

Well Planning Proposal FOR

**Bill Barrett Corp.
70 Ranch 5-63-27-49H
Weld Co., CO**

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

Presented By:

Pat Rasmussen
Regional Manager

Bret Wolford
Well Planner



Sharewell
Energy Services, LP



Bill Barrett Corp.
Project: Weld Co., CO
Site: Sec.27-T5N-R63W
Well: 70 Ranch 5-63-27-49H
Wellbore: Wellbore #1
Design: Design #1
Lat: 40° 22' 6.600 N
Long: 104° 24' 47.412 W
Pad GL: 4594.00
KB: WELL @ 4612.00usft



PROJECT DETAILS: Weld Co., CO

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



Azimuths to Grid North
True North: -0.70°
Magnetic North: 7.88°

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

WELL DETAILS: 70 Ranch 5-63-27-49H

+N/-S	+E/-W	Northing	Ground Level:	4594.00	Latitude	Longitude	Slot
0.00	0.00	1378940.872	Easting	3302826.474	40° 22' 6.600 N	104° 24' 47.412 W	

WELLBORE TARGET DETAILS (LAT/LONG)

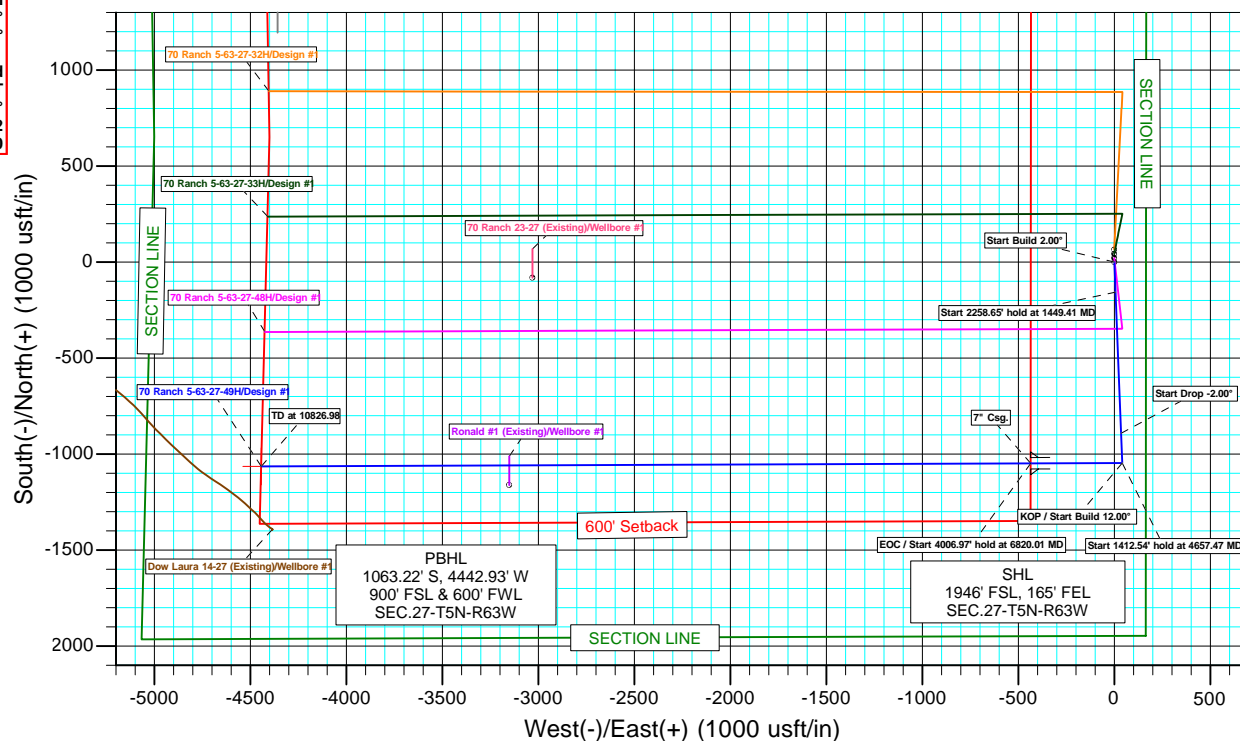
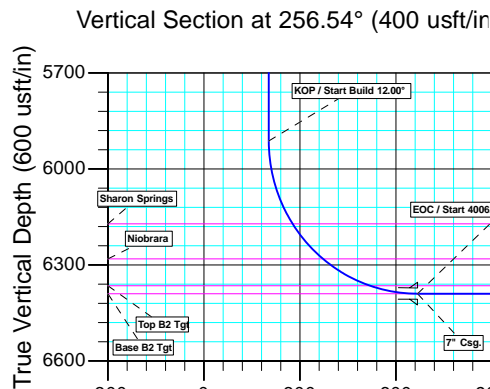
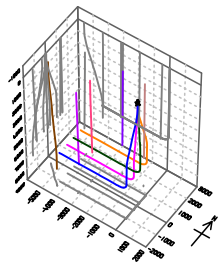
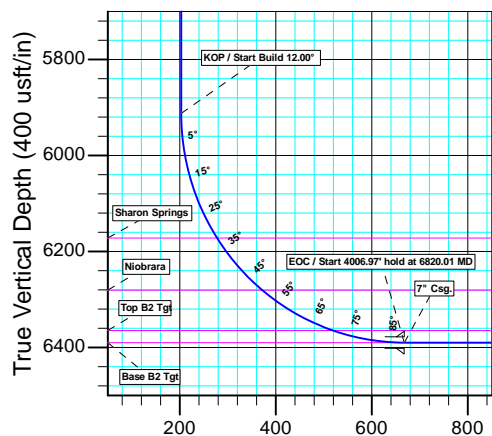
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
70 Ranch 5-63-27-49H PBHL	6390.00	-1063.22	-4442.93	40° 21' 56.628 N	104° 25' 44.976 W	

CASING DETAILS

TVD	MD	Name	Size
6390.00	6820.01	7" Csg.	7

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
262.00	262.00	Pierre
4012.00	4167.08	Terry/Sussex
4662.00	4819.47	Shannon
6172.00	6344.31	Sharon Springs
6281.00	6490.90	Niobrara
6365.00	6664.80	Top B2 Tgt
6390.00	6817.86	Base B2 Tgt



SECTION DETAILS

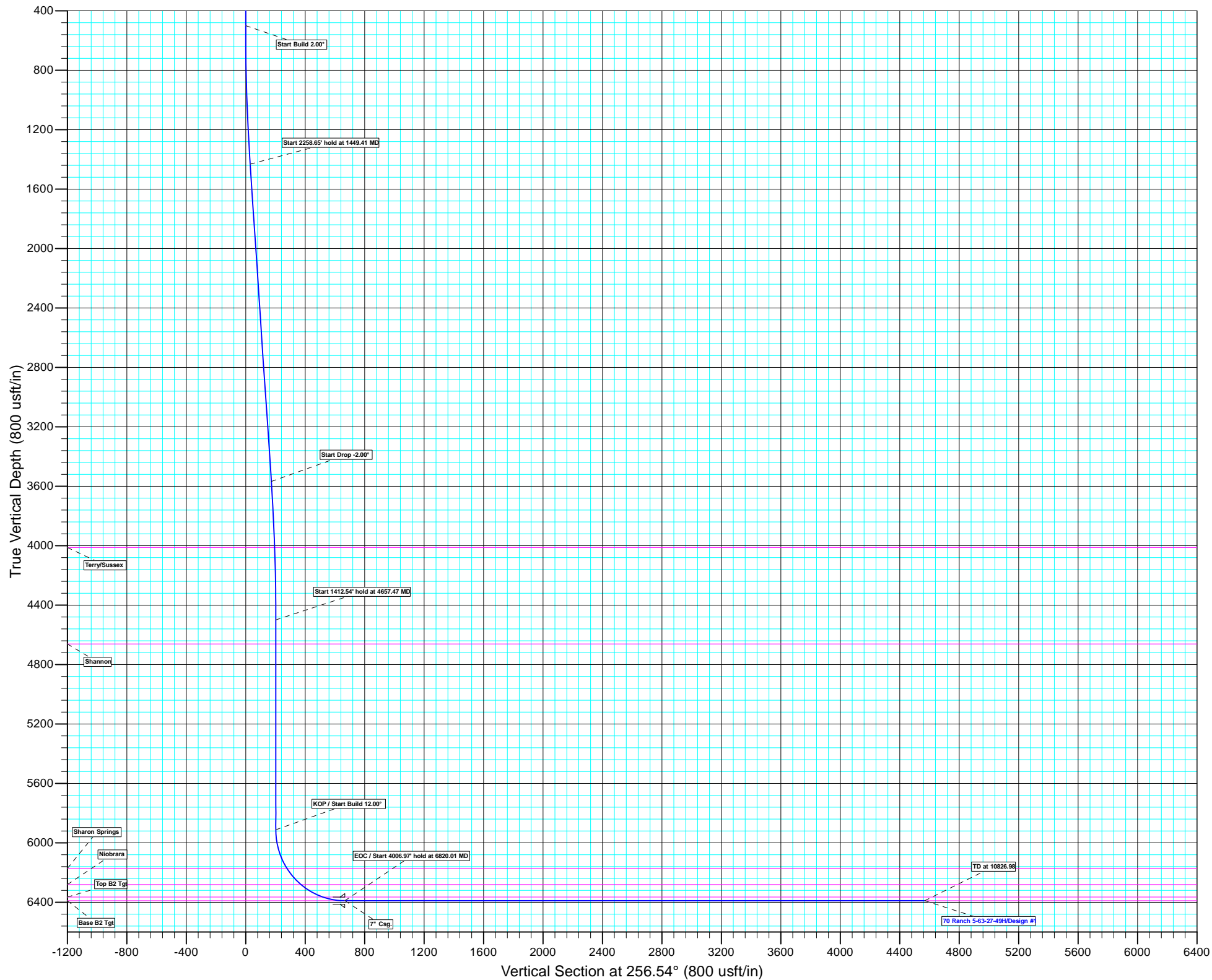
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00°
1449.41	18.99	177.73	1432.12	-155.76	6.18	2.00	177.73	30.25	Start 2258.65' hold at 1449.41 MD
3708.06	18.99	177.73	3567.88	-890.09	35.29	0.00	0.00	172.83	Start Drop -2.00°
4657.47	0.00	0.00	4500.00	-1045.85	41.47	2.00	180.00	203.08	Start 1412.54' hold at 4657.47 MD
6070.01	0.00	0.00	5912.54	-1045.85	41.47	0.00	0.00	203.08	KOP / Start Build 12.00°
6820.01	90.00	269.78	6390.00	-1047.70	-436.00	12.00	269.78	667.86	EOC / Start 4006.97' hold at 6820.01 MD
10826.98	90.00	269.78	6390.00	-1063.22	-4442.93	0.00	0.00	4568.38	TD at 10826.98

Vertical Section at 256.54° (600 usft/in)

Plan: Design #1 (70 Ranch 5-63-27-49H/Wellbore #1)

Created By: Bret Wolford

Date: 14:12, February 14 2012





Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.27-T5N-R63W

70 Ranch 5-63-27-49H

Wellbore #1

Plan: Design #1

Standard Planning Report

14 February, 2012



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	Grid
Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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

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

Well	70 Ranch 5-63-27-49H					
Well Position	+N/-S	0.00 usft	Northing:	1,378,940.872 usft	Latitude:	40° 22' 6.600 N
	+E/-W	0.00 usft	Easting:	3,302,826.474 usft	Longitude:	104° 24' 47.412 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,594.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2012/02/14	8.58	67.06	53,084

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	256.54

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	
1,449.41	18.99	177.73	1,432.12	-155.76	6.18	2.00	2.00	0.00	177.73	
3,708.06	18.99	177.73	3,567.88	-890.09	35.29	0.00	0.00	0.00	0.00	
4,657.47	0.00	0.00	4,500.00	-1,045.85	41.47	2.00	-2.00	0.00	180.00	
6,070.01	0.00	0.00	5,912.54	-1,045.85	41.47	0.00	0.00	0.00	0.00	
6,820.01	90.00	269.78	6,390.00	-1,047.70	-436.00	12.00	12.00	0.00	269.78	70 Ranch 5-63-27-49H
10,826.98	90.00	269.78	6,390.00	-1,063.22	-4,442.93	0.00	0.00	0.00	0.00	70 Ranch 5-63-27-49H

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	Grid
Well:	70 Ranch 5-63-27-49H	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
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
262.00	0.00	0.00	262.00	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	177.73	599.98	-1.74	0.07	0.34	2.00	2.00	0.00
700.00	4.00	177.73	699.84	-6.97	0.28	1.35	2.00	2.00	0.00
800.00	6.00	177.73	799.45	-15.68	0.62	3.04	2.00	2.00	0.00
900.00	8.00	177.73	898.70	-27.86	1.10	5.41	2.00	2.00	0.00
1,000.00	10.00	177.73	997.47	-43.49	1.72	8.44	2.00	2.00	0.00
1,100.00	12.00	177.73	1,095.62	-62.55	2.48	12.15	2.00	2.00	0.00
1,200.00	14.00	177.73	1,193.06	-85.03	3.37	16.51	2.00	2.00	0.00
1,300.00	16.00	177.73	1,289.64	-110.89	4.40	21.53	2.00	2.00	0.00
1,400.00	18.00	177.73	1,385.27	-140.10	5.55	27.20	2.00	2.00	0.00
Start 2258.65' hold at 1449.41 MD									
1,449.41	18.99	177.73	1,432.12	-155.76	6.18	30.25	2.00	2.00	0.00
1,500.00	18.99	177.73	1,479.96	-172.21	6.83	33.44	0.00	0.00	0.00
1,600.00	18.99	177.73	1,574.52	-204.72	8.12	39.75	0.00	0.00	0.00
1,700.00	18.99	177.73	1,669.08	-237.23	9.41	46.07	0.00	0.00	0.00
1,800.00	18.99	177.73	1,763.64	-269.75	10.69	52.38	0.00	0.00	0.00
1,900.00	18.99	177.73	1,858.20	-302.26	11.98	58.69	0.00	0.00	0.00
2,000.00	18.99	177.73	1,952.76	-334.77	13.27	65.00	0.00	0.00	0.00
2,100.00	18.99	177.73	2,047.31	-367.28	14.56	71.32	0.00	0.00	0.00
2,200.00	18.99	177.73	2,141.87	-399.79	15.85	77.63	0.00	0.00	0.00
2,300.00	18.99	177.73	2,236.43	-432.30	17.14	83.94	0.00	0.00	0.00
2,400.00	18.99	177.73	2,330.99	-464.82	18.43	90.26	0.00	0.00	0.00
2,500.00	18.99	177.73	2,425.55	-497.33	19.72	96.57	0.00	0.00	0.00
2,600.00	18.99	177.73	2,520.11	-529.84	21.01	102.88	0.00	0.00	0.00
2,700.00	18.99	177.73	2,614.67	-562.35	22.30	109.19	0.00	0.00	0.00
2,800.00	18.99	177.73	2,709.22	-594.86	23.59	115.51	0.00	0.00	0.00
2,900.00	18.99	177.73	2,803.78	-627.38	24.87	121.82	0.00	0.00	0.00
3,000.00	18.99	177.73	2,898.34	-659.89	26.16	128.13	0.00	0.00	0.00
3,100.00	18.99	177.73	2,992.90	-692.40	27.45	134.45	0.00	0.00	0.00
3,200.00	18.99	177.73	3,087.46	-724.91	28.74	140.76	0.00	0.00	0.00
3,300.00	18.99	177.73	3,182.02	-757.42	30.03	147.07	0.00	0.00	0.00
3,400.00	18.99	177.73	3,276.58	-789.93	31.32	153.39	0.00	0.00	0.00
3,500.00	18.99	177.73	3,371.14	-822.45	32.61	159.70	0.00	0.00	0.00
3,600.00	18.99	177.73	3,465.69	-854.96	33.90	166.01	0.00	0.00	0.00
Start Drop -2.00°									
3,708.06	18.99	177.73	3,567.88	-890.09	35.29	172.83	0.00	0.00	0.00
3,800.00	17.15	177.73	3,655.28	-918.58	36.42	178.37	2.00	-2.00	0.00
3,900.00	15.15	177.73	3,751.32	-946.37	37.52	183.76	2.00	-2.00	0.00
4,000.00	13.15	177.73	3,848.29	-970.80	38.49	188.51	2.00	-2.00	0.00
4,100.00	11.15	177.73	3,946.04	-991.83	39.32	192.59	2.00	-2.00	0.00
Terry/Sussex									
4,167.08	9.81	177.73	4,012.00	-1,004.02	39.81	194.96	2.00	-2.00	0.00
4,200.00	9.15	177.73	4,044.47	-1,009.43	40.02	196.01	2.00	-2.00	0.00
4,300.00	7.15	177.73	4,143.46	-1,023.60	40.58	198.76	2.00	-2.00	0.00
4,400.00	5.15	177.73	4,242.88	-1,034.30	41.01	200.84	2.00	-2.00	0.00
4,500.00	3.15	177.73	4,342.61	-1,041.53	41.29	202.24	2.00	-2.00	0.00

