70	340.93	329.20	11.73	29.069		
2,400.00	2,321.41	2,359.23	2,348.96	10.47	6.20	-178.23	100.59	141.90	367.85	355.52	12.33	29.835		
2,500.00	2,414.91	2,455.52	2,444.65	11.16	6.49	-177.94	107.53	150.09	394.78	381.85	12.93	30.526		
2,600.00	2,508.41	2,551.80	2,540.33	11.84	6.78	-177.68	114.47	158.29	421.72	408.18	13.54	31.153		
2,700.00	2,601.91	2,648.09	2,636.02	12.53	7.07	-177.46	121.41	166.49	448.66	434.52	14.14	31.724		
2,800.00	2,695.41	2,744.37	2,731.70	13.22	7.36	-177.26	128.34	174.69	475.62	460.87	14.75	32.247		
2,900.00	2,788.91	2,840.66	2,827.39	13.91	7.65	-177.08	135.28	182.89	502.57	487.22	15.36	32.726		
3,000.00	2,882.41	2,936.95	2,923.07	14.60	7.94	-176.92	142.22	191.09	529.54	513.57	15.97	33.167		
3,100.00	2,975.91	3,033.23	3,018.75	15.29	8.23	-176.77	149.16	199.28	556.50	539.93	16.58	33.574		
3,200.00	3,069.41	3,129.52	3,114.44	15.98	8.52	-176.64	156.10	207.48	583.47	566.29	17.19	33.951		
3,300.00	3,162.91	3,225.80	3,210.12	16.68	8.82	-176.52	163.03	215.68	610.44	592.65	17.80	34.302		
3,400.00	3,256.41	3,322.09	3,305.81	17.37	9.11	-176.41	169.97	223.88	637.42	619.01	18.41	34.628		
3,500.00	3,349.91	3,418.37	3,401.49	18.06	9.40	-176.31	176.91	232.08	664.39	645.38	19.02	34.932		
3,600.00	3,443.41	3,514.66	3,497.18	18.76	9.69	-176.21	183.85	240.27	691.37	671.74	19.63	35.217		
3,643.43	3,484.02	3,556.48	3,538.74	19.06	9.82	-176.18	186.86	243.83	703.09	683.19	19.90	35.335		
3,700.00	3,537.10	3,611.09	3,593.01	19.40	9.98	-176.14	190.80	248.48	717.83	697.56	20.27	35.417		
3,800.00	3,631.85	3,708.28	3,689.59	19.90	10.28	-176.13	197.80	256.76	741.33	720.45	20.88	35.500		
3,900.00	3,727.66	3,806.21	3,786.91	20.36	10.57	-176.19	204.86	265.10	761.53	740.06	21.48	35.455		
4,000.00	3,824.41	3,904.76	3,884.84	20.77	10.87	-176.31	211.96	273.49	778.42	756.37	22.05	35.295		
4,100.00	3,921.98	4,003.80	3,983.27	21.15	11.17	-176.49	219.10	281.92	791.97	769.37	22.61	35.030		
4,200.00	4,020.26	4,103.22	4,082.06	21.48	11.48	-176.73	226.26	290.39	802.19	779.05	23.14	34.669		
4,300.00	4,119.12	4,202.22	4,180.45	21.77	11.78	-177.03	233.39	298.82	809.05	785.41	23.64	34.222		
4,400.00	4,218.44	4,286.37	4,264.20	22.01	11.99	-177.23	238.66	305.04	813.59	789.57	24.02	33.868		
4,500.00	4,318.11	4,370.04	4,347.68	22.21	12.16	-177.37	242.32	309.37	816.78	792.46	24.32	33.590		
4,600.00	4,418.00	4,453.76	4,431.33	22.35	12.31	-177.45	244.41	311.83	818.59	794.05	24.54	33.355		
4,682.02	4,500.00	4,522.44	4,500.00	22.44	12.41	-177.47	244.94	312.46	819.06	785.90	33.15	24.705		
4,700.00	4,517.98	4,540.42	4,517.98	22.45	12.44	-177.47	244.94	312.46	819.06	785.85	33.20	24.670		
4,800.00	4,617.98	4,640.42	4,617.98	22.54	12.61	-177.47	244.94	312.46	819.06	785.58	33.47	24.470		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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.3-T4N-R63W - 70 Ranch 4-63-3-33H - 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		
4,900.00	4,717.98	4,740.42	4,717.98	22.64	12.78	-177.47	244.94	312.46	819.06	785.30	33.75	24.266		
5,000.00	4,817.98	4,840.42	4,817.98	22.73	12.96	-177.47	244.94	312.46	819.06	785.02	34.04	24.062		
5,100.00	4,917.98	4,940.42	4,917.98	22.83	13.13	-177.47	244.94	312.46	819.06	784.73	34.33	23.860		
5,200.00	5,017.98	5,040.42	5,017.98	22.92	13.31	-177.47	244.94	312.46	819.06	784.44	34.62	23.660		
5,300.00	5,117.98	5,140.42	5,117.98	23.02	13.49	-177.47	244.94	312.46	819.06	784.14	34.91	23.461		
5,400.00	5,217.98	5,240.42	5,217.98	23.12	13.67	-177.47	244.94	312.46	819.06	783.85	35.21	23.263		
5,500.00	5,317.98	5,340.42	5,317.98	23.23	13.85	-177.47	244.94	312.46	819.06	783.55	35.51	23.066		
5,600.00	5,417.98	5,440.42	5,417.98	23.33	14.04	-177.47	244.94	312.46	819.06	783.24	35.81	22.872		
5,700.00	5,517.98	5,540.42	5,517.98	23.44	14.22	-177.47	244.94	312.46	819.06	782.94	36.12	22.679		
5,800.00	5,617.98	5,640.42	5,617.98	23.55	14.41	-177.47	244.94	312.46	819.06	782.63	36.42	22.487		
5,900.00	5,717.98	5,740.42	5,717.98	23.66	14.60	-177.47	244.94	312.46	819.06	782.32	36.73	22.297		
6,000.00	5,817.98	5,840.42	5,817.98	23.77	14.79	-177.47	244.94	312.46	819.06	782.01	37.05	22.109		
6,031.56	5,849.54	5,871.98	5,849.54	23.80	14.84	-177.47	244.94	312.46	819.06	781.91	37.15	22.050		
6,050.00	5,867.98	5,888.48	5,866.04	23.82	14.87	-177.48	244.94	312.18	819.06	789.48	29.58	27.693		
6,075.00	5,892.92	5,910.86	5,888.37	23.84	14.90	-177.50	244.90	310.88	819.06	789.43	29.63	27.643		
6,100.00	5,917.75	5,933.24	5,910.63	23.86	14.92	-177.54	244.85	308.54	819.06	789.39	29.67	27.602		
6,125.00	5,942.39	5,955.63	5,932.77	23.87	14.94	-177.60	244.76	305.15	819.06	789.36	29.71	27.570		
6,150.00	5,966.77	5,978.05	5,954.74	23.87	14.95	-177.67	244.66	300.73	819.07	789.34	29.73	27.547		
6,175.00	5,990.84	6,000.00	5,976.03	23.87	14.96	-177.77	244.52	295.41	819.08	789.33	29.75	27.532		
6,200.00	6,014.51	6,022.96	5,998.02	23.86	14.96	-177.87	244.36	288.80	819.08	789.33	29.76	27.524		
6,225.00	6,037.74	6,045.46	6,019.23	23.85	14.96	-177.99	244.18	281.30	819.10	789.33	29.76	27.521		
6,250.00	6,060.44	6,068.00	6,040.11	23.84	14.95	-178.13	243.97	272.80	819.11	789.35	29.76	27.522		
6,275.00	6,082.57	6,090.59	6,060.59	23.82	14.94	-178.28	243.74	263.30	819.13	789.37	29.76	27.525		
6,300.00	6,104.06	6,113.23	6,080.66	23.80	14.93	-178.44	243.48	252.82	819.15	789.39	29.76	27.528		
6,325.00	6,124.86	6,135.92	6,100.24	23.77	14.91	-178.61	243.20	241.37	819.17	789.42	29.76	27.528		
6,350.00	6,144.90	6,158.67	6,119.32	23.75	14.90	-178.79	242.90	228.97	819.20	789.44	29.76	27.523		
6,375.00	6,164.12	6,181.49	6,137.83	23.72	14.88	-178.97	242.57	215.64	819.24	789.46	29.78	27.510		
6,400.00	6,182.49	6,204.38	6,155.73	23.69	14.86	-179.16	242.22	201.39	819.28	789.47	29.81	27.485		
6,425.00	6,199.95	6,227.34	6,172.99	23.66	14.85	-179.35	241.85	186.25	819.33	789.48	29.85	27.446		
6,450.00	6,216.44	6,250.00	6,189.29	23.62	14.83	-179.57	241.47	170.52	819.38	789.47	29.92	27.389		
6,475.00	6,231.93	6,273.52	6,205.39	23.59	14.82	-179.74	241.05	153.39	819.44	789.44	30.01	27.308		
6,500.00	6,246.37	6,296.74	6,220.45	23.56	14.82	-179.93	240.62	135.71	819.51	789.39	30.13	27.201		
6,525.00	6,259.72	6,320.06	6,234.68	23.53	14.83	-179.88	240.16	117.26	819.59	789.31	30.28	27.066		
6,550.00	6,271.95	6,343.48	6,248.06	23.50	14.84	-179.70	239.69	98.04	819.68	789.21	30.47	26.901		
6,575.00	6,283.02	6,367.00	6,260.53	23.47	14.88	-179.53	239.21	78.10	819.78	789.08	30.70	26.702		
6,600.00	6,292.90	6,390.64	6,272.05	23.44	14.93	-179.37	238.70	57.47	819.88	788.91	30.97	26.470		
6,625.00	6,301.57	6,414.39	6,282.59	23.42	15.02	-179.21	238.18	36.19	820.00	788.71	31.29	26.205		
6,650.00	6,309.00	6,438.27	6,292.10	23.40	15.15	-179.08	237.64	14.30	820.13	788.47	31.66	25.906		
6,675.00	6,315.16	6,462.27	6,300.54	23.39	15.31	-178.95	237.10	-8.16	820.27	788.19	32.07	25.576		
6,700.00	6,320.06	6,486.40	6,307.88	23.38	15.51	-178.85	236.53	-31.13	820.42	787.88	32.53	25.218		
6,725.00	6,323.66	6,510.66	6,314.09	23.38	15.74	-178.76	235.96	-54.58	820.58	787.53	33.04	24.834		
6,750.00	6,325.96	6,535.06	6,319.12	23.38	16.00	-178.69	235.37	-78.45	820.75	787.15	33.60	24.429		
6,775.00	6,326.96	6,559.61	6,322.94	23.40	16.28	-178.63	234.78	-102.69	820.93	786.73	34.20	24.007		
6,781.56	6,327.00	6,566.07	6,323.74	23.41	16.36	-178.62	234.62	-109.10	820.98	786.62	34.36	23.894		
6,800.00	6,327.00	6,584.34	6,325.52	23.43	16.60	-178.61	234.18	-127.27	821.12	786.28	34.84	23.571		
6,900.00	6,327.00	6,684.26	6,327.00	23.71	18.07	-178.60	231.74	-227.12	821.92	784.16	37.77	21.763		
7,000.00	6,327.00	6,784.25	6,327.00	24.41	19.81	-178.60	229.29	-327.08	822.73	781.49	41.24	19.951		
7,100.00	6,327.00	6,884.25	6,327.00	25.66	21.78	-178.60	226.84	-427.05	823.53	778.40	45.13	18.246		
7,200.00	6,327.00	6,984.25	6,327.00	27.36	23.90	-178.60	224.40	-527.02	824.34	774.98	49.36	16.700		
7,300.00	6,327.00	7,084.24	6,327.00	29.35	26.15	-178.60	221.95	-626.99	825.14	771.30	53.84	15.325		
7,400.00	6,327.00	7,184.24	6,327.00	31.52	28.50	-178.60	219.50	-726.95	825.95	767.43	58.52	14.114		
7,500.00	6,327.00	7,284.24	6,327.00	33.80	30.93	-178.60	217.06	-826.92	826.75	763.41	63.35	13.051		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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.3-T4N-R63W - 70 Ranch 4-63-3-33H - 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		
7,600.00	6,327.00	7,384.23	6,327.00	36.17	33.41	178.60	214.61	-926.89	827.56	759.27	68.29	12.118		
7,700.00	6,327.00	7,484.23	6,327.00	38.60	35.94	178.60	212.16	-1,026.85	828.36	755.03	73.33	11.296		
7,800.00	6,327.00	7,584.23	6,327.00	41.08	38.50	178.60	209.72	-1,126.82	829.17	750.72	78.45	10.569		
7,900.00	6,327.00	7,684.22	6,327.00	43.60	41.10	178.60	207.27	-1,226.79	829.97	746.34	83.63	9.924		
8,000.00	6,327.00	7,784.22	6,327.00	46.16	43.72	178.60	204.82	-1,326.75	830.78	741.91	88.86	9.349		
8,100.00	6,327.00	7,884.22	6,327.00	48.74	46.37	178.60	202.38	-1,426.72	831.58	737.44	94.14	8.834		
8,200.00	6,327.00	7,984.21	6,327.00	51.35	49.03	178.60	199.93	-1,526.69	832.39	732.94	99.45	8.370		
8,300.00	6,327.00	8,084.21	6,327.00	53.98	51.70	178.60	197.48	-1,626.65	833.19	728.40	104.79	7.951		
