

Well Planning Proposal FOR

**Bill Barrett Corp.
70 Ranch 5-63-27-33H
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 5-63-27-33H
Wellbore: Wellbore #1
Design: Design #1
Lat: 40° 22' 7.032 N
Long: 104° 24' 47.412 W
Pad GL: 4595.00
KB: WELL @ 4613.00usft



PROJECT DETAILS: Weld Co., CO

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



Azimuths to True North
Magnetic North: 8.58°

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

WELL DETAILS: 70 Ranch 5-63-27-33H

Ground Level:	4595.00	
Latitude	40° 22' 7.032 N	Longitude
3302825.939	104° 24' 47.412 W	Slot

WELLBORE TARGET DETAILS (LAT/LONG)

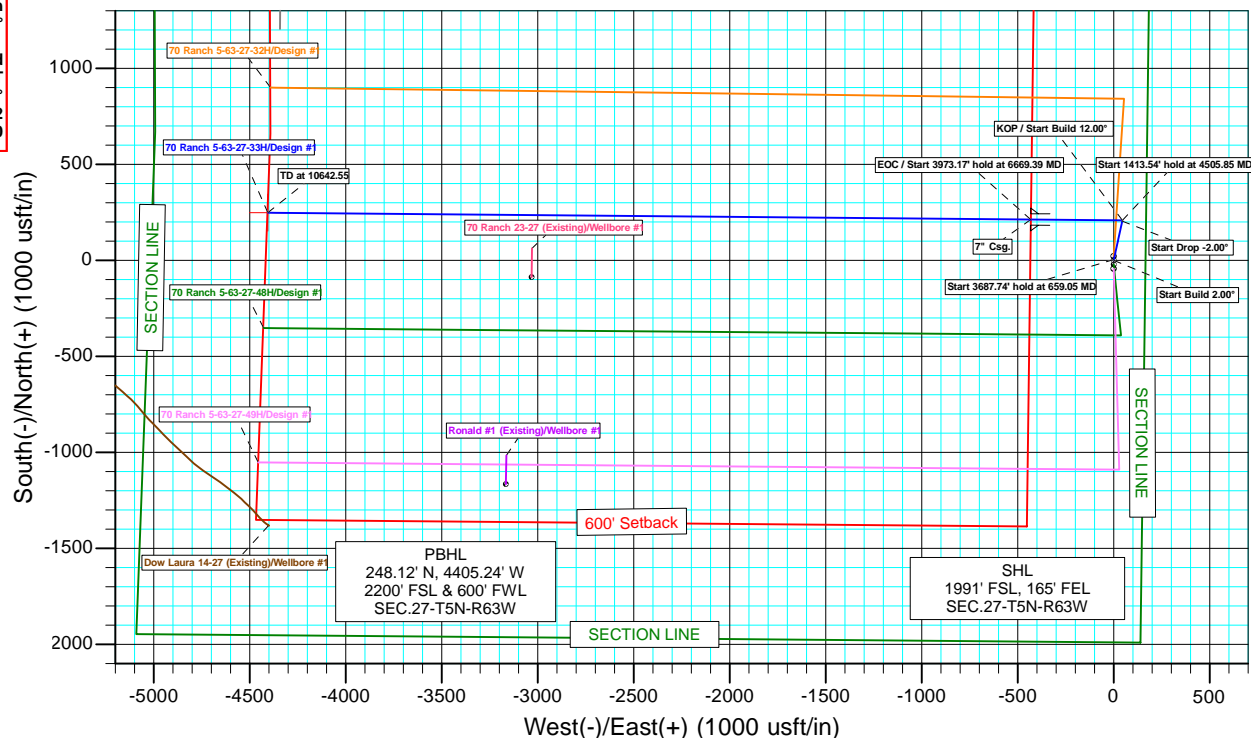
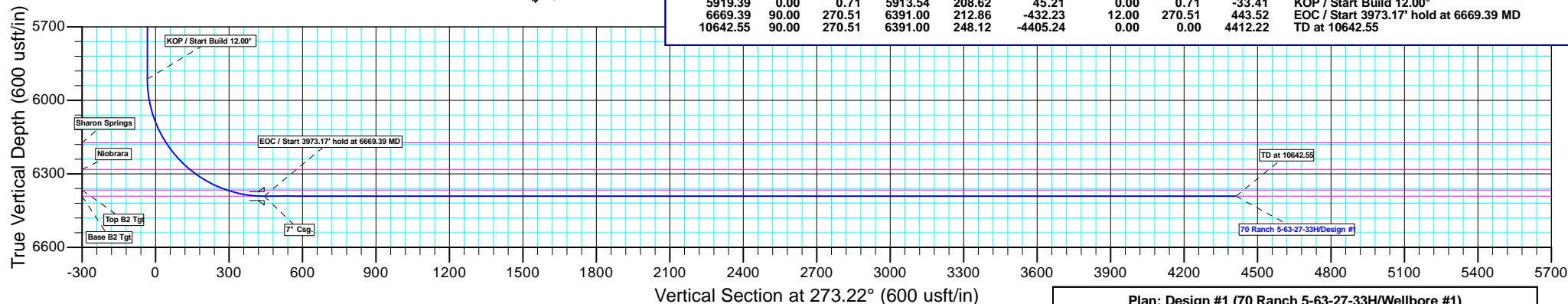
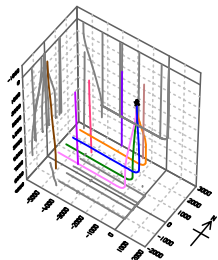
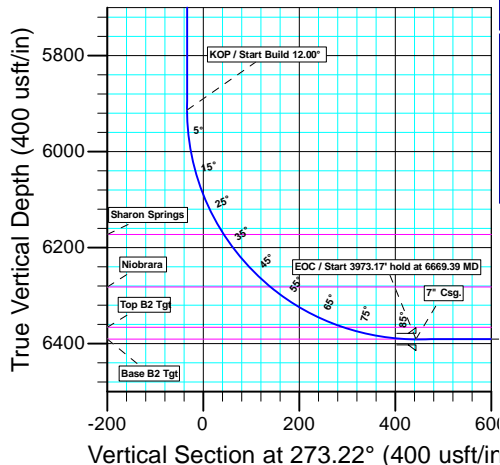
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
70 Ranch 5-63-27-33H PBHL	6391.00	248.12	-4405.24	40° 22' 9.480 N	104° 25' 44.328 W	

CASING DETAILS

TVD	MD	Name	Size
6391.00	6669.39	7" Csg.	7

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
263.00	263.00	Pierre
4013.00	4018.26	Terry/Sussex
4663.00	4668.85	Shannon
6173.00	6193.69	Sharon Springs
6282.00	6340.28	Niobrara
6366.00	6514.18	Top B2 Tgt
6391.00	6667.24	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	0.71	500.00	0.00	0.00	0.00	0.71	0.00	Start Build 2.00°
659.05	3.18	12.23	658.97	4.31	0.93	2.00	12.23	-0.69	Start 3687.74' hold at 659.05 MD
4346.79	3.18	12.23	4341.03	204.31	44.28	0.00	0.00	-32.72	Start Drop -2.00°
4505.85	0.00	0.71	4500.00	208.62	45.21	2.00	180.00	-33.41	Start 1413.54' hold at 4505.85 MD
5919.39	0.00	0.71	5913.54	208.62	45.21	0.00	0.71	-33.41	KOP / Start Build 12.00°
6669.39	90.00	270.51	6391.00	212.86	-432.23	12.00	270.51	443.52	EOC / Start 3973.17' hold at 6669.39 MD
10642.55	90.00	270.51	6391.00	248.12	-4405.24	0.00	0.00	4412.22	TD at 10642.55

Plan: Design #1 (70 Ranch 5-63-27-33H/Wellbore #1)

Created By: Bret Wolford

Date: 15:29, February 14 2012





Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.27-T5N-R63W

70 Ranch 5-63-27-33H

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 5-63-27-33H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4613.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4613.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-33H	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 5-63-27-33H					
Well Position	+N/-S	43.71 usft	Northing:	1,378,984.580 usft	Latitude:	40° 22' 7.032 N
	+E/-W	0.00 usft	Easting:	3,302,825.939 usft	Longitude:	104° 24' 47.412 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,595.00 usft

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

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	273.22

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.71	500.00	0.00	0.00	0.00	0.00	0.00	0.71	
659.05	3.18	12.23	658.97	4.31	0.93	2.00	2.00	0.00	12.23	
4,346.79	3.18	12.23	4,341.03	204.31	44.28	0.00	0.00	0.00	0.00	
4,505.85	0.00	0.71	4,500.00	208.62	45.21	2.00	-2.00	0.00	180.00	
5,919.39	0.00	0.71	5,913.54	208.62	45.21	0.00	0.00	0.00	0.71	
6,669.39	90.00	270.51	6,391.00	212.86	-432.23	12.00	12.00	0.00	270.51	70 Ranch 5-63-27-33H
10,642.55	90.00	270.51	6,391.00	248.12	-4,405.24	0.00	0.00	0.00	0.00	70 Ranch 5-63-27-33H