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Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	Grid
Well:	70 Ranch 5-63-27-49H	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)
4,600.00	1.15	177.73	4,442.53	-1,045.28	41.44	202.97	2.00	-2.00	0.00
Start 1412.54' hold at 4657.47 MD									
4,657.47	0.00	0.00	4,500.00	-1,045.85	41.47	203.08	2.00	-2.00	-309.25
4,700.00	0.00	0.00	4,542.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
4,800.00	0.00	0.00	4,642.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
Shannon									
4,819.47	0.00	0.00	4,662.00	-1,045.85	41.47	203.08	0.00	0.00	0.00
4,900.00	0.00	0.00	4,742.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,000.00	0.00	0.00	4,842.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,100.00	0.00	0.00	4,942.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,200.00	0.00	0.00	5,042.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,300.00	0.00	0.00	5,142.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,400.00	0.00	0.00	5,242.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,500.00	0.00	0.00	5,342.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,600.00	0.00	0.00	5,442.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,700.00	0.00	0.00	5,542.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,800.00	0.00	0.00	5,642.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
5,900.00	0.00	0.00	5,742.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
6,000.00	0.00	0.00	5,842.53	-1,045.85	41.47	203.08	0.00	0.00	0.00
KOP / Start Build 12.00°									
6,070.01	0.00	0.00	5,912.54	-1,045.85	41.47	203.08	0.00	0.00	0.00
6,075.00	0.60	269.78	5,917.53	-1,045.85	41.44	203.10	12.00	12.00	0.00
6,100.00	3.60	269.78	5,942.51	-1,045.86	40.52	204.00	12.00	12.00	0.00
6,125.00	6.60	269.78	5,967.41	-1,045.87	38.30	206.16	12.00	12.00	0.00
6,150.00	9.60	269.78	5,992.16	-1,045.88	34.78	209.59	12.00	12.00	0.00
6,175.00	12.60	269.78	6,016.69	-1,045.90	29.97	214.27	12.00	12.00	0.00
6,200.00	15.60	269.78	6,040.93	-1,045.92	23.88	220.20	12.00	12.00	0.00
6,225.00	18.60	269.78	6,064.82	-1,045.95	16.53	227.35	12.00	12.00	0.00
6,250.00	21.60	269.78	6,088.30	-1,045.98	7.94	235.71	12.00	12.00	0.00
6,275.00	24.60	269.78	6,111.29	-1,046.02	-1.87	245.26	12.00	12.00	0.00
6,300.00	27.60	269.78	6,133.74	-1,046.06	-12.86	255.96	12.00	12.00	0.00
6,325.00	30.60	269.78	6,155.58	-1,046.11	-25.02	267.80	12.00	12.00	0.00
Sharon Springs									
6,344.31	32.92	269.78	6,172.00	-1,046.15	-35.18	277.69	12.00	12.00	0.00
6,350.00	33.60	269.78	6,176.76	-1,046.16	-38.30	280.73	12.00	12.00	0.00
6,375.00	36.60	269.78	6,197.21	-1,046.22	-52.67	294.72	12.00	12.00	0.00
6,400.00	39.60	269.78	6,216.88	-1,046.28	-68.10	309.73	12.00	12.00	0.00
6,425.00	42.60	269.78	6,235.72	-1,046.34	-84.53	325.73	12.00	12.00	0.00
6,450.00	45.60	269.78	6,253.67	-1,046.41	-101.93	342.66	12.00	12.00	0.00
6,475.00	48.60	269.78	6,270.68	-1,046.48	-120.24	360.49	12.00	12.00	0.00
Niobrara									
6,490.90	50.51	269.78	6,281.00	-1,046.53	-132.34	372.27	12.00	12.00	0.00
6,500.00	51.60	269.78	6,286.72	-1,046.55	-139.41	379.15	12.00	12.00	0.00
6,525.00	54.60	269.78	6,301.73	-1,046.63	-159.40	398.61	12.00	12.00	0.00
6,550.00	57.60	269.78	6,315.67	-1,046.71	-180.15	418.81	12.00	12.00	0.00
6,575.00	60.60	269.78	6,328.51	-1,046.79	-201.60	439.69	12.00	12.00	0.00
6,600.00	63.60	269.78	6,340.21	-1,046.88	-223.69	461.19	12.00	12.00	0.00
6,625.00	66.60	269.78	6,350.73	-1,046.97	-246.36	483.26	12.00	12.00	0.00
6,650.00	69.60	269.78	6,360.06	-1,047.06	-269.56	505.84	12.00	12.00	0.00
Top B2 Tgt									
6,664.80	71.38	269.78	6,365.00	-1,047.11	-283.51	519.42	12.00	12.00	0.00
6,675.00	72.60	269.78	6,368.15	-1,047.15	-293.20	528.86	12.00	12.00	0.00
6,700.00	75.60	269.78	6,375.00	-1,047.24	-317.25	552.26	12.00	12.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	Grid
Well:	70 Ranch 5-63-27-49H	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)
6,725.00	78.60	269.78	6,380.58	-1,047.34	-341.61	575.98	12.00	12.00	0.00
6,750.00	81.60	269.78	6,384.88	-1,047.43	-366.24	599.95	12.00	12.00	0.00
6,775.00	84.60	269.78	6,387.88	-1,047.53	-391.05	624.11	12.00	12.00	0.00
6,800.00	87.60	269.78	6,389.59	-1,047.62	-415.99	648.39	12.00	12.00	0.00
Base B2 Tgt									
6,817.86	89.74	269.78	6,390.00	-1,047.69	-433.85	665.77	12.00	12.00	0.00
EOC / Start 4006.97' hold at 6820.01 MD - 7" Csg.									
6,820.01	90.00	269.78	6,390.00	-1,047.70	-435.99	667.86	12.00	12.00	0.00
6,900.00	90.00	269.78	6,390.00	-1,048.01	-515.98	745.72	0.00	0.00	0.00
7,000.00	90.00	269.78	6,390.00	-1,048.40	-615.98	843.07	0.00	0.00	0.00
7,100.00	90.00	269.78	6,390.00	-1,048.79	-715.98	940.41	0.00	0.00	0.00
7,200.00	90.00	269.78	6,390.00	-1,049.17	-815.98	1,037.75	0.00	0.00	0.00
7,300.00	90.00	269.78	6,390.00	-1,049.56	-915.98	1,135.10	0.00	0.00	0.00
7,400.00	90.00	269.78	6,390.00	-1,049.95	-1,015.98	1,232.44	0.00	0.00	0.00
7,500.00	90.00	269.78	6,390.00	-1,050.34	-1,115.98	1,329.79	0.00	0.00	0.00
7,600.00	90.00	269.78	6,390.00	-1,050.72	-1,215.98	1,427.13	0.00	0.00	0.00
7,700.00	90.00	269.78	6,390.00	-1,051.11	-1,315.98	1,524.47	0.00	0.00	0.00
7,800.00	90.00	269.78	6,390.00	-1,051.50	-1,415.98	1,621.82	0.00	0.00	0.00
7,900.00	90.00	269.78	6,390.00	-1,051.89	-1,515.98	1,719.16	0.00	0.00	0.00
8,000.00	90.00	269.78	6,390.00	-1,052.27	-1,615.98	1,816.50	0.00	0.00	0.00
8,100.00	90.00	269.78	6,390.00	-1,052.66	-1,715.98	1,913.85	0.00	0.00	0.00
8,200.00	90.00	269.78	6,390.00	-1,053.05	-1,815.97	2,011.19	0.00	0.00	0.00
8,300.00	90.00	269.78	6,390.00	-1,053.43	-1,915.97	2,108.53	0.00	0.00	0.00
8,400.00	90.00	269.78	6,390.00	-1,053.82	-2,015.97	2,205.88	0.00	0.00	0.00
8,500.00	90.00	269.78	6,390.00	-1,054.21	-2,115.97	2,303.22	0.00	0.00	0.00
8,600.00	90.00	269.78	6,390.00	-1,054.60	-2,215.97	2,400.56	0.00	0.00	0.00
8,700.00	90.00	269.78	6,390.00	-1,054.98	-2,315.97	2,497.91	0.00	0.00	0.00
8,800.00	90.00	269.78	6,390.00	-1,055.37	-2,415.97	2,595.25	0.00	0.00	0.00
8,900.00	90.00	269.78	6,390.00	-1,055.76	-2,515.97	2,692.59	0.00	0.00	0.00
9,000.00	90.00	269.78	6,390.00	-1,056.15	-2,615.97	2,789.94	0.00	0.00	0.00
9,100.00	90.00	269.78	6,390.00	-1,056.53	-2,715.97	2,887.28	0.00	0.00	0.00
9,200.00	90.00	269.78	6,390.00	-1,056.92	-2,815.97	2,984.62	0.00	0.00	0.00
9,300.00	90.00	269.78	6,390.00	-1,057.31	-2,915.97	3,081.97	0.00	0.00	0.00
9,400.00	90.00	269.78	6,390.00	-1,057.70	-3,015.97	3,179.31	0.00	0.00	0.00
9,500.00	90.00	269.78	6,390.00	-1,058.08	-3,115.96	3,276.65	0.00	0.00	0.00
9,600.00	90.00	269.78	6,390.00	-1,058.47	-3,215.96	3,374.00	0.00	0.00	0.00
9,700.00	90.00	269.78	6,390.00	-1,058.86	-3,315.96	3,471.34	0.00	0.00	0.00
9,800.00	90.00	269.78	6,390.00	-1,059.24	-3,415.96	3,568.68	0.00	0.00	0.00
9,900.00	90.00	269.78	6,390.00	-1,059.63	-3,515.96	3,666.03	0.00	0.00	0.00
10,000.00	90.00	269.78	6,390.00	-1,060.02	-3,615.96	3,763.37	0.00	0.00	0.00
10,100.00	90.00	269.78	6,390.00	-1,060.41	-3,715.96	3,860.71	0.00	0.00	0.00
10,200.00	90.00	269.78	6,390.00	-1,060.79	-3,815.96	3,958.06	0.00	0.00	0.00
10,300.00	90.00	269.78	6,390.00	-1,061.18	-3,915.96	4,055.40	0.00	0.00	0.00
10,400.00	90.00	269.78	6,390.00	-1,061.57	-4,015.96	4,152.74	0.00	0.00	0.00
10,500.00	90.00	269.78	6,390.00	-1,061.96	-4,115.96	4,250.09	0.00	0.00	0.00
10,600.00	90.00	269.78	6,390.00	-1,062.34	-4,215.96	4,347.43	0.00	0.00	0.00
10,700.00	90.00	269.78	6,390.00	-1,062.73	-4,315.96	4,444.77	0.00	0.00	0.00
10,800.00	90.00	269.78	6,390.00	-1,063.12	-4,415.95	4,542.12	0.00	0.00	0.00
TD at 10826.98 - 70 Ranch 5-63-27-49H PBHL									
10,826.98	90.00	269.78	6,390.00	-1,063.22	-4,442.93	4,568.38	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4612.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4612.00usft
Site:	Sec.27-T5N-R63W	North Reference:	Grid
Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
70 Ranch 5-63-27-49H F	0.00	359.31	6,390.00	-1,063.22	-4,442.93	1,377,877.650	3,298,383.540	40° 21' 56.628 N	104° 25' 44.976 W
- plan hits target center									
- Point									

Casing Points				
Measured Depth	Vertical Depth	Name		Hole Diameter
(usft)	(usft)			(")
6,820.01	6,390.00	7" Csg.		8-3/4

Formations					
Measured Depth	Vertical Depth	Name		Dip	Dip Direction
(usft)	(usft)			(°)	(°)
262.00	262.00	Pierre		0.00	
4,167.08	4,012.00	Terry/Sussex		0.00	
4,819.47	4,662.00	Shannon		0.00	
6,344.31	6,172.00	Sharon Springs		0.00	
6,490.90	6,281.00	Niobrara		0.00	
6,664.80	6,365.00	Top B2 Tgt		0.00	
6,817.86	6,390.00	Base B2 Tgt		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	Start Build 2.00°
1,449.41	1,432.12	-155.76	6.18	Start 2258.65' hold at 1449.41 MD
3,708.06	3,567.88	-890.09	35.29	Start Drop -2.00°
4,657.47	4,500.00	-1,045.85	41.47	Start 1412.54' hold at 4657.47 MD
6,070.01	5,912.54	-1,045.85	41.47	KOP / Start Build 12.00°
6,820.01	6,390.00	-1,047.70	-436.00	EOC / Start 4006.97' hold at 6820.01 MD
10,826.98	6,390.00	-1,063.22	-4,442.93	TD at 10826.98



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.27-T5N-R63W

70 Ranch 5-63-27-49H

Wellbore #1

Design #1

Anticollision Report

14 February, 2012



Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

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

Survey Tool Program		Date	02/14/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	10,826.98	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec.27-T5N-R63W						
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	465.99	467.99	65.57	63.73	35.751	CC
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	500.00	501.96	65.57	63.58	33.002	ES
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	10,826.98	10,725.79	1,953.67	1,705.32	7.867	SF
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	466.33	467.33	43.71	41.88	23.843	CC
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	500.00	500.99	43.71	41.73	22.025	ES
70 Ranch 5-63-27-33H - Wellbore #1 - Design #1	10,826.98	10,642.55	1,301.50	1,053.10	5.240	SF
70 Ranch 5-63-27-48H - Wellbore #1 - Design #1	753.76	755.70	21.84	18.88	7.380	CC
70 Ranch 5-63-27-48H - Wellbore #1 - Design #1	800.00	802.15	21.90	18.76	6.976	ES
70 Ranch 5-63-27-48H - Wellbore #1 - Design #1	10,826.98	10,668.40	700.00	451.28	2.814	SF
Dow Laura 14-27 (Existing) - Wellbore #1 - Wellbore #1	10,769.98	6,578.70	327.99	178.04	2.187	CC, ES
Dow Laura 14-27 (Existing) - Wellbore #1 - Wellbore #1	10,800.00	6,578.31	329.36	178.57	2.184	SF
Ronald #1 (Existing) - Wellbore #1 - Wellbore #1	9,535.35	6,314.68	44.15	-57.19	0.436	Level 1, CC, ES, SF

Offset Design		Sec.27-T5N-R63W - 70 Ranch 5-63-27-32H - Wellbore #1 - Design #1										Offset Site Error:		0.00 usft	
Survey Program:		0-MWD										Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
0.00	0.00	2.00	0.00	0.00	0.00	-0.70	65.56	-0.80	65.57						
100.00	100.00	102.00	100.00	0.09	0.10	-0.70	65.56	-0.80	65.57	65.38	0.19	347.286			
200.00	200.00	202.00	200.00	0.32	0.32	-0.70	65.56	-0.80	65.57	64.93	0.64	102.719			
300.00	300.00	302.00	300.00	0.54	0.55	-0.70	65.56	-0.80	65.57	64.48	1.09	60.273			
400.00	400.00	402.00	400.00	0.77	0.77	-0.70	65.56	-0.80	65.57	64.03	1.54	42.649			
465.99	465.99	467.99	465.99	0.91	0.92	-0.70	65.56	-0.80	65.57	63.73	1.83	35.751	CC		
500.00	500.00	501.96	499.96	0.99	1.00	-0.70	65.56	-0.80	65.57	63.58	1.99	33.002	ES		
600.00	599.98	600.00	597.98	1.19	1.22	-0.65	67.31	-0.71	69.08	66.67	2.41	28.651			
700.00	699.84	696.55	694.40	1.38	1.44	-0.52	72.29	-0.45	79.46	76.63	2.83	28.071			
800.00	799.45	792.14	789.63	1.59	1.66	-0.38	80.43	-0.02	96.61	93.35	3.26	29.600			
900.00	898.70	885.73	882.56	1.84	1.90	-0.26	91.46	0.56	120.40	116.70	3.70	32.516			
1,000.00	997.47	976.75	972.55	2.13	2.17	-0.17	105.09	1.28	150.65	146.51	4.14	36.360			
1,100.00	1,095.62	1,064.68	1,059.03	2.48	2.46	-0.11	120.96	2.12	187.13	182.54	4.58	40.838			
1,200.00	1,193.06	1,149.10	1,141.56	2.88	2.77	-0.08	138.68	3.05	229.56	224.55	5.02	45.752			
1,300.00	1,289.64	1,232.54	1,222.63	3.35	3.11	-0.07	158.40	4.09	277.50	272.05	5.45	50.920			
1,400.00	1,385.27	1,318.28	1,305.83	3.88	3.48	-0.07	179.11	5.18	328.95	323.07	5.88	55.941			

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.27-T5N-R63W - 70 Ranch 5-63-27-32H - Wellbore #1 - Design #1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
1,449.41	1,432.12	1,359.97	1,346.28	4.16	3.66	-0.08	189.18	5.71	355.46	349.37	6.09	58.389	
1,500.00	1,479.96	1,402.43	1,387.48	4.47	3.85	-0.09	199.43	6.25	382.98	376.66	6.32	60.620	
1,600.00	1,574.52	1,486.35	1,468.90	5.08	4.24	-0.11	219.69	7.32	437.36	430.58	6.78	64.501	
1,700.00	1,669.08	1,570.26	1,550.33	5.70	4.63	-0.12	239.96	8.39	491.75	484.50	7.25	67.793	
1,800.00	1,763.64	1,654.18	1,631.75	6.33	5.02	-0.13	260.23	9.45	546.14	538.41	7.73	70.651	
1,900.00	1,858.20	1,738.10	1,713.18	6.96	5.42	-0.14	280.49	10.52	600.52	592.31	8.21	73.118	
2,000.00	1,952.76	1,822.01	1,794.61	7.60	5.82	-0.15	300.76	11.59	654.91	646.21	8.70	75.267	
2,100.00	2,047.31	1,905.93	1,876.03	8.25	6.23	-0.16	321.02	12.66	709.30	700.10	9.19	77.154	
2,200.00	2,141.87	1,989.85	1,957.46	8.89	6.63	-0.16	341.29	13.73	763.68	754.00	9.69	78.817	
2,300.00	2,236.43	2,073.76	2,038.88	9.54	7.04	-0.17	361.55	14.79	818.07	807.88	10.19	80.295	
2,400.00	2,330.99	2,157.68	2,120.31	10.19	7.45	-0.17	381.82	15.86	872.46	861.77	10.69	81.616	
2,500.00	2,425.55	2,241.60	2,201.74	10.84	7.86	-0.18	402.08	16.93	926.85	915.65	11.19	82.802	
2,600.00	2,520.11	2,325.51	2,283.16	11.49	8.27	-0.18	422.35	18.00	981.23	969.53	11.70	83.872	
2,700.00	2,614.67	2,409.43	2,364.59	12.15	8.68	-0.18	442.62	19.06	1,035.62	1,023.41	12.21	84.841	
2,800.00	2,709.23	2,493.35	2,446.01	12.80	9.10	-0.19	462.88	20.13	1,090.01	1,077.29	12.72	85.722	
2,900.00	2,803.78	2,577.27	2,527.44	13.46	9.51	-0.19	483.15	21.20	1,144.39	1,131.17	13.23	86.526	
3,000.00	2,898.34	2,661.18	2,608.87	14.11	9.92	-0.19	503.41	22.27	1,198.78	1,185.04	13.74	87.262	
3,100.00	2,992.90	2,745.10	2,690.29	14.77	10.34	-0.19	523.68	23.34	1,253.17	1,238.92	14.25	87.938	
3,200.00	3,087.46	2,829.02	2,771.72	15.42	10.75	-0.20	543.94	24.40	1,307.56	1,292.79	14.76	88.561	
3,300.00	3,182.02	2,912.93	2,853.15	16.08	11.17	-0.20	564.21	25.47	1,361.94	1,346.66	15.28	89.136	
3,400.00	3,276.58	2,996.85	2,934.57	16.74	11.58	-0.20	584.48	26.54	1,416.33	1,400.54	15.80	89.669	
3,500.00	3,371.14	3,080.77	3,016.00	17.40	12.00	-0.20	604.74	27.61	1,470.72	1,454.41	16.31	90.163	
3,600.00	3,465.69	3,164.68	3,097.42	18.06	12.42	-0.20	625.01	28.68	1,525.10	1,508.28	16.83	90.623	
3,708.06	3,567.88	3,255.37	3,185.41	18.77	12.87	-0.20	646.91	29.83	1,583.88	1,566.49	17.39	91.085	
3,800.00	3,655.28	3,333.31	3,261.04	19.27	13.25	-0.20	665.73	30.82	1,632.63	1,614.66	17.97	90.857	
3,900.00	3,751.32	3,419.81	3,344.97	19.68	13.68	-0.20	686.62	31.92	1,682.80	1,664.23	18.57	90.639	
4,000.00	3,848.29	3,508.00	3,430.55	20.06	14.12	-0.19	707.92	33.04	1,729.92	1,710.78	19.14	90.374	
4,100.00	3,946.04	3,597.79	3,517.67	20.40	14.57	-0.17	729.60	34.19	1,773.93	1,754.24	19.69	90.071	
4,200.00	4,044.47	3,689.05	3,606.23	20.70	15.02	-0.15	751.64	35.35	1,814.79	1,794.57	20.22	89.737	
4,300.00	4,143.46	3,781.69	3,696.11	20.95	15.48	-0.13	774.01	36.53	1,852.44	1,831.71	20.73	89.377	
4,400.00	4,242.88	3,875.58	3,787.22	21.17	15.95	-0.10	796.68	37.72	1,886.83	1,865.63	21.20	88.996	
4,500.00	4,342.61	4,124.41	4,030.66	21.34	16.84	-0.03	847.75	40.41	1,914.86	1,892.93	21.93	87.323	
4,600.00	4,442.53	4,424.29	4,328.54	21.47	17.56	0.02	881.07	42.17	1,929.71	1,907.07	22.65	85.206	
4,657.47	4,500.00	4,595.85	4,500.00	21.53	17.80	0.03	886.08	42.43	1,931.93	1,892.63	39.30	49.155	
4,700.00	4,542.53	4,638.38	4,542.53	21.57	17.85	0.03	886.08	42.43	1,931.93	1,892.54	39.39	49.045	
4,800.00	4,642.53	4,738.38	4,642.53	21.65	17.97	0.03	886.08	42.43	1,931.93	1,892.34	39.59	48.799	
4,900.00	4,742.53	4,838.38	4,742.53	21.73	18.09	0.03	886.08	42.43	1,931.93	1,892.14	39.79	48.551	
5,000.00	4,842.53	4,938.38	4,842.53	21.82	18.21	0.03	886.08	42.43	1,931.93	1,891.93	40.00	48.300	
5,100.00	4,942.53	5,038.38	4,942.53	21.90	18.33	0.03	886.08	42.43	1,931.93	1,891.72	40.21	48.047	
5,200.00	5,042.53	5,138.38	5,042.53	21.99	18.46	0.03	886.08	42.43	1,931.93	1,891.51	40.42	47.792	
5,300.00	5,142.53	5,238.38	5,142.53	22.08	18.58	0.03	886.08	42.43	1,931.93	1,891.29	40.64	47.536	
5,400.00	5,242.53	5,338.38	5,242.53	22.18	18.71	0.03	886.08	42.43	1,931.93	1,891.07	40.86	47.277	
5,500.00	5,342.53	5,438.38	5,342.53	22.27	18.84	0.03	886.08	42.43	1,931.93	1,890.84	41.09	47.018	
5,600.00	5,442.53	5,538.38	5,442.53	22.37	18.97	0.03	886.08	42.43	1,931.93	1,890.61	41.32	46.757	
5,700.00	5,542.53	5,638.38	5,542.53	22.47	19.11	0.03	886.08	42.43	1,931.93	1,890.38	41.55	46.495	
5,800.00	5,642.53	5,738.38	5,642.53	22.57	19.24	0.03	886.08	42.43	1,931.93	1,890.14	41.79	46.232	
5,900.00	5,742.53	5,838.38	5,742.53	22.67	19.38	0.03	886.08	42.43	1,931.93	1,889.90	42.03	45.968	
6,000.00	5,842.53	5,938.38	5,842.53	22.78	19.52	0.03	886.08	42.43	1,931.93	1,889.66	42.27	45.704	
6,070.01	5,912.54	6,008.39	5,912.54	22.85	19.62	0.03	886.08	42.43	1,931.93	1,889.49	42.44	45.519	
6,075.00	5,917.53	6,013.37	5,917.52	22.85	19.62	0.03	886.08	42.41	1,931.93	1,903.82	28.11	68.719	
6,100.00	5,942.51	6,038.33	5,942.46	22.88	19.66	0.03	886.08	41.49	1,931.93	1,903.73	28.20	68.502	
6,125.00	5,967.41	6,063.29	5,967.32	22.91	19.69	0.03	886.08	39.28	1,931.94	1,903.65	28.29	68.293	