8,400.00	6,327.00	8,184.21	6,327.00	56.62	54.39	178.60	195.04	-1,726.62	833.99	723.84	110.16	7.571		
8,500.00	6,327.00	8,284.20	6,327.00	59.28	57.09	178.60	192.59	-1,826.59	834.80	719.25	115.55	7.225		
8,600.00	6,327.00	8,384.20	6,327.00	61.95	59.80	178.60	190.14	-1,926.55	835.60	714.64	120.96	6.908		
8,700.00	6,327.00	8,484.20	6,327.00	64.63	62.52	178.60	187.70	-2,026.52	836.41	710.02	126.39	6.618		
8,800.00	6,327.00	8,584.19	6,327.00	67.32	65.24	178.60	185.25	-2,126.49	837.21	705.38	131.83	6.351		
8,900.00	6,327.00	8,684.19	6,327.00	70.02	67.97	178.60	182.80	-2,226.45	838.02	700.73	137.28	6.104		
9,000.00	6,327.00	8,784.19	6,327.00	72.73	70.70	178.60	180.36	-2,326.42	838.82	696.07	142.75	5.876		
9,100.00	6,327.00	8,884.18	6,327.00	75.44	73.45	178.60	177.91	-2,426.39	839.63	691.40	148.23	5.664		
9,200.00	6,327.00	8,984.18	6,327.00	78.16	76.19	178.60	175.46	-2,526.35	840.43	686.72	153.71	5.467		
9,300.00	6,327.00	9,084.18	6,327.00	80.89	78.94	178.60	173.02	-2,626.32	841.24	682.03	159.21	5.284		
9,400.00	6,327.00	9,184.17	6,327.00	83.62	81.69	178.60	170.57	-2,726.29	842.04	677.33	164.71	5.112		
9,500.00	6,327.00	9,284.17	6,327.00	86.36	84.45	178.60	168.12	-2,826.26	842.85	672.63	170.22	4.951		
9,600.00	6,327.00	9,384.17	6,327.00	89.10	87.21	178.60	165.68	-2,926.22	843.65	667.91	175.74	4.801		
9,700.00	6,327.00	9,484.16	6,327.00	91.84	89.97	178.60	163.23	-3,026.19	844.46	663.20	181.26	4.659		
9,800.00	6,327.00	9,584.16	6,327.00	94.59	92.73	178.60	160.78	-3,126.16	845.26	658.48	186.78	4.525		
9,900.00	6,327.00	9,684.16	6,327.00	97.34	95.50	178.60	158.33	-3,226.12	846.07	653.75	192.31	4.399		
10,000.00	6,327.00	9,784.15	6,327.00	100.09	98.27	178.60	155.89	-3,326.09	846.87	649.02	197.85	4.280		
10,100.00	6,327.00	9,884.15	6,327.00	102.85	101.04	178.60	153.44	-3,426.06	847.67	644.29	203.39	4.168		
10,200.00	6,327.00	9,984.15	6,327.00	105.60	103.81	178.60	150.99	-3,526.02	848.48	639.55	208.93	4.061		
10,300.00	6,327.00	10,084.15	6,327.00	108.37	106.58	178.60	148.55	-3,625.99	849.28	634.81	214.47	3.960		
10,400.00	6,327.00	10,184.14	6,327.00	111.13	109.36	178.60	146.10	-3,725.96	850.09	630.07	220.02	3.864		
10,500.00	6,327.00	10,284.14	6,327.00	113.89	112.13	178.60	143.65	-3,825.92	850.89	625.32	225.57	3.772		
10,600.00	6,327.00	10,384.14	6,327.00	116.66	114.91	178.60	141.21	-3,925.89	851.70	620.57	231.13	3.685		
10,700.00	6,327.00	10,484.13	6,327.00	119.43	117.69	178.60	138.76	-4,025.86	852.50	615.82	236.68	3.602		
10,800.00	6,327.00	10,584.13	6,327.00	122.20	120.47	178.60	136.31	-4,125.82	853.31	611.06	242.24	3.523		
10,832.68	6,327.00	10,616.81	6,327.00	123.10	121.38	178.60	135.51	-4,158.50	853.57	609.51	244.06	3.497 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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.3-T4N-R63W - 70 Ranch 4-63-3-48H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-176.35	-43.72	-2.79	43.80					
100.00	100.00	100.00	100.00	0.09	0.09	-176.35	-43.72	-2.79	43.80	43.62	0.18	237.666		
200.00	200.00	200.00	200.00	0.32	0.32	-176.35	-43.72	-2.79	43.80	43.17	0.63	69.109		
300.00	300.00	300.00	300.00	0.54	0.54	-176.35	-43.72	-2.79	43.80	42.72	1.08	40.433		
400.00	400.00	400.00	400.00	0.77	0.77	-176.35	-43.72	-2.79	43.80	42.27	1.53	28.576		
500.00	500.00	500.00	500.00	0.99	0.99	-176.35	-43.72	-2.79	43.80	41.82	1.98	22.096 CC, ES		
600.00	599.98	598.98	598.96	1.22	1.19	-177.46	-44.86	-1.52	46.57	44.16	2.41	19.308		
700.00	699.84	697.45	697.30	1.45	1.39	179.90	-48.26	2.27	54.95	52.11	2.84	19.340		
800.00	799.45	794.94	794.42	1.68	1.60	177.00	-53.86	8.49	69.05	65.76	3.29	20.981		
900.00	898.70	893.00	891.93	1.94	1.84	175.10	-60.76	16.16	87.83	84.08	3.75	23.398		
1,000.00	997.47	990.54	988.94	2.24	2.10	174.63	-67.63	23.80	109.80	105.58	4.22	26.010		
1,100.00	1,095.62	1,087.34	1,085.20	2.57	2.36	174.93	-74.45	31.39	134.87	130.17	4.70	28.699		
1,200.00	1,193.06	1,183.28	1,180.60	2.97	2.63	175.63	-81.21	38.90	163.02	157.84	5.19	31.426		
1,300.00	1,289.64	1,278.23	1,275.02	3.41	2.90	176.52	-87.90	46.34	194.26	188.58	5.68	34.176		
1,400.00	1,385.27	1,372.08	1,368.34	3.92	3.17	177.48	-94.51	53.69	228.60	222.41	6.19	36.939		
1,500.00	1,479.82	1,464.71	1,460.47	4.49	3.44	178.46	-101.04	60.95	266.01	259.31	6.70	39.715		
1,538.59	1,515.98	1,500.11	1,495.66	4.73	3.54	178.84	-103.53	63.72	281.27	274.37	6.90	40.777		
1,600.00	1,573.41	1,556.28	1,551.53	5.12	3.70	179.38	-107.49	68.12	305.93	298.69	7.24	42.267		
1,700.00	1,666.91	1,647.76	1,642.49	5.76	3.97	-179.91	-113.94	75.28	346.14	338.34	7.80	44.397		
1,800.00	1,760.41	1,739.23	1,733.45	6.42	4.24	-179.34	-120.38	82.45	386.38	378.02	8.36	46.209		
1,900.00	1,853.91	1,830.70	1,824.41	7.08	4.51	-178.88	-126.83	89.61	426.66	417.73	8.93	47.767		
2,000.00	1,947.41	1,922.17	1,915.38	7.75	4.79	-178.50	-133.27	96.78	466.96	457.46	9.51	49.118		
2,100.00	2,040.91	2,013.64	2,006.34	8.43	5.06	-178.18	-139.71	103.94	507.28	497.20	10.09	50.300		
2,200.00	2,134.41	2,105.11	2,097.30	9.11	5.33	-177.90	-146.16	111.11	547.62	536.95	10.67	51.340		
2,300.00	2,227.91	2,196.58	2,188.26	9.79	5.61	-177.67	-152.60	118.27	587.96	576.71	11.25	52.262		
2,400.00	2,321.41	2,288.05	2,279.22	10.47	5.88	-177.46	-159.05	125.44	628.31	616.48	11.84	53.085		
2,500.00	2,414.91	2,379.52	2,370.19	11.16	6.16	-177.28	-165.49	132.60	668.67	656.25	12.42	53.822		
2,600.00	2,508.41	2,470.99	2,461.15	11.84	6.43	-177.12	-171.94	139.77	709.04	696.02	13.01	54.487		
2,700.00	2,601.91	2,562.47	2,552.11	12.53	6.71	-176.98	-178.38	146.93	749.41	735.80	13.60	55.088		
2,800.00	2,695.41	2,653.94	2,643.07	13.22	6.98	-176.85	-184.83	154.10	789.78	775.59	14.20	55.635		
2,900.00	2,788.91	2,745.41	2,734.03	13.91	7.26	-176.73	-191.27	161.26	830.16	815.37	14.79	56.135		
3,000.00	2,882.41	2,836.88	2,824.99	14.60	7.53	-176.63	-197.72	168.43	870.54	855.16	15.38	56.592		
3,100.00	2,975.91	2,928.35	2,915.96	15.29	7.81	-176.53	-204.16	175.59	910.92	894.95	15.98	57.012		
3,200.00	3,069.41	3,019.82	3,006.92	15.98	8.09	-176.45	-210.60	182.76	951.31	934.74	16.57	57.400		
3,300.00	3,162.91	3,111.29	3,097.88	16.68	8.36	-176.37	-217.05	189.92	991.70	974.53	17.17	57.758		
3,400.00	3,256.41	3,202.76	3,188.84	17.37	8.64	-176.29	-223.49	197.09	1,032.09	1,014.32	17.77	58.090		
3,500.00	3,349.91	3,294.23	3,279.80	18.06	8.92	-176.22	-229.94	204.25	1,072.48	1,054.11	18.36	58.399		
3,600.00	3,443.41	3,385.70	3,370.77	18.76	9.19	-176.16	-236.38	211.42	1,112.87	1,093.91	18.96	58.687		
3,643.43	3,484.02	3,425.43	3,410.27	19.06	9.31	-176.13	-239.18	214.53	1,130.42	1,111.19	19.22	58.805		
3,700.00	3,537.10	3,477.39	3,461.94	19.40	9.47	-176.11	-242.84	218.60	1,152.77	1,133.17	19.60	58.820		
3,800.00	3,631.85	3,570.25	3,554.29	19.90	9.75	-176.10	-249.38	225.87	1,189.86	1,169.64	20.22	58.848		
3,900.00	3,727.66	3,664.31	3,647.82	20.36	10.04	-176.14	-256.01	233.24	1,223.80	1,202.98	20.82	58.781		
4,000.00	3,824.41	3,759.44	3,742.43	20.77	10.33	-176.21	-262.71	240.69	1,254.55	1,233.16	21.40	58.633		
4,100.00	3,921.98	3,855.54	3,837.99	21.15	10.62	-176.32	-269.48	248.22	1,282.08	1,260.14	21.95	58.415		
4,200.00	4,020.26	3,952.48	3,934.39	21.48	10.91	-176.47	-276.31	255.81	1,306.37	1,283.90	22.47	58.136		
4,300.00	4,119.12	4,050.16	4,031.52	21.77	11.21	-176.66	-283.20	263.46	1,327.37	1,304.41	22.96	57.803		
4,400.00	4,218.44	4,148.43	4,129.25	22.01	11.51	-176.88	-290.12	271.16	1,345.09	1,321.67	23.43	57.421		
4,500.00	4,318.11	4,259.84	4,240.07	22.21	11.82	-177.16	-297.76	279.66	1,359.37	1,335.50	23.87	56.940		
4,600.00	4,418.00	4,402.41	4,382.32	22.35	12.11	-177.42	-304.05	286.64	1,367.99	1,343.71	24.28	56.348		
4,682.02	4,500.00	4,520.13	4,500.00	22.44	12.30	-177.48	-305.67	288.44	1,370.19	1,337.24	32.94	41.591		
4,700.00	4,517.98	4,538.11	4,517.98	22.45	12.33	-177.48	-305.67	288.44	1,370.19	1,337.19	32.99	41.531		
4,800.00	4,617.98	4,638.11	4,617.98	22.54	12.48	-177.48	-305.67	288.44	1,370.19	1,336.93	33.26	41.201		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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	4,717.98	4,738.11	4,717.98	22.64	12.63	-177.48	-305.67	288.44	1,370.19	1,336.67	33.52	40.882		
5,000.00	4,817.98	4,838.11	4,817.98	22.73	12.79	-177.48	-305.67	288.44	1,370.19	1,336.41	33.78	40.563		
5,100.00	4,917.98	4,938.11	4,917.98	22.83	12.95	-177.48	-305.67	288.44	1,370.19	1,336.14	34.05	40.244		
5,200.00	5,017.98	5,038.11	5,017.98	22.92	13.11	-177.48	-305.67	288.44	1,370.19	1,335.87	34.32	39.926		
5,300.00	5,117.98	5,138.11	5,117.98	23.02	13.27	-177.48	-305.67	288.44	1,370.19	1,335.59	34.59	39.609		
5,400.00	5,217.98	5,238.11	5,217.98	23.12	13.43	-177.48	-305.67	288.44	1,370.19	1,335.32	34.87	39.293		
5,500.00	5,317.98	5,338.11	5,317.98	23.23	13.59	-177.48	-305.67	288.44	1,370.19	1,335.03	35.15	38.978		
5,600.00	5,417.98	5,438.11	5,417.98	23.33	13.76	-177.48	-305.67	288.44	1,370.19	1,334.75	35.44	38.665		
5,700.00	5,517.98	5,538.11	5,517.98	23.44	13.93	-177.48	-305.67	288.44	1,370.19	1,334.46	35.73	38.354		
5,800.00	5,617.98	5,638.11	5,617.98	23.55	14.10	-177.48	-305.67	288.44	1,370.19	1,334.17	36.02	38.044		
5,900.00	5,717.98	5,738.11	5,717.98	23.66	14.27	-177.48	-305.67	288.44	1,370.19	1,333.88	36.31	37.736		