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4613.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4613.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.71	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.71	200.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
263.00	0.00	0.71	263.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.71	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.71	400.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00°									
500.00	0.00	0.71	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	12.23	599.98	1.71	0.37	-0.27	2.00	2.00	0.00
Start 3687.74' hold at 659.05 MD									
659.05	3.18	12.23	658.97	4.31	0.93	-0.69	2.00	2.00	0.00
700.00	3.18	12.23	699.86	6.53	1.42	-1.05	0.00	0.00	0.00
800.00	3.18	12.23	799.70	11.96	2.59	-1.91	0.00	0.00	0.00
900.00	3.18	12.23	899.55	17.38	3.77	-2.78	0.00	0.00	0.00
1,000.00	3.18	12.23	999.39	22.80	4.94	-3.65	0.00	0.00	0.00
1,100.00	3.18	12.23	1,099.24	28.23	6.12	-4.52	0.00	0.00	0.00
1,200.00	3.18	12.23	1,199.08	33.65	7.29	-5.39	0.00	0.00	0.00
1,300.00	3.18	12.23	1,298.93	39.07	8.47	-6.26	0.00	0.00	0.00
1,400.00	3.18	12.23	1,398.78	44.50	9.64	-7.13	0.00	0.00	0.00
1,500.00	3.18	12.23	1,498.62	49.92	10.82	-7.99	0.00	0.00	0.00
1,600.00	3.18	12.23	1,598.47	55.34	11.99	-8.86	0.00	0.00	0.00
1,700.00	3.18	12.23	1,698.31	60.77	13.17	-9.73	0.00	0.00	0.00
1,800.00	3.18	12.23	1,798.16	66.19	14.34	-10.60	0.00	0.00	0.00
1,900.00	3.18	12.23	1,898.01	71.61	15.52	-11.47	0.00	0.00	0.00
2,000.00	3.18	12.23	1,997.85	77.04	16.70	-12.34	0.00	0.00	0.00
2,100.00	3.18	12.23	2,097.70	82.46	17.87	-13.21	0.00	0.00	0.00
2,200.00	3.18	12.23	2,197.54	87.88	19.05	-14.07	0.00	0.00	0.00
2,300.00	3.18	12.23	2,297.39	93.31	20.22	-14.94	0.00	0.00	0.00
2,400.00	3.18	12.23	2,397.24	98.73	21.40	-15.81	0.00	0.00	0.00
2,500.00	3.18	12.23	2,497.08	104.15	22.57	-16.68	0.00	0.00	0.00
2,600.00	3.18	12.23	2,596.93	109.58	23.75	-17.55	0.00	0.00	0.00
2,700.00	3.18	12.23	2,696.77	115.00	24.92	-18.42	0.00	0.00	0.00
2,800.00	3.18	12.23	2,796.62	120.42	26.10	-19.28	0.00	0.00	0.00
2,900.00	3.18	12.23	2,896.47	125.84	27.27	-20.15	0.00	0.00	0.00
3,000.00	3.18	12.23	2,996.31	131.27	28.45	-21.02	0.00	0.00	0.00
3,100.00	3.18	12.23	3,096.16	136.69	29.62	-21.89	0.00	0.00	0.00
3,200.00	3.18	12.23	3,196.00	142.11	30.80	-22.76	0.00	0.00	0.00
3,300.00	3.18	12.23	3,295.85	147.54	31.97	-23.63	0.00	0.00	0.00
3,400.00	3.18	12.23	3,395.70	152.96	33.15	-24.50	0.00	0.00	0.00
3,500.00	3.18	12.23	3,495.54	158.38	34.33	-25.36	0.00	0.00	0.00
3,600.00	3.18	12.23	3,595.39	163.81	35.50	-26.23	0.00	0.00	0.00
3,700.00	3.18	12.23	3,695.23	169.23	36.68	-27.10	0.00	0.00	0.00
3,800.00	3.18	12.23	3,795.08	174.65	37.85	-27.97	0.00	0.00	0.00
3,900.00	3.18	12.23	3,894.92	180.08	39.03	-28.84	0.00	0.00	0.00
4,000.00	3.18	12.23	3,994.77	185.50	40.20	-29.71	0.00	0.00	0.00
Terry/Sussex									
4,018.26	3.18	12.23	4,013.00	186.49	40.42	-29.87	0.00	0.00	0.00
4,100.00	3.18	12.23	4,094.62	190.92	41.38	-30.58	0.00	0.00	0.00
4,200.00	3.18	12.23	4,194.46	196.35	42.55	-31.44	0.00	0.00	0.00
4,300.00	3.18	12.23	4,294.31	201.77	43.73	-32.31	0.00	0.00	0.00
Start Drop -2.00°									
4,346.79	3.18	12.23	4,341.03	204.31	44.28	-32.72	0.00	0.00	0.00
4,400.00	2.12	12.23	4,394.18	206.71	44.80	-33.10	2.00	-2.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4613.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4613.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Start 1413.54' hold at 4505.85 MD									
4,505.85	0.00	0.71	4,500.00	208.62	45.21	-33.41	2.00	-2.00	0.00
4,600.00	0.00	0.71	4,594.15	208.62	45.21	-33.41	0.00	0.00	0.00
Shannon									
4,668.85	0.00	0.71	4,663.00	208.62	45.21	-33.41	0.00	0.00	0.00
4,700.00	0.00	0.71	4,694.15	208.62	45.21	-33.41	0.00	0.00	0.00
4,800.00	0.00	0.71	4,794.15	208.62	45.21	-33.41	0.00	0.00	0.00
4,900.00	0.00	0.71	4,894.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,000.00	0.00	0.71	4,994.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,100.00	0.00	0.71	5,094.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,200.00	0.00	0.71	5,194.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,300.00	0.00	0.71	5,294.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,400.00	0.00	0.71	5,394.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,500.00	0.00	0.71	5,494.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,600.00	0.00	0.71	5,594.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,700.00	0.00	0.71	5,694.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,800.00	0.00	0.71	5,794.15	208.62	45.21	-33.41	0.00	0.00	0.00
5,900.00	0.00	0.71	5,894.15	208.62	45.21	-33.41	0.00	0.00	0.00
KOP / Start Build 12.00°									
5,919.39	0.00	0.71	5,913.54	208.62	45.21	-33.41	0.00	0.00	0.00
5,925.00	0.67	270.51	5,919.15	208.62	45.18	-33.38	12.00	12.00	0.00
5,950.00	3.67	270.51	5,944.13	208.63	44.23	-32.43	12.00	12.00	0.00
5,975.00	6.67	270.51	5,969.03	208.65	41.98	-30.18	12.00	12.00	0.00
6,000.00	9.67	270.51	5,993.77	208.68	38.42	-26.63	12.00	12.00	0.00
6,025.00	12.67	270.51	6,018.30	208.72	33.58	-21.79	12.00	12.00	0.00
6,050.00	15.67	270.51	6,042.53	208.78	27.46	-15.68	12.00	12.00	0.00
6,075.00	18.67	270.51	6,066.41	208.84	20.08	-8.30	12.00	12.00	0.00
6,100.00	21.67	270.51	6,089.88	208.92	11.46	0.31	12.00	12.00	0.00
6,125.00	24.67	270.51	6,112.86	209.01	1.62	10.13	12.00	12.00	0.00
6,150.00	27.67	270.51	6,135.29	209.11	-9.40	21.15	12.00	12.00	0.00
6,175.00	30.67	270.51	6,157.12	209.21	-21.59	33.32	12.00	12.00	0.00
Sharon Springs									
6,193.69	32.92	270.51	6,173.00	209.30	-31.43	43.15	12.00	12.00	0.00
6,200.00	33.67	270.51	6,178.28	209.33	-34.90	46.62	12.00	12.00	0.00
6,225.00	36.67	270.51	6,198.71	209.46	-49.30	61.00	12.00	12.00	0.00
6,250.00	39.67	270.51	6,218.36	209.60	-64.75	76.43	12.00	12.00	0.00
6,275.00	42.67	270.51	6,237.18	209.74	-81.20	92.87	12.00	12.00	0.00
6,300.00	45.67	270.51	6,255.11	209.90	-98.62	110.27	12.00	12.00	0.00
6,325.00	48.67	270.51	6,272.10	210.06	-116.95	128.58	12.00	12.00	0.00
Niobrara									
6,340.28	50.51	270.51	6,282.00	210.16	-128.58	140.20	12.00	12.00	0.00
6,350.00	51.67	270.51	6,288.11	210.23	-136.15	147.76	12.00	12.00	0.00
6,375.00	54.67	270.51	6,303.09	210.41	-156.16	167.74	12.00	12.00	0.00
6,400.00	57.67	270.51	6,317.01	210.59	-176.92	188.49	12.00	12.00	0.00
6,425.00	60.67	270.51	6,329.82	210.78	-198.39	209.93	12.00	12.00	0.00
6,450.00	63.67	270.51	6,341.48	210.98	-220.49	232.01	12.00	12.00	0.00
6,475.00	66.67	270.51	6,351.98	211.18	-243.18	254.67	12.00	12.00	0.00
6,500.00	69.67	270.51	6,361.27	211.39	-266.38	277.85	12.00	12.00	0.00
Top B2 Tgt									
6,514.18	71.38	270.51	6,366.00	211.51	-279.75	291.20	12.00	12.00	0.00
6,525.00	72.67	270.51	6,369.34	211.60	-290.04	301.48	12.00	12.00	0.00
6,550.00	75.67	270.51	6,376.16	211.81	-314.09	325.51	12.00	12.00	0.00
6,575.00	78.67	270.51	6,381.71	212.03	-338.46	349.85	12.00	12.00	0.00

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Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,600.00	81.67	270.51	6,385.97	212.25	-363.09	374.46	12.00	12.00	0.00
6,625.00	84.67	270.51	6,388.94	212.47	-387.91	399.25	12.00	12.00	0.00
6,650.00	87.67	270.51	6,390.61	212.69	-412.85	424.16	12.00	12.00	0.00
Base B2 Tgt									
6,667.24	89.74	270.51	6,391.00	212.84	-430.09	441.38	12.00	12.00	0.00
EOC / Start 3973.17' hold at 6669.39 MD - 7" Csg.									
6,669.39	90.00	270.51	6,391.00	212.86	-432.24	443.52	11.97	11.97	0.00
6,700.00	90.00	270.51	6,391.00	213.13	-462.85	474.10	0.00	0.00	0.00
6,800.00	90.00	270.51	6,391.00	214.02	-562.84	573.99	0.00	0.00	0.00
6,900.00	90.00	270.51	6,391.00	214.91	-662.84	673.87	0.00	0.00	0.00
7,000.00	90.00	270.51	6,391.00	215.79	-762.83	773.76	0.00	0.00	0.00
7,100.00	90.00	270.51	6,391.00	216.68	-862.83	873.65	0.00	0.00	0.00
7,200.00	90.00	270.51	6,391.00	217.57	-962.83	973.54	0.00	0.00	0.00
7,300.00	90.00	270.51	6,391.00	218.46	-1,062.82	1,073.43	0.00	0.00	0.00
7,400.00	90.00	270.51	6,391.00	219.34	-1,162.82	1,173.31	0.00	0.00	0.00
7,500.00	90.00	270.51	6,391.00	220.23	-1,262.81	1,273.20	0.00	0.00	0.00
7,600.00	90.00	270.51	6,391.00	221.12	-1,362.81	1,373.09	0.00	0.00	0.00
7,700.00	90.00	270.51	6,391.00	222.01	-1,462.81	1,472.98	0.00	0.00	0.00
7,800.00	90.00	270.51	6,391.00	222.89	-1,562.80	1,572.86	0.00	0.00	0.00
7,900.00	90.00	270.51	6,391.00	223.78	-1,662.80	1,672.75	0.00	0.00	0.00
8,000.00	90.00	270.51	6,391.00	224.67	-1,762.80	1,772.64	0.00	0.00	0.00
8,100.00	90.00	270.51	6,391.00	225.56	-1,862.79	1,872.53	0.00	0.00	0.00
8,200.00	90.00	270.51	6,391.00	226.44	-1,962.79	1,972.42	0.00	0.00	0.00
8,300.00	90.00	270.51	6,391.00	227.33	-2,062.78	2,072.30	0.00	0.00	0.00
8,400.00	90.00	270.51	6,391.00	228.22	-2,162.78	2,172.19	0.00	0.00	0.00
8,500.00	90.00	270.51	6,391.00	229.11	-2,262.78	2,272.08	0.00	0.00	0.00
8,600.00	90.00	270.51	6,391.00	229.99	-2,362.77	2,371.97	0.00	0.00	0.00
8,700.00	90.00	270.51	6,391.00	230.88	-2,462.77	2,471.85	0.00	0.00	0.00
8,800.00	90.00	270.51	6,391.00	231.77	-2,562.76	2,571.74	0.00	0.00	0.00
8,900.00	90.00	270.51	6,391.00	232.66	-2,662.76	2,671.63	0.00	0.00	0.00
9,000.00	90.00	270.51	6,391.00	233.54	-2,762.76	2,771.52	0.00	0.00	0.00
9,100.00	90.00	270.51	6,391.00	234.43	-2,862.75	2,871.40	0.00	0.00	0.00
9,200.00	90.00	270.51	6,391.00	235.32	-2,962.75	2,971.29	0.00	0.00	0.00
9,300.00	90.00	270.51	6,391.00	236.21	-3,062.74	3,071.18	0.00	0.00	0.00
9,400.00	90.00	270.51	6,391.00	237.09	-3,162.74	3,171.07	0.00	0.00	0.00
9,500.00	90.00	270.51	6,391.00	237.98	-3,262.74	3,270.96	0.00	0.00	0.00
9,600.00	90.00	270.51	6,391.00	238.87	-3,362.73	3,370.84	0.00	0.00	0.00
9,700.00	90.00	270.51	6,391.00	239.76	-3,462.73	3,470.73	0.00	0.00	0.00
9,800.00	90.00	270.51	6,391.00	240.64	-3,562.72	3,570.62	0.00	0.00	0.00
9,900.00	90.00	270.51	6,391.00	241.53	-3,662.72	3,670.51	0.00	0.00	0.00
10,000.00	90.00	270.51	6,391.00	242.42	-3,762.72	3,770.39	0.00	0.00	0.00
10,100.00	90.00	270.51	6,391.00	243.31	-3,862.71	3,870.28	0.00	0.00	0.00
10,200.00	90.00	270.51	6,391.00	244.19	-3,962.71	3,970.17	0.00	0.00	0.00
10,300.00	90.00	270.51	6,391.00	245.08	-4,062.70	4,070.06	0.00	0.00	0.00
10,400.00	90.00	270.51	6,391.00	245.97	-4,162.70	4,169.95	0.00	0.00	0.00
10,500.00	90.00	270.51	6,391.00	246.86	-4,262.70	4,269.83	0.00	0.00	0.00
10,600.00	90.00	270.51	6,391.00	247.74	-4,362.69	4,369.72	0.00	0.00	0.00
TD at 10642.55 - 70 Ranch 5-63-27-33H PBHL									
10,642.55	90.00	270.51	6,391.00	248.12	-4,405.24	4,412.22	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4613.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4613.00usft
Site:	Sec.27-T5N-R63W	North Reference:	True
Well:	70 Ranch 5-63-27-33H	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 5-63-27-33H F	0.00	0.00	6,391.00	248.12	-4,405.24	1,379,178.691	3,298,417.986	40° 22' 9.480 N	104° 25' 44.328 W
- plan hits target center									
- Point									

Casing Points				
Measured Depth	Vertical Depth	Name		
(usft)	(usft)			
		Casing Diameter	Hole Diameter	
		(")	(")	
6,669.39	6,391.00	7" Csg.	7	8-3/4

Formations					
Measured Depth	Vertical Depth	Name		Dip	Dip Direction
(usft)	(usft)		Lithology	(°)	(°)
263.00	263.00	Pierre		0.00	
4,018.26	4,013.00	Terry/Sussex		0.00	
4,668.85	4,663.00	Shannon		0.00	
6,193.69	6,173.00	Sharon Springs		0.00	
6,340.28	6,282.00	Niobrara		0.00	
6,514.18	6,366.00	Top B2 Tgt		0.00	
6,667.24	6,391.00	Base B2 Tgt		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(usft)	(usft)	+N/-S	+E/-W	Comment
		(usft)	(usft)	
500.00	500.00	0.00	0.00	Start Build 2.00°
659.05	658.97	4.31	0.93	Start 3687.74' hold at 659.05 MD
4,346.79	4,341.03	204.31	44.28	Start Drop -2.00°
4,505.85	4,500.00	208.62	45.21	Start 1413.54' hold at 4505.85 MD
5,919.39	5,913.54	208.62	45.21	KOP / Start Build 12.00°
6,669.39	6,391.00	212.86	-432.23	EOC / Start 3973.17' hold at 6669.39 MD
10,642.55	6,391.00	248.12	-4,405.24	TD at 10642.55



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.27-T5N-R63W

70 Ranch 5-63-27-33H

Wellbore #1

Design #1

Anticollision Report

14 February, 2012



Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	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	10,642.55	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Site Name Offset Well - Wellbore - Design						
Sec.27-T5N-R63W						
70 Ranch 23-27 (Existing) - Wellbore #1 - Wellbore #1	9,265.45	6,328.46	176.40	78.39	1.800	CC, ES, SF
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	466.33	467.33	21.86	20.02	11.922	CC
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	659.05	658.84	21.98	19.28	8.143	ES
70 Ranch 5-63-27-32H - Wellbore #1 - Design #1	10,642.55	10,725.79	652.24	404.81	2.636	SF
70 Ranch 5-63-27-48H - Wellbore #1 - Design #1	500.00	499.00	21.86	19.88	11.038	CC, ES
70 Ranch 5-63-27-48H - Wellbore #1 - Design #1	10,642.55	10,651.02	601.25	354.05	2.432	SF
70 Ranch 5-63-27-49H - Wellbore #1 - Design #1	500.00	499.00	43.71	41.73	22.074	CC, ES
70 Ranch 5-63-27-49H - Wellbore #1 - Design #1	10,642.55	10,787.50	1,300.90	1,053.75	5.264	SF