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	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		
6,150.00	5,992.16	6,088.25	5,992.03	22.94	19.72	0.03	886.08	35.77	1,931.96	1,903.59	28.37	68.089		
6,175.00	6,016.69	6,113.21	6,016.53	22.96	19.75	0.03	886.09	30.97	1,931.98	1,903.53	28.46	67.889		
6,200.00	6,040.93	6,138.18	6,040.74	22.99	19.78	0.03	886.09	24.90	1,932.01	1,903.47	28.54	67.690		
6,225.00	6,064.82	6,163.14	6,064.60	23.02	19.82	0.03	886.10	17.57	1,932.05	1,903.42	28.63	67.491		
6,250.00	6,088.30	6,188.10	6,088.04	23.05	19.85	0.03	886.11	9.01	1,932.09	1,903.37	28.71	67.287		
6,275.00	6,111.29	6,213.06	6,111.01	23.08	19.88	0.03	886.11	-0.77	1,932.14	1,903.33	28.81	67.074		
6,300.00	6,133.74	6,238.03	6,133.43	23.10	19.91	0.03	886.12	-11.74	1,932.19	1,903.28	28.90	66.848		
6,325.00	6,155.58	6,263.00	6,155.25	23.13	19.95	0.03	886.13	-23.86	1,932.25	1,903.23	29.01	66.602		
6,350.00	6,176.76	6,287.96	6,176.41	23.16	19.98	0.04	886.15	-37.11	1,932.31	1,903.18	29.13	66.330		
6,375.00	6,197.21	6,312.93	6,196.85	23.20	20.02	0.04	886.16	-51.44	1,932.38	1,903.11	29.27	66.025		
6,400.00	6,216.88	6,337.90	6,216.51	23.23	20.06	0.04	886.17	-66.83	1,932.45	1,903.03	29.42	65.679		
6,425.00	6,235.72	6,362.87	6,235.34	23.27	20.10	0.04	886.19	-83.22	1,932.53	1,902.93	29.60	65.285		
6,450.00	6,253.67	6,387.84	6,253.29	23.30	20.15	0.04	886.20	-100.58	1,932.61	1,902.80	29.81	64.837		
6,475.00	6,270.68	6,412.81	6,270.31	23.34	20.20	0.04	886.22	-118.85	1,932.70	1,902.65	30.04	64.328		
6,500.00	6,286.72	6,437.79	6,286.35	23.39	20.26	0.04	886.24	-137.99	1,932.79	1,902.47	30.32	63.753		
6,525.00	6,301.73	6,462.76	6,301.37	23.44	20.33	0.04	886.25	-157.94	1,932.89	1,902.26	30.63	63.108		
6,550.00	6,315.67	6,487.74	6,315.33	23.49	20.40	0.04	886.27	-178.65	1,932.98	1,902.00	30.98	62.390		
6,575.00	6,328.51	6,512.72	6,328.19	23.55	20.48	0.05	886.29	-200.06	1,933.09	1,901.71	31.38	61.602		
6,600.00	6,340.21	6,537.70	6,339.91	23.61	20.58	0.05	886.31	-222.12	1,933.19	1,901.37	31.83	60.743		
6,625.00	6,350.73	6,562.69	6,350.46	23.69	20.68	0.05	886.33	-244.76	1,933.30	1,900.98	32.32	59.819		
6,650.00	6,360.06	6,587.67	6,359.81	23.77	20.80	0.05	886.35	-267.93	1,933.41	1,900.55	32.86	58.837		
6,675.00	6,368.15	6,612.66	6,367.94	23.86	20.94	0.05	886.37	-291.55	1,933.52	1,900.07	33.45	57.803		
6,700.00	6,375.00	6,637.65	6,374.82	23.96	21.09	0.05	886.39	-315.57	1,933.64	1,899.55	34.09	56.727		
6,725.00	6,380.58	6,662.64	6,380.44	24.07	21.27	0.05	886.42	-339.92	1,933.75	1,899.99	34.77	55.618		
6,750.00	6,384.88	6,687.63	6,384.77	24.20	21.47	0.05	886.44	-364.53	1,933.87	1,898.38	35.49	54.488		
6,775.00	6,387.88	6,712.62	6,387.81	24.34	21.69	0.05	886.46	-389.34	1,933.99	1,897.74	36.25	53.347		
6,800.00	6,389.59	6,737.62	6,389.55	24.49	21.93	0.05	886.48	-414.27	1,934.11	1,897.06	37.05	52.205		
6,820.01	6,390.00	6,757.63	6,390.00	24.63	22.14	0.05	886.50	-434.28	1,934.20	1,896.50	37.71	51.298		
6,900.00	6,390.00	6,837.62	6,390.00	25.30	23.13	0.05	886.57	-514.26	1,934.58	1,894.02	40.56	47.697		
7,000.00	6,390.00	6,937.62	6,390.00	26.43	24.66	0.05	886.66	-614.26	1,935.06	1,890.58	44.48	43.505		
7,100.00	6,390.00	7,037.62	6,390.00	27.88	26.47	0.05	886.75	-714.26	1,935.54	1,886.80	48.73	39.718		
7,200.00	6,390.00	7,137.62	6,390.00	29.62	28.47	0.05	886.84	-814.26	1,936.01	1,882.77	53.24	36.363		
7,300.00	6,390.00	7,237.62	6,390.00	31.57	30.63	0.05	886.93	-914.26	1,936.49	1,878.54	57.94	33.420		
7,400.00	6,390.00	7,337.61	6,390.00	33.70	32.90	0.05	887.02	-1,014.26	1,936.96	1,874.17	62.80	30.844		
7,500.00	6,390.00	7,437.61	6,390.00	35.94	35.25	0.05	887.10	-1,114.26	1,937.44	1,869.67	67.77	28.588		
7,600.00	6,390.00	7,537.61	6,390.00	38.28	37.68	0.05	887.19	-1,214.26	1,937.92	1,865.08	72.84	26.605		
7,700.00	6,390.00	7,637.61	6,390.00	40.69	40.16	0.05	887.28	-1,314.25	1,938.39	1,860.41	77.98	24.857		
7,800.00	6,390.00	7,737.61	6,390.00	43.16	42.68	0.05	887.37	-1,414.25	1,938.87	1,855.68	83.19	23.307		
7,900.00	6,390.00	7,837.61	6,390.00	45.68	45.24	0.05	887.46	-1,514.25	1,939.35	1,850.90	88.44	21.927		
8,000.00	6,390.00	7,937.61	6,390.00	48.23	47.83	0.05	887.55	-1,614.25	1,939.82	1,846.08	93.74	20.693		
8,100.00	6,390.00	8,037.61	6,390.00	50.81	50.44	0.05	887.64	-1,714.25	1,940.30	1,841.22	99.08	19.584		
8,200.00	6,390.00	8,137.60	6,390.00	53.42	53.08	0.05	887.73	-1,814.25	1,940.77	1,836.33	104.44	18.582		
8,300.00	6,390.00	8,237.60	6,390.00	56.05	55.73	0.05	887.82	-1,914.25	1,941.25	1,831.42	109.83	17.675		
8,400.00	6,390.00	8,337.60	6,390.00	58.69	58.40	0.05	887.90	-2,014.25	1,941.73	1,826.48	115.24	16.849		
8,500.00	6,390.00	8,437.60	6,390.00	61.36	61.08	0.05	887.99	-2,114.25	1,942.20	1,821.53	120.67	16.095		
8,600.00	6,390.00	8,537.60	6,390.00	64.03	63.77	0.05	888.08	-2,214.24	1,942.68	1,816.56	126.12	15.403		
8,700.00	6,390.00	8,637.60	6,390.00	66.72	66.47	0.05	888.17	-2,314.24	1,943.16	1,811.57	131.58	14.768		
8,800.00	6,390.00	8,737.60	6,390.00	69.42	69.18	0.05	888.26	-2,414.24	1,943.63	1,806.57	137.06	14.181		
8,900.00	6,390.00	8,837.60	6,390.00	72.12	71.90	0.05	888.35	-2,514.24	1,944.11	1,801.56	142.54	13.639		
9,000.00	6,390.00	8,937.60	6,390.00	74.84	74.63	0.05	888.44	-2,614.24	1,944.58	1,796.54	148.04	13.135		
9,100.00	6,390.00	9,037.59	6,390.00	77.56	77.36	0.05	888.53	-2,714.24	1,945.06	1,791.51	153.55	12.668		
9,200.00	6,390.00	9,137.59	6,390.00	80.29	80.10	0.05	888.62	-2,814.24	1,945.54	1,786.48	159.06	12.232		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.27-T5N-R63W - 70 Ranch 5-63-27-32H - Wellbore #1 - Design #1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,300.00	6,390.00	9,237.59	6,390.00	83.02	82.84	0.05	888.70	-2,914.24	1,946.01	1,781.43	164.58	11.824	
9,400.00	6,390.00	9,337.59	6,390.00	85.76	85.59	0.05	888.79	-3,014.23	1,946.49	1,776.38	170.11	11.443	
9,500.00	6,390.00	9,437.59	6,390.00	88.50	88.34	0.05	888.88	-3,114.23	1,946.97	1,771.33	175.64	11.085	
9,600.00	6,390.00	9,537.59	6,390.00	91.25	91.09	0.05	888.97	-3,214.23	1,947.44	1,766.26	181.18	10.749	
9,700.00	6,390.00	9,637.59	6,390.00	94.00	93.85	0.05	889.06	-3,314.23	1,947.92	1,761.20	186.72	10.432	
9,800.00	6,390.00	9,737.59	6,390.00	96.76	96.61	0.05	889.15	-3,414.23	1,948.39	1,756.13	192.27	10.134	
9,900.00	6,390.00	9,837.59	6,390.00	99.51	99.37	0.05	889.24	-3,514.23	1,948.87	1,751.05	197.82	9.852	
10,000.00	6,390.00	9,937.58	6,390.00	102.27	102.14	0.05	889.33	-3,614.23	1,949.35	1,745.97	203.38	9.585	
10,100.00	6,390.00	10,037.58	6,390.00	105.04	104.91	0.05	889.42	-3,714.23	1,949.82	1,740.89	208.94	9.332	
10,200.00	6,390.00	10,137.58	6,390.00	107.80	107.68	0.05	889.50	-3,814.23	1,950.30	1,735.80	214.50	9.092	
10,300.00	6,390.00	10,237.58	6,390.00	110.57	110.45	0.05	889.59	-3,914.22	1,950.78	1,730.71	220.06	8.865	
10,400.00	6,390.00	10,337.58	6,390.00	113.34	113.23	0.05	889.68	-4,014.22	1,951.25	1,725.62	225.63	8.648	
10,500.00	6,390.00	10,437.58	6,390.00	116.11	116.00	0.05	889.77	-4,114.22	1,951.73	1,720.53	231.20	8.442	
10,600.00	6,390.00	10,537.58	6,390.00	118.89	118.78	0.05	889.86	-4,214.22	1,952.20	1,715.43	236.77	8.245	
10,700.00	6,390.00	10,637.58	6,390.00	121.66	121.56	0.05	889.95	-4,314.22	1,952.68	1,710.33	242.35	8.057	
10,800.00	6,390.00	10,725.79	6,390.00	124.44	124.02	0.40	890.03	-4,402.43	1,953.19	1,705.59	247.60	7.889	
10,826.98	6,390.00	10,725.79	6,390.00	125.19	124.02	1.19	890.03	-4,402.43	1,953.67	1,705.32	248.35	7.867 SF	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	1.00	0.00	0.00	0.00	-0.70	43.71	-0.54	43.71					
100.00	100.00	101.00	100.00	0.09	0.09	-0.70	43.71	-0.54	43.71	43.52	0.19	234.306		
200.00	200.00	201.00	200.00	0.32	0.32	-0.70	43.71	-0.54	43.71	43.08	0.64	68.719		
300.00	300.00	301.00	300.00	0.54	0.54	-0.70	43.71	-0.54	43.71	42.63	1.09	40.264		
400.00	400.00	401.00	400.00	0.77	0.77	-0.70	43.71	-0.54	43.71	42.18	1.54	28.474		
466.33	466.33	467.33	466.33	0.92	0.92	-0.70	43.71	-0.54	43.71	41.88	1.83	23.843 CC		
500.00	500.00	500.99	499.99	0.99	0.99	-0.70	43.71	-0.54	43.71	41.73	1.98	22.025 ES		
600.00	599.98	600.00	598.98	1.19	1.22	-0.31	45.42	-0.19	47.17	44.76	2.41	19.567		
700.00	699.84	697.86	696.72	1.38	1.44	0.50	50.14	0.78	57.20	54.37	2.83	20.186		
800.00	799.45	796.85	795.56	1.59	1.67	1.01	55.53	1.87	71.32	68.07	3.26	21.905		
900.00	898.70	895.29	893.85	1.84	1.89	1.20	60.88	2.97	88.89	85.21	3.68	24.134		
1,000.00	997.47	993.06	991.47	2.13	2.13	1.21	66.19	4.05	109.87	105.76	4.11	26.712		
1,100.00	1,095.62	1,090.04	1,088.30	2.48	2.36	1.13	71.47	5.12	134.25	129.70	4.55	29.535		
1,200.00	1,193.06	1,186.11	1,184.22	2.88	2.59	1.00	76.69	6.19	161.99	157.01	4.98	32.532		
1,300.00	1,289.64	1,281.16	1,279.12	3.35	2.81	0.85	81.86	7.24	193.06	187.64	5.41	35.654		
1,400.00	1,385.27	1,375.06	1,372.87	3.88	3.04	0.69	86.96	8.29	227.42	221.57	5.85	38.871		
1,449.41	1,432.12	1,421.00	1,418.74	4.16	3.15	0.61	89.46	8.79	245.60	239.53	6.07	40.473		
1,500.00	1,479.96	1,467.88	1,465.55	4.47	3.26	0.54	92.01	9.31	264.63	258.32	6.31	41.953		
1,600.00	1,574.52	1,560.53	1,558.06	5.08	3.49	0.42	97.05	10.34	302.23	295.44	6.79	44.537		
1,700.00	1,669.08	1,653.19	1,650.58	5.70	3.71	0.33	102.09	11.37	339.83	332.56	7.27	46.738		
1,800.00	1,763.64	1,745.85	1,743.10	6.33	3.94	0.26	107.12	12.40	377.43	369.67	7.76	48.630		
1,900.00	1,858.20	1,838.51	1,835.61	6.96	4.16	0.20	112.16	13.42	415.04	406.78	8.26	50.273		
2,000.00	1,952.76	1,931.17	1,928.13	7.60	4.39	0.15	117.20	14.45	452.64	443.89	8.75	51.710		
2,100.00	2,047.31	2,023.83	2,020.65	8.25	4.61	0.11	122.24	15.48	490.25	480.99	9.25	52.977		
2,200.00	2,141.87	2,116.49	2,113.16	8.89	4.84	0.07	127.28	16.51	527.85	518.09	9.76	54.100		
2,300.00	2,236.43	2,209.15	2,205.68	9.54	5.06	0.04	132.31	17.53	565.46	555.20	10.26	55.103		
2,400.00	2,330.99	2,301.81	2,298.20	10.19	5.29	0.01	137.35	18.56	603.06	592.29	10.77	56.003		
2,500.00	2,425.55	2,394.47	2,390.71	10.84	5.51	-0.01	142.39	19.59	640.67	629.39	11.28	56.815		
2,600.00	2,520.11	2,487.13	2,483.23	11.49	5.74	-0.03	147.43	20.62	678.27	666.49	11.79	57.550		
2,700.00	2,614.67	2,579.79	2,575.75	12.15	5.96	-0.05	152.47	21.64	715.88	703.58	12.30	58.219		
2,800.00	2,709.23	2,672.45	2,668.26	12.80	6.19	-0.07	157.51	22.67	753.48	740.68	12.81	58.830		
2,900.00	2,803.78	2,765.11	2,760.78	13.46	6.41	-0.09	162.54	23.70	791.09	777.77	13.32	59.391		
3,000.00	2,898.34	2,857.77	2,853.30	14.11	6.64	-0.10	167.58	24.72	828.69	814.86	13.83	59.906		
3,100.00	2,992.90	2,950.43	2,945.81	14.77	6.87	-0.11	172.62	25.75	866.30	851.95	14.35	60.381		
3,200.00	3,087.46	3,043.09	3,038.33	15.42	7.09	-0.12	177.66	26.78	903.91	889.04	14.86	60.821		
3,300.00	3,182.02	3,135.75	3,130.85	16.08	7.32	-0.14	182.70	27.81	941.51	926.14	15.38	61.229		
3,400.00	3,276.58	3,228.40	3,223.36	16.74	7.54	-0.15	187.73	28.83	979.12	963.23	15.89	61.609		
3,500.00	3,371.14	3,321.06	3,315.88	17.40	7.77	-0.16	192.77	29.86	1,016.72	1,000.32	16.41	61.963		
3,600.00	3,465.69	3,413.72	3,408.40	18.06	7.99	-0.16	197.81	30.89	1,054.33	1,037.40	16.93	62.293		
3,708.06	3,567.88	3,513.85	3,508.37	18.77	8.24	-0.17	203.25	32.00	1,094.97	1,077.48	17.48	62.626		
3,800.00	3,655.28	3,599.58	3,593.97	19.27	8.45	-0.18	207.92	32.95	1,128.17	1,110.14	18.03	62.587		
3,900.00	3,751.32	3,693.98	3,688.23	19.68	8.68	-0.17	213.05	34.00	1,161.14	1,142.57	18.57	62.512		
4,000.00	3,848.29	3,789.48	3,783.57	20.06	8.91	-0.17	218.24	35.06	1,190.80	1,171.71	19.10	62.355		
4,100.00	3,946.04	3,885.95	3,879.90	20.40	9.15	-0.15	223.49	36.13	1,217.11	1,197.52	19.59	62.126		
4,200.00	4,044.47	3,983.28	3,977.08	20.70	9.38	-0.13	228.78	37.20	1,240.05	1,219.99	20.05	61.833		
4,300.00	4,143.46	4,081.35	4,074.99	20.95	9.62	-0.10	234.11	38.29	1,259.57	1,239.08	20.49	61.481		
4,400.00	4,242.88	4,180.04	4,173.53	21.17	9.86	-0.07	239.48	39.39	1,275.66	1,254.78	20.89	61.074		
4,500.00	4,342.61	4,279.23	4,272.57	21.34	10.11	-0.04	244.87	40.49	1,288.30	1,267.05	21.25	60.616		