6,000.00	5,817.98	5,838.11	5,817.98	23.77	14.44	-177.48	-305.67	288.44	1,370.19	1,333.58	36.61	37.430		
6,031.56	5,849.54	5,869.67	5,849.54	23.80	14.50	-177.48	-305.67	288.44	1,370.19	1,333.49	36.70	37.334		
6,050.00	5,867.98	5,885.09	5,867.98	23.82	14.52	-177.49	-305.67	288.19	1,370.19	1,341.00	29.19	46.944		
6,075.00	5,892.92	5,906.00	5,885.83	23.84	14.55	-177.51	-305.70	288.06	1,370.18	1,340.94	29.24	46.858		
6,098.42	5,916.19	5,925.00	5,904.75	23.86	14.57	-177.55	-305.74	285.24	1,370.17	1,340.89	29.28	46.793		
6,100.00	5,917.75	5,925.00	5,904.75	23.86	14.57	-177.55	-305.74	285.24	1,370.17	1,340.89	29.28	46.791		
6,125.00	5,942.39	5,947.85	5,927.37	23.87	14.59	-177.60	-305.82	282.06	1,370.16	1,340.84	29.32	46.737		
6,150.00	5,966.77	5,968.81	5,947.97	23.87	14.61	-177.67	-305.92	278.19	1,370.14	1,340.80	29.34	46.702		
6,175.00	5,990.84	5,989.79	5,968.40	23.87	14.62	-177.75	-306.03	273.42	1,370.12	1,340.77	29.35	46.680		
6,200.00	6,014.51	6,010.82	5,988.64	23.86	14.63	-177.85	-306.17	267.74	1,370.10	1,340.74	29.36	46.671		
6,225.00	6,037.74	6,031.89	6,008.66	23.85	14.63	-177.96	-306.33	261.16	1,370.08	1,340.72	29.36	46.671		
6,250.00	6,060.44	6,053.01	6,028.40	23.84	14.63	-178.08	-306.52	253.68	1,370.05	1,340.70	29.35	46.680		
6,275.00	6,082.57	6,075.00	6,048.60	23.82	14.63	-178.21	-306.73	244.98	1,370.02	1,340.68	29.34	46.692		
6,300.00	6,104.06	6,095.42	6,066.97	23.80	14.63	-178.37	-306.95	236.08	1,370.00	1,340.67	29.33	46.707		
6,325.00	6,124.86	6,116.72	6,085.72	23.77	14.63	-178.52	-307.19	225.96	1,369.97	1,340.65	29.32	46.718		
6,350.00	6,144.90	6,138.11	6,104.06	23.75	14.62	-178.69	-307.46	214.97	1,369.95	1,340.63	29.32	46.721		
6,375.00	6,164.12	6,159.58	6,121.96	23.72	14.62	-178.86	-307.75	203.13	1,369.93	1,340.60	29.33	46.712		
6,400.00	6,182.49	6,181.14	6,139.38	23.69	14.61	-179.04	-308.06	190.43	1,369.91	1,340.57	29.34	46.684		
6,425.00	6,199.95	6,202.80	6,156.29	23.66	14.60	-179.22	-308.39	176.90	1,369.90	1,340.53	29.38	46.633		
6,450.00	6,216.44	6,225.00	6,172.97	23.62	14.60	-179.40	-308.75	162.25	1,369.90	1,340.47	29.43	46.552		
6,458.09	6,221.57	6,231.63	6,177.81	23.61	14.60	-179.47	-308.86	157.73	1,369.90	1,340.45	29.45	46.515		
6,475.00	6,231.93	6,246.44	6,188.41	23.59	14.59	-179.59	-309.12	147.38	1,369.90	1,340.40	29.50	46.435		
6,500.00	6,246.37	6,268.44	6,203.54	23.56	14.59	-179.78	-309.51	131.42	1,369.91	1,340.30	29.60	46.275		
6,525.00	6,259.72	6,290.57	6,218.01	23.53	14.59	-179.96	-309.92	114.68	1,369.93	1,340.19	29.74	46.069		
6,550.00	6,271.95	6,312.84	6,231.76	23.50	14.59	179.86	-310.35	97.18	1,369.95	1,340.05	29.90	45.811		
6,575.00	6,283.02	6,335.26	6,244.77	23.47	14.60	179.68	-310.79	78.93	1,369.99	1,339.88	30.11	45.499		
6,600.00	6,292.90	6,357.83	6,256.99	23.44	14.61	179.52	-311.26	59.96	1,370.05	1,339.69	30.36	45.131		
6,625.00	6,301.57	6,380.56	6,268.37	23.42	14.64	179.36	-311.74	40.29	1,370.11	1,339.46	30.65	44.705		
6,650.00	6,309.00	6,403.47	6,278.89	23.40	14.69	179.21	-312.24	19.95	1,370.19	1,339.21	30.98	44.223		
6,675.00	6,315.16	6,426.55	6,288.48	23.39	14.76	179.08	-312.75	-1.04	1,370.28	1,338.92	31.37	43.685		
6,700.00	6,320.06	6,450.00	6,297.17	23.38	14.87	178.96	-313.28	-22.81	1,370.39	1,338.59	31.80	43.095		
6,725.00	6,323.66	6,473.31	6,304.75	23.38	15.03	178.85	-313.82	-44.84	1,370.51	1,338.24	32.28	42.460		
6,750.00	6,325.96	6,496.99	6,311.33	23.38	15.23	178.76	-314.38	-67.58	1,370.65	1,337.85	32.80	41.782		
6,775.00	6,326.96	6,520.89	6,316.82	23.40	15.48	178.69	-314.95	-90.83	1,370.81	1,337.44	33.38	41.072		
6,781.56	6,327.00	6,527.20	6,318.08	23.41	15.54	178.67	-315.10	-97.01	1,370.86	1,337.32	33.53	40.882		
6,800.00	6,327.00	6,545.08	6,321.19	23.43	15.76	178.64	-315.53	-114.61	1,370.99	1,336.99	33.99	40.333		
6,900.00	6,327.00	6,644.46	6,327.00	23.71	17.17	178.60	-317.95	-213.67	1,371.78	1,334.89	36.88	37.191		
7,000.00	6,327.00	6,744.46	6,327.00	24.41	18.90	178.60	-320.40	-313.63	1,372.58	1,332.26	40.33	34.037		
7,100.00	6,327.00	6,844.46	6,327.00	25.66	20.84	178.60	-322.85	-413.60	1,373.39	1,329.19	44.20	31.071		
7,200.00	6,327.00	6,944.45	6,327.00	27.36	22.97	178.60	-325.29	-513.57	1,374.19	1,325.77	48.42	28.381		
7,300.00	6,327.00	7,044.45	6,327.00	29.35	25.22	178.60	-327.74	-613.53	1,375.00	1,322.10	52.90	25.994		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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		
7,400.00	6,327.00	7,144.45	6,327.00	31.52	27.57	178.60	-330.19	-713.50	1,375.80	1,318.23	57.57	23.897		
7,500.00	6,327.00	7,244.44	6,327.00	33.80	30.00	178.60	-332.63	-813.47	1,376.61	1,314.20	62.40	22.060		
7,600.00	6,327.00	7,344.44	6,327.00	36.17	32.49	178.60	-335.08	-913.43	1,377.41	1,310.06	67.35	20.451		
7,700.00	6,327.00	7,444.44	6,327.00	38.60	35.03	178.60	-337.53	-1,013.40	1,378.22	1,305.82	72.40	19.037		
7,800.00	6,327.00	7,544.43	6,327.00	41.08	37.60	178.60	-339.97	-1,113.37	1,379.02	1,301.50	77.52	17.789		
7,900.00	6,327.00	7,644.43	6,327.00	43.60	40.21	178.60	-342.42	-1,213.33	1,379.82	1,297.12	82.71	16.683		
8,000.00	6,327.00	7,744.43	6,327.00	46.16	42.84	178.60	-344.87	-1,313.30	1,380.63	1,292.69	87.94	15.699		
8,100.00	6,327.00	7,844.42	6,327.00	48.74	45.49	178.60	-347.31	-1,413.27	1,381.43	1,288.21	93.22	14.819		
8,200.00	6,327.00	7,944.42	6,327.00	51.35	48.15	178.60	-349.76	-1,513.23	1,382.24	1,283.70	98.54	14.027		
8,300.00	6,327.00	8,044.42	6,327.00	53.98	50.83	178.60	-352.21	-1,613.20	1,383.04	1,279.16	103.89	13.313		
8,400.00	6,327.00	8,144.41	6,327.00	56.62	53.53	178.60	-354.65	-1,713.17	1,383.85	1,274.59	109.26	12.666		
8,500.00	6,327.00	8,244.41	6,327.00	59.28	56.23	178.60	-357.10	-1,813.13	1,384.65	1,270.00	114.65	12.077		
8,600.00	6,327.00	8,344.41	6,327.00	61.95	58.94	178.60	-359.55	-1,913.10	1,385.46	1,265.39	120.07	11.539		
8,700.00	6,327.00	8,444.40	6,327.00	64.63	61.66	178.60	-361.99	-2,013.07	1,386.26	1,260.76	125.50	11.046		
8,800.00	6,327.00	8,544.40	6,327.00	67.32	64.39	178.60	-364.44	-2,113.04	1,387.07	1,256.12	130.94	10.593		
8,900.00	6,327.00	8,644.40	6,327.00	70.02	67.12	178.60	-366.89	-2,213.00	1,387.87	1,251.47	136.40	10.175		
9,000.00	6,327.00	8,744.39	6,327.00	72.73	69.86	178.60	-369.33	-2,312.97	1,388.68	1,246.80	141.87	9.788		
9,100.00	6,327.00	8,844.39	6,327.00	75.44	72.61	178.60	-371.78	-2,412.94	1,389.48	1,242.13	147.35	9.430		
9,200.00	6,327.00	8,944.39	6,327.00	78.16	75.36	178.60	-374.23	-2,512.90	1,390.28	1,237.44	152.84	9.096		
9,300.00	6,327.00	9,044.39	6,327.00	80.89	78.11	178.60	-376.67	-2,612.87	1,391.09	1,232.75	158.34	8.785		
9,400.00	6,327.00	9,144.38	6,327.00	83.62	80.86	178.60	-379.12	-2,712.84	1,391.89	1,228.05	163.84	8.495		
9,500.00	6,327.00	9,244.38	6,327.00	86.36	83.62	178.60	-381.57	-2,812.80	1,392.70	1,223.34	169.36	8.223		
9,600.00	6,327.00	9,344.38	6,327.00	89.10	86.38	178.60	-384.01	-2,912.77	1,393.50	1,218.63	174.87	7.969		
9,700.00	6,327.00	9,444.37	6,327.00	91.84	89.15	178.60	-386.46	-3,012.74	1,394.31	1,213.91	180.40	7.729		
9,800.00	6,327.00	9,544.37	6,327.00	94.59	91.91	178.60	-388.91	-3,112.70	1,395.11	1,209.19	185.92	7.504		
9,900.00	6,327.00	9,644.37	6,327.00	97.34	94.68	178.60	-391.35	-3,212.67	1,395.92	1,204.46	191.46	7.291		
10,000.00	6,327.00	9,744.36	6,327.00	100.09	97.45	178.60	-393.80	-3,312.64	1,396.72	1,199.73	196.99	7.090		
10,100.00	6,327.00	9,844.36	6,327.00	102.85	100.22	178.60	-396.25	-3,412.60	1,397.53	1,194.99	202.53	6.900		
10,200.00	6,327.00	9,944.36	6,327.00	105.60	103.00	178.60	-398.69	-3,512.57	1,398.33	1,190.25	208.08	6.720		
10,300.00	6,327.00	10,044.35	6,327.00	108.37	105.77	178.60	-401.14	-3,612.54	1,399.14	1,185.51	213.62	6.550		
10,400.00	6,327.00	10,144.35	6,327.00	111.13	108.55	178.60	-403.58	-3,712.50	1,399.94	1,180.77	219.17	6.387		
10,500.00	6,327.00	10,244.35	6,327.00	113.89	111.32	178.60	-406.03	-3,812.47	1,400.74	1,176.02	224.73	6.233		
10,600.00	6,327.00	10,344.34	6,327.00	116.66	114.10	178.60	-408.48	-3,912.44	1,401.55	1,171.27	230.28	6.086		
10,700.00	6,327.00	10,444.34	6,327.00	119.43	116.88	178.60	-410.92	-4,012.41	1,402.35	1,166.51	235.84	5.946		
10,800.00	6,327.00	10,544.34	6,327.00	122.20	119.66	178.60	-413.37	-4,112.37	1,403.16	1,161.76	241.40	5.813		
10,832.68	6,327.00	10,577.02	6,327.00	123.10	120.57	178.60	-414.17	-4,145.04	1,403.42	1,160.20	243.22	5.770 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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	0.00	0.00	0.00	-177.57	-65.57	-2.79	65.63					
100.00	100.00	100.00	100.00	0.09	0.09	-177.57	-65.57	-2.79	65.63	65.45	0.18	356.098		
200.00	200.00	200.00	200.00	0.32	0.32	-177.57	-65.57	-2.79	65.63	65.00	0.63	103.546		
300.00	300.00	300.00	300.00	0.54	0.54	-177.57	-65.57	-2.79	65.63	64.55	1.08	60.581		
400.00	400.00	400.00	400.00	0.77	0.77	-177.57	-65.57	-2.79	65.63	64.10	1.53	42.815		
500.00	500.00	500.00	500.00	0.99	0.99	-177.57	-65.57	-2.79	65.63	63.65	1.98	33.107 CC, ES		
600.00	599.98	597.76	597.74	1.22	1.19	-177.59	-67.18	-2.35	68.94	66.53	2.41	28.648		
700.00	699.84	694.88	694.73	1.45	1.37	-177.65	-71.97	-1.06	78.83	76.00	2.83	27.865		
800.00	799.45	790.74	790.24	1.68	1.57	-177.69	-79.80	1.06	95.24	91.97	3.27	29.147		