Offset Design	Sec.27-T5N-R63W - 70 Ranch 23-27 (Existing) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.00 usft
Survey Program:	1440-MWD											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance				Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	69.00	0.00	0.00	-91.65	-87.24	-3,031.61	3,033.65				
100.00	100.00	31.07	100.07	0.09	0.04	-91.65	-87.24	-3,031.61	3,032.86	3,032.73	0.13	N/A	
200.00	200.00	131.30	200.30	0.32	0.15	-91.65	-87.09	-3,031.60	3,032.85	3,032.39	0.47	6,495.353	
300.00	300.00	231.52	300.52	0.54	0.26	-91.64	-86.76	-3,031.60	3,032.84	3,032.04	0.81	3,762.605	
400.00	400.00	331.75	400.74	0.77	0.38	-91.63	-86.24	-3,031.59	3,032.82	3,031.68	1.15	2,648.363	
500.00	500.00	431.97	500.96	0.99	0.49	-91.62	-85.55	-3,031.59	3,032.79	3,031.31	1.48	2,043.267	
503.84	503.84	435.82	504.81	1.00	0.50	-91.62	-85.52	-3,031.58	3,032.79	3,031.29	1.50	2,025.225	
600.00	599.98	532.18	601.18	1.22	0.61	-91.63	-84.67	-3,031.57	3,033.17	3,031.35	1.82	1,664.155	
659.05	658.97	591.33	660.32	1.35	0.68	-91.67	-84.07	-3,031.57	3,033.79	3,031.77	2.02	1,499.819	
700.00	699.86	632.33	701.32	1.45	0.72	-91.70	-83.61	-3,031.56	3,034.32	3,032.15	2.16	1,403.078	
800.00	799.70	732.47	801.45	1.67	0.84	-91.78	-82.37	-3,031.55	3,035.60	3,033.10	2.51	1,210.686	
900.00	899.55	832.63	901.60	1.91	0.95	-91.86	-80.94	-3,031.53	3,036.89	3,034.03	2.86	1,063.597	
1,000.00	999.39	932.80	1,001.76	2.14	1.07	-91.93	-79.33	-3,031.51	3,038.17	3,034.96	3.21	947.821	
1,100.00	1,099.24	1,032.99	1,101.93	2.38	1.18	-91.99	-77.54	-3,031.49	3,039.45	3,035.89	3.56	854.478	
1,200.00	1,199.08	1,133.18	1,202.10	2.62	1.29	-92.06	-75.57	-3,031.46	3,040.72	3,036.81	3.91	777.709	
1,300.00	1,298.93	1,233.39	1,302.29	2.86	1.41	-92.12	-73.41	-3,031.44	3,041.99	3,037.72	4.26	713.507	
1,400.00	1,398.78	1,333.62	1,402.48	3.10	1.52	-92.18	-71.07	-3,031.41	3,043.25	3,038.63	4.62	659.045	
1,500.00	1,498.62	1,433.85	1,502.68	3.34	1.64	-92.23	-68.55	-3,031.38	3,044.50	3,039.53	4.97	612.281	
1,600.00	1,598.47	1,533.82	1,602.62	3.58	1.86	-92.28	-65.94	-3,031.34	3,045.76	3,040.32	5.43	560.412	
1,700.00	1,698.31	1,633.77	1,702.54	3.83	2.09	-92.33	-63.32	-3,031.31	3,047.01	3,041.11	5.90	516.089	

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 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	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		
1,800.00	1,798.16	1,733.73	1,802.46	4.07	2.32	-92.39	-60.70	-3,031.28	3,048.27	3,041.90	6.37	478.273		
1,900.00	1,898.01	1,833.68	1,902.38	4.31	2.54	-92.44	-58.09	-3,031.25	3,049.53	3,042.69	6.84	445.633		
2,000.00	1,997.85	1,933.63	2,002.30	4.55	2.77	-92.49	-55.47	-3,031.22	3,050.79	3,043.48	7.31	417.176		
2,100.00	2,097.70	2,033.59	2,102.22	4.80	3.00	-92.54	-52.85	-3,031.18	3,052.06	3,044.28	7.78	392.147		
2,200.00	2,197.54	2,133.54	2,202.14	5.04	3.23	-92.59	-50.24	-3,031.15	3,053.33	3,045.07	8.25	369.964		
2,300.00	2,297.39	2,233.50	2,302.06	5.28	3.46	-92.64	-47.62	-3,031.12	3,054.60	3,045.87	8.72	350.168		
2,400.00	2,397.24	2,333.45	2,401.98	5.53	3.68	-92.70	-45.01	-3,031.09	3,055.87	3,046.68	9.19	332.394		
2,500.00	2,497.08	2,433.40	2,501.90	5.77	3.91	-92.75	-42.39	-3,031.06	3,057.15	3,047.48	9.66	316.347		
2,600.00	2,596.93	2,533.36	2,601.82	6.01	4.14	-92.80	-39.77	-3,031.02	3,058.42	3,048.29	10.13	301.789		
2,700.00	2,696.77	2,633.31	2,701.74	6.26	4.37	-92.85	-37.16	-3,030.99	3,059.70	3,049.10	10.60	288.521		
2,800.00	2,796.62	2,733.27	2,801.66	6.50	4.60	-92.90	-34.54	-3,030.96	3,060.99	3,049.91	11.08	276.379		
2,900.00	2,896.47	2,833.22	2,901.58	6.74	4.83	-92.95	-31.92	-3,030.93	3,062.27	3,050.73	11.55	265.226		
3,000.00	2,996.31	2,933.17	3,001.50	6.99	5.05	-93.00	-29.31	-3,030.90	3,063.56	3,051.54	12.02	254.947		
3,100.00	3,096.16	3,033.13	3,101.42	7.23	5.28	-93.06	-26.69	-3,030.86	3,064.85	3,052.36	12.49	245.441		
3,200.00	3,196.00	3,133.08	3,201.34	7.47	5.51	-93.11	-24.07	-3,030.83	3,066.14	3,053.19	12.96	236.626		
3,300.00	3,295.85	3,233.04	3,301.26	7.72	5.74	-93.16	-21.46	-3,030.80	3,067.44	3,054.01	13.43	228.429		
3,400.00	3,395.70	3,332.99	3,401.18	7.96	5.97	-93.21	-18.84	-3,030.77	3,068.74	3,054.84	13.90	220.786		
3,500.00	3,495.54	3,432.94	3,501.10	8.20	6.20	-93.26	-16.23	-3,030.74	3,070.04	3,055.67	14.37	213.645		
3,600.00	3,595.39	3,532.90	3,601.02	8.45	6.42	-93.31	-13.61	-3,030.70	3,071.34	3,056.50	14.84	206.956		
3,700.00	3,695.23	3,632.85	3,700.94	8.69	6.65	-93.36	-10.99	-3,030.67	3,072.64	3,057.33	15.31	200.679		
3,800.00	3,795.08	3,732.81	3,800.86	8.94	6.88	-93.41	-8.38	-3,030.64	3,073.95	3,058.17	15.78	194.776		
3,900.00	3,894.92	3,832.76	3,900.78	9.18	7.11	-93.46	-5.76	-3,030.61	3,075.26	3,059.01	16.25	189.215		
4,000.00	3,994.77	3,932.71	4,000.70	9.42	7.34	-93.52	-3.14	-3,030.58	3,076.57	3,059.85	16.72	183.967		
4,100.00	4,094.62	4,032.67	4,100.62	9.67	7.56	-93.57	-0.53	-3,030.54	3,077.89	3,060.69	17.19	179.007		
4,200.00	4,194.46	4,132.62	4,200.54	9.91	7.79	-93.62	2.09	-3,030.51	3,079.20	3,061.54	17.66	174.311		
4,300.00	4,294.31	4,232.58	4,300.45	10.16	8.02	-93.67	4.70	-3,030.48	3,080.52	3,062.39	18.14	169.860		
4,346.79	4,341.03	4,279.35	4,347.21	10.27	8.13	-93.69	5.93	-3,030.46	3,081.14	3,062.79	18.36	167.855		
4,400.00	4,394.18	4,332.54	4,400.39	10.38	8.25	-93.71	7.32	-3,030.45	3,081.71	3,063.12	18.59	165.772		
4,505.85	4,500.00	4,438.38	4,506.19	10.56	8.49	-93.69	10.09	-3,030.41	3,082.03	3,063.58	18.45	167.029		
4,600.00	4,594.15	4,532.50	4,600.28	10.74	8.71	-93.65	12.56	-3,030.38	3,081.84	3,063.00	18.85	163.525		
4,700.00	4,694.15	4,632.47	4,700.21	10.95	8.93	-93.60	15.17	-3,030.35	3,081.65	3,062.36	19.29	159.737		
4,800.00	4,794.15	4,732.43	4,800.14	11.16	9.16	-93.55	17.79	-3,030.32	3,081.45	3,061.71	19.74	156.119		
4,900.00	4,894.15	4,832.40	4,900.07	11.36	9.39	-93.50	20.40	-3,030.29	3,081.26	3,061.08	20.18	152.659		
5,000.00	4,994.15	4,932.36	5,000.00	11.57	9.62	-93.45	23.02	-3,030.25	3,081.07	3,060.44	20.63	149.348		
5,100.00	5,094.15	5,032.33	5,099.93	11.79	9.85	-93.40	25.64	-3,030.22	3,080.88	3,059.80	21.08	146.177		
5,200.00	5,194.15	5,132.29	5,199.86	12.00	10.08	-93.36	28.25	-3,030.19	3,080.69	3,059.17	21.52	143.135		
5,300.00	5,294.15	5,232.26	5,299.80	12.21	10.30	-93.31	30.87	-3,030.16	3,080.51	3,058.54	21.97	140.217		
5,400.00	5,394.15	5,332.23	5,399.73	12.42	10.53	-93.26	33.49	-3,030.13	3,080.33	3,057.91	22.42	137.414		
5,500.00	5,494.15	5,432.19	5,499.66	12.63	10.76	-93.21	36.10	-3,030.09	3,080.15	3,057.28	22.86	134.720		
5,600.00	5,594.15	5,532.16	5,599.59	12.84	10.99	-93.16	38.72	-3,030.06	3,079.97	3,056.66	23.31	132.129		
5,700.00	5,694.15	5,632.12	5,699.52	13.06	11.22	-93.11	41.34	-3,030.03	3,079.79	3,056.04	23.76	129.635		
5,800.00	5,794.15	5,732.09	5,799.45	13.27	11.44	-93.07	43.95	-3,030.00	3,079.62	3,055.42	24.20	127.233		
5,900.00	5,894.15	5,832.05	5,899.38	13.49	11.67	-93.02	46.57	-3,029.97	3,079.45	3,054.80	24.65	124.917		
5,919.39	5,913.54	5,851.43	5,918.76	13.53	11.72	-93.01	47.08	-3,029.96	3,079.42	3,054.68	24.74	124.478		
5,925.00	5,919.15	5,857.05	5,924.37	13.54	11.73	-93.00	47.23	-3,029.96	3,079.37	3,054.14	25.23	122.031		
5,950.00	5,944.13	5,882.02	5,949.33	13.58	11.79	-92.99	47.88	-3,029.95	3,078.39	3,053.09	25.29	121.706		
5,975.00	5,969.03	5,906.90	5,974.21	13.63	11.84	-92.98	48.53	-3,029.94	3,076.09	3,050.80	25.30	121.590		
6,000.00	5,993.77	5,931.64	5,998.93	13.68	11.90	-92.98	49.18	-3,029.93	3,072.51	3,047.26	25.25	121.685		
6,025.00	6,018.30	5,956.15	6,023.44	13.72	11.96	-92.97	49.82	-3,029.93	3,067.63	3,042.48	25.15	121.993		
6,050.00	6,042.53	5,980.38	6,047.66	13.76	12.01	-92.96	50.45	-3,029.92	3,061.48	3,036.49	24.99	122.517		
6,075.00	6,066.41	6,004.25	6,071.52	13.81	12.07	-92.96	51.08	-3,029.91	3,054.07	3,029.29	24.78	123.262		
6,100.00	6,089.88	6,027.71	6,094.97	13.85	12.12	-92.96	51.69	-3,029.90	3,045.43	3,020.91	24.51	124.235		