4,600.00	4,442.53	4,404.32	4,397.50	21.47	10.39	0.01	251.11	41.76	1,297.16	1,275.54	21.62	59.985		
4,657.47	4,500.00	4,506.85	4,500.00	21.53	10.57	0.03	252.87	42.12	1,298.72	1,266.66	32.06	40.512		
4,700.00	4,542.53	4,549.38	4,542.53	21.57	10.64	0.03	252.87	42.12	1,298.72	1,266.55	32.18	40.364		
4,800.00	4,642.53	4,649.38	4,642.53	21.65	10.84	0.03	252.87	42.12	1,298.72	1,266.27	32.45	40.018		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	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	4,742.53	4,749.38	4,742.53	21.73	11.05	0.03	252.87	42.12	1,298.72	1,265.98	32.75	39.661		
5,000.00	4,842.53	4,849.38	4,842.53	21.82	11.26	0.03	252.87	42.12	1,298.72	1,265.68	33.04	39.307		
5,100.00	4,942.53	4,949.38	4,942.53	21.90	11.47	0.03	252.87	42.12	1,298.72	1,265.38	33.34	38.956		
5,200.00	5,042.53	5,049.38	5,042.53	21.99	11.68	0.03	252.87	42.12	1,298.72	1,265.08	33.64	38.609		
5,300.00	5,142.53	5,149.38	5,142.53	22.08	11.89	0.03	252.87	42.12	1,298.72	1,264.78	33.94	38.265		
5,400.00	5,242.53	5,249.38	5,242.53	22.18	12.10	0.03	252.87	42.12	1,298.72	1,264.48	34.24	37.925		
5,500.00	5,342.53	5,349.38	5,342.53	22.27	12.31	0.03	252.87	42.12	1,298.72	1,264.17	34.55	37.588		
5,600.00	5,442.53	5,449.38	5,442.53	22.37	12.52	0.03	252.87	42.12	1,298.72	1,263.86	34.86	37.254		
5,700.00	5,542.53	5,549.38	5,542.53	22.47	12.74	0.03	252.87	42.12	1,298.72	1,263.55	35.17	36.924		
5,800.00	5,642.53	5,649.38	5,642.53	22.57	12.95	0.03	252.87	42.12	1,298.72	1,263.23	35.49	36.598		
5,900.00	5,742.53	5,749.38	5,742.53	22.67	13.16	0.03	252.87	42.12	1,298.72	1,262.92	35.80	36.275		
6,000.00	5,842.53	5,849.38	5,842.53	22.78	13.38	0.03	252.87	42.12	1,298.72	1,262.60	36.12	35.955		
6,070.01	5,912.54	5,919.39	5,912.54	22.85	13.53	0.03	252.87	42.12	1,298.72	1,262.38	36.34	35.734		
6,075.00	5,917.53	5,924.43	5,917.58	22.85	13.54	0.03	252.87	42.09	1,298.72	1,271.42	27.30	47.578		
6,100.00	5,942.51	5,949.70	5,942.83	22.88	13.58	0.03	252.86	41.16	1,298.72	1,271.33	27.39	47.419		
6,125.00	5,967.41	5,974.96	5,967.99	22.91	13.63	0.03	252.86	38.89	1,298.72	1,271.24	27.48	47.263		
6,150.00	5,992.16	6,000.22	5,992.99	22.94	13.68	0.02	252.84	35.29	1,298.72	1,271.16	27.57	47.111		
6,175.00	6,016.69	6,025.49	6,017.77	22.96	13.72	0.02	252.83	30.38	1,298.73	1,271.07	27.66	46.961		
6,200.00	6,040.93	6,050.75	6,042.25	22.99	13.77	0.01	252.81	24.16	1,298.73	1,270.99	27.74	46.813		
6,225.00	6,064.82	6,076.00	6,066.36	23.02	13.81	0.01	252.78	16.66	1,298.73	1,270.90	27.83	46.664		
6,250.00	6,088.30	6,101.25	6,090.04	23.05	13.86	0.00	252.75	7.90	1,298.74	1,270.81	27.92	46.511		
6,275.00	6,111.29	6,126.49	6,113.21	23.08	13.90	-0.01	252.72	-2.10	1,298.74	1,270.72	28.02	46.352		
6,300.00	6,133.74	6,151.73	6,135.83	23.10	13.95	-0.02	252.68	-13.31	1,298.75	1,270.62	28.12	46.182		
6,325.00	6,155.58	6,176.97	6,157.81	23.13	14.00	-0.03	252.64	-25.69	1,298.75	1,270.52	28.23	45.998		
6,350.00	6,176.76	6,202.19	6,179.10	23.16	14.06	-0.04	252.59	-39.22	1,298.76	1,270.40	28.36	45.794		
6,375.00	6,197.21	6,227.41	6,199.64	23.20	14.12	-0.05	252.54	-53.84	1,298.76	1,270.26	28.50	45.566		
6,400.00	6,216.88	6,252.62	6,219.37	23.23	14.19	-0.06	252.49	-69.52	1,298.77	1,270.11	28.67	45.308		
6,425.00	6,235.72	6,277.81	6,238.24	23.27	14.27	-0.07	252.43	-86.22	1,298.78	1,269.93	28.85	45.015		
6,450.00	6,253.67	6,303.00	6,256.20	23.30	14.37	-0.09	252.37	-103.88	1,298.79	1,269.72	29.07	44.682		
6,475.00	6,270.68	6,328.18	6,273.19	23.34	14.49	-0.10	252.31	-122.45	1,298.80	1,269.48	29.32	44.304		
6,500.00	6,286.72	6,353.35	6,289.18	23.39	14.63	-0.11	252.25	-141.89	1,298.80	1,269.20	29.60	43.878		
6,525.00	6,301.73	6,378.51	6,304.11	23.44	14.79	-0.12	252.18	-162.13	1,298.81	1,268.89	29.93	43.402		
6,550.00	6,315.67	6,403.66	6,317.95	23.49	14.98	-0.13	252.11	-183.12	1,298.82	1,268.53	30.29	42.875		
6,575.00	6,328.51	6,428.79	6,330.66	23.55	15.19	-0.14	252.03	-204.80	1,298.83	1,268.13	30.71	42.297		
6,600.00	6,340.21	6,453.91	6,342.20	23.61	15.42	-0.15	251.96	-227.11	1,298.84	1,267.67	31.17	41.670		
6,625.00	6,350.73	6,479.02	6,352.56	23.69	15.69	-0.16	251.88	-249.99	1,298.85	1,267.17	31.68	40.998		
6,650.00	6,360.06	6,504.12	6,361.69	23.77	15.97	-0.17	251.80	-273.36	1,298.87	1,266.62	32.24	40.285		
6,675.00	6,368.15	6,529.20	6,369.57	23.86	16.29	-0.17	251.72	-297.17	1,298.88	1,266.03	32.85	39.539		
6,700.00	6,375.00	6,554.27	6,376.20	23.96	16.62	-0.18	251.64	-321.34	1,298.89	1,265.38	33.51	38.765		
6,725.00	6,380.58	6,579.33	6,381.54	24.07	16.98	-0.19	251.56	-345.82	1,298.90	1,264.69	34.21	37.972		
6,750.00	6,384.88	6,604.37	6,385.59	24.20	17.36	-0.19	251.47	-370.53	1,298.91	1,263.96	34.95	37.166		
6,775.00	6,387.88	6,629.40	6,388.33	24.34	17.75	-0.19	251.39	-395.41	1,298.92	1,263.20	35.73	36.355		
6,800.00	6,389.59	6,654.41	6,389.77	24.49	18.17	-0.19	251.30	-420.38	1,298.94	1,262.39	36.54	35.547		
6,820.01	6,390.00	6,674.43	6,390.00	24.63	18.51	-0.19	251.24	-440.39	1,298.95	1,261.73	37.21	34.904		
6,900.00	6,390.00	6,754.42	6,390.00	25.30	19.99	-0.19	250.97	-520.38	1,298.99	1,258.86	40.12	32.375		
7,000.00	6,390.00	6,854.42	6,390.00	26.43	21.99	-0.19	250.63	-620.38	1,299.03	1,254.93	44.10	29.455		
7,100.00	6,390.00	6,954.42	6,390.00	27.88	24.15	-0.19	250.29	-720.38	1,299.08	1,250.68	48.41	26.836		
7,200.00	6,390.00	7,054.42	6,390.00	29.62	26.44	-0.19	249.95	-820.37	1,299.13	1,246.17	52.96	24.529		
7,300.00	6,390.00	7,154.42	6,390.00	31.57	28.82	-0.19	249.61	-920.37	1,299.18	1,241.48	57.70	22.514		
7,400.00	6,390.00	7,254.42	6,390.00	33.70	31.27	-0.19	249.28	-1,020.37	1,299.23	1,236.64	62.59	20.757		
7,500.00	6,390.00	7,354.42	6,390.00	35.94	33.78	-0.19	248.94	-1,120.37	1,299.28	1,231.69	67.59	19.222		
7,600.00	6,390.00	7,454.42	6,390.00	38.28	36.33	-0.19	248.60	-1,220.37	1,299.33	1,226.64	72.69	17.876		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	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		
7,700.00	6,390.00	7,554.42	6,390.00	40.69	38.92	-0.19	248.26	-1,320.37	1,299.38	1,221.53	77.85	16.690		
7,800.00	6,390.00	7,654.42	6,390.00	43.16	41.54	-0.19	247.92	-1,420.37	1,299.43	1,216.35	83.08	15.641		
7,900.00	6,390.00	7,754.42	6,390.00	45.68	44.18	-0.19	247.58	-1,520.37	1,299.48	1,211.13	88.35	14.709		
8,000.00	6,390.00	7,854.42	6,390.00	48.23	46.84	-0.19	247.25	-1,620.37	1,299.53	1,205.87	93.66	13.875		
8,100.00	6,390.00	7,954.42	6,390.00	50.81	49.51	-0.19	246.91	-1,720.37	1,299.58	1,200.57	99.01	13.126		
8,200.00	6,390.00	8,054.42	6,390.00	53.42	52.20	-0.19	246.57	-1,820.37	1,299.63	1,195.24	104.38	12.450		
8,300.00	6,390.00	8,154.42	6,390.00	56.05	54.91	-0.19	246.23	-1,920.37	1,299.67	1,189.89	109.78	11.838		
8,400.00	6,390.00	8,254.42	6,390.00	58.69	57.62	-0.19	245.89	-2,020.37	1,299.72	1,184.52	115.21	11.282		
8,500.00	6,390.00	8,354.42	6,390.00	61.36	60.34	-0.19	245.56	-2,120.37	1,299.77	1,179.13	120.64	10.774		
8,600.00	6,390.00	8,454.42	6,390.00	64.03	63.07	-0.19	245.22	-2,220.37	1,299.82	1,173.72	126.10	10.308		
8,700.00	6,390.00	8,554.42	6,390.00	66.72	65.81	-0.19	244.88	-2,320.37	1,299.87	1,168.30	131.57	9.880		
8,800.00	6,390.00	8,654.42	6,390.00	69.42	68.55	-0.19	244.54	-2,420.37	1,299.92	1,162.87	137.05	9.485		
8,900.00	6,390.00	8,754.42	6,390.00	72.12	71.30	-0.19	244.20	-2,520.36	1,299.97	1,157.43	142.54	9.120		
9,000.00	6,390.00	8,854.42	6,390.00	74.84	74.05	-0.19	243.87	-2,620.36	1,300.02	1,151.98	148.04	8.781		
9,100.00	6,390.00	8,954.42	6,390.00	77.56	76.81	-0.19	243.53	-2,720.36	1,300.07	1,146.51	153.55	8.467		
9,200.00	6,390.00	9,054.42	6,390.00	80.29	79.57	-0.19	243.19	-2,820.36	1,300.12	1,141.05	159.07	8.173		
9,300.00	6,390.00	9,154.42	6,390.00	83.02	82.33	-0.19	242.85	-2,920.36	1,300.17	1,135.57	164.60	7.899		
9,400.00	6,390.00	9,254.42	6,390.00	85.76	85.10	-0.19	242.51	-3,020.36	1,300.22	1,130.09	170.13	7.643		
9,500.00	6,390.00	9,354.42	6,390.00	88.50	87.87	-0.19	242.17	-3,120.36	1,300.26	1,124.60	175.66	7.402		
9,600.00	6,390.00	9,454.42	6,390.00	91.25	90.64	-0.19	241.84	-3,220.36	1,300.31	1,119.11	181.20	7.176		
9,700.00	6,390.00	9,554.42	6,390.00	94.00	93.41	-0.19	241.50	-3,320.36	1,300.36	1,113.61	186.75	6.963		
9,800.00	6,390.00	9,654.42	6,390.00	96.76	96.19	-0.19	241.16	-3,420.36	1,300.41	1,108.11	192.30	6.762		
9,900.00	6,390.00	9,754.42	6,390.00	99.51	98.97	-0.19	240.82	-3,520.36	1,300.46	1,102.61	197.86	6.573		
10,000.00	6,390.00	9,854.42	6,390.00	102.27	101.75	-0.19	240.48	-3,620.36	1,300.51	1,097.10	203.41	6.393		
10,100.00	6,390.00	9,954.42	6,390.00	105.04	104.53	-0.19	240.15	-3,720.36	1,300.56	1,091.59	208.97	6.224		
10,200.00	6,390.00	10,054.42	6,390.00	107.80	107.31	-0.19	239.81	-3,820.36	1,300.61	1,086.07	214.54	6.062		
10,300.00	6,390.00	10,154.42	6,390.00	110.57	110.09	-0.19	239.47	-3,920.36	1,300.66	1,080.55	220.11	5.909		
10,400.00	6,390.00	10,254.42	6,390.00	113.34	112.88	-0.19	239.13	-4,020.36	1,300.71	1,075.03	225.68	5.764		
10,500.00	6,390.00	10,354.42	6,390.00	116.11	115.67	-0.19	238.79	-4,120.36	1,300.76	1,069.51	231.25	5.625		
10,600.00	6,390.00	10,454.42	6,390.00	118.89	118.45	-0.19	238.46	-4,220.35	1,300.81	1,063.98	236.82	5.493		
10,700.00	6,390.00	10,554.42	6,390.00	121.66	121.24	-0.19	238.12	-4,320.35	1,300.86	1,058.46	242.40	5.367		
10,753.15	6,390.00	10,607.57	6,390.00	123.14	122.73	-0.19	237.94	-4,373.51	1,300.88	1,055.52	245.36	5.302		
10,800.00	6,390.00	10,642.55	6,390.00	124.44	123.70	0.33	237.82	-4,408.49	1,300.96	1,053.31	247.65	5.253		
10,826.98	6,390.00	10,642.55	6,390.00	125.19	123.70	1.52	237.82	-4,408.49	1,301.50	1,053.10	248.40	5.240 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	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	-0.70	21.85	-0.27	21.85					
100.00	100.00	100.00	100.00	0.09	0.09	-0.70	21.85	-0.27	21.85	21.67	0.18	118.571		
200.00	200.00	200.00	200.00	0.32	0.32	-0.70	21.85	-0.27	21.85	21.22	0.63	34.478		
300.00	300.00	300.00	300.00	0.54	0.54	-0.70	21.85	-0.27	21.85	20.77	1.08	20.172		
400.00	400.00	400.00	400.00	0.77	0.77	-0.70	21.85	-0.27	21.85	20.32	1.53	14.256		
500.00	500.00	500.00	500.00	0.99	0.99	-0.70	21.85	-0.27	21.85	19.87	1.98	11.024		
600.00	599.98	600.76	600.74	1.19	1.19	-0.36	20.09	-0.07	21.85	19.47	2.38	9.178		
700.00	699.84	701.53	701.36	1.38	1.38	0.69	14.81	0.54	21.84	19.09	2.75	7.946		
753.76	753.43	755.70	755.36	1.49	1.49	1.54	10.52	1.03	21.84	18.88	2.96	7.380 CC		
800.00	799.45	802.15	801.60	1.59	1.59	2.41	6.09	1.54	21.90	18.76	3.14	6.976 ES		
900.00	898.70	902.12	901.07	1.84	1.83	3.70	-3.76	2.66	24.26	20.72	3.55	6.843		
1,000.00	997.47	1,001.94	1,000.40	2.13	2.09	3.95	-13.59	3.79	30.11	26.14	3.97	7.585		
1,100.00	1,095.62	1,101.50	1,099.47	2.48	2.35	3.56	-23.40	4.91	39.41	35.01	4.40	8.950		
1,200.00	1,193.06	1,200.68	1,198.16	2.88	2.62	2.94	-33.17	6.03	52.17	47.33	4.85	10.764		
1,300.00	1,289.64	1,299.35	1,296.34	3.35	2.89	2.31	-42.90	7.14	68.38	63.08	5.30	12.907		
1,400.00	1,385.27	1,397.39	1,393.91	3.88	3.16	1.76	-52.56	8.25	88.01	82.26	5.75	15.293		
1,449.41	1,432.12	1,445.57	1,441.84	4.16	3.30	1.52	-57.30	8.79	98.97	92.99	5.98	16.538		
1,500.00	1,479.96	1,494.80	1,490.83	4.47	3.44	1.31	-62.15	9.35	110.62	104.39	6.23	17.747		
1,600.00	1,574.52	1,592.11	1,587.66	5.08	3.72	1.00	-71.74	10.45	133.65	126.92	6.74	19.843		
1,700.00	1,669.08	1,689.42	1,684.49	5.70	4.00	0.79	-81.33	11.54	156.68	149.44	7.24	21.627		
1,800.00	1,763.64	1,786.73	1,781.32	6.33	4.28	0.62	-90.91	12.64	179.71	171.96	7.76	23.161		
1,900.00	1,858.20	1,884.04	1,878.15	6.96	4.56	0.50	-100.50	13.74	202.75	194.47	8.28	24.491		
2,000.00	1,952.76	1,981.35	1,974.98	7.60	4.84	0.40	-110.09	14.84	225.78	216.98	8.80	25.654		
2,100.00	2,047.31	2,078.66	2,071.82	8.25	5.12	0.32	-119.68	15.93	248.82	239.49	9.33	26.678		
2,200.00	2,141.87	2,175.97	2,168.65	8.89	5.41	0.25	-129.26	17.03	271.85	262.00	9.85	27.586		
2,300.00	2,236.43	2,273.28	2,265.48	9.54	5.69	0.19	-138.85	18.13	294.89	284.50	10.38	28.396		