900.00	898.70	884.77	883.61	1.94	1.80	-177.68	-90.48	3.95	118.03	114.32	3.72	31.763		
1,000.00	997.47	976.42	974.22	2.24	2.07	-177.62	-103.72	7.53	147.05	142.88	4.17	35.249		
1,100.00	1,095.62	1,065.21	1,061.55	2.57	2.36	-177.51	-119.22	11.73	182.09	177.46	4.63	39.305		
1,200.00	1,193.06	1,150.72	1,145.14	2.97	2.69	-177.35	-136.61	16.43	222.91	217.81	5.10	43.727		
1,300.00	1,289.64	1,232.63	1,224.67	3.41	3.05	-177.14	-155.51	21.54	269.25	263.68	5.57	48.374		
1,400.00	1,385.27	1,310.64	1,299.87	3.92	3.42	-176.90	-175.55	26.96	320.81	314.77	6.04	53.141		
1,500.00	1,479.82	1,384.57	1,370.58	4.49	3.81	-176.63	-196.35	32.59	377.31	370.80	6.51	57.941		
1,538.59	1,515.98	1,414.55	1,399.12	4.73	3.98	-176.55	-205.22	34.99	400.29	393.58	6.71	59.678		
1,600.00	1,573.41	1,463.63	1,445.84	5.12	4.26	-176.45	-219.74	38.92	437.20	430.18	7.02	62.266		
1,700.00	1,666.91	1,543.54	1,521.90	5.76	4.73	-176.32	-243.38	45.32	497.31	489.76	7.55	65.896		
1,800.00	1,760.41	1,623.45	1,597.97	6.42	5.20	-176.22	-267.03	51.71	557.42	549.34	8.08	68.946		
1,900.00	1,853.91	1,703.36	1,674.03	7.08	5.68	-176.13	-290.68	58.11	617.53	608.90	8.63	71.572		
2,000.00	1,947.41	1,783.28	1,750.10	7.75	6.16	-176.06	-314.32	64.51	677.65	668.46	9.18	73.802		
2,100.00	2,040.91	1,863.19	1,826.16	8.43	6.65	-176.01	-337.97	70.90	737.76	728.02	9.74	75.731		
2,200.00	2,134.41	1,943.10	1,902.23	9.11	7.14	-175.96	-361.61	77.30	797.87	787.57	10.31	77.410		
2,300.00	2,227.91	2,023.01	1,978.29	9.79	7.63	-175.92	-385.26	83.70	857.99	847.11	10.88	78.882		
2,400.00	2,321.41	2,102.92	2,054.36	10.47	8.13	-175.88	-408.90	90.09	918.10	906.65	11.45	80.178		
2,500.00	2,414.91	2,182.84	2,130.42	11.16	8.62	-175.85	-432.55	96.49	978.22	966.19	12.03	81.323		
2,600.00	2,508.41	2,262.75	2,206.49	11.84	9.12	-175.82	-456.20	102.89	1,038.33	1,025.72	12.61	82.343		
2,700.00	2,601.91	2,342.66	2,282.55	12.53	9.62	-175.80	-479.84	109.29	1,098.45	1,085.25	13.19	83.258		
2,800.00	2,695.41	2,422.57	2,358.62	13.22	10.12	-175.77	-503.49	115.68	1,158.56	1,144.78	13.78	84.080		
2,900.00	2,788.91	2,502.48	2,434.68	13.91	10.62	-175.75	-527.13	122.08	1,218.68	1,204.31	14.37	84.824		
3,000.00	2,882.41	2,582.40	2,510.75	14.60	11.12	-175.73	-550.78	128.48	1,278.80	1,263.84	14.96	85.496		
3,100.00	2,975.91	2,662.31	2,586.81	15.29	11.62	-175.72	-574.42	134.87	1,338.91	1,323.36	15.55	86.109		
3,200.00	3,069.41	2,742.22	2,662.88	15.98	12.12	-175.70	-598.07	141.27	1,399.03	1,382.89	16.14	86.668		
3,300.00	3,162.91	2,822.13	2,738.94	16.68	12.62	-175.69	-621.72	147.67	1,459.14	1,442.41	16.74	87.181		
3,400.00	3,256.41	2,902.04	2,815.01	17.37	13.12	-175.68	-645.36	154.06	1,519.26	1,501.93	17.33	87.652		
3,500.00	3,349.91	2,981.96	2,891.07	18.06	13.63	-175.66	-669.01	160.46	1,579.38	1,561.45	17.93	88.086		
3,600.00	3,443.41	3,061.87	2,967.14	18.76	14.13	-175.65	-692.65	166.86	1,639.49	1,620.97	18.53	88.487		
3,643.43	3,484.02	3,096.57	3,000.17	19.06	14.35	-175.65	-702.92	169.64	1,665.60	1,646.81	18.79	88.652		
3,700.00	3,537.10	3,142.10	3,043.51	19.40	14.64	-175.65	-716.39	173.28	1,699.18	1,679.99	19.19	88.539		
3,800.00	3,631.85	3,224.10	3,121.56	19.90	15.15	-175.67	-740.66	179.84	1,756.40	1,736.54	19.87	88.414		
3,900.00	3,727.66	3,307.96	3,201.38	20.36	15.68	-175.73	-765.47	186.56	1,810.85	1,790.32	20.53	88.224		
4,000.00	3,824.41	3,393.57	3,282.87	20.77	16.22	-175.82	-790.80	193.41	1,862.44	1,841.27	21.17	87.986		
4,100.00	3,921.98	3,480.84	3,365.94	21.15	16.77	-175.93	-816.62	200.40	1,911.13	1,889.35	21.79	87.714		
4,200.00	4,020.26	3,569.65	3,450.48	21.48	17.33	-176.06	-842.90	207.51	1,956.87	1,934.48	22.38	87.420		
4,300.00	4,119.12	3,659.90	3,536.38	21.77	17.90	-176.22	-869.61	214.73	1,999.59	1,976.63	22.95	87.111		
4,400.00	4,218.44	3,755.25	3,627.14	22.01	18.50	-176.42	-897.82	222.36	2,039.26	2,015.75	23.51	86.754		
4,500.00	4,318.11	4,054.01	3,915.92	22.21	19.71	-177.05	-971.22	242.22	2,071.04	2,046.55	24.49	84.560		
4,600.00	4,418.00	4,372.84	4,231.03	22.35	20.57	-177.42	-1,017.09	254.63	2,089.66	2,064.32	25.34	82.465		
4,682.02	4,500.00	4,642.21	4,500.00	22.44	20.96	-177.52	-1,029.30	257.93	2,094.47	2,052.33	42.14	49.705		
4,700.00	4,517.98	4,660.20	4,517.98	22.45	20.98	-177.52	-1,029.30	257.93	2,094.47	2,052.29	42.17	49.666		
4,800.00	4,617.98	4,760.20	4,617.98	22.54	21.07	-177.52	-1,029.30	257.93	2,094.47	2,052.11	42.35	49.451		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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	4,717.98	4,860.20	4,717.98	22.64	21.15	-177.52	-1,029.30	257.93	2,094.47	2,051.93	42.54	49.239		
5,000.00	4,817.98	4,960.20	4,817.98	22.73	21.24	-177.52	-1,029.30	257.93	2,094.47	2,051.74	42.72	49.024		
5,100.00	4,917.98	5,060.20	4,917.98	22.83	21.33	-177.52	-1,029.30	257.93	2,094.47	2,051.55	42.91	48.807		
5,200.00	5,017.98	5,160.20	5,017.98	22.92	21.42	-177.52	-1,029.30	257.93	2,094.47	2,051.36	43.11	48.587		
5,300.00	5,117.98	5,260.20	5,117.98	23.02	21.52	-177.52	-1,029.30	257.93	2,094.47	2,051.16	43.31	48.365		
5,400.00	5,217.98	5,360.20	5,217.98	23.12	21.61	-177.52	-1,029.30	257.93	2,094.47	2,050.96	43.51	48.141		
5,500.00	5,317.98	5,460.20	5,317.98	23.23	21.71	-177.52	-1,029.30	257.93	2,094.47	2,050.75	43.71	47.914		
5,600.00	5,417.98	5,560.20	5,417.98	23.33	21.81	-177.52	-1,029.30	257.93	2,094.47	2,050.54	43.92	47.686		
5,700.00	5,517.98	5,660.20	5,517.98	23.44	21.91	-177.52	-1,029.30	257.93	2,094.47	2,050.33	44.13	47.457		
5,800.00	5,617.98	5,760.20	5,617.98	23.55	22.02	-177.52	-1,029.30	257.93	2,094.47	2,050.12	44.35	47.225		
5,900.00	5,717.98	5,860.20	5,717.98	23.66	22.12	-177.52	-1,029.30	257.93	2,094.47	2,049.90	44.57	46.992		
6,000.00	5,817.98	5,960.20	5,817.98	23.77	22.23	-177.52	-1,029.30	257.93	2,094.47	2,049.67	44.79	46.758		
6,031.56	5,849.54	5,991.75	5,849.54	23.80	22.27	-177.52	-1,029.30	257.93	2,094.47	2,049.60	44.86	46.684		
6,050.00	5,867.98	6,008.86	5,866.64	23.82	22.28	-177.52	-1,029.29	257.63	2,094.45	2,064.17	30.28	69.164		
6,075.00	5,892.92	6,032.04	5,889.79	23.84	22.30	-177.53	-1,029.26	256.23	2,094.38	2,064.04	30.34	69.028		
6,100.00	5,917.75	6,055.24	5,912.84	23.86	22.32	-177.54	-1,029.20	253.72	2,094.25	2,063.87	30.39	68.922		
6,125.00	5,942.39	6,078.44	5,935.76	23.87	22.33	-177.55	-1,029.10	250.09	2,094.07	2,063.65	30.42	68.843		
6,150.00	5,966.77	6,101.66	5,958.48	23.87	22.34	-177.57	-1,028.98	245.34	2,093.84	2,063.40	30.44	68.789		
6,175.00	5,990.84	6,125.00	5,981.07	23.87	22.35	-177.60	-1,028.83	239.47	2,093.54	2,063.10	30.45	68.759		
6,200.00	6,014.51	6,148.16	6,003.16	23.86	22.35	-177.63	-1,028.66	232.55	2,093.20	2,062.75	30.45	68.748		
6,225.00	6,037.74	6,171.44	6,025.02	23.85	22.36	-177.66	-1,028.45	224.53	2,092.80	2,062.36	30.44	68.752		
6,250.00	6,060.44	6,194.76	6,046.48	23.84	22.35	-177.70	-1,028.22	215.44	2,092.35	2,061.92	30.43	68.766		
6,275.00	6,082.57	6,218.10	6,067.51	23.82	22.35	-177.74	-1,027.96	205.29	2,091.85	2,061.44	30.41	68.784		
6,300.00	6,104.06	6,241.49	6,088.04	23.80	22.34	-177.78	-1,027.68	194.12	2,091.30	2,060.91	30.40	68.801		
6,325.00	6,124.86	6,264.91	6,108.04	23.77	22.34	-177.83	-1,027.37	181.93	2,090.71	2,060.32	30.38	68.809		
6,350.00	6,144.90	6,288.38	6,127.45	23.75	22.33	-177.87	-1,027.03	168.75	2,090.06	2,059.68	30.38	68.799		
6,375.00	6,164.12	6,311.89	6,146.23	23.72	22.31	-177.92	-1,026.67	154.60	2,089.38	2,058.99	30.38	68.764		
6,400.00	6,182.49	6,335.46	6,164.32	23.69	22.30	-177.97	-1,026.29	139.51	2,088.65	2,058.25	30.41	68.693		
6,425.00	6,199.95	6,359.08	6,181.69	23.66	22.29	-178.02	-1,025.88	123.51	2,087.89	2,057.44	30.45	68.577		
6,450.00	6,216.44	6,382.77	6,198.29	23.62	22.27	-178.08	-1,025.45	106.62	2,087.08	2,056.57	30.51	68.407		
6,475.00	6,231.93	6,406.51	6,214.07	23.59	22.26	-178.13	-1,025.00	88.89	2,086.24	2,055.64	30.60	68.173		
6,500.00	6,246.37	6,430.32	6,228.99	23.56	22.25	-178.18	-1,024.53	70.34	2,085.37	2,054.65	30.73	67.867		
6,525.00	6,259.72	6,454.20	6,243.00	23.53	22.23	-178.23	-1,024.03	51.02	2,084.47	2,053.58	30.89	67.482		
6,550.00	6,271.95	6,478.15	6,256.07	23.50	22.22	-178.27	-1,023.52	30.95	2,083.55	2,052.45	31.09	67.012		
6,575.00	6,283.02	6,502.18	6,268.15	23.47	22.20	-178.32	-1,023.00	10.19	2,082.59	2,051.25	31.34	66.454		
6,600.00	6,292.90	6,526.29	6,279.21	23.44	22.19	-178.36	-1,022.45	-11.22	2,081.62	2,049.99	31.63	65.807		
6,625.00	6,301.57	6,550.48	6,289.20	23.42	22.18	-178.40	-1,021.89	-33.24	2,080.62	2,048.65	31.97	65.072		
6,650.00	6,309.00	6,575.00	6,298.18	23.40	22.17	-178.43	-1,021.31	-56.05	2,079.61	2,047.25	32.37	64.249		
6,675.00	6,315.16	6,599.12	6,305.86	23.39	22.17	-178.46	-1,020.73	-78.91	2,078.59	2,045.78	32.81	63.356		
6,700.00	6,320.06	6,623.58	6,312.46	23.38	22.16	-178.49	-1,020.13	-102.45	2,077.56	2,044.26	33.30	62.390		
6,725.00	6,323.66	6,648.13	6,317.86	23.38	22.16	-178.51	-1,019.52	-126.38	2,076.51	2,042.68	33.84	61.366		
6,750.00	6,325.96	6,672.78	6,322.03	23.38	22.17	-178.53	-1,018.90	-150.67	2,075.47	2,041.05	34.42	60.294		
6,775.00	6,326.96	6,697.52	6,324.96	23.40	22.18	-178.54	-1,018.27	-175.23	2,074.42	2,039.37	35.05	59.188		
6,781.56	6,327.00	6,704.03	6,325.52	23.41	22.19	-178.54	-1,018.11	-181.71	2,074.14	2,038.93	35.22	58.892		