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 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 1440-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,125.00	6,112.86	6,050.68	6,117.93	13.90	12.17	-92.96	52.29	-3,029.90	3,035.57	3,011.37	24.20	125.443		
6,150.00	6,135.29	6,073.10	6,140.35	13.95	12.22	-92.96	52.88	-3,029.89	3,024.53	3,000.69	23.84	126.894		
6,175.00	6,157.12	6,094.92	6,162.16	14.00	12.27	-92.96	53.45	-3,029.88	3,012.33	2,988.90	23.42	128.599		
6,200.00	6,178.28	6,116.07	6,183.31	14.05	12.32	-92.97	54.01	-3,029.87	2,999.01	2,976.04	22.97	130.569		
6,225.00	6,198.71	6,136.50	6,203.72	14.11	12.37	-92.98	54.54	-3,029.87	2,984.60	2,962.13	22.47	132.813		
6,250.00	6,218.36	6,156.14	6,223.36	14.18	12.41	-92.98	55.05	-3,029.86	2,969.14	2,947.21	21.94	135.343		
6,275.00	6,237.18	6,174.95	6,242.16	14.26	12.46	-92.99	55.55	-3,029.86	2,952.69	2,931.32	21.37	138.166		
6,300.00	6,255.11	6,192.87	6,260.08	14.35	12.50	-93.01	56.02	-3,029.85	2,935.27	2,914.49	20.78	141.288		
6,325.00	6,272.10	6,209.85	6,277.05	14.47	12.54	-93.02	56.46	-3,029.84	2,916.94	2,896.78	20.16	144.707		
6,350.00	6,288.11	6,225.86	6,293.05	14.61	12.57	-93.03	56.88	-3,029.84	2,897.75	2,878.23	19.53	148.412		
6,375.00	6,303.09	6,240.83	6,308.02	14.76	12.61	-93.05	57.27	-3,029.83	2,877.76	2,858.87	18.89	152.374		
6,400.00	6,317.01	6,254.74	6,321.93	14.95	12.64	-93.07	57.63	-3,029.83	2,857.01	2,838.76	18.25	156.539		
6,425.00	6,329.82	6,267.54	6,334.73	15.15	12.67	-93.09	57.97	-3,029.83	2,835.56	2,817.93	17.63	160.813		
6,450.00	6,341.48	6,279.21	6,346.38	15.38	12.69	-93.11	58.28	-3,029.82	2,813.48	2,796.43	17.05	165.034		
6,475.00	6,351.98	6,289.70	6,356.87	15.64	12.72	-93.14	58.55	-3,029.82	2,790.82	2,774.30	16.52	168.941		
6,500.00	6,361.27	6,298.99	6,366.16	15.92	12.74	-93.16	58.79	-3,029.82	2,767.65	2,751.56	16.08	172.106		
6,525.00	6,369.34	6,307.05	6,374.21	16.23	12.76	-93.19	59.00	-3,029.81	2,744.02	2,728.23	15.79	173.818		
6,550.00	6,376.16	6,313.86	6,381.02	16.56	12.77	-93.22	59.18	-3,029.81	2,720.01	2,704.28	15.73	172.883		
6,575.00	6,381.71	6,319.40	6,386.57	16.92	12.79	-93.25	59.33	-3,029.81	2,695.68	2,679.56	16.12	167.266		
6,600.00	6,385.97	6,323.67	6,390.83	17.29	12.80	-93.28	59.44	-3,029.81	2,671.09	2,653.72	17.37	153.743		
6,625.00	6,388.94	6,326.64	6,393.80	17.68	12.80	-93.31	59.52	-3,029.81	2,646.32	2,625.79	20.53	128.910		
6,650.00	6,390.61	6,328.30	6,395.46	18.09	12.81	-93.35	59.56	-3,029.81	2,621.43	2,594.42	27.01	97.058		
6,669.39	6,391.00	6,328.69	6,395.85	18.42	12.81	-93.38	59.57	-3,029.81	2,602.10	2,571.15	30.94	84.095		
6,700.00	6,391.00	6,328.69	6,395.85	18.95	12.81	-93.42	59.57	-3,029.81	2,571.55	2,540.07	31.48	81.686		
6,800.00	6,391.00	6,328.68	6,395.84	20.85	12.81	-93.58	59.57	-3,029.81	2,471.80	2,438.41	33.39	74.022		
6,900.00	6,391.00	6,328.67	6,395.83	22.94	12.81	-93.75	59.57	-3,029.81	2,372.06	2,336.57	35.49	66.836		
7,000.00	6,391.00	6,328.66	6,395.82	25.17	12.81	-93.94	59.57	-3,029.81	2,272.35	2,234.63	37.73	60.230		
7,100.00	6,391.00	6,328.65	6,395.81	27.51	12.81	-94.15	59.57	-3,029.81	2,172.67	2,132.60	40.07	54.221		
7,200.00	6,391.00	6,328.65	6,395.81	29.92	12.81	-94.37	59.57	-3,029.81	2,073.02	2,030.52	42.49	48.783		
7,300.00	6,391.00	6,328.64	6,395.80	32.40	12.81	-94.62	59.57	-3,029.81	1,973.40	1,928.42	44.98	43.873		
7,400.00	6,391.00	6,328.63	6,395.79	34.93	12.81	-94.89	59.57	-3,029.81	1,873.82	1,826.30	47.52	39.436		
7,500.00	6,391.00	6,328.62	6,395.78	37.50	12.81	-95.20	59.57	-3,029.81	1,774.29	1,724.20	50.09	35.422		
7,600.00	6,391.00	6,328.61	6,395.77	40.11	12.81	-95.54	59.57	-3,029.81	1,674.81	1,622.12	52.70	31.783		
7,700.00	6,391.00	6,328.60	6,395.76	42.73	12.81	-95.92	59.57	-3,029.81	1,575.40	1,520.08	55.33	28.475		
7,800.00	6,391.00	6,328.59	6,395.75	45.38	12.81	-96.35	59.57	-3,029.81	1,476.07	1,418.10	57.98	25.459		
7,900.00	6,391.00	6,328.58	6,395.74	48.05	12.81	-96.85	59.57	-3,029.81	1,376.84	1,316.19	60.65	22.701		
8,000.00	6,391.00	6,328.57	6,395.73	50.74	12.81	-97.42	59.57	-3,029.81	1,277.73	1,214.40	63.34	20.174		
8,100.00	6,391.00	6,328.57	6,395.73	53.43	12.81	-98.10	59.57	-3,029.81	1,178.77	1,112.74	66.03	17.851		
8,200.00	6,391.00	6,328.56	6,395.72	56.14	12.81	-98.89	59.57	-3,029.81	1,080.00	1,011.26	68.74	15.711		
8,300.00	6,391.00	6,328.55	6,395.71	58.86	12.81	-99.84	59.57	-3,029.81	981.48	910.02	71.46	13.734		
8,400.00	6,391.00	6,328.54	6,395.70	61.58	12.81	-101.01	59.57	-3,029.81	883.29	809.10	74.19	11.906		
8,500.00	6,391.00	6,328.53	6,395.69	64.32	12.81	-102.46	59.57	-3,029.81	785.56	708.64	76.92	10.212		
8,600.00	6,391.00	6,328.52	6,395.68	67.06	12.81	-104.33	59.57	-3,029.81	688.48	608.82	79.66	8.642		
8,700.00	6,391.00	6,328.51	6,395.67	69.80	12.81	-106.81	59.57	-3,029.81	592.37	509.96	82.41	7.188		
8,800.00	6,391.00	6,328.50	6,395.66	72.55	12.81	-110.24	59.57	-3,029.81	497.80	412.64	85.16	5.846		
8,900.00	6,391.00	6,328.49	6,395.65	75.31	12.81	-115.25	59.57	-3,029.81	405.84	317.93	87.91	4.616		
9,000.00	6,391.00	6,328.49	6,395.65	78.06	12.81	-123.08	59.56	-3,029.81	318.76	228.09	90.67	3.516		
9,100.00	6,391.00	6,328.48	6,395.64	80.82	12.81	-136.31	59.56	-3,029.81	241.88	148.45	93.43	2.589		
9,200.00	6,391.00	6,328.47	6,395.63	83.59	12.81	-159.12	59.56	-3,029.81	188.17	91.97	96.20	1.956		
9,265.45	6,391.00	6,328.46	6,395.62	85.40	12.81	-179.48	59.56	-3,029.81	176.40	78.39	98.01	1.800 CC, ES, SF		
9,300.00	6,391.00	6,328.46	6,395.62	86.36	12.81	169.44	59.56	-3,029.81	179.75	80.78	98.97	1.816		
9,400.00	6,391.00	6,328.45	6,395.61	89.13	12.81	143.17	59.56	-3,029.81	221.83	120.09	101.74	2.180		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.27-T5N-R63W - 70 Ranch 23-27 (Existing) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 1440-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,500.00	6,391.00	6,328.44	6,395.60	91.90	12.81	127.45	59.56	-3,029.81	293.45	188.93	104.51	2.808	
9,600.00	6,391.00	6,328.43	6,395.59	94.68	12.81	118.31	59.56	-3,029.81	378.17	270.88	107.29	3.525	
9,700.00	6,391.00	6,328.42	6,395.58	97.45	12.81	112.60	59.56	-3,029.81	468.95	358.88	110.06	4.261	
9,800.00	6,391.00	6,328.42	6,395.58	100.23	12.81	108.77	59.56	-3,029.81	562.86	450.02	112.84	4.988	
9,900.00	6,391.00	6,328.41	6,395.57	103.01	12.81	106.04	59.56	-3,029.81	658.57	542.95	115.62	5.696	
10,000.00	6,391.00	6,328.40	6,395.56	105.79	12.81	104.01	59.56	-3,029.81	755.39	636.99	118.40	6.380	
10,100.00	6,391.00	6,328.39	6,395.55	108.58	12.81	102.44	59.56	-3,029.81	852.94	731.76	121.19	7.038	
10,200.00	6,391.00	6,328.38	6,395.54	111.36	12.81	101.19	59.56	-3,029.81	951.01	827.03	123.97	7.671	
10,300.00	6,391.00	6,328.37	6,395.53	114.15	12.81	100.18	59.56	-3,029.81	1,049.44	922.68	126.76	8.279	
10,400.00	6,391.00	6,328.36	6,395.52	116.94	12.81	99.34	59.56	-3,029.81	1,148.14	1,018.59	129.55	8.863	
10,500.00	6,391.00	6,328.35	6,395.51	119.72	12.81	98.64	59.56	-3,029.81	1,247.04	1,114.71	132.33	9.423	
10,600.00	6,391.00	6,328.34	6,395.50	122.51	12.81	98.04	59.56	-3,029.81	1,346.11	1,210.99	135.12	9.962	
10,642.55	6,391.00	6,328.34	6,395.50	123.70	12.81	97.81	59.56	-3,029.81	1,388.31	1,252.00	136.31	10.185	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.27-T5N-R63W - 70 Ranch 5-63-27-32H - Wellbore #1 - Design #1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	1.00	0.00	0.00	0.00	0.01	21.86	0.00	21.86				
100.00	100.00	101.00	100.00	0.09	0.09	0.01	21.86	0.00	21.86	21.67	0.19	117.164	
200.00	200.00	201.00	200.00	0.32	0.32	0.01	21.86	0.00	21.86	21.22	0.64	34.363	
300.00	300.00	301.00	300.00	0.54	0.54	0.01	21.86	0.00	21.86	20.77	1.09	20.134	
400.00	400.00	401.00	400.00	0.77	0.77	0.01	21.86	0.00	21.86	20.32	1.54	14.238	
466.33	466.33	467.33	466.33	0.92	0.92	0.01	21.86	0.00	21.86	20.02	1.83	11.922 CC	
500.00	500.00	500.99	499.99	0.99	0.99	0.00	21.86	0.00	21.86	19.87	1.98	11.013	
557.85	557.84	558.40	557.40	1.12	1.12	-0.22	22.45	0.04	21.89	19.64	2.25	9.747	
600.00	599.98	600.00	598.98	1.22	1.22	-0.67	23.60	0.11	21.92	19.48	2.43	9.009	
659.05	658.97	658.84	657.76	1.35	1.35	-1.70	26.25	0.29	21.98	19.28	2.70	8.143 ES	
700.00	699.86	699.47	698.31	1.45	1.45	-2.49	28.78	0.45	22.32	19.44	2.88	7.745	
800.00	799.70	798.60	797.06	1.67	1.68	-3.56	37.37	1.01	25.60	22.26	3.34	7.672	
900.00	899.55	897.39	895.12	1.91	1.93	-3.55	49.32	1.78	32.30	28.51	3.80	8.509	
1,000.00	999.39	995.61	992.14	2.14	2.22	-2.98	64.53	2.77	42.41	38.15	4.26	9.952	
1,100.00	1,099.24	1,093.04	1,087.81	2.38	2.55	-2.25	82.89	3.97	55.89	51.16	4.73	11.813	
1,200.00	1,199.08	1,189.46	1,181.83	2.62	2.92	-1.57	104.25	5.35	72.70	67.50	5.21	13.968	
1,300.00	1,298.93	1,287.41	1,276.87	2.86	3.34	-1.02	127.87	6.89	91.51	85.82	5.68	16.099	
1,400.00	1,398.78	1,385.62	1,372.17	3.10	3.78	-0.65	151.57	8.43	110.34	104.17	6.16	17.905	
1,500.00	1,498.62	1,483.83	1,467.46	3.34	4.23	-0.39	175.27	9.97	129.17	122.52	6.64	19.443	
1,600.00	1,598.47	1,582.04	1,562.76	3.58	4.68	-0.19	198.97	11.51	148.00	140.87	7.13	20.765	
1,700.00	1,698.31	1,680.25	1,658.05	3.83	5.15	-0.04	222.67	13.05	166.83	159.22	7.61	21.911	
1,800.00	1,798.16	1,778.46	1,753.34	4.07	5.61	0.08	246.37	14.59	185.67	177.57	8.10	22.914	
1,900.00	1,898.01	1,876.67	1,848.64	4.31	6.09	0.18	270.07	16.13	204.51	195.91	8.59	23.798	
2,000.00	1,997.85	1,974.88	1,943.93	4.55	6.56	0.26	293.77	17.67	223.34	214.26	9.09	24.584	
2,100.00	2,097.70	2,073.09	2,039.23	4.80	7.04	0.33	317.47	19.21	242.18	232.60	9.58	25.285	
2,200.00	2,197.54	2,171.30	2,134.52	5.04	7.52	0.39	341.17	20.75	261.02	250.94	10.07	25.915	
2,300.00	2,297.39	2,269.51	2,229.82	5.28	8.00	0.44	364.87	22.29	279.85	269.29	10.57	26.485	
2,400.00	2,397.24	2,367.72	2,325.11	5.53	8.48	0.48	388.57	23.83	298.69	287.63	11.06	27.001	
2,500.00	2,497.08	2,465.93	2,420.41	5.77	8.96	0.52	412.27	25.37	317.53	305.97	11.56	27.472	
2,600.00	2,596.93	2,564.14	2,515.70	6.01	9.44	0.56	435.97	26.91	336.37	324.31	12.05	27.903	
2,700.00	2,696.77	2,662.34	2,610.99	6.26	9.93	0.59	459.67	28.45	355.20	342.65	12.55	28.298	
2,800.00	2,796.62	2,760.55	2,706.29	6.50	10.41	0.62	483.37	29.99	374.04	360.99	13.05	28.663	
2,900.00	2,896.47	2,858.76	2,801.58	6.74	10.90	0.64	507.07	31.54	392.88	379.33	13.55	29.000	
3,000.00	2,996.31	2,956.97	2,896.88	6.99	11.39	0.66	530.77	33.08	411.72	397.67	14.05	29.312	
3,100.00	3,096.16	3,055.18	2,992.17	7.23	11.87	0.68	554.47	34.62	430.56	416.01	14.54	29.602	
3,200.00	3,196.00	3,153.39	3,087.47	7.47	12.36	0.70	578.17	36.16	449.39	434.35	15.04	29.873	
3,300.00	3,295.85	3,251.60	3,182.76	7.72	12.85	0.72	601.87	37.70	468.23	452.69	15.54	30.125	
3,400.00	3,395.70	3,349.81	3,278.06	7.96	13.33	0.74	625.57	39.24	487.07	471.03	16.04	30.362	
3,500.00	3,495.54	3,448.02	3,373.35	8.20	13.82	0.75	649.27	40.78	505.91	489.37	16.54	30.583	
3,600.00	3,595.39	3,546.23	3,468.65	8.45	14.31	0.77	672.97	42.32	524.75	507.71	17.04	30.792	
3,700.00	3,695.23	3,644.44	3,563.94	8.69	14.80	0.78	696.67	43.86	543.59	526.04	17.54	30.988	
3,800.00	3,795.08	3,742.65	3,659.23	8.94	15.29	0.79	720.37	45.40	562.42	544.38	18.04	31.173	
3,900.00	3,894.92	3,840.86	3,754.53	9.18	15.78	0.80	744.07	46.94	581.26	562.72	18.54	31.348	
4,000.00	3,994.77	3,950.95	3,861.49	9.42	16.26	0.83	770.09	48.63	599.65	580.61	19.05	31.483	
4,100.00	4,094.62	4,076.43	3,984.39	9.67	16.69	0.84	795.28	50.27	614.39	594.84	19.55	31.430	
4,200.00	4,194.46	4,203.30	4,109.66	9.91	17.07	0.83	815.25	51.56	624.76	604.72	20.04	31.181	
4,300.00	4,294.31	4,331.10	4,236.62	10.16	17.37	0.80	829.76	52.51	630.70	610.19	20.51	30.753	
4,346.79	4,341.03	4,391.07	4,296.40	10.27	17.50	0.78	834.62	52.82	631.95	611.22	20.72	30.493	
4,400.00	4,394.18	4,459.32	4,364.52	10.38	17.62	0.75	838.63	53.08	632.67	611.75	20.92	30.244	
4,505.85	4,500.00	4,594.85	4,500.00	10.56	17.80	0.73	841.78	53.29	633.21	604.88	28.33	22.354	
4,600.00	4,594.15	4,689.00	4,594.15	10.74	17.91	0.73	841.78	53.29	633.21	604.60	28.61	22.132	
4,700.00	4,694.15	4,789.00	4,694.15	10.95	18.03	0.73	841.78	53.29	633.21	604.27	28.94	21.882	