2,400.00	2,330.99	2,370.59	2,362.31	10.19	5.98	0.14	-148.44	19.23	317.93	307.01	10.92	29.123		
2,500.00	2,425.55	2,467.90	2,459.14	10.84	6.26	0.10	-158.03	20.32	340.96	329.51	11.45	29.778		
2,600.00	2,520.11	2,565.21	2,555.97	11.49	6.55	0.07	-167.61	21.42	364.00	352.01	11.98	30.371		
2,700.00	2,614.67	2,662.52	2,652.80	12.15	6.84	0.03	-177.20	22.52	387.04	374.51	12.52	30.911		
2,800.00	2,709.23	2,759.83	2,749.63	12.80	7.12	0.00	-186.79	23.61	410.07	397.01	13.06	31.405		
2,900.00	2,803.78	2,857.14	2,846.46	13.46	7.41	-0.02	-196.37	24.71	433.11	419.51	13.60	31.857		
3,000.00	2,898.34	2,954.45	2,943.29	14.11	7.70	-0.04	-205.96	25.81	456.15	442.01	14.13	32.273		
3,100.00	2,992.90	3,051.76	3,040.12	14.77	7.98	-0.07	-215.55	26.91	479.18	464.51	14.67	32.657		
3,200.00	3,087.46	3,149.07	3,136.95	15.42	8.27	-0.08	-225.14	28.00	502.22	487.01	15.21	33.012		
3,300.00	3,182.02	3,246.38	3,233.78	16.08	8.56	-0.10	-234.72	29.10	525.26	509.50	15.75	33.342		
3,400.00	3,276.58	3,343.69	3,330.61	16.74	8.85	-0.12	-244.31	30.20	548.29	532.00	16.29	33.649		
3,500.00	3,371.14	3,441.00	3,427.44	17.40	9.13	-0.13	-253.90	31.30	571.33	554.49	16.84	33.935		
3,600.00	3,465.69	3,538.31	3,524.27	18.06	9.42	-0.15	-263.49	32.39	594.37	576.99	17.38	34.203		
3,708.06	3,567.88	3,643.47	3,628.91	18.77	9.73	-0.16	-273.85	33.58	619.26	601.30	17.96	34.473		
3,800.00	3,655.28	3,733.26	3,718.26	19.27	10.00	-0.16	-282.69	34.59	639.00	620.50	18.50	34.534		
3,900.00	3,751.32	3,831.58	3,816.10	19.68	10.29	-0.16	-292.38	35.70	657.20	638.15	19.05	34.503		
4,000.00	3,848.29	3,930.49	3,914.51	20.06	10.58	-0.14	-302.12	36.82	671.95	652.39	19.56	34.350		
4,100.00	3,946.04	4,029.84	4,013.38	20.40	10.88	-0.12	-311.91	37.94	683.24	663.20	20.04	34.088		
4,200.00	4,044.47	4,129.53	4,112.57	20.70	11.17	-0.08	-321.73	39.06	691.06	670.57	20.49	33.723		
4,300.00	4,143.46	4,229.43	4,211.98	20.95	11.47	-0.03	-331.58	40.19	695.41	674.50	20.91	33.263		
4,400.00	4,242.88	4,310.72	4,292.96	21.17	11.66	0.00	-338.55	40.99	697.55	676.33	21.22	32.876		
4,500.00	4,342.61	4,400.00	4,382.10	21.34	11.82	0.02	-343.58	41.56	699.06	677.58	21.49	32.536		
4,501.47	4,344.08	4,400.00	4,382.10	21.34	11.82	0.02	-343.58	41.56	699.06	677.58	21.49	32.534		
4,600.00	4,442.53	4,471.69	4,453.76	21.47	11.94	0.03	-345.62	41.80	699.74	678.06	21.68	32.276		
4,657.47	4,500.00	4,517.94	4,500.00	21.53	12.01	0.03	-345.99	41.84	699.86	666.35	33.50	20.889		
4,700.00	4,542.53	4,560.46	4,542.53	21.57	12.08	0.03	-345.99	41.84	699.86	666.25	33.61	20.822		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,800.00	4,642.53	4,660.46	4,642.53	21.65	12.23	0.03	-345.99	41.84	699.86	666.01	33.85	20.678		
4,900.00	4,742.53	4,760.46	4,742.53	21.73	12.38	0.03	-345.99	41.84	699.86	665.78	34.07	20.539		
5,000.00	4,842.53	4,860.46	4,842.53	21.82	12.53	0.03	-345.99	41.84	699.86	665.55	34.31	20.399		
5,100.00	4,942.53	4,960.46	4,942.53	21.90	12.68	0.03	-345.99	41.84	699.86	665.31	34.55	20.259		
5,200.00	5,042.53	5,060.46	5,042.53	21.99	12.83	0.03	-345.99	41.84	699.86	665.07	34.79	20.118		
5,300.00	5,142.53	5,160.46	5,142.53	22.08	12.98	0.03	-345.99	41.84	699.86	664.83	35.03	19.977		
5,400.00	5,242.53	5,260.46	5,242.53	22.18	13.14	0.03	-345.99	41.84	699.86	664.58	35.28	19.835		
5,500.00	5,342.53	5,360.46	5,342.53	22.27	13.30	0.03	-345.99	41.84	699.86	664.32	35.54	19.694		
5,600.00	5,442.53	5,460.46	5,442.53	22.37	13.46	0.03	-345.99	41.84	699.86	664.06	35.79	19.552		
5,700.00	5,542.53	5,560.46	5,542.53	22.47	13.62	0.03	-345.99	41.84	699.86	663.80	36.06	19.411		
5,800.00	5,642.53	5,660.46	5,642.53	22.57	13.79	0.03	-345.99	41.84	699.86	663.54	36.32	19.269		
5,900.00	5,742.53	5,760.46	5,742.53	22.67	13.95	0.03	-345.99	41.84	699.86	663.27	36.59	19.128		
6,000.00	5,842.53	5,860.46	5,842.53	22.78	14.12	0.03	-345.99	41.84	699.86	663.00	36.86	18.987		
6,070.01	5,912.54	5,930.48	5,912.54	22.85	14.24	0.03	-345.99	41.84	699.86	662.81	37.05	18.889		
6,075.00	5,917.53	5,935.50	5,917.56	22.85	14.24	0.03	-345.99	41.81	699.86	673.09	26.77	26.144		
6,100.00	5,942.51	5,960.66	5,942.71	22.88	14.29	0.03	-346.00	40.89	699.86	673.00	26.86	26.054		
6,125.00	5,967.41	5,985.83	5,967.77	22.91	14.33	0.03	-346.01	38.63	699.86	672.91	26.95	25.967		
6,150.00	5,992.16	6,010.99	5,992.67	22.94	14.38	0.02	-346.02	35.07	699.86	672.82	27.04	25.882		
6,175.00	6,016.69	6,036.15	6,017.35	22.96	14.42	0.02	-346.04	30.19	699.86	672.73	27.13	25.800		
6,200.00	6,040.93	6,061.31	6,041.74	22.99	14.46	0.01	-346.06	24.03	699.86	672.65	27.21	25.720		
6,225.00	6,064.82	6,086.46	6,065.77	23.02	14.51	0.00	-346.09	16.58	699.86	672.56	27.30	25.640		
6,250.00	6,088.30	6,111.62	6,089.37	23.05	14.55	0.00	-346.13	7.89	699.86	672.48	27.38	25.560		
6,275.00	6,111.29	6,136.77	6,112.48	23.08	14.59	-0.01	-346.17	-2.04	699.86	672.38	27.47	25.476		
6,300.00	6,133.74	6,161.92	6,135.02	23.10	14.64	-0.02	-346.21	-13.16	699.85	672.29	27.57	25.387		
6,325.00	6,155.58	6,187.06	6,156.95	23.13	14.68	-0.04	-346.26	-25.46	699.85	672.18	27.67	25.290		
6,350.00	6,176.76	6,212.20	6,178.20	23.16	14.73	-0.05	-346.31	-38.89	699.85	672.06	27.79	25.183		
6,375.00	6,197.21	6,237.33	6,198.71	23.20	14.78	-0.06	-346.37	-53.42	699.85	671.93	27.93	25.061		
6,400.00	6,216.88	6,262.46	6,218.41	23.23	14.83	-0.07	-346.43	-69.00	699.85	671.77	28.08	24.923		
6,425.00	6,235.72	6,287.58	6,237.27	23.27	14.88	-0.09	-346.49	-85.59	699.85	671.59	28.26	24.765		
6,450.00	6,253.67	6,312.70	6,255.23	23.30	14.94	-0.10	-346.56	-103.15	699.85	671.38	28.47	24.584		
6,475.00	6,270.68	6,337.81	6,272.23	23.34	15.01	-0.11	-346.63	-121.63	699.85	671.14	28.71	24.377		
6,500.00	6,286.72	6,362.92	6,288.24	23.39	15.09	-0.13	-346.71	-140.96	699.85	670.86	28.99	24.143		
6,525.00	6,301.73	6,388.01	6,303.20	23.44	15.18	-0.14	-346.79	-161.11	699.85	670.54	29.31	23.879		
6,550.00	6,315.67	6,413.10	6,317.08	23.49	15.28	-0.15	-346.87	-182.01	699.84	670.17	29.67	23.586		
6,575.00	6,328.51	6,438.19	6,329.84	23.55	15.41	-0.16	-346.96	-203.60	699.84	669.76	30.08	23.263		
6,600.00	6,340.21	6,463.26	6,341.44	23.61	15.56	-0.17	-347.04	-225.83	699.84	669.30	30.55	22.911		
6,625.00	6,350.73	6,488.33	6,351.86	23.69	15.75	-0.19	-347.13	-248.62	699.84	668.78	31.06	22.533		
6,650.00	6,360.06	6,513.39	6,361.07	23.77	15.97	-0.19	-347.22	-271.93	699.84	668.22	31.62	22.132		
6,675.00	6,368.15	6,538.44	6,369.04	23.86	16.23	-0.20	-347.32	-295.68	699.84	667.60	32.23	21.712		
6,700.00	6,375.00	6,563.49	6,375.74	23.96	16.52	-0.21	-347.41	-319.80	699.84	666.94	32.89	21.275		
6,725.00	6,380.58	6,588.52	6,381.18	24.07	16.84	-0.22	-347.51	-344.24	699.83	666.23	33.60	20.827		
6,750.00	6,384.88	6,613.55	6,385.32	24.20	17.19	-0.22	-347.60	-368.92	699.83	665.48	34.35	20.373		
6,775.00	6,387.88	6,638.57	6,388.17	24.34	17.57	-0.22	-347.70	-393.77	699.83	664.69	35.14	19.915		
6,800.00	6,389.59	6,663.58	6,389.71	24.49	17.97	-0.22	-347.80	-418.73	699.83	663.87	35.96	19.459		
6,820.01	6,390.00	6,683.59	6,390.00	24.63	18.30	-0.22	-347.88	-438.74	699.83	663.19	36.64	19.098		
6,900.00	6,390.00	6,763.58	6,390.00	25.30	19.76	-0.22	-348.19	-518.73	699.83	660.24	39.59	17.678		
7,000.00	6,390.00	6,863.58	6,390.00	26.43	21.77	-0.22	-348.58	-618.73	699.82	656.21	43.61	16.047		
7,100.00	6,390.00	6,963.58	6,390.00	27.88	23.94	-0.22	-348.97	-718.72	699.82	651.86	47.96	14.593		
7,200.00	6,390.00	7,063.58	6,390.00	29.62	26.24	-0.22	-349.37	-818.72	699.81	647.27	52.54	13.319		
7,300.00	6,390.00	7,163.58	6,390.00	31.57	28.63	-0.22	-349.76	-918.72	699.81	642.49	57.31	12.210		
7,400.00	6,390.00	7,263.58	6,390.00	33.70	31.09	-0.22	-350.15	-1,018.72	699.80	637.58	62.23	11.246		
7,500.00	6,390.00	7,363.58	6,390.00	35.94	33.60	-0.22	-350.54	-1,118.72	699.80	632.55	67.25	10.406		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Sec.27-T5N-R63W - 70 Ranch 5-63-27-48H - Wellbore #1 - Design #1		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD													Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Azimuth from North	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor						
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)							
7,600.00	6,390.00	7,463.58	6,390.00	38.28	36.16	-0.22	-350.93	-1,218.72	699.80	627.43	72.36	9.670						
7,700.00	6,390.00	7,563.58	6,390.00	40.69	38.76	-0.22	-351.33	-1,318.72	699.79	622.24	77.55	9.024						
7,800.00	6,390.00	7,663.58	6,390.00	43.16	41.38	-0.22	-351.72	-1,418.72	699.79	617.00	82.79	8.453						
7,900.00	6,390.00	7,763.58	6,390.00	45.68	44.02	-0.22	-352.11	-1,518.72	699.78	611.71	88.07	7.945						
8,000.00	6,390.00	7,863.58	6,390.00	48.23	46.69	-0.22	-352.50	-1,618.72	699.78	606.38	93.40	7.492						
8,100.00	6,390.00	7,963.58	6,390.00	50.81	49.37	-0.22	-352.89	-1,718.72	699.77	601.02	98.76	7.086						
8,200.00	6,390.00	8,063.58	6,390.00	53.42	52.06	-0.22	-353.28	-1,818.72	699.77	595.63	104.14	6.719						
8,300.00	6,390.00	8,163.58	6,390.00	56.05	54.77	-0.22	-353.68	-1,918.72	699.76	590.21	109.55	6.388						
8,400.00	6,390.00	8,263.58	6,390.00	58.69	57.49	-0.22	-354.07	-2,018.71	699.76	584.78	114.98	6.086						
8,500.00	6,390.00	8,363.58	6,390.00	61.36	60.21	-0.22	-354.46	-2,118.71	699.75	579.33	120.43	5.811						
8,600.00	6,390.00	8,463.58	6,390.00	64.03	62.94	-0.22	-354.85	-2,218.71	699.75	573.86	125.89	5.559						
8,700.00	6,390.00	8,563.58	6,390.00	66.72	65.68	-0.22	-355.24	-2,318.71	699.75	568.38	131.36	5.327						
8,800.00	6,390.00	8,663.58	6,390.00	69.42	68.43	-0.22	-355.64	-2,418.71	699.74	562.89	136.85	5.113						
8,900.00	6,390.00	8,763.58	6,390.00	72.12	71.18	-0.22	-356.03	-2,518.71	699.74	557.39	142.35	4.916						
9,000.00	6,390.00	8,863.58	6,390.00	74.84	73.93	-0.22	-356.42	-2,618.71	699.73	551.88	147.85	4.733						
9,100.00	6,390.00	8,963.58	6,390.00	77.56	76.69	-0.22	-356.81	-2,718.71	699.73	546.36	153.37	4.562						
9,200.00	6,390.00	9,063.58	6,390.00	80.29	79.45	-0.22	-357.20	-2,818.71	699.72	540.83	158.89	4.404						
9,300.00	6,390.00	9,163.58	6,390.00	83.02	82.22	-0.22	-357.60	-2,918.71	699.72	535.30	164.42	4.256						
9,400.00	6,390.00	9,263.58	6,390.00	85.76	84.99	-0.22	-357.99	-3,018.71	699.71	529.76	169.95	4.117						
9,500.00	6,390.00	9,363.58	6,390.00	88.50	87.76	-0.22	-358.38	-3,118.71	699.71	524.22	175.49	3.987						
9,600.00	6,390.00	9,463.58	6,390.00	91.25	90.53	-0.22	-358.77	-3,218.71	699.70	518.67	181.04	3.865						
9,700.00	6,390.00	9,563.58	6,390.00	94.00	93.30	-0.22	-359.16	-3,318.70	699.70	513.11	186.59	3.750						
9,800.00	6,390.00	9,663.58	6,390.00	96.76	96.08	-0.22	-359.55	-3,418.70	699.70	507.56	192.14	3.642						
9,900.00	6,390.00	9,763.58	6,390.00	99.51	98.86	-0.22	-359.95	-3,518.70	699.69	501.99	197.70	3.539						
10,000.00	6,390.00	9,863.58	6,390.00	102.27	101.64	-0.22	-360.34	-3,618.70	699.69	496.43	203.26	3.442						
10,100.00	6,390.00	9,963.58	6,390.00	105.04	104.42	-0.22	-360.73	-3,718.70	699.68	490.86	208.82	3.351						
10,200.00	6,390.00	10,063.58	6,390.00	107.80	107.21	-0.22	-361.12	-3,818.70	699.68	485.29	214.39	3.264						
10,300.00	6,390.00	10,163.58	6,390.00	110.57	109.99	-0.22	-361.51	-3,918.70	699.67	479.72	219.96	3.181						
10,400.00	6,390.00	10,263.58	6,390.00	113.34	112.78	-0.22	-361.91	-4,018.70	699.67	474.14	225.53	3.102						
10,500.00	6,390.00	10,363.58	6,390.00	116.11	115.57	-0.22	-362.30	-4,118.70	699.66	468.56	231.10	3.027						
10,600.00	6,390.00	10,463.58	6,390.00	118.89	118.36	-0.22	-362.69	-4,218.70	699.66	462.98	236.68	2.956						
10,700.00	6,390.00	10,563.58	6,390.00	121.66	121.14	-0.22	-363.08	-4,318.70	699.65	457.40	242.26	2.888						
10,800.00	6,390.00	10,663.58	6,390.00	124.44	123.93	-0.22	-363.47	-4,418.70	699.65	451.81	247.84	2.823						
10,804.48	6,390.00	10,668.06	6,390.00	124.56	124.06	-0.22	-363.49	-4,423.18	699.65	451.56	248.09	2.820						
10,826.98	6,390.00	10,668.40	6,390.00	125.19	124.07	1.59	-363.49	-4,423.52	700.00	451.28	248.72	2.814 SF						