6,800.00	6,327.00	6,722.39	6,326.61	23.43	22.21	-178.54	-1,017.64	-200.03	2,073.37	2,037.66	35.71	58.057		
6,900.00	6,327.00	6,822.29	6,327.00	23.71	22.44	-178.54	-1,015.10	-299.89	2,069.19	2,030.41	38.77	53.364		
7,000.00	6,327.00	6,922.20	6,327.00	24.41	23.11	-178.54	-1,012.56	-399.77	2,065.00	2,022.66	42.34	48.773		
7,100.00	6,327.00	7,022.12	6,327.00	25.66	24.43	-178.54	-1,010.02	-499.65	2,060.81	2,014.50	46.31	44.500		
7,200.00	6,327.00	7,122.03	6,327.00	27.36	26.23	-178.54	-1,007.47	-599.53	2,056.63	2,006.03	50.59	40.650		
7,300.00	6,327.00	7,221.94	6,327.00	29.35	28.32	-178.54	-1,004.93	-699.41	2,052.44	1,997.32	55.12	37.238		
7,400.00	6,327.00	7,321.85	6,327.00	31.52	30.57	-178.54	-1,002.39	-799.29	2,048.25	1,988.43	59.82	34.238		
7,500.00	6,327.00	7,421.76	6,327.00	33.80	32.92	-178.54	-999.84	-899.17	2,044.07	1,979.39	64.68	31.605		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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		
7,600.00	6,327.00	7,521.68	6,327.00	36.17	35.35	-178.54	-997.30	-999.05	2,039.88	1,970.24	69.64	29.291		
7,700.00	6,327.00	7,621.59	6,327.00	38.60	37.83	-178.54	-994.76	-1,098.93	2,035.69	1,960.99	74.70	27.251		
7,800.00	6,327.00	7,721.50	6,327.00	41.08	40.36	-178.54	-992.22	-1,198.81	2,031.51	1,951.67	79.83	25.447		
7,900.00	6,327.00	7,821.41	6,327.00	43.60	42.92	-178.54	-989.67	-1,298.69	2,027.32	1,942.30	85.03	23.844		
8,000.00	6,327.00	7,921.33	6,327.00	46.16	45.52	-178.54	-987.13	-1,398.57	2,023.13	1,932.87	90.27	22.412		
8,100.00	6,327.00	8,021.24	6,327.00	48.74	48.14	-178.54	-984.59	-1,498.45	2,018.95	1,923.39	95.55	21.129		
8,200.00	6,327.00	8,121.15	6,327.00	51.35	50.78	-178.54	-982.04	-1,598.33	2,014.76	1,913.89	100.87	19.973		
8,300.00	6,327.00	8,221.06	6,327.00	53.98	53.44	-178.54	-979.50	-1,698.21	2,010.58	1,904.35	106.22	18.928		
8,400.00	6,327.00	8,320.98	6,327.00	56.62	56.11	-178.54	-976.96	-1,798.09	2,006.39	1,894.79	111.60	17.978		
8,500.00	6,327.00	8,420.89	6,327.00	59.28	58.79	-178.54	-974.42	-1,897.97	2,002.20	1,885.20	117.00	17.113		
8,600.00	6,327.00	8,520.80	6,327.00	61.95	61.49	-178.54	-971.87	-1,997.85	1,998.02	1,875.60	122.42	16.322		
8,700.00	6,327.00	8,620.71	6,327.00	64.63	64.19	-178.54	-969.33	-2,097.73	1,993.83	1,865.98	127.85	15.595		
8,800.00	6,327.00	8,720.62	6,327.00	67.32	66.91	-178.54	-966.79	-2,197.61	1,989.64	1,856.34	133.30	14.926		
8,900.00	6,327.00	8,820.54	6,327.00	70.02	69.63	-178.54	-964.24	-2,297.49	1,985.46	1,846.70	138.76	14.309		
9,000.00	6,327.00	8,920.45	6,327.00	72.73	72.36	-178.54	-961.70	-2,397.37	1,981.27	1,837.04	144.23	13.736		
9,100.00	6,327.00	9,020.36	6,327.00	75.44	75.09	-178.54	-959.16	-2,497.25	1,977.08	1,827.37	149.72	13.205		
9,200.00	6,327.00	9,120.27	6,327.00	78.16	77.83	-178.54	-956.62	-2,597.13	1,972.90	1,817.69	155.21	12.711		
9,300.00	6,327.00	9,220.19	6,327.00	80.89	80.58	-178.54	-954.07	-2,697.01	1,968.71	1,808.00	160.71	12.250		
9,400.00	6,327.00	9,320.10	6,327.00	83.62	83.32	-178.54	-951.53	-2,796.89	1,964.52	1,798.30	166.22	11.819		
9,500.00	6,327.00	9,420.01	6,327.00	86.36	86.08	-178.54	-948.99	-2,896.77	1,960.34	1,788.60	171.74	11.415		
9,600.00	6,327.00	9,519.92	6,327.00	89.10	88.83	-178.54	-946.45	-2,996.65	1,956.15	1,778.90	177.26	11.036		
9,700.00	6,327.00	9,619.84	6,327.00	91.84	91.59	-178.54	-943.90	-3,096.53	1,951.97	1,769.18	182.78	10.679		
9,800.00	6,327.00	9,719.75	6,327.00	94.59	94.35	-178.54	-941.36	-3,196.41	1,947.78	1,759.46	188.32	10.343		
9,900.00	6,327.00	9,819.66	6,327.00	97.34	97.12	-178.54	-938.82	-3,296.29	1,943.59	1,749.74	193.85	10.026		
10,000.00	6,327.00	9,919.57	6,327.00	100.09	99.89	-178.54	-936.27	-3,396.17	1,939.41	1,740.01	199.39	9.727		
10,100.00	6,327.00	10,019.49	6,327.00	102.85	102.66	-178.54	-933.73	-3,496.05	1,935.22	1,730.28	204.94	9.443		
10,200.00	6,327.00	10,119.40	6,327.00	105.60	105.43	-178.54	-931.19	-3,595.93	1,931.03	1,720.55	210.48	9.174		
10,300.00	6,327.00	10,219.31	6,327.00	108.37	108.20	-178.54	-928.65	-3,695.81	1,926.85	1,710.81	216.04	8.919		
10,400.00	6,327.00	10,319.22	6,327.00	111.13	110.98	-178.54	-926.10	-3,795.69	1,922.66	1,701.07	221.59	8.677		
10,500.00	6,327.00	10,419.13	6,327.00	113.89	113.76	-178.54	-923.56	-3,895.57	1,918.47	1,691.33	227.15	8.446		
10,600.00	6,327.00	10,519.05	6,327.00	116.66	116.53	-178.54	-921.02	-3,995.45	1,914.29	1,681.58	232.71	8.226		
10,700.00	6,327.00	10,618.96	6,327.00	119.43	119.31	-178.54	-918.47	-4,095.33	1,910.10	1,671.83	238.27	8.017		
10,800.00	6,327.00	10,718.87	6,327.00	122.20	122.10	-178.54	-915.93	-4,195.21	1,905.92	1,662.08	243.83	7.816		
10,832.68	6,327.00	10,749.48	6,327.00	123.10	122.95	-178.60	-915.15	-4,225.81	1,904.55	1,658.95	245.60	7.755 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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: 8000-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		
0.00	0.00	0.00	30.00	0.00	0.00	-61.54	1,843.55	-3,400.60	3,868.29					
100.00	100.00	70.00	100.00	0.09	0.08	-61.54	1,843.55	-3,400.60	3,868.18	3,868.01	0.17	N/A		
200.00	200.00	170.00	200.00	0.32	0.19	-61.54	1,843.55	-3,400.60	3,868.18	3,867.67	0.51	7,612.016		
300.00	300.00	270.00	300.00	0.54	0.30	-61.54	1,843.55	-3,400.60	3,868.18	3,867.33	0.85	4,576.025		
400.00	400.00	370.00	400.00	0.77	0.42	-61.54	1,843.55	-3,400.60	3,868.18	3,866.99	1.18	3,271.295		
500.00	500.00	470.00	500.00	0.99	0.53	-61.54	1,843.55	-3,400.60	3,868.18	3,866.66	1.52	2,545.511		
600.00	599.98	569.98	599.98	1.22	0.64	-61.56	1,843.55	-3,400.60	3,867.86	3,866.01	1.86	2,084.547		
700.00	699.84	669.84	699.84	1.45	0.75	-61.64	1,843.55	-3,400.60	3,866.93	3,864.74	2.19	1,762.818		
800.00	799.45	769.45	799.45	1.68	0.86	-61.77	1,843.55	-3,400.60	3,865.40	3,862.85	2.54	1,519.748		
900.00	898.70	868.70	898.70	1.94	0.98	-61.94	1,843.55	-3,400.60	3,863.28	3,860.37	2.92	1,325.001		
1,000.00	997.47	967.47	997.47	2.24	1.09	-62.17	1,843.55	-3,400.60	3,860.62	3,857.30	3.32	1,162.485		
1,100.00	1,095.62	1,065.62	1,095.62	2.57	1.20	-62.45	1,843.55	-3,400.60	3,857.46	3,853.69	3.77	1,023.498		
1,200.00	1,193.06	1,163.06	1,193.06	2.97	1.31	-62.78	1,843.55	-3,400.60	3,853.86	3,849.59	4.27	903.184		
1,300.00	1,289.64	1,259.64	1,289.64	3.41	1.42	-63.16	1,843.55	-3,400.60	3,849.86	3,845.04	4.82	798.602		
1,400.00	1,385.27	1,355.27	1,385.27	3.92	1.52	-63.59	1,843.55	-3,400.60	3,845.56	3,840.12	5.43	707.694		
1,500.00	1,479.82	1,449.82	1,479.82	4.49	1.63	-64.07	1,843.55	-3,400.60	3,841.02	3,834.91	6.11	628.786		
1,538.59	1,515.98	1,485.98	1,515.98	4.73	1.67	-64.27	1,843.55	-3,400.60	3,839.22	3,832.84	6.39	601.226		
1,600.00	1,573.41	1,543.41	1,573.41	5.12	1.73	-64.59	1,843.55	-3,400.60	3,836.41	3,829.58	6.84	561.074		
1,700.00	1,666.91	1,636.91	1,666.91	5.76	1.84	-65.12	1,843.55	-3,400.60	3,832.10	3,824.51	7.59	505.118		
1,800.00	1,760.41	1,730.41	1,760.41	6.42	1.94	-65.65	1,843.55	-3,400.60	3,828.11	3,819.76	8.35	458.594		
1,900.00	1,853.91	1,823.91	1,853.91	7.08	2.05	-66.18	1,843.55	-3,400.60	3,824.44	3,815.32	9.12	419.474		
2,000.00	1,947.41	1,917.41	1,947.41	7.75	2.15	-66.70	1,843.55	-3,400.60	3,821.10	3,811.20	9.89	386.222		
2,100.00	2,040.91	2,010.91	2,040.91	8.43	2.26	-67.23	1,843.55	-3,400.60	3,818.08	3,807.41	10.67	357.670		
2,200.00	2,134.41	2,104.41	2,134.41	9.11	2.37	-67.77	1,843.55	-3,400.60	3,815.39	3,803.93	11.46	332.930		
2,300.00	2,227.91	2,197.91	2,227.91	9.79	2.47	-68.30	1,843.55	-3,400.60	3,813.03	3,800.79	12.25	311.312		
2,400.00	2,321.41	2,291.41	2,321.41	10.47	2.58	-68.83	1,843.55	-3,400.60	3,811.00	3,797.96	13.04	292.282		
2,500.00	2,414.91	2,384.91	2,414.91	11.16	2.68	-69.36	1,843.55	-3,400.60	3,809.30	3,795.47	13.83	275.415		
2,600.00	2,508.41	2,478.41	2,508.41	11.84	2.79	-69.90	1,843.55	-3,400.60	3,807.93	3,793.30	14.62	260.375		
2,700.00	2,601.91	2,571.91	2,601.91	12.53	2.89	-70.43	1,843.55	-3,400.60	3,806.89	3,791.47	15.42	246.889		
2,800.00	2,695.41	2,665.41	2,695.41	13.22	3.00	-70.96	1,843.55	-3,400.60	3,806.17	3,789.96	16.21	234.737		
2,900.00	2,788.91	2,758.91	2,788.91	13.91	3.10	-71.50	1,843.55	-3,400.60	3,805.79	3,788.78	17.01	223.735		
2,965.64	2,850.28	2,820.28	2,850.28	14.36	3.17	-71.85	1,843.55	-3,400.60	3,805.72	3,788.19	17.53	217.064		
3,000.00	2,882.41	2,852.41	2,882.41	14.60	3.21	-72.03	1,843.55	-3,400.60	3,805.74	3,787.93	17.81	213.734		
3,100.00	2,975.91	2,945.91	2,975.91	15.29	3.31	-72.56	1,843.55	-3,400.60	3,806.02	3,787.42	18.60	204.607		
3,200.00	3,069.41	3,039.41	3,069.41	15.98	3.42	-73.10	1,843.55	-3,400.60	3,806.63	3,787.23	19.40	196.250		
3,300.00	3,162.91	3,132.91	3,162.91	16.68	3.52	-73.63	1,843.55	-3,400.60	3,807.57	3,787.37	20.19	188.573		
3,400.00	3,256.41	3,226.41	3,256.41	17.37	3.63	-74.16	1,843.55	-3,400.60	3,808.84	3,787.85	20.99	181.499		
3,500.00	3,349.91	3,319.91	3,349.91	18.06	3.73	-74.70	1,843.55	-3,400.60	3,810.43	3,788.66	21.78	174.963		
3,600.00	3,443.41	3,413.41	3,443.41	18.76	3.84	-75.23	1,843.55	-3,400.60	3,812.36	3,789.79	22.57	168.908		
3,643.43	3,484.02	3,454.02	3,484.02	19.06	3.88	-75.46	1,843.55	-3,400.60	3,813.30	3,790.39	22.91	166.416		
3,700.00	3,537.10	3,507.10	3,537.10	19.40	3.94	-75.75	1,843.55	-3,400.60	3,814.58	3,791.27	23.31	163.646		