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 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	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	4,794.15	4,889.00	4,794.15	11.16	18.15	0.73	841.78	53.29	633.21	603.94	29.27	21.636		
4,900.00	4,894.15	4,989.00	4,894.15	11.36	18.27	0.73	841.78	53.29	633.21	603.61	29.60	21.393		
5,000.00	4,994.15	5,089.00	4,994.15	11.57	18.39	0.73	841.78	53.29	633.21	603.28	29.93	21.154		
5,100.00	5,094.15	5,189.00	5,094.15	11.79	18.52	0.73	841.78	53.29	633.21	602.94	30.27	20.919		
5,200.00	5,194.15	5,289.00	5,194.15	12.00	18.65	0.73	841.78	53.29	633.21	602.60	30.61	20.687		
5,300.00	5,294.15	5,389.00	5,294.15	12.21	18.78	0.73	841.78	53.29	633.21	602.26	30.95	20.459		
5,400.00	5,394.15	5,489.00	5,394.15	12.42	18.91	0.73	841.78	53.29	633.21	601.91	31.29	20.234		
5,500.00	5,494.15	5,589.00	5,494.15	12.63	19.04	0.73	841.78	53.29	633.21	601.57	31.64	20.013		
5,600.00	5,594.15	5,689.00	5,594.15	12.84	19.18	0.73	841.78	53.29	633.21	601.22	31.99	19.795		
5,700.00	5,694.15	5,789.00	5,694.15	13.06	19.31	0.73	841.78	53.29	633.21	600.87	32.34	19.581		
5,800.00	5,794.15	5,889.00	5,794.15	13.27	19.45	0.73	841.78	53.29	633.21	600.52	32.69	19.370		
5,900.00	5,894.15	5,989.00	5,894.15	13.49	19.59	0.73	841.78	53.29	633.21	600.16	33.04	19.162		
5,919.39	5,913.54	6,008.39	5,913.54	13.53	19.62	0.73	841.78	53.29	633.21	600.09	33.11	19.123		
5,925.00	5,919.15	6,014.00	5,919.15	13.54	19.62	0.73	841.78	53.26	633.21	606.07	27.14	23.332		
5,950.00	5,944.13	6,038.99	5,944.12	13.58	19.66	0.73	841.79	52.31	633.21	605.98	27.23	23.252		
5,975.00	5,969.03	6,063.97	5,969.00	13.63	19.69	0.73	841.82	50.06	633.22	605.90	27.32	23.174		
6,000.00	5,993.77	6,088.96	5,993.73	13.68	19.72	0.73	841.87	46.51	633.24	605.82	27.42	23.098		
6,025.00	6,018.30	6,113.95	6,018.24	13.72	19.75	0.73	841.93	41.67	633.26	605.75	27.51	23.022		
6,050.00	6,042.53	6,138.94	6,042.47	13.76	19.79	0.73	842.01	35.55	633.28	605.69	27.60	22.946		
6,075.00	6,066.41	6,163.92	6,066.34	13.81	19.82	0.73	842.11	28.18	633.32	605.62	27.69	22.869		
6,100.00	6,089.88	6,188.91	6,089.79	13.85	19.85	0.73	842.22	19.57	633.35	605.56	27.79	22.790		
6,125.00	6,112.86	6,213.90	6,112.76	13.90	19.88	0.73	842.35	9.74	633.39	605.50	27.90	22.706		
6,150.00	6,135.29	6,238.89	6,135.19	13.95	19.91	0.74	842.50	-1.27	633.44	605.43	28.01	22.618		
6,175.00	6,157.12	6,263.88	6,157.01	14.00	19.95	0.74	842.66	-13.44	633.49	605.36	28.13	22.521		
6,200.00	6,178.28	6,288.86	6,178.16	14.05	19.98	0.74	842.83	-26.74	633.55	605.29	28.26	22.415		
6,225.00	6,198.71	6,313.85	6,198.59	14.11	20.02	0.74	843.02	-41.13	633.61	605.19	28.42	22.297		
6,250.00	6,218.36	6,338.84	6,218.24	14.18	20.06	0.74	843.22	-56.56	633.68	605.09	28.59	22.164		
6,275.00	6,237.18	6,363.83	6,237.05	14.26	20.11	0.74	843.44	-73.01	633.75	604.96	28.79	22.014		
6,300.00	6,255.11	6,388.82	6,254.98	14.35	20.15	0.74	843.67	-90.41	633.82	604.81	29.01	21.845		
6,325.00	6,272.10	6,413.82	6,271.97	14.47	20.21	0.74	843.91	-108.73	633.90	604.63	29.27	21.654		
6,350.00	6,288.11	6,438.81	6,287.99	14.61	20.27	0.74	844.16	-127.91	633.98	604.41	29.57	21.441		
6,375.00	6,303.09	6,463.80	6,302.97	14.76	20.33	0.75	844.42	-147.91	634.07	604.17	29.90	21.204		
6,400.00	6,317.01	6,488.79	6,316.89	14.95	20.40	0.75	844.70	-168.66	634.16	603.88	30.28	20.943		
6,425.00	6,329.82	6,513.78	6,329.71	15.15	20.49	0.75	844.98	-190.11	634.25	603.55	30.70	20.658		
6,450.00	6,341.48	6,538.78	6,341.38	15.38	20.58	0.75	845.27	-212.21	634.34	603.17	31.17	20.350		
6,475.00	6,351.98	6,563.77	6,351.89	15.64	20.69	0.75	845.57	-234.88	634.44	602.75	31.69	20.021		
6,500.00	6,361.27	6,588.77	6,361.19	15.92	20.81	0.75	845.87	-258.07	634.54	602.28	32.25	19.673		
6,525.00	6,369.34	6,613.76	6,369.27	16.23	20.95	0.75	846.18	-281.72	634.64	601.77	32.87	19.309		
6,550.00	6,376.16	6,638.76	6,376.10	16.56	21.10	0.75	846.50	-305.76	634.74	601.22	33.53	18.933		
6,575.00	6,381.71	6,663.76	6,381.66	16.92	21.28	0.75	846.82	-330.13	634.85	600.62	34.23	18.547		
6,600.00	6,385.97	6,688.75	6,385.94	17.29	21.48	0.75	847.14	-354.75	634.95	599.98	34.97	18.155		
6,625.00	6,388.94	6,713.75	6,388.92	17.68	21.70	0.75	847.47	-379.57	635.06	599.30	35.75	17.762		
6,650.00	6,390.61	6,738.75	6,390.60	18.09	21.94	0.75	847.80	-404.50	635.16	598.60	36.57	17.369		
6,669.39	6,391.00	6,758.14	6,391.00	18.42	22.14	0.75	848.05	-423.88	635.25	598.03	37.22	17.068		
6,700.00	6,391.00	6,788.75	6,391.00	18.95	22.50	0.75	848.45	-454.49	635.38	597.09	38.29	16.595		
6,800.00	6,391.00	6,888.75	6,391.00	20.85	23.87	0.75	849.77	-554.48	635.80	593.73	42.07	15.112		
6,900.00	6,391.00	6,988.75	6,391.00	22.94	25.55	0.75	851.08	-654.48	636.23	590.01	46.23	13.763		
7,000.00	6,391.00	7,088.75	6,391.00	25.17	27.47	0.75	852.40	-754.47	636.66	585.99	50.66	12.566		
7,100.00	6,391.00	7,188.75	6,391.00	27.51	29.56	0.75	853.71	-854.46	637.09	581.77	55.32	11.517		
7,200.00	6,391.00	7,288.75	6,391.00	29.92	31.77	0.75	855.03	-954.45	637.51	577.38	60.14	10.601		
7,300.00	6,391.00	7,388.74	6,391.00	32.40	34.09	0.75	856.34	-1,054.44	637.94	572.86	65.08	9.802		
7,400.00	6,391.00	7,488.74	6,391.00	34.93	36.49	0.75	857.65	-1,154.43	638.37	568.23	70.13	9.102		