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	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: 661-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	67.00	0.00	0.00	-93.28	-321.18	-5,596.89	5,606.50					
100.00	100.00	33.67	100.67	0.09	0.04	-93.28	-321.17	-5,596.89	5,606.10	5,605.97	0.13	N/A		
200.00	200.00	135.68	202.68	0.32	0.15	-93.28	-321.08	-5,596.86	5,606.07	5,605.60	0.47	N/A		
300.00	300.00	237.70	304.70	0.54	0.27	-93.28	-320.89	-5,596.81	5,606.00	5,605.19	0.81	6,931.079		
400.00	400.00	339.71	406.71	0.77	0.38	-93.28	-320.59	-5,596.72	5,605.90	5,604.75	1.15	4,882.549		
500.00	500.00	441.73	508.72	0.99	0.50	-93.27	-320.19	-5,596.60	5,605.76	5,604.27	1.49	3,768.633		
600.00	599.98	1,488.28	1,543.32	1.19	3.44	-94.16	-402.61	-5,505.36	5,600.03	5,595.74	4.29	1,306.851		
700.00	699.84	1,961.51	1,995.36	1.38	6.06	-95.20	-499.20	-5,405.56	5,580.66	5,574.07	6.59	847.147		
800.00	799.45	2,004.00	2,035.76	1.59	6.31	-95.21	-507.58	-5,395.40	5,557.65	5,550.68	6.97	796.996		
900.00	898.70	2,038.61	2,068.79	1.84	6.48	-95.16	-514.20	-5,387.49	5,535.58	5,528.24	7.34	754.247		
1,000.00	997.47	2,675.00	2,663.04	2.13	10.89	-96.70	-655.60	-5,212.20	5,507.62	5,496.71	10.91	504.972		
1,100.00	1,095.62	2,749.80	2,731.26	2.48	11.43	-96.73	-674.84	-5,188.28	5,476.70	5,465.09	11.60	471.944		
1,200.00	1,193.06	2,771.00	2,750.64	2.88	11.59	-96.55	-680.17	-5,181.56	5,446.44	5,434.38	12.07	451.289		
1,300.00	1,289.64	2,809.57	2,786.10	3.35	11.85	-96.38	-689.73	-5,169.77	5,417.24	5,404.56	12.68	427.360		
1,400.00	1,385.27	2,867.00	2,839.49	3.88	12.25	-96.23	-703.61	-5,153.80	5,389.92	5,376.49	13.44	401.106		
1,449.41	1,432.12	2,867.00	2,839.49	4.16	12.25	-96.06	-703.61	-5,153.80	5,376.45	5,362.75	13.70	392.478		
1,500.00	1,479.96	2,867.00	2,839.49	4.47	12.25	-95.88	-703.61	-5,153.80	5,363.10	5,349.10	14.00	383.046		
1,600.00	1,574.52	2,867.00	2,839.49	5.08	12.25	-95.52	-703.61	-5,153.80	5,338.02	5,323.41	14.61	365.345		
1,700.00	1,669.08	2,937.75	2,905.90	5.70	12.69	-95.36	-720.09	-5,135.79	5,313.75	5,298.19	15.56	341.529		
1,800.00	1,763.64	2,963.00	2,929.70	6.33	12.85	-95.07	-725.79	-5,129.60	5,290.59	5,274.28	16.30	324.490		
1,900.00	1,858.20	3,026.06	2,989.51	6.96	13.22	-94.87	-739.14	-5,114.77	5,268.24	5,251.04	17.21	306.154		
2,000.00	1,952.76	3,059.00	3,020.99	7.60	13.41	-94.59	-745.48	-5,107.42	5,247.03	5,229.04	17.99	291.715		
2,100.00	2,047.31	3,120.79	3,080.21	8.25	13.74	-94.36	-757.18	-5,094.21	5,226.70	5,207.82	18.88	276.872		
2,200.00	2,141.87	3,699.93	3,616.88	8.89	18.03	-95.92	-914.48	-4,947.52	5,203.43	5,180.56	22.87	227.515		
2,300.00	2,236.43	3,760.47	3,671.69	9.54	18.53	-95.78	-932.76	-4,929.44	5,174.85	5,150.96	23.90	216.559		
2,400.00	2,330.99	3,824.00	3,729.91	10.19	19.03	-95.63	-950.49	-4,911.22	5,147.27	5,122.34	24.92	206.540		
2,500.00	2,425.55	3,850.69	3,754.57	10.84	19.22	-95.34	-957.53	-4,903.83	5,120.49	5,094.78	25.71	199.159		
2,600.00	2,520.11	3,921.00	3,819.91	11.49	19.71	-95.19	-975.49	-4,885.07	5,094.87	5,068.14	26.73	190.640		
2,700.00	2,614.67	3,947.14	3,844.33	12.15	19.88	-94.89	-981.92	-4,878.34	5,069.95	5,042.44	27.50	184.338		
2,800.00	2,709.23	4,016.00	3,909.06	12.80	20.32	-94.72	-997.86	-4,861.09	5,045.99	5,017.51	28.49	177.144		
2,900.00	2,803.78	4,055.61	3,946.54	13.46	20.56	-94.44	-1,006.33	-4,851.50	5,022.80	4,993.49	29.31	171.384		
3,000.00	2,898.34	4,112.00	4,000.26	14.11	20.90	-94.20	-1,017.39	-4,838.34	5,000.54	4,970.35	30.20	165.590		
3,100.00	2,992.90	4,112.00	4,000.26	14.77	20.90	-93.82	-1,017.39	-4,838.34	4,979.59	4,948.74	30.85	161.391		
3,200.00	3,087.46	4,171.09	4,056.89	15.42	21.21	-93.58	-1,028.42	-4,825.59	4,959.48	4,927.74	31.74	156.269		
3,300.00	3,182.02	4,536.99	4,405.20	16.08	23.43	-94.12	-1,100.92	-4,740.95	4,937.25	4,903.30	33.94	145.454		
3,400.00	3,276.58	4,588.00	4,453.85	16.74	23.74	-93.84	-1,109.72	-4,728.39	4,913.56	4,878.76	34.80	141.209		
3,500.00	3,371.14	4,673.72	4,535.82	17.40	24.24	-93.64	-1,123.99	-4,707.77	4,890.66	4,854.89	35.77	136.742		
3,600.00	3,465.69	4,933.84	4,782.98	18.06	25.85	-93.84	-1,168.87	-4,640.37	4,866.47	4,829.06	37.41	130.069		
3,708.06	3,567.88	4,971.00	4,817.93	18.77	26.10	-93.51	-1,176.02	-4,630.01	4,838.33	4,800.05	38.28	126.388		
3,800.00	3,655.28	5,016.83	4,861.24	19.27	26.39	-93.27	-1,184.60	-4,617.73	4,815.21	4,776.16	39.05	123.305		
3,900.00	3,751.32	5,069.00	4,911.04	19.68	26.71	-93.05	-1,193.58	-4,605.05	4,791.61	4,751.84	39.77	120.481		
4,000.00	3,848.29	5,069.00	4,911.04	20.06	26.71	-92.75	-1,193.58	-4,605.05	4,768.81	4,728.56	40.25	118.486		
4,100.00	3,946.04	5,105.63	4,946.26	20.40	26.89	-92.56	-1,199.50	-4,596.90	4,747.44	4,706.62	40.81	116.323		
4,200.00	4,044.47	5,165.00	5,003.66	20.70	27.19	-92.47	-1,208.72	-4,584.85	4,727.49	4,686.07	41.42	114.130		
4,300.00	4,143.46	5,165.00	5,003.66	20.95	27.19	-92.29	-1,208.72	-4,584.85	4,708.38	4,666.61	41.77	112.726		
4,400.00	4,242.88	5,231.68	5,068.37	21.17	27.50	-92.29	-1,219.00	-4,572.49	4,690.40	4,648.08	42.32	110.836		
4,500.00	4,342.61	5,452.00	5,281.42	21.34	28.62	-92.67	-1,254.51	-4,529.10	4,670.67	4,627.17	43.50	107.370		
4,600.00	4,442.53	5,486.87	5,315.07	21.47	28.79	-92.70	-1,260.51	-4,522.18	4,651.27	4,607.39	43.88	105.996		
4,657.47	4,500.00	5,509.01	5,336.44	21.53	28.90	-92.75	-1,264.47	-4,517.99	4,640.69	4,605.89	34.80	133.355		
4,700.00	4,542.53	5,547.00	5,373.13	21.57	29.10	-92.84	-1,271.58	-4,511.15	4,633.27	4,598.27	35.00	132.390		
4,800.00	4,642.53	5,665.03	5,487.36	21.65	29.68	-93.11	-1,291.77	-4,489.41	4,615.53	4,579.98	35.55	129.847		
4,900.00	4,742.53	5,739.00	5,558.90	21.73	30.04	-93.28	-1,304.59	-4,475.69	4,597.62	4,561.67	35.95	127.880		