3,800.00	3,631.85	3,601.85	3,631.85	19.90	4.05	-76.23	1,843.55	-3,400.60	3,816.90	3,792.99	23.90	159.682		
3,900.00	3,727.66	3,697.66	3,727.66	20.36	4.16	-76.66	1,843.55	-3,400.60	3,819.19	3,794.73	24.46	156.142		
4,000.00	3,824.41	3,794.41	3,824.41	20.77	4.26	-77.04	1,843.55	-3,400.60	3,821.40	3,796.42	24.98	152.994		
4,100.00	3,921.98	3,891.98	3,921.98	21.15	4.37	-77.36	1,843.55	-3,400.60	3,823.44	3,797.98	25.45	150.209		
4,200.00	4,020.26	3,990.26	4,020.26	21.48	4.48	-77.64	1,843.55	-3,400.60	3,825.26	3,799.37	25.89	147.760		
4,300.00	4,119.12	4,089.12	4,119.12	21.77	4.60	-77.86	1,843.55	-3,400.60	3,826.80	3,800.52	26.28	145.624		
4,400.00	4,218.44	4,188.44	4,218.44	22.01	4.71	-78.04	1,843.55	-3,400.60	3,828.03	3,801.41	26.62	143.778		
4,500.00	4,318.11	4,288.11	4,318.11	22.21	4.82	-78.16	1,843.55	-3,400.60	3,828.91	3,801.99	26.93	142.202		
4,600.00	4,418.00	4,388.00	4,418.00	22.35	4.93	-78.22	1,843.55	-3,400.60	3,829.42	3,802.24	27.18	140.881		
4,682.02	4,500.00	4,470.00	4,500.00	22.44	5.02	-78.24	1,843.55	-3,400.60	3,829.55	3,812.28	17.28	221.678		
4,700.00	4,517.98	4,487.98	4,517.98	22.45	5.04	-78.24	1,843.55	-3,400.60	3,829.55	3,812.23	17.32	221.067		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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: 8000-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		
4,800.00	4,617.98	4,587.98	4,617.98	22.54	5.16	-78.24	1,843.55	-3,400.60	3,829.55	3,811.95	17.60	217.564		
4,900.00	4,717.98	4,687.98	4,717.98	22.64	5.27	-78.24	1,843.55	-3,400.60	3,829.55	3,811.67	17.88	214.148		
5,000.00	4,817.98	4,787.98	4,817.98	22.73	5.38	-78.24	1,843.55	-3,400.60	3,829.55	3,811.39	18.17	210.817		
5,100.00	4,917.98	4,887.98	4,917.98	22.83	5.49	-78.24	1,843.55	-3,400.60	3,829.55	3,811.10	18.45	207.570		
5,200.00	5,017.98	4,987.98	5,017.98	22.92	5.61	-78.24	1,843.55	-3,400.60	3,829.55	3,810.82	18.74	204.404		
5,300.00	5,117.98	5,087.98	5,117.98	23.02	5.72	-78.24	1,843.55	-3,400.60	3,829.55	3,810.53	19.02	201.317		
5,400.00	5,217.98	5,187.98	5,217.98	23.12	5.83	-78.24	1,843.55	-3,400.60	3,829.55	3,810.24	19.31	198.306		
5,500.00	5,317.98	5,287.98	5,317.98	23.23	5.94	-78.24	1,843.55	-3,400.60	3,829.55	3,809.95	19.60	195.370		
5,600.00	5,417.98	5,387.98	5,417.98	23.33	6.06	-78.24	1,843.55	-3,400.60	3,829.55	3,809.66	19.89	192.507		
5,700.00	5,517.98	5,487.98	5,517.98	23.44	6.17	-78.24	1,843.55	-3,400.60	3,829.55	3,809.37	20.19	189.713		
5,800.00	5,617.98	5,587.98	5,617.98	23.55	6.28	-78.24	1,843.55	-3,400.60	3,829.55	3,809.07	20.48	186.989		
5,900.00	5,717.98	5,687.98	5,717.98	23.66	6.39	-78.24	1,843.55	-3,400.60	3,829.55	3,808.78	20.78	184.330		
6,000.00	5,817.98	5,787.98	5,817.98	23.77	6.50	-78.24	1,843.55	-3,400.60	3,829.55	3,808.48	21.07	181.736		
6,031.56	5,849.54	5,819.54	5,849.54	23.80	6.54	-78.24	1,843.55	-3,400.60	3,829.55	3,808.39	21.17	180.931		
6,050.00	5,867.98	5,837.98	5,867.98	23.82	6.56	-78.24	1,843.55	-3,400.60	3,829.20	3,798.94	30.26	126.539		
6,075.00	5,892.92	5,862.92	5,892.92	23.84	6.59	-78.24	1,843.55	-3,400.60	3,827.63	3,797.39	30.24	126.587		
6,100.00	5,917.75	5,887.75	5,917.75	23.86	6.62	-78.23	1,843.55	-3,400.60	3,824.78	3,794.62	30.16	126.826		
6,125.00	5,942.39	5,912.39	5,942.39	23.87	6.64	-78.21	1,843.55	-3,400.60	3,820.66	3,790.64	30.02	127.255		
6,150.00	5,966.77	5,936.77	5,966.77	23.87	6.67	-78.19	1,843.55	-3,400.60	3,815.30	3,785.46	29.84	127.874		
6,175.00	5,990.84	5,960.84	5,990.84	23.87	6.70	-78.17	1,843.55	-3,400.60	3,808.69	3,779.10	29.60	128.685		
6,200.00	6,014.51	5,984.51	6,014.51	23.86	6.73	-78.14	1,843.55	-3,400.60	3,800.87	3,771.56	29.31	129.688		
6,225.00	6,037.74	6,007.74	6,037.74	23.85	6.75	-78.11	1,843.55	-3,400.60	3,791.85	3,762.88	28.97	130.887		
6,250.00	6,060.44	6,030.44	6,060.44	23.84	6.78	-78.08	1,843.55	-3,400.60	3,781.66	3,753.08	28.59	132.283		
6,275.00	6,082.57	6,052.57	6,082.57	23.82	6.80	-78.04	1,843.55	-3,400.60	3,770.33	3,742.17	28.16	133.877		
6,300.00	6,104.06	6,074.06	6,104.06	23.80	6.83	-78.00	1,843.55	-3,400.60	3,757.89	3,730.19	27.70	135.670		
6,325.00	6,124.86	6,094.86	6,124.86	23.77	6.85	-77.95	1,843.55	-3,400.60	3,744.37	3,717.17	27.20	137.660		
6,350.00	6,144.90	6,114.90	6,144.90	23.75	6.87	-77.90	1,843.55	-3,400.60	3,729.81	3,703.14	26.67	139.838		
6,375.00	6,164.12	6,134.12	6,164.12	23.72	6.89	-77.84	1,843.55	-3,400.60	3,714.25	3,688.13	26.12	142.191		
6,400.00	6,182.49	6,152.49	6,182.49	23.69	6.91	-77.78	1,843.55	-3,400.60	3,697.74	3,672.18	25.56	144.695		
6,425.00	6,199.95	6,169.95	6,199.95	23.66	6.93	-77.72	1,843.55	-3,400.60	3,680.32	3,655.33	24.98	147.309		
6,450.00	6,216.44	6,186.44	6,216.44	23.62	6.95	-77.65	1,843.55	-3,400.60	3,662.03	3,637.61	24.42	149.972		
6,475.00	6,231.93	6,201.93	6,231.93	23.59	6.97	-77.58	1,843.55	-3,400.60	3,642.94	3,619.07	23.87	152.591		
6,500.00	6,246.37	6,216.37	6,246.37	23.56	6.99	-77.51	1,843.55	-3,400.60	3,623.09	3,599.72	23.37	155.036		
6,525.00	6,259.72	6,229.72	6,259.72	23.53	7.00	-77.43	1,843.55	-3,400.60	3,602.54	3,579.61	22.93	157.124		
6,550.00	6,271.95	6,241.95	6,271.95	23.50	7.01	-77.35	1,843.55	-3,400.60	3,581.35	3,558.77	22.58	158.621		
6,575.00	6,283.02	6,253.02	6,283.02	23.47	7.03	-77.26	1,843.55	-3,400.60	3,559.57	3,537.21	22.35	159.248		
6,600.00	6,292.90	6,262.90	6,292.90	23.44	7.04	-77.17	1,843.55	-3,400.60	3,537.26	3,514.97	22.29	158.714		
6,625.00	6,301.57	6,271.57	6,301.57	23.42	7.05	-77.08	1,843.55	-3,400.60	3,514.49	3,492.08	22.42	156.786		
6,650.00	6,309.00	6,279.00	6,309.00	23.40	7.06	-76.99	1,843.55	-3,400.60	3,491.32	3,468.56	22.76	153.394		
6,675.00	6,315.16	6,285.16	6,315.16	23.39	7.06	-76.89	1,843.55	-3,400.60	3,467.82	3,444.51	23.31	148.750		
6,700.00	6,320.06	6,290.06	6,320.06	23.38	7.07	-76.79	1,843.55	-3,400.60	3,444.04	3,420.03	24.01	143.440		
6,725.00	6,323.66	6,293.66	6,323.66	23.38	7.07	-76.69	1,843.55	-3,400.60	3,420.06	3,395.36	24.71	138.425		
6,750.00	6,325.96	6,295.96	6,325.96	23.38	7.08	-76.59	1,843.55	-3,400.60	3,395.94	3,370.77	25.18	134.892		
6,775.00	6,326.96	6,296.96	6,326.96	23.40	7.08	-76.48	1,843.55	-3,400.60	3,371.75	3,346.57	25.18	133.891		
6,781.56	6,327.00	6,297.00	6,327.00	23.41	7.08	-76.46	1,843.55	-3,400.60	3,365.40	3,340.31	25.09	134.123		
6,800.00	6,327.00	6,297.00	6,327.00	23.43	7.08	-76.38	1,843.55	-3,400.60	3,347.55	3,322.22	25.33	132.165		
6,900.00	6,327.00	6,297.00	6,327.00	23.71	7.08	-75.93	1,843.55	-3,400.60	3,250.86	3,224.06	26.80	121.306		
7,000.00	6,327.00	6,297.00	6,327.00	24.41	7.08	-75.46	1,843.55	-3,400.60	3,154.38	3,125.84	28.54	110.538		
7,100.00	6,327.00	6,297.00	6,327.00	25.66	7.08	-74.96	1,843.55	-3,400.60	3,058.12	3,027.64	30.48	100.325		
7,200.00	6,327.00	6,297.00	6,327.00	27.36	7.08	-74.43	1,843.55	-3,400.60	2,962.11	2,929.52	32.59	90.896		
7,300.00	6,327.00	6,297.00	6,327.00	29.35	7.08	-73.86	1,843.55	-3,400.60	2,866.38	2,831.56	34.82	82.326		
7,400.00	6,327.00	6,297.00	6,327.00	31.52	7.08	-73.25	1,843.55	-3,400.60	2,770.94	2,733.80	37.14	74.601		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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.3-T4N-R63W - 70 Ranch CNW-3 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 8000-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
7,500.00	6,327.00	6,297.00	6,327.00	33.80	7.08	-72.60	1,843.55	-3,400.60	2,675.84	2,636.30	39.55	67.666	
7,600.00	6,327.00	6,297.00	6,327.00	36.17	7.08	-71.91	1,843.55	-3,400.60	2,581.11	2,539.10	42.01	61.445	
7,700.00	6,327.00	6,297.00	6,327.00	38.60	7.08	-71.15	1,843.55	-3,400.60	2,486.79	2,442.28	44.52	55.862	
7,800.00	6,327.00	6,297.00	6,327.00	41.08	7.08	-70.34	1,843.55	-3,400.60	2,392.93	2,345.87	47.07	50.843	
7,900.00	6,327.00	6,297.00	6,327.00	43.60	7.08	-69.47	1,843.55	-3,400.60	2,299.60	2,249.95	49.65	46.320	
8,000.00	6,327.00	6,297.00	6,327.00	46.16	7.08	-68.52	1,843.55	-3,400.60	2,206.84	2,154.59	52.25	42.233	
8,100.00	6,327.00	6,297.00	6,327.00	48.74	7.08	-67.48	1,843.55	-3,400.60	2,114.75	2,059.86	54.88	38.532	
8,200.00	6,327.00	6,297.00	6,327.00	51.35	7.08	-66.36	1,843.55	-3,400.60	2,023.40	1,965.87	57.53	35.170	
8,300.00	6,327.00	6,297.00	6,327.00	53.98	7.08	-65.12	1,843.55	-3,400.60	1,932.92	1,872.72	60.20	32.110	
8,400.00	6,327.00	6,297.00	6,327.00	56.62	7.08	-63.77	1,843.55	-3,400.60	1,843.41	1,780.54	62.87	29.319	
8,500.00	6,327.00	6,297.00	6,327.00	59.28	7.08	-62.28	1,843.55	-3,400.60	1,755.04	1,689.48	65.56	26.768	
8,600.00	6,327.00	6,297.00	6,327.00	61.95	7.08	-60.63	1,843.55	-3,400.60	1,667.99	1,599.72	68.26	24.434	
8,700.00	6,327.00	6,297.00	6,327.00	64.63	7.08	-58.80	1,843.55	-3,400.60	1,582.46	1,511.49	70.97	22.296	
8,800.00	6,327.00	6,297.00	6,327.00	67.32	7.08	-56.77	1,843.55	-3,400.60	1,498.73	1,425.04	73.69	20.338	
8,900.00	6,327.00	6,297.00	6,327.00	70.02	7.08	-54.50	1,843.55	-3,400.60	1,417.11	1,340.69	76.41	18.545	
9,000.00	6,327.00	6,297.00	6,327.00	72.73	7.08	-51.95	1,843.55	-3,400.60	1,337.98	1,258.84	79.14	16.906	
9,100.00	6,327.00	6,297.00	6,327.00	75.44	7.08	-49.09	1,843.55	-3,400.60	1,261.83	1,179.95	81.88	15.411	
9,200.00	6,327.00	6,297.00	6,327.00	78.16	7.08	-45.88	1,843.55	-3,400.60	1,189.21	1,104.59	84.62	14.053	