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 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	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		
7,500.00	6,391.00	7,588.74	6,391.00	37.50	38.94	0.75	858.97	-1,254.42	638.79	563.53	75.26	8.488		
7,600.00	6,391.00	7,688.74	6,391.00	40.11	41.44	0.75	860.28	-1,354.41	639.22	558.76	80.46	7.945		
7,700.00	6,391.00	7,788.74	6,391.00	42.73	43.99	0.75	861.60	-1,454.40	639.65	553.94	85.71	7.463		
7,800.00	6,391.00	7,888.74	6,391.00	45.38	46.56	0.75	862.91	-1,554.39	640.07	549.07	91.00	7.034		
7,900.00	6,391.00	7,988.74	6,391.00	48.05	49.16	0.75	864.23	-1,654.38	640.50	544.17	96.33	6.649		
8,000.00	6,391.00	8,088.74	6,391.00	50.74	51.79	0.75	865.54	-1,754.37	640.93	539.23	101.69	6.303		
8,100.00	6,391.00	8,188.74	6,391.00	53.43	54.43	0.75	866.86	-1,854.36	641.36	534.27	107.08	5.989		
8,200.00	6,391.00	8,288.74	6,391.00	56.14	57.09	0.75	868.17	-1,954.35	641.78	529.29	112.49	5.705		
8,300.00	6,391.00	8,388.74	6,391.00	58.86	59.77	0.75	869.49	-2,054.34	642.21	524.29	117.92	5.446		
8,400.00	6,391.00	8,488.73	6,391.00	61.58	62.45	0.75	870.80	-2,154.33	642.64	519.26	123.37	5.209		
8,500.00	6,391.00	8,588.73	6,391.00	64.32	65.15	0.75	872.11	-2,254.32	643.06	514.23	128.83	4.991		
8,600.00	6,391.00	8,688.73	6,391.00	67.06	67.86	0.75	873.43	-2,354.31	643.49	509.18	134.31	4.791		
8,700.00	6,391.00	8,788.73	6,391.00	69.80	70.57	0.75	874.74	-2,454.30	643.92	504.12	139.80	4.606		
8,800.00	6,391.00	8,888.73	6,391.00	72.55	73.29	0.75	876.06	-2,554.29	644.35	499.05	145.29	4.435		
8,900.00	6,391.00	8,988.73	6,391.00	75.31	76.02	0.75	877.37	-2,654.28	644.77	493.97	150.80	4.276		
9,000.00	6,391.00	9,088.73	6,391.00	78.06	78.76	0.75	878.69	-2,754.27	645.20	488.88	156.32	4.128		
9,100.00	6,391.00	9,188.73	6,391.00	80.82	81.50	0.75	880.00	-2,854.27	645.63	483.79	161.84	3.989		
9,200.00	6,391.00	9,288.73	6,391.00	83.59	84.24	0.75	881.32	-2,954.26	646.05	478.69	167.37	3.860		
9,300.00	6,391.00	9,388.73	6,391.00	86.36	86.99	0.75	882.63	-3,054.25	646.48	473.58	172.90	3.739		
9,400.00	6,391.00	9,488.73	6,391.00	89.13	89.74	0.75	883.94	-3,154.24	646.91	468.47	178.44	3.625		
9,500.00	6,391.00	9,588.72	6,391.00	91.90	92.50	0.75	885.26	-3,254.23	647.33	463.35	183.98	3.518		
9,600.00	6,391.00	9,688.72	6,391.00	94.68	95.26	0.75	886.57	-3,354.22	647.76	458.23	189.53	3.418		
9,700.00	6,391.00	9,788.72	6,391.00	97.45	98.02	0.75	887.89	-3,454.21	648.19	453.10	195.09	3.323		
9,800.00	6,391.00	9,888.72	6,391.00	100.23	100.79	0.75	889.20	-3,554.20	648.62	447.97	200.64	3.233		
9,900.00	6,391.00	9,988.72	6,391.00	103.01	103.56	0.75	890.52	-3,654.19	649.04	442.84	206.20	3.148		
10,000.00	6,391.00	10,088.72	6,391.00	105.79	106.33	0.75	891.83	-3,754.18	649.47	437.70	211.77	3.067		
10,100.00	6,391.00	10,188.72	6,391.00	108.58	109.10	0.75	893.15	-3,854.17	649.90	432.56	217.33	2.990		
10,200.00	6,391.00	10,288.72	6,391.00	111.36	111.87	0.75	894.46	-3,954.16	650.32	427.42	222.90	2.918		
10,300.00	6,391.00	10,388.72	6,391.00	114.15	114.65	0.75	895.78	-4,054.15	650.75	422.28	228.47	2.848		
10,400.00	6,391.00	10,488.72	6,391.00	116.94	117.42	0.75	897.09	-4,154.14	651.18	417.13	234.05	2.782		
10,500.00	6,391.00	10,588.72	6,391.00	119.72	120.20	0.75	898.40	-4,254.13	651.60	411.98	239.62	2.719		
10,600.00	6,391.00	10,688.71	6,391.00	122.51	122.98	0.75	899.72	-4,354.12	652.03	406.83	245.20	2.659		
10,642.55	6,391.00	10,725.79	6,391.00	123.70	124.02	1.23	900.21	-4,391.20	652.24	404.81	247.42	2.636 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	1.00	0.00	0.00	180.00	-21.86	0.00	21.88					
100.00	100.00	99.00	100.00	0.09	0.09	180.00	-21.86	0.00	21.86	21.67	0.18	119.189		
200.00	200.00	199.00	200.00	0.32	0.31	180.00	-21.86	0.00	21.86	21.23	0.63	34.607		
300.00	300.00	299.00	300.00	0.54	0.54	180.00	-21.86	0.00	21.86	20.78	1.08	20.218		
400.00	400.00	399.00	400.00	0.77	0.76	180.00	-21.86	0.00	21.86	20.33	1.53	14.280		
500.00	500.00	499.00	500.00	0.99	0.99	180.00	-21.86	0.00	21.86	19.88	1.98	11.038 CC, ES		
600.00	599.98	598.14	599.12	1.22	1.19	-179.55	-23.53	0.17	25.25	22.84	2.41	10.489		
659.05	658.97	656.40	657.32	1.35	1.30	-179.06	-26.10	0.43	30.47	27.81	2.66	11.464		
700.00	699.86	696.61	697.46	1.45	1.37	-178.81	-28.57	0.68	35.19	32.36	2.83	12.443		
800.00	799.70	794.39	794.87	1.67	1.58	-178.76	-36.88	1.53	49.08	45.82	3.26	15.055		
900.00	899.55	893.22	893.21	1.91	1.81	-178.89	-46.63	2.53	64.33	60.64	3.69	17.454		
1,000.00	999.39	992.05	991.56	2.14	2.06	-178.97	-56.38	3.52	79.58	75.46	4.12	19.332		
1,100.00	1,099.24	1,090.88	1,089.90	2.38	2.32	-179.03	-66.13	4.52	94.83	90.27	4.55	20.829		
1,200.00	1,199.08	1,189.71	1,188.24	2.62	2.59	-179.07	-75.88	5.51	110.08	105.08	4.99	22.044		
1,300.00	1,298.93	1,288.54	1,286.59	2.86	2.86	-179.10	-85.63	6.51	125.32	119.89	5.44	23.049		
1,400.00	1,398.78	1,387.37	1,384.93	3.10	3.14	-179.12	-95.38	7.50	140.57	134.69	5.88	23.892		
1,500.00	1,498.62	1,486.20	1,483.27	3.34	3.42	-179.14	-105.13	8.50	155.82	149.49	6.33	24.608		
1,600.00	1,598.47	1,585.03	1,581.62	3.58	3.70	-179.16	-114.88	9.49	171.07	164.29	6.78	25.224		
1,700.00	1,698.31	1,683.86	1,679.96	3.83	3.98	-179.17	-124.63	10.49	186.32	179.08	7.23	25.758		
1,800.00	1,798.16	1,782.69	1,778.30	4.07	4.27	-179.18	-134.38	11.48	201.57	193.88	7.69	26.226		
1,900.00	1,898.01	1,881.52	1,876.65	4.31	4.55	-179.19	-144.13	12.48	216.81	208.68	8.14	26.640		
2,000.00	1,997.85	1,980.35	1,974.99	4.55	4.84	-179.20	-153.88	13.47	232.06	223.47	8.59	27.007		
2,100.00	2,097.70	2,079.18	2,073.34	4.80	5.13	-179.21	-163.63	14.47	247.31	238.26	9.05	27.335		
2,200.00	2,197.54	2,178.01	2,171.68	5.04	5.41	-179.21	-173.38	15.47	262.56	253.06	9.50	27.631		
2,300.00	2,297.39	2,276.85	2,270.02	5.28	5.70	-179.22	-183.13	16.46	277.81	267.85	9.96	27.898		
2,400.00	2,397.24	2,375.68	2,368.37	5.53	5.99	-179.23	-192.88	17.46	293.06	282.64	10.41	28.141		
2,500.00	2,497.08	2,474.51	2,466.71	5.77	6.28	-179.23	-202.63	18.45	308.30	297.43	10.87	28.362		
2,600.00	2,596.93	2,573.34	2,565.05	6.01	6.57	-179.23	-212.38	19.45	323.55	312.23	11.33	28.565		
2,700.00	2,696.77	2,672.17	2,663.40	6.26	6.86	-179.24	-222.13	20.44	338.80	327.02	11.78	28.751		
2,800.00	2,796.62	2,771.00	2,761.74	6.50	7.16	-179.24	-231.88	21.44	354.05	341.81	12.24	28.923		
2,900.00	2,896.47	2,869.83	2,860.08	6.74	7.45	-179.25	-241.63	22.43	369.30	356.60	12.70	29.082		
3,000.00	2,996.31	2,968.66	2,958.43	6.99	7.74	-179.25	-251.38	23.43	384.55	371.39	13.16	29.229		
3,100.00	3,096.16	3,067.49	3,056.77	7.23	8.03	-179.25	-261.13	24.42	399.80	386.18	13.61	29.367		
3,200.00	3,196.00	3,166.32	3,155.11	7.47	8.32	-179.25	-270.88	25.42	415.04	400.97	14.07	29.494		
3,300.00	3,295.85	3,265.15	3,253.46	7.72	8.61	-179.26	-280.63	26.41	430.29	415.76	14.53	29.614		
3,400.00	3,395.70	3,363.98	3,351.80	7.96	8.91	-179.26	-290.38	27.41	445.54	430.55	14.99	29.726		
3,500.00	3,495.54	3,462.81	3,450.14	8.20	9.20	-179.26	-300.13	28.40	460.79	445.34	15.45	29.831		
3,600.00	3,595.39	3,561.64	3,548.49	8.45	9.49	-179.26	-309.88	29.40	476.04	460.13	15.91	29.930		
3,700.00	3,695.23	3,660.47	3,646.83	8.69	9.78	-179.26	-319.63	30.39	491.29	474.92	16.36	30.023		
3,800.00	3,795.08	3,759.30	3,745.17	8.94	10.07	-179.27	-329.38	31.39	506.53	489.71	16.82	30.110		
3,900.00	3,894.92	3,858.13	3,843.52	9.18	10.37	-179.27	-339.13	32.38	521.78	504.50	17.28	30.193		
4,000.00	3,994.77	3,956.97	3,941.86	9.42	10.66	-179.27	-348.88	33.38	537.03	519.29	17.74	30.272		
4,100.00	4,094.62	4,055.80	4,040.20	9.67	10.95	-179.27	-358.63	34.37	552.28	534.08	18.20	30.346		
4,200.00	4,194.46	4,154.63	4,138.55	9.91	11.25	-179.27	-368.38	35.37	567.53	548.87	18.66	30.417		
4,300.00	4,294.31	4,254.54	4,241.96	10.16	11.54	-179.28	-378.52	36.40	582.69	563.57	19.12	30.470		
4,346.79	4,341.03	4,316.74	4,299.97	10.27	11.67	-179.28	-383.17	36.88	588.95	569.61	19.35	30.442		
4,400.00	4,394.18	4,383.32	4,366.44	10.38	11.79	-179.27	-387.05	37.27	594.45	574.86	19.59	30.340		
4,505.85	4,500.00	4,516.67	4,499.74	10.56	12.01	-179.27	-390.19	37.60	598.86	576.33	22.53	26.578		
4,600.00	4,594.15	4,611.09	4,594.15	10.74	12.16	-179.27	-390.19	37.60	598.86	576.00	22.86	26.199		
4,700.00	4,694.15	4,711.09	4,694.15	10.95	12.31	-179.27	-390.19	37.60	598.86	575.65	23.21	25.800		
4,800.00	4,794.15	4,811.09	4,794.15	11.16	12.45	-179.27	-390.19	37.60	598.86	575.29	23.57	25.411		
4,900.00	4,894.15	4,911.09	4,894.15	11.36	12.60	-179.27	-390.19	37.60	598.86	574.94	23.93	25.029		