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 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	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: 661-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,842.53	5,797.39	5,615.33	21.82	30.33	-93.42	-1,315.32	-4,465.22	4,580.40	4,544.10	36.30	126.188		
5,100.00	4,942.53	5,895.98	5,710.60	21.90	30.84	-93.67	-1,333.88	-4,447.91	4,563.71	4,526.93	36.78	124.098		
5,200.00	5,042.53	5,929.00	5,742.38	21.99	31.01	-93.76	-1,340.63	-4,442.01	4,547.34	4,510.30	37.04	122.766		
5,300.00	5,142.53	5,987.85	5,799.34	22.08	31.28	-93.91	-1,351.66	-4,432.18	4,531.94	4,494.56	37.37	121.257		
5,400.00	5,242.53	6,024.00	5,834.67	22.18	31.45	-93.99	-1,357.15	-4,426.89	4,518.16	4,480.51	37.65	120.010		
5,500.00	5,342.53	6,093.06	5,902.53	22.27	31.71	-94.11	-1,365.96	-4,417.55	4,505.43	4,467.43	37.99	118.584		
5,600.00	5,442.53	6,120.00	5,929.07	22.37	31.81	-94.15	-1,368.99	-4,414.03	4,493.61	4,455.38	38.23	117.534		
5,700.00	5,542.53	6,182.95	5,991.28	22.47	32.00	-94.23	-1,375.09	-4,406.61	4,482.76	4,444.21	38.55	116.288		
5,800.00	5,642.53	6,216.00	6,024.05	22.57	32.10	-94.27	-1,377.75	-4,403.29	4,473.43	4,434.63	38.80	115.298		
5,900.00	5,742.53	6,266.72	6,074.47	22.67	32.22	-94.32	-1,381.16	-4,398.90	4,465.37	4,426.30	39.07	114.294		
6,000.00	5,842.53	6,312.00	6,119.56	22.78	32.32	-94.35	-1,383.57	-4,395.64	4,458.55	4,419.22	39.33	113.356		
6,070.01	5,912.54	6,350.10	6,157.56	22.85	32.39	-94.38	-1,385.22	-4,393.29	4,454.46	4,414.95	39.52	112.720		
6,075.00	5,917.53	6,352.91	6,160.36	22.85	32.40	-94.38	-1,385.33	-4,393.13	4,454.16	4,405.42	48.74	91.382		
6,100.00	5,942.51	6,366.94	6,174.35	22.88	32.42	-94.39	-1,385.86	-4,392.34	4,451.92	4,403.30	48.62	91.566		
6,125.00	5,967.41	6,380.89	6,188.28	22.91	32.45	-94.40	-1,386.36	-4,391.59	4,448.44	4,400.06	48.38	91.945		
6,150.00	5,992.16	6,408.00	6,215.34	22.94	32.50	-94.41	-1,387.23	-4,390.23	4,443.77	4,395.72	48.05	92.478		
6,175.00	6,016.69	6,408.00	6,215.34	22.96	32.50	-94.42	-1,387.23	-4,390.23	4,437.81	4,390.25	47.56	93.307		
6,200.00	6,040.93	6,408.00	6,215.34	22.99	32.50	-94.42	-1,387.23	-4,390.23	4,430.72	4,383.76	46.96	94.350		
6,225.00	6,064.82	6,437.82	6,245.12	23.02	32.54	-94.44	-1,388.07	-4,388.89	4,422.36	4,376.06	46.30	95.515		
6,250.00	6,088.30	6,452.11	6,259.39	23.05	32.56	-94.45	-1,388.45	-4,388.29	4,412.87	4,367.35	45.51	96.961		
6,275.00	6,111.29	6,466.10	6,273.36	23.08	32.59	-94.47	-1,388.81	-4,387.73	4,402.22	4,357.60	44.62	98.651		
6,300.00	6,133.74	6,479.75	6,286.99	23.10	32.61	-94.48	-1,389.14	-4,387.21	4,390.46	4,346.82	43.64	100.602		
6,325.00	6,155.58	6,502.00	6,309.23	23.13	32.64	-94.50	-1,389.65	-4,386.43	4,377.62	4,335.03	42.59	102.795		
6,350.00	6,176.76	6,502.00	6,309.23	23.16	32.64	-94.52	-1,389.65	-4,386.43	4,363.69	4,322.27	41.41	105.371		
6,375.00	6,197.21	6,502.00	6,309.23	23.20	32.64	-94.53	-1,389.65	-4,386.43	4,348.78	4,308.62	40.17	108.271		
6,400.00	6,216.88	6,502.00	6,309.23	23.23	32.64	-94.55	-1,389.65	-4,386.43	4,332.95	4,294.09	38.85	111.519		
6,425.00	6,235.72	6,531.49	6,338.70	23.27	32.67	-94.57	-1,390.24	-4,385.56	4,315.98	4,278.45	37.53	114.987		
6,450.00	6,253.67	6,539.62	6,346.82	23.30	32.68	-94.59	-1,390.39	-4,385.36	4,298.24	4,262.09	36.14	118.929		
6,475.00	6,270.68	6,547.34	6,354.54	23.34	32.69	-94.61	-1,390.51	-4,385.19	4,279.63	4,244.91	34.72	123.256		
6,500.00	6,286.72	6,554.64	6,361.84	23.39	32.70	-94.63	-1,390.63	-4,385.05	4,260.22	4,226.92	33.29	127.959		
6,525.00	6,301.73	6,561.48	6,368.68	23.44	32.71	-94.66	-1,390.73	-4,384.92	4,240.04	4,208.16	31.88	133.000		
6,550.00	6,315.67	6,567.86	6,375.06	23.49	32.72	-94.68	-1,390.82	-4,384.82	4,219.15	4,188.64	30.51	138.292		
6,575.00	6,328.51	6,598.00	6,405.19	23.55	32.75	-94.71	-1,391.19	-4,384.49	4,197.74	4,168.46	29.28	143.356		
6,600.00	6,340.21	6,598.00	6,405.19	23.61	32.75	-94.73	-1,391.19	-4,384.49	4,175.52	4,147.41	28.11	148.522		
6,625.00	6,350.73	6,598.00	6,405.19	23.69	32.75	-94.76	-1,391.19	-4,384.49	4,152.77	4,125.63	27.14	153.012		
6,650.00	6,360.06	6,598.00	6,405.19	23.77	32.75	-94.78	-1,391.19	-4,384.49	4,129.54	4,103.09	26.45	156.099		
6,675.00	6,368.15	6,598.00	6,405.19	23.86	32.75	-94.81	-1,391.19	-4,384.49	4,105.89	4,079.69	26.19	156.745		
6,700.00	6,375.00	6,598.00	6,405.19	23.96	32.75	-94.83	-1,391.19	-4,384.49	4,081.87	4,055.30	26.58	153.597		
6,725.00	6,380.58	6,598.00	6,405.19	24.07	32.75	-94.86	-1,391.19	-4,384.49	4,057.55	4,029.60	27.95	145.173		
6,750.00	6,384.88	6,598.00	6,405.19	24.20	32.75	-94.89	-1,391.19	-4,384.49	4,032.98	4,002.05	30.92	130.413		
6,775.00	6,387.88	6,598.00	6,405.19	24.34	32.75	-94.92	-1,391.19	-4,384.49	4,008.23	3,971.84	36.40	110.130		
6,800.00	6,389.59	6,598.00	6,405.19	24.49	32.75	-94.95	-1,391.19	-4,384.49	3,983.37	3,939.52	43.85	90.845		
6,820.01	6,390.00	6,598.00	6,405.19	24.63	32.75	-94.97	-1,391.19	-4,384.49	3,963.43	3,918.04	45.39	87.320		
6,900.00	6,390.00	6,598.00	6,405.19	25.30	32.75	-95.07	-1,391.19	-4,384.49	3,883.72	3,836.92	46.81	82.974		
7,000.00	6,390.00	6,598.00	6,405.19	26.43	32.75	-95.20	-1,391.19	-4,384.49	3,784.09	3,735.32	48.77	77.587		
7,100.00	6,390.00	6,598.00	6,405.19	27.88	32.75	-95.33	-1,391.19	-4,384.49	3,684.48	3,633.58	50.90	72.380		
7,200.00	6,390.00	6,598.00	6,405.19	29.62	32.75	-95.47	-1,391.19	-4,384.49	3,584.89	3,531.73	53.16	67.432		
7,300.00	6,390.00	6,598.00	6,405.19	31.57	32.75	-95.63	-1,391.19	-4,384.49	3,485.32	3,429.80	55.52	62.778		
7,400.00	6,390.00	6,598.00	6,405.19	33.70	32.75	-95.78	-1,391.19	-4,384.49	3,385.78	3,327.83	57.95	58.428		
7,500.00	6,390.00	6,598.00	6,405.19	35.94	32.75	-95.95	-1,391.19	-4,384.49	3,286.27	3,225.83	60.44	54.376		
7,600.00	6,390.00	6,598.00	6,405.19	38.28	32.75	-96.13	-1,391.19	-4,384.49	3,186.78	3,123.81	62.97	50.607		
7,700.00	6,390.00	6,598.00	6,405.19	40.69	32.75	-96.32	-1,391.19	-4,384.49	3,087.33	3,021.79	65.54	47.103		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	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: 661-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,800.00	6,390.00	6,598.00	6,405.19	43.16	32.75	-96.53	-1,391.19	-4,384.49	2,987.92	2,919.77	68.15	43.845		
7,900.00	6,390.00	6,598.00	6,405.19	45.68	32.75	-96.75	-1,391.19	-4,384.49	2,888.55	2,817.77	70.77	40.813		
8,000.00	6,390.00	6,598.00	6,405.19	48.23	32.75	-96.98	-1,391.19	-4,384.49	2,789.22	2,715.80	73.42	37.988		
8,100.00	6,390.00	6,598.00	6,405.19	50.81	32.75	-97.23	-1,391.19	-4,384.49	2,689.94	2,613.85	76.09	35.352		
8,200.00	6,390.00	6,598.00	6,405.19	53.42	32.75	-97.50	-1,391.19	-4,384.49	2,590.72	2,511.95	78.77	32.889		
8,300.00	6,390.00	6,598.00	6,405.19	56.05	32.75	-97.79	-1,391.19	-4,384.49	2,491.56	2,410.09	81.47	30.584		
8,400.00	6,390.00	6,598.00	6,405.19	58.69	32.75	-98.11	-1,391.19	-4,384.49	2,392.47	2,308.30	84.17	28.424		
8,500.00	6,390.00	6,598.00	6,405.19	61.36	32.75	-98.45	-1,391.19	-4,384.49	2,293.46	2,206.57	86.88	26.397		
8,600.00	6,390.00	6,598.00	6,405.19	64.03	32.75	-98.82	-1,391.19	-4,384.49	2,194.54	2,104.93	89.61	24.491		
8,700.00	6,390.00	6,598.00	6,405.19	66.72	32.75	-99.23	-1,391.19	-4,384.49	2,095.72	2,003.38	92.34	22.697		
8,800.00	6,390.00	6,598.00	6,405.19	69.42	32.75	-99.68	-1,391.19	-4,384.49	1,997.01	1,901.94	95.07	21.005		
8,900.00	6,390.00	6,598.00	6,405.19	72.12	32.75	-100.18	-1,391.19	-4,384.49	1,898.45	1,800.64	97.81	19.409		
9,000.00	6,390.00	6,598.00	6,405.19	74.84	32.75	-100.73	-1,391.19	-4,384.49	1,800.04	1,699.48	100.56	17.900		
9,100.00	6,390.00	6,598.00	6,405.19	77.56	32.75	-101.34	-1,391.19	-4,384.49	1,701.82	1,598.51	103.31	16.473		
9,200.00	6,390.00	6,598.00	6,405.19	80.29	32.75	-102.03	-1,391.19	-4,384.49	1,603.81	1,497.75	106.06	15.121		
9,300.00	6,390.00	6,598.00	6,405.19	83.02	32.75	-102.81	-1,391.19	-4,384.49	1,506.07	1,397.25	108.82	13.840		
9,400.00	6,390.00	6,598.00	6,405.19	85.76	32.75	-103.70	-1,391.19	-4,384.49	1,408.65	1,297.07	111.58	12.624		
9,500.00	6,390.00	6,598.00	6,405.19	88.50	32.75	-104.71	-1,391.19	-4,384.49	1,311.62	1,197.27	114.35	11.470		
9,600.00	6,390.00	6,598.00	6,405.19	91.25	32.75	-105.89	-1,391.19	-4,384.49	1,215.06	1,097.95	117.11	10.375		
9,700.00	6,390.00	6,598.00	6,405.19	94.00	32.75	-107.28	-1,391.19	-4,384.49	1,119.11	999.23	119.88	9.335		
9,800.00	6,390.00	6,588.31	6,395.50	96.76	32.74	-108.91	-1,391.08	-4,384.57	1,023.89	901.03	122.86	8.334		
9,900.00	6,390.00	6,587.52	6,394.71	99.51	32.74	-110.89	-1,391.07	-4,384.57	929.71	804.06	125.65	7.399		
10,000.00	6,390.00	6,586.69	6,393.88	102.27	32.74	-113.30	-1,391.06	-4,384.58	836.89	708.45	128.44	6.516		
10,100.00	6,390.00	6,585.82	6,393.01	105.04	32.74	-116.31	-1,391.05	-4,384.59	745.92	614.70	131.23	5.684		
10,200.00	6,390.00	6,584.91	6,392.10	107.80	32.74	-120.15	-1,391.04	-4,384.60	657.59	523.57	134.02	4.907		
10,300.00	6,390.00	6,583.95	6,391.14	110.57	32.74	-125.14	-1,391.03	-4,384.61	573.09	436.28	136.82	4.189		
10,400.00	6,390.00	6,582.94	6,390.13	113.34	32.74	-131.79	-1,391.02	-4,384.62	494.42	354.81	139.61	3.541		
10,500.00	6,390.00	6,581.88	6,389.07	116.11	32.73	-140.77	-1,391.01	-4,384.63	424.81	282.40	142.41	2.983		
10,600.00	6,390.00	6,580.75	6,387.95	118.89	32.73	-152.83	-1,390.99	-4,384.65	369.42	224.22	145.20	2.544		
10,700.00	6,390.00	6,579.57	6,386.76	121.66	32.73	-168.18	-1,390.98	-4,384.66	335.38	187.38	148.00	2.266		
10,769.98	6,390.00	6,578.70	6,385.89	123.61	32.73	179.78	-1,390.97	-4,384.67	327.99	178.04	149.95	2.187 CC, ES		
10,800.00	6,390.00	6,578.31	6,385.51	124.44	32.73	174.55	-1,390.96	-4,384.68	329.36	178.57	150.79	2.184 SF		
10,826.98	6,390.00	6,577.96	6,385.16	125.19	32.73	169.92	-1,390.96	-4,384.68	332.91	181.37	151.54	2.197		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 1440-MWDD													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	76.00	0.00	0.00	-110.22	-1,160.54	-3,151.50	3,359.26					
100.00	100.00	24.52	100.52	0.09	0.03	-110.22	-1,160.53	-3,151.50	3,358.40	3,358.28	0.12	N/A		
200.00	200.00	126.67	202.67	0.32	0.14	-110.21	-1,160.39	-3,151.50	3,358.35	3,357.89	0.46	7,275.519		
300.00	300.00	228.83	304.83	0.54	0.26	-110.21	-1,160.06	-3,151.50	3,358.24	3,357.43	0.80	4,182.772		
400.00	400.00	330.98	406.98	0.77	0.38	-110.20	-1,159.54	-3,151.50	3,358.06	3,356.92	1.14	2,934.984		
500.00	500.00	433.14	509.13	0.99	0.49	-110.19	-1,158.83	-3,151.50	3,357.82	3,356.34	1.49	2,260.514		
600.00	599.98	535.25	611.24	1.19	0.61	-110.15	-1,157.93	-3,151.50	3,356.98	3,355.18	1.80	1,866.049		
700.00	699.84	637.18	713.17	1.38	0.73	-110.04	-1,156.85	-3,151.50	3,355.01	3,352.91	2.10	1,596.557		
800.00	799.45	738.80	814.77	1.59	0.84	-109.88	-1,155.58	-3,151.50	3,351.94	3,349.51	2.43	1,379.830		
900.00	898.70	839.95	915.91	1.84	0.96	-109.66	-1,154.12	-3,151.50	3,347.79	3,345.00	2.79	1,199.757		
1,000.00	997.47	940.49	1,016.44	2.13	1.07	-109.38	-1,152.50	-3,151.50	3,342.62	3,339.43	3.19	1,046.725		
1,100.00	1,095.62	1,040.28	1,116.22	2.48	1.19	-109.03	-1,150.70	-3,151.50	3,336.48	3,332.83	3.65	915.138		
1,200.00	1,193.06	1,139.19	1,215.10	2.88	1.30	-108.63	-1,148.74	-3,151.50	3,329.44	3,325.29	4.15	801.559		
1,300.00	1,289.64	1,237.06	1,312.96	3.35	1.41	-108.17	-1,146.62	-3,151.50	3,321.59	3,316.87	4.72	703.569		
1,400.00	1,385.27	1,333.77	1,409.64	3.88	1.52	-107.65	-1,144.36	-3,151.50	3,313.03	3,307.68	5.35	619.193		
1,449.41	1,432.12	1,381.09	1,456.94	4.16	1.58	-107.36	-1,143.20	-3,151.50	3,308.56	3,302.88	5.69	581.980		
1,500.00	1,479.96	1,429.35	1,505.19	4.47	1.63	-107.07	-1,141.96	-3,151.50	3,303.95	3,297.92	6.04	547.254		
1,600.00	1,574.52	1,523.20	1,599.01	5.08	1.83	-106.48	-1,139.51	-3,151.50	3,295.09	3,288.25	6.84	481.781		
1,700.00	1,669.08	1,616.88	1,692.65	5.70	2.05	-105.89	-1,137.05	-3,151.50	3,286.57	3,278.91	7.67	428.699		
1,800.00	1,763.64	1,710.55	1,786.30	6.33	2.26	-105.30	-1,134.60	-3,151.50	3,278.41	3,269.91	8.50	385.525		
1,900.00	1,858.20	1,804.23	1,879.94	6.96	2.48	-104.70	-1,132.15	-3,151.50	3,270.60	3,261.25	9.35	349.831		
2,000.00	1,952.76	1,897.90	1,973.58	7.60	2.69	-104.10	-1,129.70	-3,151.50	3,263.15	3,252.95	10.20	319.894		
2,100.00	2,047.31	1,991.58	2,067.23	8.25	2.90	-103.50	-1,127.25	-3,151.50	3,256.05	3,245.00	11.06	294.466		
2,200.00	2,141.87	2,085.25	2,160.87	8.89	3.12	-102.89	-1,124.79	-3,151.50	3,249.32	3,237.40	11.92	272.629		
2,300.00	2,236.43	2,178.93	2,254.51	9.54	3.33	-102.29	-1,122.34	-3,151.50	3,242.95	3,230.17	12.78	253.693		
2,400.00	2,330.99	2,272.60	2,348.15	10.19	3.55	-101.68	-1,119.89	-3,151.50	3,236.95	3,223.30	13.65	237.132		
2,500.00	2,425.55	2,366.28	2,441.80	10.84	3.76	-101.06	-1,117.44	-3,151.50	3,231.32	3,216.80	14.52	222.537		
2,600.00	2,520.11	2,459.96	2,535.44	11.49	3.97	-100.45	-1,114.99	-3,151.50	3,226.05	3,210.66	15.39	209.589		
2,700.00	2,614.67	2,553.63	2,629.08	12.15	4.19	-99.83	-1,112.53	-3,151.50	3,221.16	3,204.90	16.27	198.031		
2,800.00	2,709.23	2,647.31	2,722.73	12.80	4.40	-99.22	-1,110.08	-3,151.50	3,216.64	3,199.50	17.14	187.658		
2,900.00	2,803.78	2,740.98	2,816.37	13.46	4.62	-98.60	-1,107.63	-3,151.50	3,212.50	3,194.48	18.02	178.302		
3,000.00	2,898.34	2,834.66	2,910.01	14.11	4.83	-97.98	-1,105.18	-3,151.50	3,208.73	3,189.84	18.89	169.827		
3,100.00	2,992.90	2,928.33	3,003.66	14.77	5.04	-97.35	-1,102.73	-3,151.50	3,205.34	3,185.57	19.77	162.119		
3,200.00	3,087.46	3,022.01	3,097.30	15.42	5.26	-96.73	-1,100.27	-3,151.50	3,202.33	3,181.68	20.65	155.081		
3,300.00	3,182.02	3,115.68	3,190.94	16.08	5.47	-96.11	-1,097.82	-3,151.50	3,199.70	3,178.17	21.53	148.634		
3,400.00	3,276.58	3,209.36	3,284.59	16.74	5.68	-95.48	-1,095.37	-3,151.50	3,197.45	3,175.04	22.41	142.711		
3,500.00	3,371.14	3,303.03	3,378.23	17.40	5.90	-94.86	-1,092.92	-3,151.50	3,195.58	3,172.30	23.28	137.252		
3,600.00	3,465.69	3,396.71	3,471.87	18.06	6.11	-94.23	-1,090.46	-3,151.50	3,194.09	3,169.93	24.16	132.209		
3,708.06	3,567.88	3,497.93	3,573.06	18.77	6.34	-93.55	-1,087.81	-3,151.50	3,192.92	3,167.81	25.11	127.177		
3,800.00	3,655.28	3,584.56	3,659.66	19.27	6.54	-93.00	-1,085.55	-3,151.49	3,192.29	3,166.48	25.81	123.708		
3,900.00	3,751.32	3,679.85	3,754.91	19.68	6.76	-92.45	-1,083.05	-3,151.49	3,191.95	3,165.51	26.44	120.740		
3,983.39	3,832.12	3,760.08	3,835.12	19.99	6.94	-92.05	-1,080.95	-3,151.49	3,191.87	3,164.94	26.93	118.503		
4,000.00	3,848.29	3,776.14	3,851.17	20.06	6.98	-91.97	-1,080.53	-3,151.49	3,191.87	3,164.84	27.03	118.067		
4,100.00	3,946.04	3,873.31	3,948.31	20.40	7.20	-91.55	-1,077.99	-3,151.49	3,191.98	3,164.39	27.60	115.670		
4,200.00	4,044.47	3,971.24	4,046.21	20.70	7.42	-91.18	-1,075.42	-3,151.49	3,192.20	3,164.08	28.12	113.529		
4,300.00	4,143.46	4,069.82	4,144.76	20.95	7.65	-90.88	-1,072.84	-3,151.49	3,192.46	3,163.86	28.60	111.626		
4,400.00	4,242.88	4,168.93	4,243.83	21.17	7.88	-90.65	-1,070.25	-3,151.49	3,192.70	3,163.66	29.04	109.943		
4,500.00	4,342.61	4,268.44	4,343.30	21.34	8.10	-90.47	-1,067.65	-3,151.49	3,192.89	3,163.46	29.44	108.465		
4,600.00	4,442.53	4,368.23	4,443.06	21.47	8.33	-90.35	-1,065.03	-3,151.49	3,193.00	3,163.21	29.79	107.179		
4,657.47	4,500.00	4,425.66	4,500.47	21.53	8.46	-90.32	-1,063.53	-3,151.49	3,193.01	3,172.85	20.15	158.435		
4,700.00	4,542.53	4,468.18	4,542.97	21.57	8.56	-90.30	-1,062.42	-3,151.49	3,193.00	3,172.68	20.32	157.154		
4,800.00	4,642.53	4,568.14	4,642.91	21.65	8.79	-90.25	-1,059.80	-3,151.49	3,192.99	3,172.29	20.70	154.278		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 1440-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		
4,900.00	4,742.53	4,668.11	4,742.84	21.73	9.02	-90.20	-1,057.18	-3,151.49	3,192.98	3,171.90	21.08	151.490		
5,000.00	4,842.53	4,768.07	4,842.77	21.82	9.24	-90.16	-1,054.57	-3,151.49	3,192.97	3,171.51	21.46	148.786		
5,100.00	4,942.53	4,868.04	4,942.70	21.90	9.47	-90.11	-1,051.95	-3,151.49	3,192.96	3,171.12	21.85	146.163		
5,200.00	5,042.53	4,968.01	5,042.63	21.99	9.70	-90.06	-1,049.33	-3,151.49	3,192.96	3,170.73	22.23	143.619		
5,300.00	5,142.53	5,067.97	5,142.56	22.08	9.93	-90.02	-1,046.72	-3,151.49	3,192.96	3,170.34	22.62	141.149		
5,348.60	5,191.13	5,116.55	5,191.13	22.13	10.04	-89.99	-1,045.44	-3,151.49	3,192.96	3,170.14	22.81	139.974		
5,400.00	5,242.53	5,167.94	5,242.49	22.18	10.16	-89.97	-1,044.10	-3,151.49	3,192.96	3,169.94	23.01	138.752		
5,500.00	5,342.53	5,267.90	5,342.43	22.27	10.38	-89.92	-1,041.48	-3,151.49	3,192.96	3,169.55	23.40	136.424		
5,600.00	5,442.53	5,367.87	5,442.36	22.37	10.61	-89.87	-1,038.87	-3,151.49	3,192.96	3,169.16	23.80	134.164		
5,700.00	5,542.53	5,467.83	5,542.29	22.47	10.84	-89.83	-1,036.25	-3,151.49	3,192.97	3,168.77	24.19	131.968		
5,800.00	5,642.53	5,567.80	5,642.22	22.57	11.07	-89.78	-1,033.63	-3,151.49	3,192.98	3,168.39	24.59	129.835		
5,900.00	5,742.53	5,667.77	5,742.15	22.67	11.30	-89.73	-1,031.01	-3,151.49	3,192.99	3,168.00	24.99	127.762		
6,000.00	5,842.53	5,767.73	5,842.08	22.78	11.53	-89.69	-1,028.40	-3,151.49	3,193.00	3,167.61	25.39	125.747		
6,070.01	5,912.54	5,837.72	5,912.05	22.85	11.69	-89.65	-1,026.57	-3,151.49	3,193.01	3,167.34	25.67	124.370		
6,075.00	5,917.53	5,842.71	5,917.03	22.88	11.70	-89.65	-1,026.44	-3,151.49	3,192.99	3,158.45	34.53	92.457		
6,100.00	5,942.51	5,867.68	5,942.00	22.88	11.75	-89.64	-1,025.78	-3,151.49	3,192.08	3,157.52	34.56	92.367		
6,125.00	5,967.41	5,892.57	5,966.88	22.91	11.81	-89.63	-1,025.13	-3,151.49	3,189.86	3,155.36	34.50	92.454		
6,150.00	5,992.16	5,917.31	5,991.61	22.94	11.87	-89.62	-1,024.48	-3,151.49	3,186.34	3,151.98	34.36	92.722		
6,175.00	6,016.69	5,941.83	6,016.12	22.96	11.92	-89.60	-1,023.84	-3,151.49	3,181.53	3,147.39	34.15	93.173		
6,200.00	6,040.93	5,966.06	6,040.35	22.99	11.98	-89.59	-1,023.21	-3,151.49	3,175.45	3,141.60	33.85	93.812		
6,225.00	6,064.82	5,989.94	6,064.22	23.02	12.03	-89.58	-1,022.58	-3,151.49	3,168.10	3,134.63	33.47	94.646		
6,250.00	6,088.30	6,013.41	6,087.68	23.05	12.09	-89.56	-1,021.97	-3,151.49	3,159.52	3,126.50	33.02	95.684		
6,275.00	6,111.29	6,036.39	6,110.66	23.08	12.14	-89.55	-1,021.37	-3,151.49	3,149.72	3,117.22	32.49	96.936		
6,300.00	6,133.74	6,058.83	6,133.09	23.10	12.19	-89.54	-1,020.78	-3,151.49	3,138.73	3,106.83	31.89	98.416		
6,325.00	6,155.58	6,080.67	6,154.91	23.13	12.24	-89.53	-1,020.21	-3,151.49	3,126.58	3,095.35	31.22	100.138		
6,350.00	6,176.76	6,101.83	6,176.07	23.16	12.29	-89.51	-1,019.65	-3,151.49	3,113.30	3,082.81	30.49	102.121		
6,375.00	6,197.21	6,122.28	6,196.51	23.20	12.34	-89.50	-1,019.12	-3,151.49	3,098.93	3,069.24	29.69	104.384		
6,400.00	6,216.88	6,141.94	6,216.17	23.23	12.38	-89.49	-1,018.60	-3,151.49	3,083.51	3,054.68	28.83	106.951		
6,425.00	6,235.72	6,160.77	6,234.99	23.27	12.42	-89.47	-1,018.11	-3,151.49	3,067.09	3,039.16	27.92	109.847		
6,450.00	6,253.67	6,178.71	6,252.93	23.30	12.46	-89.46	-1,017.64	-3,151.49	3,049.70	3,022.73	26.96	113.100		
6,475.00	6,270.68	6,195.72	6,269.93	23.34	12.50	-89.45	-1,017.17	-3,151.49	3,031.39	3,005.42	25.97	116.739		
6,500.00	6,286.72	6,211.75	6,285.95	23.39	12.54	-89.43	-1,016.78	-3,151.49	3,012.22	2,987.28	24.94	120.793		
6,525.00	6,301.73	6,226.75	6,300.95	23.44	12.57	-89.42	-1,016.38	-3,151.49	2,992.24	2,968.35	23.88	125.291		
6,550.00	6,315.67	6,240.69	6,314.88	23.49	12.61	-89.41	-1,016.02	-3,151.49	2,971.49	2,948.68	22.81	130.256		
6,575.00	6,328.51	6,253.52	6,327.70	23.55	12.64	-89.40	-1,015.68	-3,151.49	2,950.05	2,928.31	21.74	135.700		
6,600.00	6,340.21	6,265.21	6,339.39	23.61	12.66	-89.38	-1,015.38	-3,151.49	2,927.97	2,907.29	20.68	141.614		
6,625.00	6,350.73	6,275.73	6,349.91	23.69	12.69	-89.37	-1,015.10	-3,151.49	2,905.30	2,885.66	19.64	147.960		
6,650.00	6,360.06	6,285.05	6,359.22	23.77	12.71	-89.36	-1,014.86	-3,151.49	2,882.11	2,863.47	18.64	154.652		
6,675.00	6,368.15	6,293.14	6,367.31	23.86	12.73	-89.35	-1,014.64	-3,151.49	2,858.47	2,840.77	17.70	161.533		
6,700.00	6,375.00	6,299.98	6,374.15	23.96	12.74	-89.34	-1,014.47	-3,151.49	2,834.43	2,817.59	16.84	168.361		
6,725.00	6,380.58	6,305.56	6,379.73	24.07	12.75	-89.33	-1,014.32	-3,151.49	2,810.07	2,793.99	16.08	174.776		
6,750.00	6,384.88	6,309.85	6,384.02	24.20	12.76	-89.32	-1,014.21	-3,151.49	2,785.45	2,769.99	15.46	180.228		
6,775.00	6,387.88	6,312.85	6,387.02	24.34	12.77	-89.31	-1,014.13	-3,151.49	2,760.64	2,745.57	15.07	183.204		
6,800.00	6,389.59	6,314.55	6,388.72	24.49	12.77	-89.30	-1,014.08	-3,151.49	2,735.70	2,719.53	16.17	169.177		
6,820.01	6,390.00	6,314.97	6,389.13	24.63	12.78	-89.29	-1,014.07	-3,151.49	2,715.70	2,684.30	31.40	86.485		
6,900.00	6,390.00	6,314.96	6,389.13	25.30	12.78	-89.26	-1,014.07	-3,151.49	2,635.72	2,602.90	32.82	80.314		
7,000.00	6,390.00	6,314.95	6,389.11	26.43	12.78	-89.22	-1,014.07	-3,151.49	2,535.73	2,500.95	34.78	72.901		
7,100.00	6,390.00	6,314.94	6,389.10	27.88	12.78	-89.18	-1,014.07	-3,151.49	2,435.75	2,398.84	36.91	65.983		
7,200.00	6,390.00	6,314.93	6,389.09	29.62	12.78	-89.14	-1,014.07	-3,151.49	2,335.77	2,296.60	39.17	59.628		
7,300.00	6,390.00	6,314.92	6,389.08	31.57	12.78	-89.09	-1,014.07	-3,151.49	2,235.79	2,194.26	41.53	53.839		
7,400.00	6,390.00	6,314.91	6,389.07	33.70	12.78	-89.04	-1,014.07	-3,151.49	2,135.81	2,091.85	43.96	48.589		
7,500.00	6,390.00	6,314.90	6,389.06	35.94	12.78	-88.98	-1,014.08	-3,151.49	2,035.83	1,989.38	46.44	43.833		