9,300.00	6,327.00	6,297.00	6,327.00	80.89	7.08	-42.26	1,843.55	-3,400.60	1,120.81	1,033.45	87.37	12.829	
9,400.00	6,327.00	6,297.00	6,327.00	83.62	7.08	-38.18	1,843.55	-3,400.60	1,057.46	967.35	90.11	11.735	
9,500.00	6,327.00	6,297.00	6,327.00	86.36	7.08	-33.62	1,843.55	-3,400.60	1,000.12	907.25	92.87	10.769	
9,600.00	6,327.00	6,297.00	6,327.00	89.10	7.08	-28.53	1,843.55	-3,400.60	949.86	854.24	95.62	9.933	
9,700.00	6,327.00	6,297.00	6,327.00	91.84	7.08	-22.93	1,843.55	-3,400.60	907.88	809.50	98.38	9.228	
9,800.00	6,327.00	6,297.00	6,327.00	94.59	7.08	-16.85	1,843.55	-3,400.60	875.36	774.21	101.14	8.655	
9,900.00	6,327.00	6,297.00	6,327.00	97.34	7.08	-10.38	1,843.55	-3,400.60	853.38	749.47	103.91	8.213	
10,000.00	6,327.00	6,297.00	6,327.00	100.09	7.08	-3.66	1,843.55	-3,400.60	842.77	736.10	106.67	7.901	
10,039.97	6,327.00	6,297.00	6,327.00	101.19	7.08	-0.94	1,843.55	-3,400.60	841.82	734.04	107.78	7.811 CC, ES	
10,100.00	6,327.00	6,297.00	6,327.00	102.85	7.08	3.14	1,843.55	-3,400.60	843.96	734.52	109.44	7.712	
10,200.00	6,327.00	6,297.00	6,327.00	105.60	7.08	9.82	1,843.55	-3,400.60	856.89	744.69	112.21	7.637 SF	
10,300.00	6,327.00	6,297.00	6,327.00	108.37	7.08	16.22	1,843.55	-3,400.60	881.06	766.08	114.98	7.663	
10,400.00	6,327.00	6,297.00	6,327.00	111.13	7.08	22.21	1,843.55	-3,400.60	915.58	797.82	117.75	7.775	
10,500.00	6,327.00	6,297.00	6,327.00	113.89	7.08	27.71	1,843.55	-3,400.60	959.31	838.79	120.53	7.959	
10,600.00	6,327.00	6,297.00	6,327.00	116.66	7.08	32.69	1,843.55	-3,400.60	1,011.08	887.78	123.30	8.200	
10,700.00	6,327.00	6,297.00	6,327.00	119.43	7.08	37.16	1,843.55	-3,400.60	1,069.72	943.64	126.08	8.484	
10,800.00	6,327.00	6,297.00	6,327.00	122.20	7.08	41.14	1,843.55	-3,400.60	1,134.15	1,005.29	128.86	8.801	
10,832.68	6,327.00	6,297.00	6,327.00	123.10	7.08	42.34	1,843.55	-3,400.60	1,156.31	1,026.54	129.77	8.910	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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: 8000-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		
0.00	0.00	0.00	1.00	0.00	0.00	-69.97	1,534.03	-4,209.00	4,479.83					
100.00	100.00	99.00	100.00	0.09	0.11	-69.97	1,534.03	-4,209.00	4,479.83	4,479.63	0.20	N/A		
200.00	200.00	199.00	200.00	0.32	0.22	-69.97	1,534.03	-4,209.00	4,479.83	4,479.29	0.54	8,284.363		
300.00	300.00	299.00	300.00	0.54	0.34	-69.97	1,534.03	-4,209.00	4,479.83	4,478.95	0.88	5,102.871		
400.00	400.00	399.00	400.00	0.77	0.45	-69.97	1,534.03	-4,209.00	4,479.83	4,478.62	1.22	3,686.950		
500.00	500.00	499.00	500.00	0.99	0.56	-69.97	1,534.03	-4,209.00	4,479.83	4,478.28	1.55	2,886.123		
600.00	599.98	598.98	599.98	1.22	0.67	-70.00	1,534.03	-4,209.00	4,479.77	4,477.89	1.89	2,372.810		
700.00	699.84	698.84	699.84	1.45	0.79	-70.06	1,534.03	-4,209.00	4,479.61	4,477.38	2.23	2,012.482		
800.00	799.45	798.45	799.45	1.68	0.90	-70.18	1,534.03	-4,209.00	4,479.35	4,476.77	2.58	1,738.977		
900.00	898.70	897.70	898.70	1.94	1.01	-70.33	1,534.03	-4,209.00	4,479.01	4,476.06	2.95	1,518.979		
1,000.00	997.47	996.47	997.47	2.24	1.12	-70.53	1,534.03	-4,209.00	4,478.62	4,475.27	3.36	1,334.800		
1,100.00	1,095.62	1,094.62	1,095.62	2.57	1.23	-70.78	1,534.03	-4,209.00	4,478.22	4,474.42	3.81	1,176.913		
1,200.00	1,193.06	1,192.06	1,193.06	2.97	1.34	-71.06	1,534.03	-4,209.00	4,477.86	4,473.55	4.31	1,040.036		
1,300.00	1,289.64	1,288.64	1,289.64	3.41	1.45	-71.39	1,534.03	-4,209.00	4,477.58	4,472.72	4.86	920.968		
1,400.00	1,385.27	1,384.27	1,385.27	3.92	1.56	-71.77	1,534.03	-4,209.00	4,477.44	4,471.97	5.48	817.444		
1,419.58	1,403.87	1,402.87	1,403.87	4.03	1.58	-71.85	1,534.03	-4,209.00	4,477.44	4,471.83	5.61	798.152		
1,500.00	1,479.82	1,478.82	1,479.82	4.49	1.66	-72.19	1,534.03	-4,209.00	4,477.52	4,471.36	6.15	727.589		
1,538.59	1,515.98	1,514.98	1,515.98	4.73	1.70	-72.36	1,534.03	-4,209.00	4,477.62	4,471.19	6.43	696.208		
1,600.00	1,573.41	1,572.41	1,573.41	5.12	1.77	-72.64	1,534.03	-4,209.00	4,477.87	4,470.98	6.88	650.478		
1,700.00	1,666.91	1,665.91	1,666.91	5.76	1.87	-73.09	1,534.03	-4,209.00	4,478.49	4,470.86	7.63	586.733		
1,800.00	1,760.41	1,759.41	1,760.41	6.42	1.98	-73.54	1,534.03	-4,209.00	4,479.40	4,471.01	8.39	533.715		
1,900.00	1,853.91	1,852.91	1,853.91	7.08	2.08	-74.00	1,534.03	-4,209.00	4,480.59	4,471.43	9.16	489.119		
2,000.00	1,947.41	1,946.41	1,947.41	7.75	2.19	-74.45	1,534.03	-4,209.00	4,482.06	4,472.13	9.93	451.196		
2,100.00	2,040.91	2,039.91	2,040.91	8.43	2.29	-74.90	1,534.03	-4,209.00	4,483.81	4,473.10	10.71	418.620		
2,200.00	2,134.41	2,133.41	2,134.41	9.11	2.40	-75.35	1,534.03	-4,209.00	4,485.84	4,474.35	11.49	390.378		
2,300.00	2,227.91	2,226.91	2,227.91	9.79	2.50	-75.81	1,534.03	-4,209.00	4,488.15	4,475.88	12.27	365.688		
2,400.00	2,321.41	2,320.41	2,321.41	10.47	2.61	-76.26	1,534.03	-4,209.00	4,490.74	4,477.69	13.06	343.940		
2,500.00	2,414.91	2,413.91	2,414.91	11.16	2.71	-76.71	1,534.03	-4,209.00	4,493.61	4,479.77	13.84	324.653		
2,600.00	2,508.41	2,507.41	2,508.41	11.84	2.82	-77.16	1,534.03	-4,209.00	4,496.75	4,482.13	14.63	307.444		
2,700.00	2,601.91	2,600.91	2,601.91	12.53	2.92	-77.61	1,534.03	-4,209.00	4,500.17	4,484.76	15.41	292.003		
2,800.00	2,695.41	2,694.41	2,695.41	13.22	3.03	-78.06	1,534.03	-4,209.00	4,503.87	4,487.68	16.20	278.078		
2,900.00	2,788.91	2,787.91	2,788.91	13.91	3.13	-78.51	1,534.03	-4,209.00	4,507.85	4,490.87	16.98	265.462		
3,000.00	2,882.41	2,881.41	2,882.41	14.60	3.24	-78.95	1,534.03	-4,209.00	4,512.10	4,494.33	17.77	253.984		
3,100.00	2,975.91	2,974.91	2,975.91	15.29	3.34	-79.40	1,534.03	-4,209.00	4,516.62	4,498.07	18.55	243.501		
3,200.00	3,069.41	3,068.41	3,069.41	15.98	3.45	-79.84	1,534.03	-4,209.00	4,521.42	4,502.09	19.33	233.893		
3,300.00	3,162.91	3,161.91	3,162.91	16.68	3.55	-80.29	1,534.03	-4,209.00	4,526.49	4,506.38	20.11	225.059		
3,400.00	3,256.41	3,255.41	3,256.41	17.37	3.66	-80.73	1,534.03	-4,209.00	4,531.83	4,510.94	20.89	216.910		
3,500.00	3,349.91	3,348.91	3,349.91	18.06	3.76	-81.18	1,534.03	-4,209.00	4,537.45	4,515.77	21.67	209.373		
3,600.00	3,443.41	3,442.41	3,443.41	18.76	3.87	-81.62	1,534.03	-4,209.00	4,543.33	4,520.88	22.45	202.385		
3,643.43	3,484.02	3,483.02	3,484.02	19.06	3.91	-81.81	1,534.03	-4,209.00	4,545.97	4,523.18	22.79	199.506		
3,700.00	3,537.10	3,536.10	3,537.10	19.40	3.97	-82.05	1,534.03	-4,209.00	4,549.39	4,526.22	23.17	196.332		
3,800.00	3,631.85	3,630.85	3,631.85	19.90	4.08	-82.45	1,534.03	-4,209.00	4,555.16	4,531.41	23.75	191.803		
3,900.00	3,727.66	3,726.66	3,727.66	20.36	4.19	-82.80	1,534.03	-4,209.00	4,560.51	4,536.22	24.29	187.745		
4,000.00	3,824.41	3,823.41	3,824.41	20.77	4.30	-83.11	1,534.03	-4,209.00	4,565.38	4,540.59	24.79	184.126		
4,100.00	3,921.98	3,920.98	3,921.98	21.15	4.41	-83.38	1,534.03	-4,209.00	4,569.71	4,544.45	25.26	180.913		
4,200.00	4,020.26	4,019.26	4,020.26	21.48	4.52	-83.61	1,534.03	-4,209.00	4,573.43	4,547.75	25.68	178.077		
4,300.00	4,119.12	4,118.12	4,119.12	21.77	4.63	-83.79	1,534.03	-4,209.00	4,576.52	4,550.46	26.06	175.592		
4,400.00	4,218.44	4,217.44	4,218.44	22.01	4.74	-83.93	1,534.03	-4,209.00	4,578.93	4,552.52	26.40	173.432		
4,500.00	4,318.11	4,317.11	4,318.11	22.21	4.85	-84.03	1,534.03	-4,209.00	4,580.63	4,553.93	26.70	171.577		
4,600.00	4,418.00	4,417.00	4,418.00	22.35	4.96	-84.09	1,534.03	-4,209.00	4,581.60	4,554.65	26.95	170.006		
4,682.02	4,500.00	4,499.00	4,500.00	22.44	5.06	-84.10	1,534.03	-4,209.00	4,581.85	4,554.11	17.74	258.325		
4,700.00	4,517.98	4,516.98	4,517.98	22.45	5.08	-84.10	1,534.03	-4,209.00	4,581.85	4,554.07	17.78	257.644		

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 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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: 8000-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		
4,800.00	4,617.98	4,616.98	4,617.98	22.54	5.19	-84.10	1,534.03	-4,209.00	4,581.85	4,563.79	18.06	253.738		
4,900.00	4,717.98	4,716.98	4,717.98	22.64	5.30	-84.10	1,534.03	-4,209.00	4,581.85	4,563.52	18.33	249.923		
5,000.00	4,817.98	4,816.98	4,817.98	22.73	5.41	-84.10	1,534.03	-4,209.00	4,581.85	4,563.24	18.61	246.197		
5,100.00	4,917.98	4,916.98	4,917.98	22.83	5.53	-84.10	1,534.03	-4,209.00	4,581.85	4,562.96	18.89	242.558		
5,200.00	5,017.98	5,016.98	5,017.98	22.92	5.64	-84.10	1,534.03	-4,209.00	4,581.85	4,562.68	19.17	239.004		
5,300.00	5,117.98	5,116.98	5,117.98	23.02	5.75	-84.10	1,534.03	-4,209.00	4,581.85	4,562.40	19.45	235.533		
5,400.00	5,217.98	5,216.98	5,217.98	23.12	5.86	-84.10	1,534.03	-4,209.00	4,581.85	4,562.11	19.74	232.144		
5,500.00	5,317.98	5,316.98	5,317.98	23.23	5.98	-84.10	1,534.03	-4,209.00	4,581.85	4,561.83	20.02	228.833		
5,600.00	5,417.98	5,416.98	5,417.98	23.33	6.09	-84.10	1,534.03	-4,209.00	4,581.85	4,561.54	20.31	225.600		
5,700.00	5,517.98	5,516.98	5,517.98	23.44	6.20	-84.10	1,534.03	-4,209.00	4,581.85	4,561.25	20.60	222.441		
5,800.00	5,617.98	5,616.98	5,617.98	23.55	6.31	-84.10	1,534.03	-4,209.00	4,581.85	4,560.96	20.89	219.356		
5,900.00	5,717.98	5,716.98	5,717.98	23.66	6.42	-84.10	1,534.03	-4,209.00	4,581.85	4,560.67	21.18	216.342		
6,000.00	5,817.98	5,816.98	5,817.98	23.77	6.54	-84.10	1,534.03	-4,209.00	4,581.85	4,560.38	21.47	213.397		