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 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,994.15	5,011.09	4,994.15	11.57	12.75	-179.27	-390.19	37.60	598.86	574.57	24.29	24.657		
5,100.00	5,094.15	5,111.09	5,094.15	11.79	12.91	-179.27	-390.19	37.60	598.86	574.21	24.65	24.292		
5,200.00	5,194.15	5,211.09	5,194.15	12.00	13.06	-179.27	-390.19	37.60	598.86	573.84	25.02	23.936		
5,300.00	5,294.15	5,311.09	5,294.15	12.21	13.22	-179.27	-390.19	37.60	598.86	573.47	25.39	23.588		
5,400.00	5,394.15	5,411.09	5,394.15	12.42	13.38	-179.27	-390.19	37.60	598.86	573.10	25.76	23.247		
5,500.00	5,494.15	5,511.09	5,494.15	12.63	13.54	-179.27	-390.19	37.60	598.86	572.73	26.13	22.914		
5,600.00	5,594.15	5,611.09	5,594.15	12.84	13.70	-179.27	-390.19	37.60	598.86	572.35	26.51	22.589		
5,700.00	5,694.15	5,711.09	5,694.15	13.06	13.87	-179.27	-390.19	37.60	598.86	571.97	26.89	22.271		
5,800.00	5,794.15	5,811.09	5,794.15	13.27	14.04	-179.27	-390.19	37.60	598.86	571.59	27.27	21.961		
5,900.00	5,894.15	5,911.09	5,894.15	13.49	14.20	-179.27	-390.19	37.60	598.86	571.21	27.65	21.657		
5,919.39	5,913.54	5,930.48	5,913.54	13.53	14.24	-179.27	-390.19	37.60	598.86	571.14	27.73	21.599		
5,925.00	5,919.15	5,936.06	5,919.12	13.54	14.25	-179.27	-390.19	37.56	598.86	573.06	25.80	23.210		
5,950.00	5,944.13	5,960.92	5,943.97	13.58	14.29	-179.27	-390.18	36.63	598.86	572.96	25.90	23.124		
5,975.00	5,969.03	5,985.79	5,968.73	13.63	14.33	-179.27	-390.17	34.40	598.86	572.87	25.99	23.040		
6,000.00	5,993.77	6,010.65	5,993.34	13.68	14.38	-179.28	-390.14	30.88	598.87	572.78	26.09	22.958		
6,025.00	6,018.30	6,035.52	6,017.74	13.72	14.42	-179.28	-390.10	26.09	598.87	572.69	26.18	22.878		
6,050.00	6,042.53	6,060.38	6,041.85	13.76	14.46	-179.29	-390.05	20.03	598.87	572.60	26.27	22.799		
6,075.00	6,066.41	6,085.25	6,065.62	13.81	14.50	-179.30	-389.98	12.73	598.88	572.51	26.36	22.719		
6,100.00	6,089.88	6,110.13	6,088.98	13.85	14.55	-179.31	-389.91	4.20	598.88	572.42	26.45	22.638		
6,125.00	6,112.86	6,135.00	6,111.87	13.90	14.59	-179.31	-389.83	-5.54	598.88	572.33	26.55	22.553		
6,150.00	6,135.29	6,159.88	6,134.22	13.95	14.63	-179.32	-389.74	-16.46	598.89	572.23	26.66	22.463		
6,175.00	6,157.12	6,184.76	6,155.97	14.00	14.68	-179.34	-389.64	-28.53	598.90	572.12	26.78	22.366		
6,200.00	6,178.28	6,209.64	6,177.07	14.05	14.72	-179.35	-389.53	-41.72	598.90	572.00	26.91	22.258		
6,225.00	6,198.71	6,234.53	6,197.46	14.11	14.77	-179.36	-389.41	-55.99	598.91	571.86	27.05	22.138		
6,250.00	6,218.36	6,259.42	6,217.07	14.18	14.82	-179.37	-389.28	-71.30	598.92	571.70	27.22	22.002		
6,275.00	6,237.18	6,284.32	6,235.87	14.26	14.88	-179.39	-389.15	-87.62	598.93	571.51	27.41	21.848		
6,300.00	6,255.11	6,309.22	6,253.80	14.35	14.94	-179.40	-389.00	-104.90	598.94	571.30	27.63	21.673		
6,325.00	6,272.10	6,334.13	6,270.80	14.47	15.00	-179.41	-388.85	-123.10	598.95	571.06	27.89	21.476		
6,350.00	6,288.11	6,359.04	6,286.83	14.61	15.07	-179.42	-388.69	-142.16	598.96	570.77	28.18	21.253		
6,375.00	6,303.09	6,383.96	6,301.85	14.76	15.16	-179.44	-388.53	-162.04	598.97	570.45	28.52	21.005		
6,400.00	6,317.01	6,408.88	6,315.82	14.95	15.26	-179.45	-388.36	-182.68	598.98	570.08	28.89	20.730		
6,425.00	6,329.82	6,433.81	6,328.69	15.15	15.38	-179.46	-388.18	-204.02	598.99	569.67	29.32	20.429		
6,450.00	6,341.48	6,458.74	6,340.44	15.38	15.53	-179.47	-387.99	-226.01	599.00	569.21	29.79	20.104		
6,475.00	6,351.98	6,483.69	6,351.02	15.64	15.71	-179.48	-387.81	-248.59	599.01	568.69	30.32	19.757		
6,500.00	6,361.27	6,508.63	6,360.41	15.92	15.93	-179.49	-387.61	-271.70	599.02	568.13	30.90	19.389		
6,525.00	6,369.34	6,533.59	6,368.59	16.23	16.17	-179.50	-387.42	-295.28	599.04	567.52	31.52	19.005		
6,550.00	6,376.16	6,558.55	6,375.52	16.56	16.46	-179.51	-387.22	-319.25	599.05	566.86	32.19	18.608		
6,575.00	6,381.71	6,583.52	6,381.19	16.92	16.77	-179.51	-387.01	-343.57	599.06	566.15	32.91	18.202		
6,600.00	6,385.97	6,608.50	6,385.59	17.29	17.12	-179.52	-386.81	-368.15	599.08	565.40	33.67	17.790		
6,625.00	6,388.94	6,633.48	6,388.69	17.68	17.49	-179.52	-386.60	-392.93	599.09	564.61	34.47	17.378		
6,650.00	6,390.61	6,658.47	6,390.50	18.09	17.89	-179.52	-386.39	-417.85	599.10	563.79	35.31	16.967		
6,669.39	6,391.00	6,677.85	6,391.00	18.42	18.20	-179.52	-386.23	-437.23	599.11	563.14	35.98	16.653		
6,700.00	6,391.00	6,708.47	6,391.00	18.95	18.74	-179.52	-385.98	-467.84	599.13	562.05	37.08	16.160		
6,800.00	6,391.00	6,808.47	6,391.00	20.85	20.63	-179.52	-385.14	-567.84	599.18	558.24	40.94	14.635		
6,900.00	6,391.00	6,908.47	6,391.00	22.94	22.72	-179.52	-384.31	-667.83	599.24	554.06	45.18	13.264		
7,000.00	6,391.00	7,008.47	6,391.00	25.17	24.95	-179.52	-383.48	-767.83	599.29	549.60	49.69	12.061		
7,100.00	6,391.00	7,108.47	6,391.00	27.51	27.29	-179.52	-382.64	-867.83	599.34	544.94	54.40	11.016		
7,200.00	6,391.00	7,208.47	6,391.00	29.92	29.72	-179.52	-381.81	-967.82	599.40	540.12	59.28	10.111		
7,300.00	6,391.00	7,308.47	6,391.00	32.40	32.21	-179.52	-380.98	-1,067.82	599.45	535.17	64.28	9.326		
7,400.00	6,391.00	7,408.47	6,391.00	34.93	34.74	-179.52	-380.14	-1,167.82	599.51	530.14	69.37	8.642		
7,500.00	6,391.00	7,508.47	6,391.00	37.50	37.32	-179.52	-379.31	-1,267.81	599.56	525.02	74.54	8.044		
7,600.00	6,391.00	7,608.47	6,391.00	40.11	39.93	-179.52	-378.47	-1,367.81	599.61	519.85	79.77	7.517		

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 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	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	6,391.00	7,708.47	6,391.00	42.73	42.56	-179.52	-377.64	-1,467.81	599.67	514.62	85.05	7.051		
7,800.00	6,391.00	7,808.47	6,391.00	45.38	45.22	-179.52	-376.81	-1,567.80	599.72	509.35	90.37	6.637		
7,900.00	6,391.00	7,908.47	6,391.00	48.05	47.89	-179.52	-375.97	-1,667.80	599.77	504.05	95.72	6.266		
8,000.00	6,391.00	8,008.47	6,391.00	50.74	50.58	-179.52	-375.14	-1,767.80	599.83	498.72	101.10	5.933		
8,100.00	6,391.00	8,108.47	6,391.00	53.43	53.28	-179.52	-374.30	-1,867.79	599.88	493.37	106.51	5.632		
8,200.00	6,391.00	8,208.47	6,391.00	56.14	55.99	-179.52	-373.47	-1,967.79	599.94	488.00	111.94	5.359		
8,300.00	6,391.00	8,308.47	6,391.00	58.86	58.71	-179.52	-372.64	-2,067.79	599.99	482.60	117.39	5.111		
8,400.00	6,391.00	8,408.47	6,391.00	61.58	61.44	-179.52	-371.80	-2,167.78	600.04	477.20	122.85	4.884		
8,500.00	6,391.00	8,508.47	6,391.00	64.32	64.17	-179.52	-370.97	-2,267.78	600.10	471.77	128.32	4.676		
8,600.00	6,391.00	8,608.47	6,391.00	67.06	66.91	-179.52	-370.14	-2,367.78	600.15	466.34	133.81	4.485		
8,700.00	6,391.00	8,708.47	6,391.00	69.80	69.66	-179.52	-369.30	-2,467.77	600.20	460.90	139.31	4.308		
8,800.00	6,391.00	8,808.47	6,391.00	72.55	72.41	-179.52	-368.47	-2,567.77	600.26	455.44	144.82	4.145		
8,900.00	6,391.00	8,908.47	6,391.00	75.31	75.17	-179.52	-367.63	-2,667.77	600.31	449.98	150.33	3.993		
9,000.00	6,391.00	9,008.47	6,391.00	78.06	77.93	-179.52	-366.80	-2,767.76	600.37	444.51	155.86	3.852		
9,100.00	6,391.00	9,108.47	6,391.00	80.82	80.69	-179.52	-365.97	-2,867.76	600.42	439.03	161.38	3.720		
9,200.00	6,391.00	9,208.47	6,391.00	83.59	83.46	-179.52	-365.13	-2,967.75	600.47	433.55	166.92	3.597		
9,300.00	6,391.00	9,308.47	6,391.00	86.36	86.23	-179.52	-364.30	-3,067.75	600.53	428.06	172.46	3.482		
9,400.00	6,391.00	9,408.47	6,391.00	89.13	89.00	-179.52	-363.47	-3,167.75	600.58	422.57	178.01	3.374		
9,500.00	6,391.00	9,508.47	6,391.00	91.90	91.77	-179.52	-362.63	-3,267.74	600.63	417.08	183.56	3.272		
9,600.00	6,391.00	9,608.47	6,391.00	94.68	94.55	-179.52	-361.80	-3,367.74	600.69	411.57	189.11	3.176		
9,700.00	6,391.00	9,708.47	6,391.00	97.45	97.33	-179.52	-360.96	-3,467.74	600.74	406.07	194.67	3.086		
9,800.00	6,391.00	9,808.47	6,391.00	100.23	100.11	-179.52	-360.13	-3,567.73	600.79	400.56	200.23	3.000		
9,900.00	6,391.00	9,908.47	6,391.00	103.01	102.89	-179.52	-359.30	-3,667.73	600.85	395.05	205.80	2.920		
10,000.00	6,391.00	10,008.47	6,391.00	105.79	105.67	-179.52	-358.46	-3,767.73	600.90	389.54	211.37	2.843		
10,100.00	6,391.00	10,108.47	6,391.00	108.58	108.46	-179.52	-357.63	-3,867.72	600.96	384.02	216.94	2.770		
10,200.00	6,391.00	10,208.47	6,391.00	111.36	111.24	-179.52	-356.80	-3,967.72	601.01	378.50	222.51	2.701		
10,300.00	6,391.00	10,308.47	6,391.00	114.15	114.03	-179.52	-355.96	-4,067.72	601.06	372.98	228.08	2.635		
10,400.00	6,391.00	10,408.46	6,391.00	116.94	116.82	-179.52	-355.13	-4,167.71	601.12	367.46	233.66	2.573		
10,500.00	6,391.00	10,508.46	6,391.00	119.72	119.61	-179.52	-354.29	-4,267.71	601.17	361.93	239.24	2.513		
10,600.00	6,391.00	10,608.46	6,391.00	122.51	122.40	-179.52	-353.46	-4,367.71	601.22	356.40	244.82	2.456		
10,642.55	6,391.00	10,651.02	6,391.00	123.70	123.58	-179.52	-353.11	-4,410.26	601.25	354.05	247.20	2.432 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	1.00	0.00	0.00	-180.00	-43.71	0.00	43.72					
100.00	100.00	99.00	100.00	0.09	0.09	-180.00	-43.71	0.00	43.71	43.53	0.18	238.355		
200.00	200.00	199.00	200.00	0.32	0.31	-180.00	-43.71	0.00	43.71	43.08	0.63	69.208		
300.00	300.00	299.00	300.00	0.54	0.54	-180.00	-43.71	0.00	43.71	42.63	1.08	40.431		
400.00	400.00	399.00	400.00	0.77	0.76	-180.00	-43.71	0.00	43.71	42.18	1.53	28.557		
500.00	500.00	499.00	500.00	0.99	0.99	-180.00	-43.71	0.00	43.71	41.73	1.98	22.074	CC, ES	
600.00	599.98	597.40	598.38	1.22	1.18	-179.61	-45.37	0.05	47.10	44.69	2.41	19.578		
659.05	658.97	655.22	656.14	1.35	1.29	-179.10	-47.91	0.12	52.31	49.66	2.66	19.701		
700.00	699.86	695.13	695.98	1.45	1.37	-178.76	-50.35	0.18	57.03	54.21	2.83	20.187		
800.00	799.70	792.00	792.50	1.67	1.57	-178.23	-58.57	0.41	70.93	67.68	3.25	21.819		
900.00	899.55	887.85	887.67	1.91	1.81	-178.00	-69.92	0.72	88.15	84.47	3.69	23.922		
1,000.00	999.39	982.50	981.22	2.14	2.08	-177.95	-84.23	1.11	108.64	104.51	4.13	26.335		
1,100.00	1,099.24	1,075.74	1,072.88	2.38	2.39	-177.99	-101.35	1.58	132.31	127.74	4.57	28.950		
1,200.00	1,199.08	1,167.44	1,162.42	2.62	2.75	-178.08	-121.08	2.12	159.10	154.08	5.02	31.697		
1,300.00	1,298.93	1,257.43	1,249.64	2.86	3.15	-178.20	-143.22	2.72	188.93	183.46	5.47	34.526		
1,400.00	1,398.78	1,345.60	1,334.38	3.10	3.59	-178.31	-167.56	3.39	221.71	215.78	5.93	37.404		
1,500.00	1,498.62	1,431.84	1,416.49	3.34	4.06	-178.42	-193.87	4.11	257.34	250.96	6.39	40.290		
1,600.00	1,598.47	1,522.92	1,502.64	3.58	4.61	-178.55	-223.45	4.92	294.89	288.03	6.86	43.015		
1,700.00	1,698.31	1,615.58	1,590.26	3.83	5.17	-178.65	-253.59	5.75	332.49	325.16	7.33	45.388		
1,800.00	1,798.16	1,708.24	1,677.87	4.07	5.75	-178.73	-283.72	6.57	370.09	362.29	7.80	47.453		
1,900.00	1,898.01	1,800.90	1,765.49	4.31	6.33	-178.79	-313.86	7.40	407.70	399.42	8.28	49.254		
2,000.00	1,997.85	1,893.56	1,853.11	4.55	6.92	-178.85	-344.00	8.22	445.30	436.54	8.76	50.837		
2,100.00	2,097.70	1,986.22	1,940.73	4.80	7.51	-178.89	-374.14	9.05	482.91	473.66	9.24	52.237		
2,200.00	2,197.54	2,078.88	2,028.34	5.04	8.11	-178.93	-404.27	9.87	520.51	510.78	9.73	53.484		
2,300.00	2,297.39	2,171.54	2,115.96	5.28	8.71	-178.97	-434.41	10.70	558.12	547.89	10.22	54.601		
2,400.00	2,397.24	2,264.20	2,203.58	5.53	9.31	-179.00	-464.55	11.52	595.72	585.01	10.71	55.606		
2,500.00	2,497.08	2,356.86	2,291.20	5.77	9.91	-179.02	-494.69	12.35	633.33	622.12	11.21	56.515		
2,600.00	2,596.93	2,449.52	2,378.81	6.01	10.51	-179.04	-524.82	13.17	670.93	659.23	11.70	57.341		
2,700.00	2,696.77	2,542.18	2,466.43	6.26	11.12	-179.07	-554.96	14.00	708.54	696.34	12.20	58.093		
2,800.00	2,796.62	2,634.84	2,554.05	6.50	11.72	-179.08	-585.10	14.82	746.14	733.45	12.69	58.782		
2,900.00	2,896.47	2,727.50	2,641.67	6.74	12.33	-179.10	-615.24	15.65	783.75	770.56	13.19	59.415		
3,000.00	2,996.31	2,820.16	2,729.28	6.99	12.93	-179.12	-645.37	16.47	821.35	807.66	13.69	59.998		
3,100.00	3,096.16	2,912.82	2,816.90	7.23	13.54	-179.13	-675.51	17.30	858.96	844.77	14.19	60.536		
3,200.00	3,196.00	3,005.47	2,904.52	7.47	14.15	-179.14	-705.65	18.12	896.56	881.88	14.69	61.036		
3,300.00	3,295.85	3,098.13	2,992.14	7.72	14.76	-179.16	-735.79	18.95	934.17	918.98	15.19	61.499		
3,400.00	3,395.70	3,190.79	3,079.75	7.96	15.36	-179.17	-765.93	19.77	971.78	956.09	15.69	61.931		
3,500.00	3,495.54	3,283.45	3,167.37	8.20	15.97	-179.18	-796.06	20.60	1,009.38	993.19	16.19	62.334		
3,600.00	3,595.39	3,376.11	3,254.99	8.45	16.58	-179.19	-826.20	21.42	1,046.99	1,030.29	16.70	62.710		
3,700.00	3,695.23	3,468.77	3,342.61	8.69	17.19	-179.19	-856.34	22.25	1,084.59	1,067.40	17.20	63.063		
3,800.00	3,795.08	3,561.43	3,430.22	8.94	17.80	-179.20	-886.48	23.07	1,122.20	1,104.50	17.70	63.395		
3,900.00	3,894.92	3,654.09	3,517.84	9.18	18.41	-179.21	-916.61	23.90	1,159.81	1,141.60	18.21	63.707		
4,000.00	3,994.77	3,744.49	3,631.93	9.42	19.13	-179.23	-955.04	24.95	1,196.96	1,178.19	18.78	63.746		
4,100.00	4,094.62	3,938.32	3,789.37	9.67	19.82	-179.27	-1,000.24	26.19	1,229.74	1,210.32	19.42	63.332		
4,200.00	4,194.46	4,108.26	3,955.14	9.91	20.42	-179.29	-1,037.53	27.21	1,256.96	1,236.92	20.04	62.718		
4,300.00	4,294.31	4,283.40	4,127.99	10.16	20.91	-179.29	-1,065.62	27.98	1,278.35	1,257.71	20.64	61.930		
4,346.79	4,341.03	4,366.83	4,210.86	10.27	21.10	-179.28	-1,075.27	28.24	1,286.28	1,265.37	20.91	61.510		
4,400.00	4,394.18	4,462.73	4,306.41	10.38	21.28	-179.27	-1,083.38	28.46	1,293.18	1,271.92	21.25	60.845		
4,505.85	4,500.00	4,655.64	4,499.17	10.56	21.53	-179.27	-1,089.99	28.65	1,298.72	1,266.67	32.05	40.519		
4,600.00	4,594.15	4,750.62	4,594.15	10.74	21.61	-179.27	-1,089.99	28.65	1,298.72	1,266.41	32.31	40.198		
4,700.00	4,694.15	4,850.62	4,694.15	10.95	21.69	-179.27	-1,089.99	28.65	1,298.72	1,266.12	32.60	39.839		
4,800.00	4,794.15	4,950.62	4,794.15	11.16	21.77	-179.27	-1,089.99	28.65	1,298.72	1,265.83	32.89	39.484		
4,900.00	4,894.15	5,050.62	4,894.15	11.36	21.86	-179.27	-1,089.99	28.65	1,298.72	1,265.53	33.19	39.132		