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

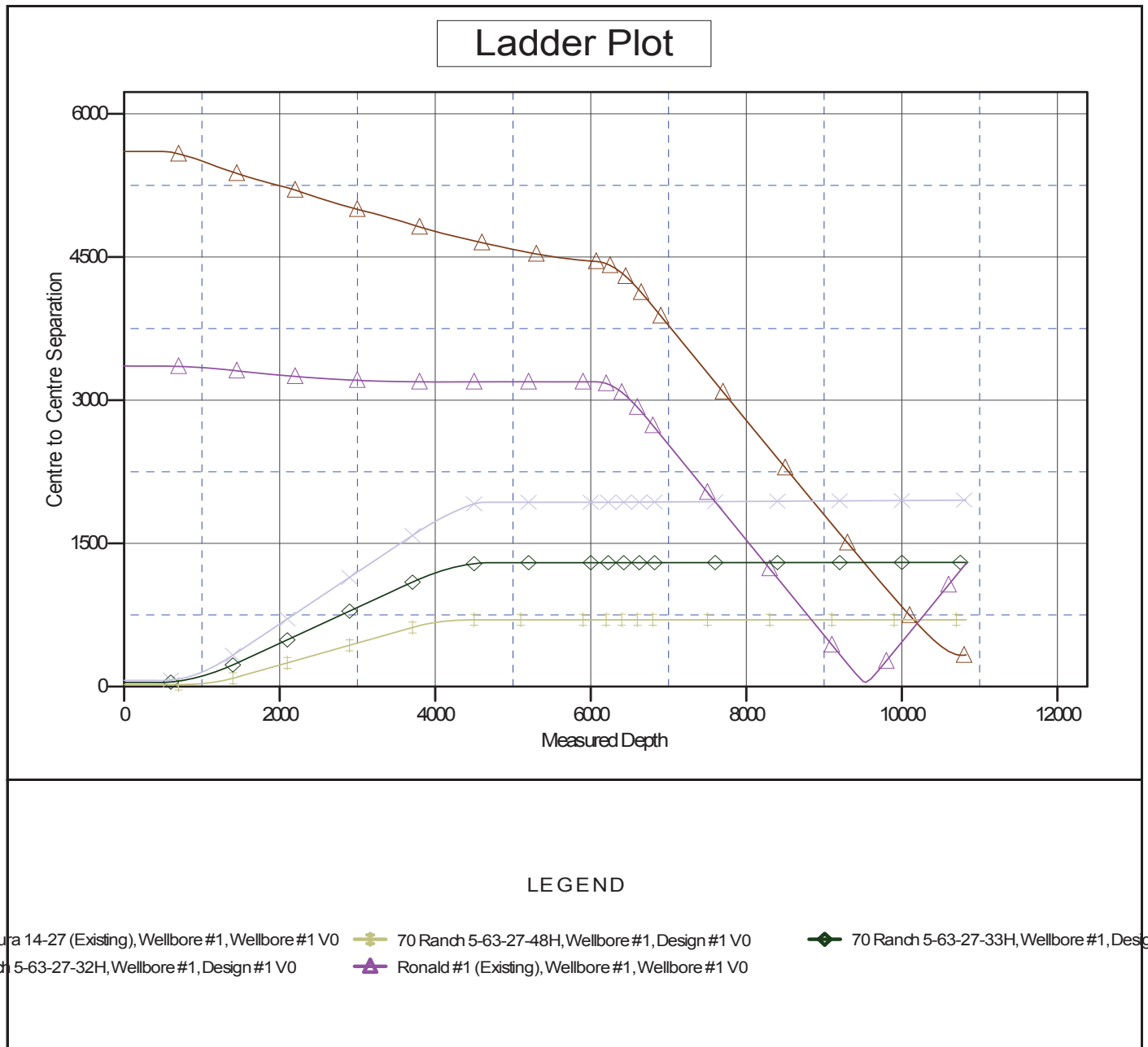
Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Sec.27-T5N-R63W - Ronald #1 (Existing) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.00 usft	
Survey Program: 1440-MWD													Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor						
7,600.00	6,390.00	6,314.89	6,389.05	38.28	12.78	-88.92	-1,014.08	-3,151.49	1,935.85	1,886.87	48.98	39.524						
7,700.00	6,390.00	6,314.88	6,389.04	40.69	12.78	-88.84	-1,014.08	-3,151.49	1,835.88	1,784.33	51.55	35.612						
7,800.00	6,390.00	6,314.87	6,389.03	43.16	12.78	-88.76	-1,014.08	-3,151.49	1,735.91	1,681.76	54.16	32.054						
7,900.00	6,390.00	6,314.86	6,389.02	45.68	12.78	-88.68	-1,014.08	-3,151.49	1,635.95	1,579.16	56.78	28.810						
8,000.00	6,390.00	6,314.84	6,389.01	48.23	12.78	-88.58	-1,014.08	-3,151.49	1,535.99	1,476.55	59.43	25.844						
8,100.00	6,390.00	6,314.83	6,389.00	50.81	12.78	-88.46	-1,014.08	-3,151.49	1,436.03	1,373.93	62.10	23.125						
8,200.00	6,390.00	6,314.82	6,388.99	53.42	12.78	-88.33	-1,014.08	-3,151.49	1,336.08	1,271.30	64.78	20.625						
8,300.00	6,390.00	6,314.81	6,388.98	56.05	12.78	-88.18	-1,014.08	-3,151.49	1,236.14	1,168.66	67.47	18.320						
8,400.00	6,390.00	6,314.80	6,388.97	58.69	12.78	-88.00	-1,014.08	-3,151.49	1,136.21	1,066.03	70.18	16.190						
8,500.00	6,390.00	6,314.79	6,388.96	61.36	12.78	-87.78	-1,014.08	-3,151.49	1,036.29	963.40	72.89	14.216						
8,600.00	6,390.00	6,314.78	6,388.95	64.03	12.78	-87.52	-1,014.08	-3,151.49	936.39	860.77	75.62	12.383						
8,700.00	6,390.00	6,314.77	6,388.94	66.72	12.78	-87.20	-1,014.08	-3,151.49	836.52	758.17	78.35	10.677						
8,800.00	6,390.00	6,314.76	6,388.93	69.42	12.78	-86.79	-1,014.08	-3,151.49	736.67	655.59	81.08	9.085						
8,900.00	6,390.00	6,314.75	6,388.92	72.12	12.78	-86.25	-1,014.08	-3,151.49	636.88	553.06	83.83	7.598						
9,000.00	6,390.00	6,314.74	6,388.91	74.84	12.78	-85.51	-1,014.08	-3,151.49	537.17	450.60	86.57	6.205						
9,100.00	6,390.00	6,314.73	6,388.89	77.56	12.78	-84.43	-1,014.08	-3,151.49	437.58	348.26	89.32	4.899						
9,200.00	6,390.00	6,314.72	6,388.88	80.29	12.78	-82.72	-1,014.08	-3,151.49	338.24	246.17	92.08	3.673						
9,300.00	6,390.00	6,314.71	6,388.87	83.02	12.78	-79.60	-1,014.08	-3,151.49	239.46	144.62	94.84	2.525						
9,400.00	6,390.00	6,314.70	6,388.86	85.76	12.78	-72.16	-1,014.08	-3,151.49	142.37	44.77	97.60	1.459	Level 3					
9,500.00	6,390.00	6,314.69	6,388.85	88.50	12.78	-38.91	-1,014.08	-3,151.49	56.56	-43.80	100.36	0.564	Level 1					
9,535.35	6,390.00	6,314.68	6,388.85	89.47	12.78	-0.23	-1,014.08	-3,151.49	44.15	-57.19	101.34	0.436	Level 1, CC, ES, SF					
9,600.00	6,390.00	6,314.68	6,388.84	91.25	12.78	55.46	-1,014.08	-3,151.49	78.29	-24.84	103.13	0.759	Level 1					
9,700.00	6,390.00	6,314.67	6,388.83	94.00	12.78	74.77	-1,014.08	-3,151.49	170.47	64.57	105.90	1.610						
9,800.00	6,390.00	6,314.66	6,388.82	96.76	12.77	80.31	-1,014.08	-3,151.49	268.31	159.63	108.67	2.469						
9,900.00	6,390.00	6,314.65	6,388.81	99.51	12.77	82.88	-1,014.08	-3,151.49	367.31	255.87	111.45	3.296						
10,000.00	6,390.00	6,314.64	6,388.80	102.27	12.77	84.35	-1,014.08	-3,151.49	466.74	352.52	114.22	4.086						
10,100.00	6,390.00	6,314.63	6,388.79	105.04	12.77	85.31	-1,014.08	-3,151.49	566.37	449.37	117.00	4.841						
10,200.00	6,390.00	6,314.61	6,388.78	107.80	12.77	85.98	-1,014.08	-3,151.49	666.11	546.34	119.78	5.561						
10,300.00	6,390.00	6,314.60	6,388.77	110.57	12.77	86.47	-1,014.08	-3,151.49	765.92	643.36	122.56	6.249						
10,400.00	6,390.00	6,314.59	6,388.76	113.34	12.77	86.86	-1,014.08	-3,151.49	865.78	740.43	125.34	6.907						
10,500.00	6,390.00	6,314.58	6,388.75	116.11	12.77	87.16	-1,014.08	-3,151.49	965.66	837.54	128.12	7.537						
10,600.00	6,390.00	6,314.57	6,388.74	118.89	12.77	87.40	-1,014.08	-3,151.49	1,065.56	934.66	130.91	8.140						
10,700.00	6,390.00	6,314.56	6,388.73	121.66	12.77	87.61	-1,014.08	-3,151.49	1,165.49	1,031.79	133.69	8.718						
10,800.00	6,390.00	6,314.55	6,388.72	124.44	12.77	87.78	-1,014.08	-3,151.49	1,265.42	1,128.94	136.48	9.272						
10,826.98	6,390.00	6,314.55	6,388.71	125.19	12.77	87.82	-1,014.08	-3,151.49	1,292.38	1,155.15	137.23	9.418						

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 4612.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.00W

Coordinates are relative to: 70 Ranch 5-63-27-49H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

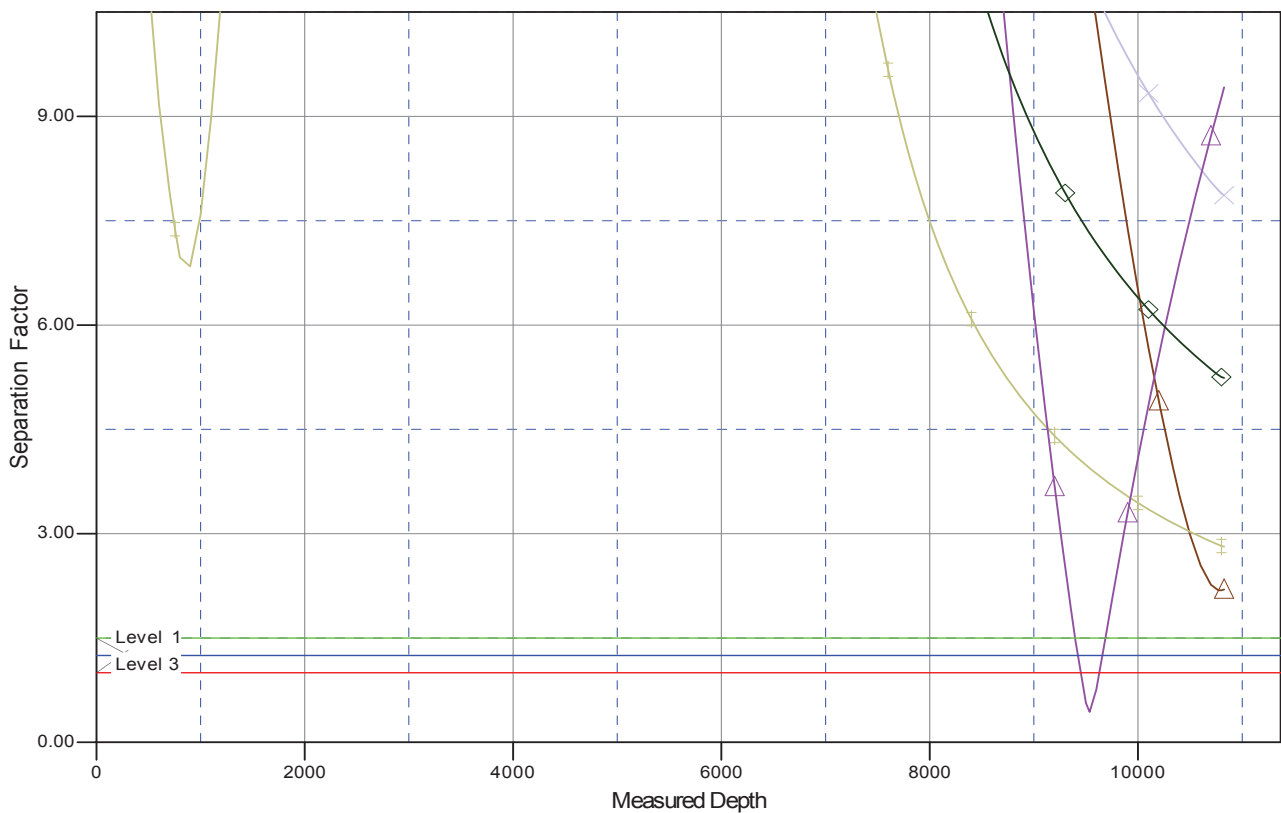


Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-49H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4612.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4612.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	70 Ranch 5-63-27-49H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

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

Coordinates are relative to: 70 Ranch 5-63-27-49H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

Separation Factor Plot



LEGEND

aura 14-27 (Existing), Wellbore #1, Wellbore #1 V0 70 Ranch 5-63-27-48H, Wellbore #1, Design #1 V0 70 Ranch 5-63-27-33H, Wellbore #1, Design #1 V0
id 5-63-27-32H, Wellbore #1, Design #1 V0 Ronald #1 (Existing), Wellbore #1, Wellbore #1 V0