6,031.56	5,849.54	5,848.54	5,849.54	23.80	6.57	-84.10	1,534.03	-4,209.00	4,581.85	4,560.29	21.56	212.482		
6,050.00	5,867.98	5,866.98	5,867.98	23.82	6.59	-84.10	1,534.03	-4,209.00	4,581.50	4,551.46	30.03	152.549		
6,075.00	5,892.92	5,891.92	5,892.92	23.84	6.62	-84.10	1,534.03	-4,209.00	4,579.89	4,549.89	30.00	152.666		
6,100.00	5,917.75	5,916.75	5,917.75	23.86	6.65	-84.09	1,534.03	-4,209.00	4,576.99	4,547.08	29.91	153.023		
6,125.00	5,942.39	5,941.39	5,942.39	23.87	6.68	-84.09	1,534.03	-4,209.00	4,572.80	4,543.03	29.77	153.621		
6,150.00	5,966.77	5,965.77	5,966.77	23.87	6.70	-84.08	1,534.03	-4,209.00	4,567.34	4,537.77	29.57	154.462		
6,175.00	5,990.84	5,989.84	5,990.84	23.87	6.73	-84.07	1,534.03	-4,209.00	4,560.62	4,531.30	29.32	155.550		
6,200.00	6,014.51	6,013.51	6,014.51	23.86	6.76	-84.06	1,534.03	-4,209.00	4,552.66	4,523.64	29.02	156.889		
6,225.00	6,037.74	6,036.74	6,037.74	23.85	6.78	-84.04	1,534.03	-4,209.00	4,543.47	4,514.81	28.67	158.485		
6,250.00	6,060.44	6,059.44	6,060.44	23.84	6.81	-84.03	1,534.03	-4,209.00	4,533.10	4,504.83	28.27	160.345		
6,275.00	6,082.57	6,081.57	6,082.57	23.82	6.83	-84.01	1,534.03	-4,209.00	4,521.56	4,493.73	27.83	162.478		
6,300.00	6,104.06	6,103.06	6,104.06	23.80	6.86	-83.99	1,534.03	-4,209.00	4,508.89	4,481.54	27.34	164.891		
6,325.00	6,124.86	6,123.86	6,124.86	23.77	6.88	-83.97	1,534.03	-4,209.00	4,495.11	4,468.29	26.82	167.589		
6,350.00	6,144.90	6,143.90	6,144.90	23.75	6.90	-83.95	1,534.03	-4,209.00	4,480.28	4,454.02	26.27	170.579		
6,375.00	6,164.12	6,163.12	6,164.12	23.72	6.93	-83.92	1,534.03	-4,209.00	4,464.43	4,438.75	25.68	173.860		
6,400.00	6,182.49	6,181.49	6,182.49	23.69	6.95	-83.89	1,534.03	-4,209.00	4,447.60	4,422.53	25.07	177.425		
6,425.00	6,199.95	6,198.95	6,199.95	23.66	6.97	-83.87	1,534.03	-4,209.00	4,429.84	4,405.40	24.44	181.256		
6,450.00	6,216.44	6,215.44	6,216.44	23.62	6.99	-83.84	1,534.03	-4,209.00	4,411.20	4,387.40	23.80	185.317		
6,475.00	6,231.93	6,230.93	6,231.93	23.59	7.00	-83.80	1,534.03	-4,209.00	4,391.73	4,368.56	23.17	189.545		
6,500.00	6,246.37	6,245.37	6,246.37	23.56	7.02	-83.77	1,534.03	-4,209.00	4,371.49	4,348.93	22.55	193.833		
6,525.00	6,259.72	6,258.72	6,259.72	23.53	7.03	-83.74	1,534.03	-4,209.00	4,350.52	4,328.55	21.97	198.019		
6,550.00	6,271.95	6,270.95	6,271.95	23.50	7.05	-83.70	1,534.03	-4,209.00	4,328.89	4,307.44	21.45	201.851		
6,575.00	6,283.02	6,282.02	6,283.02	23.47	7.06	-83.66	1,534.03	-4,209.00	4,306.66	4,285.65	21.01	204.966		
6,600.00	6,292.90	6,291.90	6,292.90	23.44	7.07	-83.62	1,534.03	-4,209.00	4,283.88	4,263.18	20.71	206.865		
6,625.00	6,301.57	6,300.57	6,301.57	23.42	7.08	-83.58	1,534.03	-4,209.00	4,260.63	4,240.04	20.59	206.902		
6,650.00	6,309.00	6,308.00	6,309.00	23.40	7.09	-83.54	1,534.03	-4,209.00	4,236.96	4,216.22	20.73	204.340		
6,675.00	6,315.16	6,314.16	6,315.16	23.39	7.10	-83.50	1,534.03	-4,209.00	4,212.94	4,191.72	21.22	198.514		
6,700.00	6,320.06	6,319.06	6,320.06	23.38	7.10	-83.46	1,534.03	-4,209.00	4,188.63	4,166.49	22.14	189.183		
6,725.00	6,323.66	6,322.66	6,323.66	23.38	7.11	-83.41	1,534.03	-4,209.00	4,164.11	4,140.62	23.49	177.259		
6,750.00	6,325.96	6,324.96	6,325.96	23.38	7.11	-83.37	1,534.03	-4,209.00	4,139.43	4,114.51	24.92	166.100		
6,775.00	6,326.96	6,325.96	6,326.96	23.40	7.11	-83.32	1,534.03	-4,209.00	4,114.67	4,089.33	25.34	162.380		
6,781.56	6,327.00	6,326.00	6,327.00	23.41	7.11	-83.31	1,534.03	-4,209.00	4,108.18	4,083.05	25.12	163.512		
6,800.00	6,327.00	6,326.00	6,327.00	23.43	7.11	-83.27	1,534.03	-4,209.00	4,089.90	4,064.54	25.36	161.266		
6,900.00	6,327.00	6,326.00	6,327.00	23.71	7.11	-83.08	1,534.03	-4,209.00	3,990.81	3,963.98	26.83	148.736		
7,000.00	6,327.00	6,326.00	6,327.00	24.41	7.11	-82.88	1,534.03	-4,209.00	3,891.78	3,863.21	28.57	136.223		
7,100.00	6,327.00	6,326.00	6,327.00	25.66	7.11	-82.67	1,534.03	-4,209.00	3,792.79	3,762.27	30.51	124.294		
7,200.00	6,327.00	6,326.00	6,327.00	27.36	7.11	-82.45	1,534.03	-4,209.00	3,693.86	3,661.24	32.62	113.237		
7,300.00	6,327.00	6,326.00	6,327.00	29.35	7.11	-82.21	1,534.03	-4,209.00	3,594.98	3,560.13	34.85	103.156		
7,400.00	6,327.00	6,326.00	6,327.00	31.52	7.11	-81.96	1,534.03	-4,209.00	3,496.18	3,459.00	37.18	94.044		

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

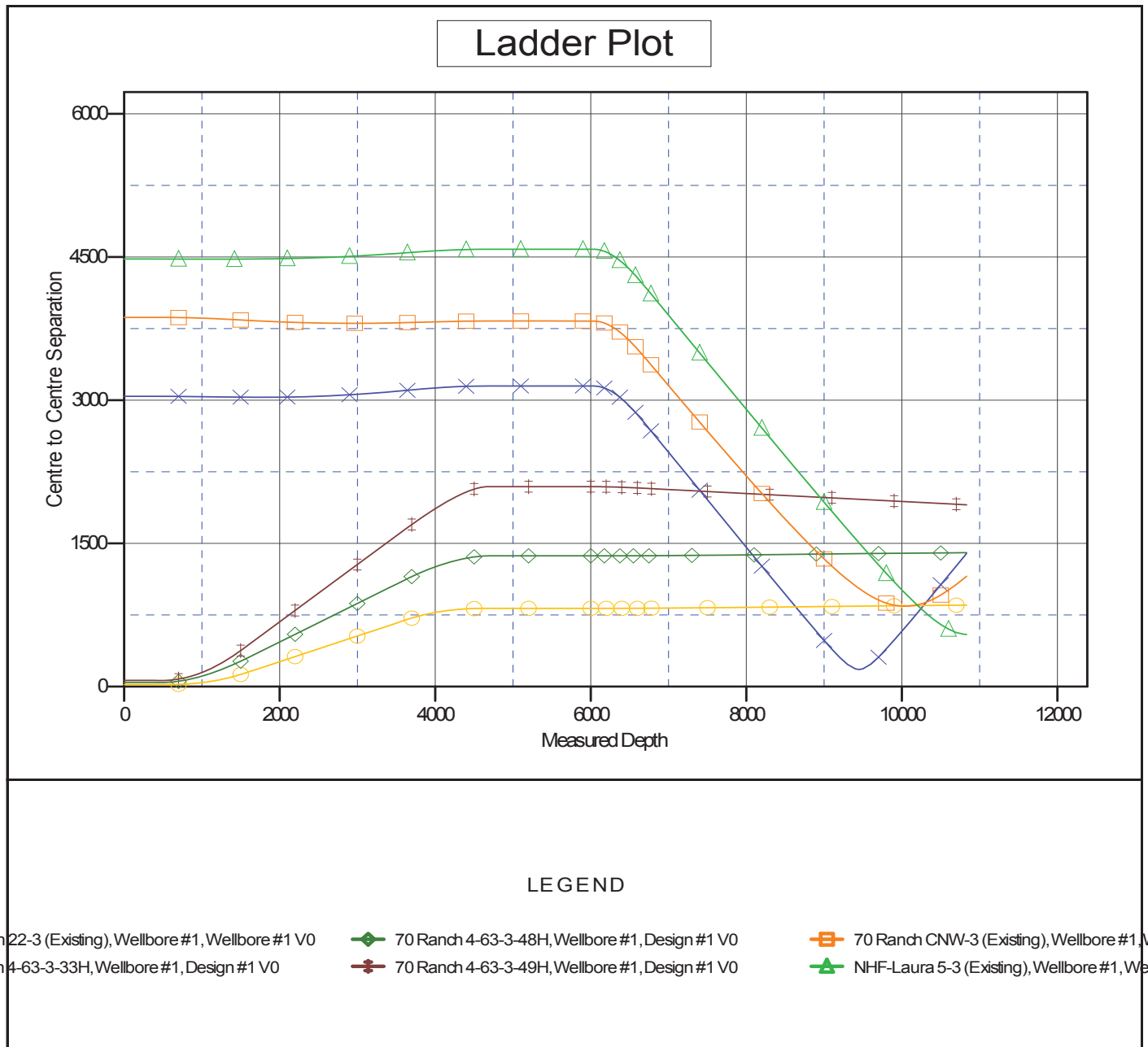
Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	Survey Calculation 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: 8000-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,500.00	6,327.00	6,326.00	6,327.00	33.80	7.11	-81.70	1,534.03	-4,209.00	3,397.44	3,357.86	39.58	85.842		
7,600.00	6,327.00	6,326.00	6,327.00	36.17	7.11	-81.42	1,534.03	-4,209.00	3,298.77	3,256.73	42.04	78.469		
7,700.00	6,327.00	6,326.00	6,327.00	38.60	7.11	-81.12	1,534.03	-4,209.00	3,200.19	3,155.65	44.55	71.836		
7,800.00	6,327.00	6,326.00	6,327.00	41.08	7.11	-80.81	1,534.03	-4,209.00	3,101.71	3,054.61	47.10	65.857		
7,900.00	6,327.00	6,326.00	6,327.00	43.60	7.11	-80.47	1,534.03	-4,209.00	3,003.32	2,953.64	49.68	60.455		
8,000.00	6,327.00	6,326.00	6,327.00	46.16	7.11	-80.12	1,534.03	-4,209.00	2,905.04	2,852.75	52.29	55.560		
8,100.00	6,327.00	6,326.00	6,327.00	48.74	7.11	-79.73	1,534.03	-4,209.00	2,806.88	2,751.96	54.92	51.112		
8,200.00	6,327.00	6,326.00	6,327.00	51.35	7.11	-79.32	1,534.03	-4,209.00	2,708.86	2,651.29	57.56	47.058		
8,300.00	6,327.00	6,326.00	6,327.00	53.98	7.11	-78.88	1,534.03	-4,209.00	2,610.98	2,550.75	60.23	43.351		
8,400.00	6,327.00	6,326.00	6,327.00	56.62	7.11	-78.40	1,534.03	-4,209.00	2,513.28	2,450.37	62.91	39.952		
8,500.00	6,327.00	6,326.00	6,327.00	59.28	7.11	-77.89	1,534.03	-4,209.00	2,415.76	2,350.16	65.60	36.827		
8,600.00	6,327.00	6,326.00	6,327.00	61.95	7.11	-77.33	1,534.03	-4,209.00	2,318.45	2,250.16	68.30	33.946		
8,700.00	6,327.00	6,326.00	6,327.00	64.63	7.11	-76.72	1,534.03	-4,209.00	2,221.39	2,150.38	71.01	31.284		
8,800.00	6,327.00	6,326.00	6,327.00	67.32	7.11	-76.06	1,534.03	-4,209.00	2,124.59	2,050.87	73.72	28.818		
8,900.00	6,327.00	6,326.00	6,327.00	70.02	7.11	-75.33	1,534.03	-4,209.00	2,028.11	1,951.66	76.45	26.530		
9,000.00	6,327.00	6,326.00	6,327.00	72.73	7.11	-74.54	1,534.03	-4,209.00	1,931.98	1,852.81	79.18	24.401		
9,100.00	6,327.00	6,326.00	6,327.00	75.44	7.11	-73.66	1,534.03	-4,209.00	1,836.27	1,754.36	81.91	22.417		
9,200.00	6,327.00	6,326.00	6,327.00	78.16	7.11	-72.68	1,534.03	-4,209.00	1,741.04	1,656.39	84.65	20.567		
9,300.00	6,327.00	6,326.00	6,327.00	80.89	7.11	-71.59	1,534.03	-4,209.00	1,646.38	1,558.98	87.40	18.838		
9,400.00	6,327.00	6,326.00	6,327.00	83.62	7.11	-70.36	1,534.03	-4,209.00	1,552.38	1,462.23	90.15	17.221		
9,500.00	6,327.00	6,326.00	6,327.00	86.36	7.11	-68.98	1,534.03	-4,209.00	1,459.18	1,366.29	92.90	15.707		
9,600.00	6,327.00	6,326.00	6,327.00	89.10	7.11	-67.42	1,534.03	-4,209.00	1,366.95	1,271.30	95.65	14.290		
9,700.00	6,327.00	6,326.00	6,327.00	91.84	7.11	-65.62	1,534.03	-4,209.00	1,275.89	1,177.47	98.41	12.965		
9,800.00	6,327.00	6,326.00	6,327.00	94.59	7.11	-63.56	1,534.03	-4,209.00	1,186.26	1,085.09	101.17	11.725		
9,900.00	6,327.00	6,326.00	6,327.00	97.34	7.11	-61.16	1,534.03	-4,209.00	1,098.43	994.49	103.94	10.568		
10,000.00	6,327.00	6,326.00	6,327.00	100.09	7.11	-58.35	1,534.03	-4,209.00	1,012.86	906.15	106.70	9.492		
10,100.00	6,327.00	6,326.00	6,327.00	102.85	7.11	-55.03	1,534.03	-4,209.00	930.17	820.70	109.47	8.497		
10,200.00	6,327.00	6,326.00	6,327.00	105.60	7.11	-51.08	1,534.03	-4,209.00	851.20	738.96	112.24	7.584		
10,300.00	6,327.00	6,326.00	6,327.00	108.37	7.11	-46.34	1,534.03	-4,209.00	777.10	662.08	115.01	6.757		
10,400.00	6,327.00	6,326.00	6,327.00	111.13	7.11	-40.66	1,534.03	-4,209.00	709.37	591.59	117.79	6.023		
10,500.00	6,327.00	6,326.00	6,327.00	113.89	7.11	-33.87	1,534.03	-4,209.00	650.03	529.47	120.56	5.392		
10,600.00	6,327.00	6,326.00	6,327.00	116.66	7.11	-25.85	1,534.03	-4,209.00	601.56	478.22	123.34	4.877		
10,700.00	6,327.00	6,326.00	6,327.00	119.43	7.11	-16.64	1,534.03	-4,209.00	566.75	440.64	126.11	4.494		
10,800.00	6,327.00	6,326.00	6,327.00	122.20	7.11	-6.52	1,534.03	-4,209.00	548.21	419.32	128.89	4.253		
10,832.68	6,327.00	6,326.00	6,327.00	123.10	7.11	-3.11	1,534.03	-4,209.00	546.00	416.20	129.80	4.206 CC, ES, SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	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 @ 4559.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 4-63-3-32H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

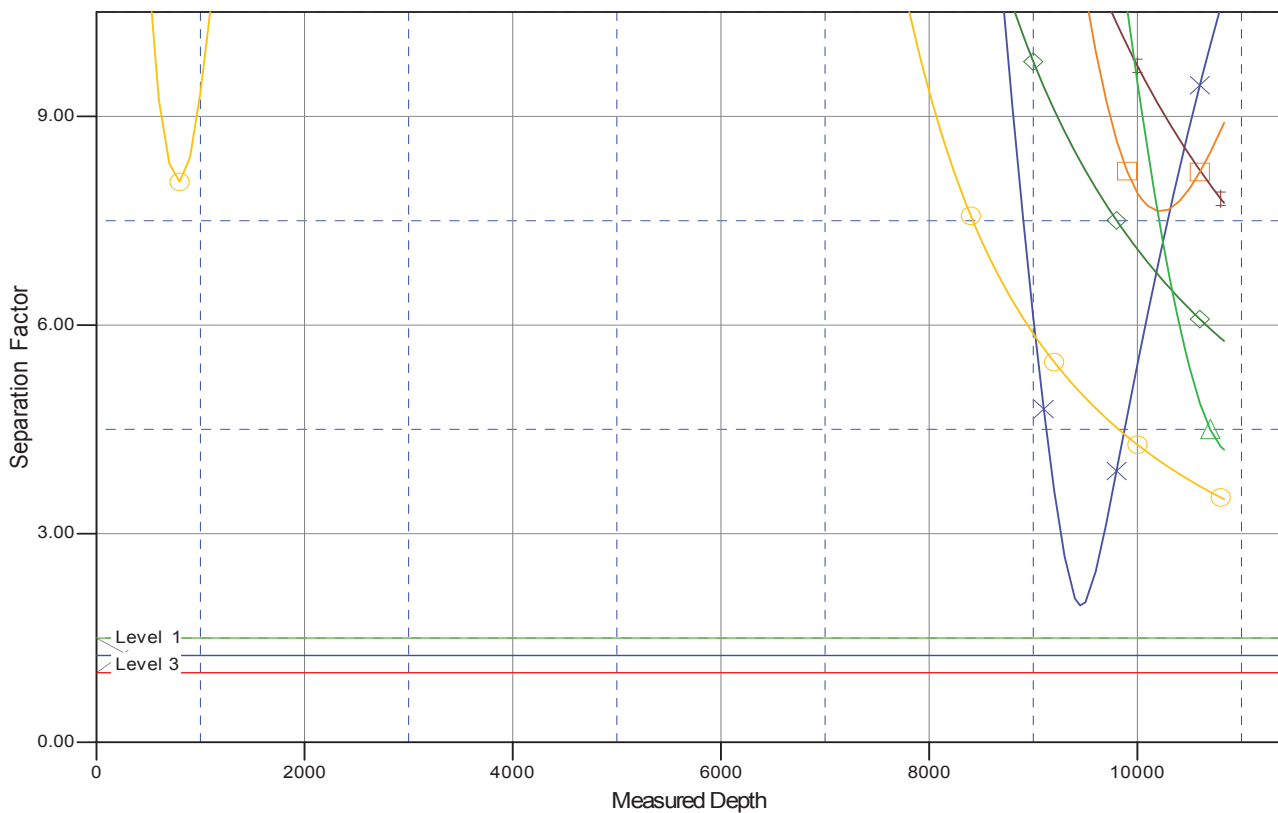


Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-32H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-32H	Survey Calculation 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 @ 4559.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 4-63-3-32H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

Separation Factor Plot



LEGEND

ch22-3 (Existing), Wellbore #1, Wellbore #1 V0 70 Ranch 4-63-3-48H, Wellbore #1, Design #1 V0 70 Ranch CNW-3 (Existing), Wellbore #1, Wellbore #1 V0
ch 4-63-3-33H, Wellbore #1, Design #1 V0 70 Ranch 4-63-3-49H, Wellbore #1, Design #1 V0 NHF-Laura 5-3 (Existing), Wellbore #1, Wellbore #1 V0