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 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,994.15	5,150.62	4,994.15	11.57	21.95	-179.27	-1,089.99	28.65	1,298.72	1,265.23	33.49	38.783		
5,100.00	5,094.15	5,250.62	5,094.15	11.79	22.04	-179.27	-1,089.99	28.65	1,298.72	1,264.93	33.79	38.437		
5,200.00	5,194.15	5,350.62	5,194.15	12.00	22.13	-179.27	-1,089.99	28.65	1,298.72	1,264.63	34.09	38.095		
5,300.00	5,294.15	5,450.62	5,294.15	12.21	22.23	-179.27	-1,089.99	28.65	1,298.72	1,264.32	34.40	37.756		
5,400.00	5,394.15	5,550.62	5,394.15	12.42	22.32	-179.27	-1,089.99	28.65	1,298.72	1,264.01	34.71	37.420		
5,500.00	5,494.15	5,650.62	5,494.15	12.63	22.42	-179.27	-1,089.99	28.65	1,298.72	1,263.70	35.02	37.089		
5,600.00	5,594.15	5,750.62	5,594.15	12.84	22.52	-179.27	-1,089.99	28.65	1,298.72	1,263.39	35.33	36.760		
5,700.00	5,694.15	5,850.62	5,694.15	13.06	22.62	-179.27	-1,089.99	28.65	1,298.72	1,263.08	35.64	36.435		
5,800.00	5,794.15	5,950.62	5,794.15	13.27	22.72	-179.27	-1,089.99	28.65	1,298.72	1,262.76	35.96	36.114		
5,900.00	5,894.15	6,050.62	5,894.15	13.49	22.83	-179.27	-1,089.99	28.65	1,298.72	1,262.44	36.28	35.796		
5,919.39	5,913.54	6,070.01	5,913.54	13.53	22.85	-179.27	-1,089.99	28.65	1,298.72	1,262.38	36.34	35.735		
5,925.00	5,919.15	6,075.56	5,919.09	13.54	22.86	-179.27	-1,089.99	28.61	1,298.72	1,271.41	27.31	47.553		
5,950.00	5,944.13	6,100.27	5,943.77	13.58	22.88	-179.27	-1,089.99	27.69	1,298.72	1,271.32	27.40	47.395		
5,975.00	5,969.03	6,125.00	5,968.41	13.63	22.91	-179.27	-1,089.97	25.48	1,298.72	1,271.23	27.49	47.243		
6,000.00	5,993.77	6,149.68	5,992.84	13.68	22.94	-179.28	-1,089.94	22.01	1,298.72	1,271.15	27.58	47.094		
6,025.00	6,018.30	6,174.39	6,017.09	13.72	22.96	-179.28	-1,089.90	17.28	1,298.73	1,271.06	27.66	46.948		
6,050.00	6,042.53	6,199.11	6,041.07	13.76	22.99	-179.29	-1,089.85	11.30	1,298.73	1,270.98	27.75	46.804		
6,075.00	6,066.41	6,223.83	6,064.71	13.81	23.02	-179.29	-1,089.79	4.08	1,298.73	1,270.90	27.83	46.659		
6,100.00	6,089.88	6,248.55	6,087.95	13.85	23.05	-179.30	-1,089.72	-4.35	1,298.74	1,270.81	27.92	46.512		
6,125.00	6,112.86	6,273.28	6,110.72	13.90	23.07	-179.31	-1,089.64	-13.97	1,298.74	1,270.73	28.02	46.358		
6,150.00	6,135.29	6,298.01	6,132.98	13.95	23.10	-179.32	-1,089.55	-24.77	1,298.75	1,270.63	28.11	46.195		
6,175.00	6,157.12	6,322.76	6,154.65	14.00	23.13	-179.33	-1,089.45	-36.70	1,298.75	1,270.53	28.22	46.019		
6,200.00	6,178.28	6,347.51	6,175.68	14.05	23.16	-179.34	-1,089.34	-49.75	1,298.76	1,270.41	28.34	45.824		
6,225.00	6,198.71	6,372.26	6,196.01	14.11	23.19	-179.36	-1,089.22	-63.87	1,298.76	1,270.28	28.48	45.605		
6,250.00	6,218.36	6,397.03	6,215.59	14.18	23.23	-179.37	-1,089.09	-79.03	1,298.77	1,270.14	28.63	45.358		
6,275.00	6,237.18	6,421.81	6,234.36	14.26	23.26	-179.38	-1,088.96	-95.20	1,298.78	1,269.97	28.81	45.077		
6,300.00	6,255.11	6,446.59	6,252.28	14.35	23.30	-179.40	-1,088.81	-112.32	1,298.79	1,269.77	29.02	44.757		
6,325.00	6,272.10	6,471.39	6,269.29	14.47	23.34	-179.41	-1,088.66	-130.36	1,298.79	1,269.54	29.26	44.393		
6,350.00	6,288.11	6,496.20	6,285.35	14.61	23.38	-179.42	-1,088.50	-149.26	1,298.80	1,269.27	29.53	43.983		
6,375.00	6,303.09	6,521.02	6,300.41	14.76	23.43	-179.43	-1,088.34	-168.98	1,298.81	1,268.97	29.84	43.522		
6,400.00	6,317.01	6,545.85	6,314.44	14.95	23.48	-179.45	-1,088.17	-189.47	1,298.82	1,268.62	30.20	43.011		
6,425.00	6,329.82	6,570.70	6,327.38	15.15	23.54	-179.46	-1,087.99	-210.68	1,298.83	1,268.23	30.60	42.448		
6,450.00	6,341.48	6,595.56	6,339.21	15.38	23.60	-179.47	-1,087.80	-232.54	1,298.84	1,267.80	31.05	41.837		
6,475.00	6,351.98	6,620.43	6,349.90	15.64	23.67	-179.48	-1,087.62	-254.99	1,298.85	1,267.31	31.54	41.179		
6,500.00	6,361.27	6,645.32	6,359.40	15.92	23.75	-179.49	-1,087.42	-277.99	1,298.86	1,266.78	32.09	40.479		
6,525.00	6,369.34	6,670.22	6,367.70	16.23	23.84	-179.50	-1,087.23	-301.46	1,298.87	1,266.19	32.68	39.744		
6,550.00	6,376.16	6,695.14	6,374.77	16.56	23.94	-179.50	-1,087.03	-325.35	1,298.89	1,265.56	33.32	38.979		
6,575.00	6,381.71	6,720.07	6,380.58	16.92	24.05	-179.51	-1,086.82	-349.59	1,298.90	1,264.89	34.01	38.192		
6,600.00	6,385.97	6,745.01	6,385.13	17.29	24.17	-179.51	-1,086.62	-374.12	1,298.91	1,264.17	34.74	37.391		
6,625.00	6,388.94	6,769.98	6,388.39	17.68	24.31	-179.52	-1,086.41	-398.86	1,298.92	1,263.41	35.51	36.582		
6,650.00	6,390.61	6,794.95	6,390.35	18.09	24.46	-179.52	-1,086.20	-423.76	1,298.93	1,262.62	36.31	35.774		
6,669.39	6,391.00	6,814.33	6,390.97	18.42	24.59	-179.52	-1,086.04	-443.12	1,298.94	1,261.99	36.95	35.151		
6,700.00	6,391.00	6,844.94	6,391.00	18.95	24.82	-179.52	-1,085.78	-473.74	1,298.96	1,260.93	38.02	34.162		
6,800.00	6,391.00	6,944.94	6,391.00	20.85	25.77	-179.52	-1,084.94	-573.73	1,299.01	1,257.22	41.78	31.088		
6,900.00	6,391.00	7,044.94	6,391.00	22.94	27.05	-179.52	-1,084.11	-673.73	1,299.06	1,253.14	45.91	28.293		
7,000.00	6,391.00	7,144.94	6,391.00	25.17	28.64	-179.52	-1,083.27	-773.73	1,299.11	1,248.77	50.33	25.809		
7,100.00	6,391.00	7,244.94	6,391.00	27.51	30.48	-179.52	-1,082.43	-873.72	1,299.16	1,244.18	54.97	23.632		
7,200.00	6,391.00	7,344.94	6,391.00	29.92	32.51	-179.52	-1,081.59	-973.72	1,299.20	1,239.42	59.78	21.732		
7,300.00	6,391.00	7,444.94	6,391.00	32.40	34.69	-179.52	-1,080.75	-1,073.71	1,299.25	1,234.53	64.72	20.074		
7,400.00	6,391.00	7,544.94	6,391.00	34.93	36.99	-179.52	-1,079.91	-1,173.71	1,299.30	1,229.54	69.77	18.624		
7,500.00	6,391.00	7,644.94	6,391.00	37.50	39.36	-179.52	-1,079.08	-1,273.71	1,299.35	1,224.46	74.89	17.350		
7,600.00	6,391.00	7,744.94	6,391.00	40.11	41.80	-179.52	-1,078.24	-1,373.70	1,299.40	1,219.32	80.08	16.226		

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

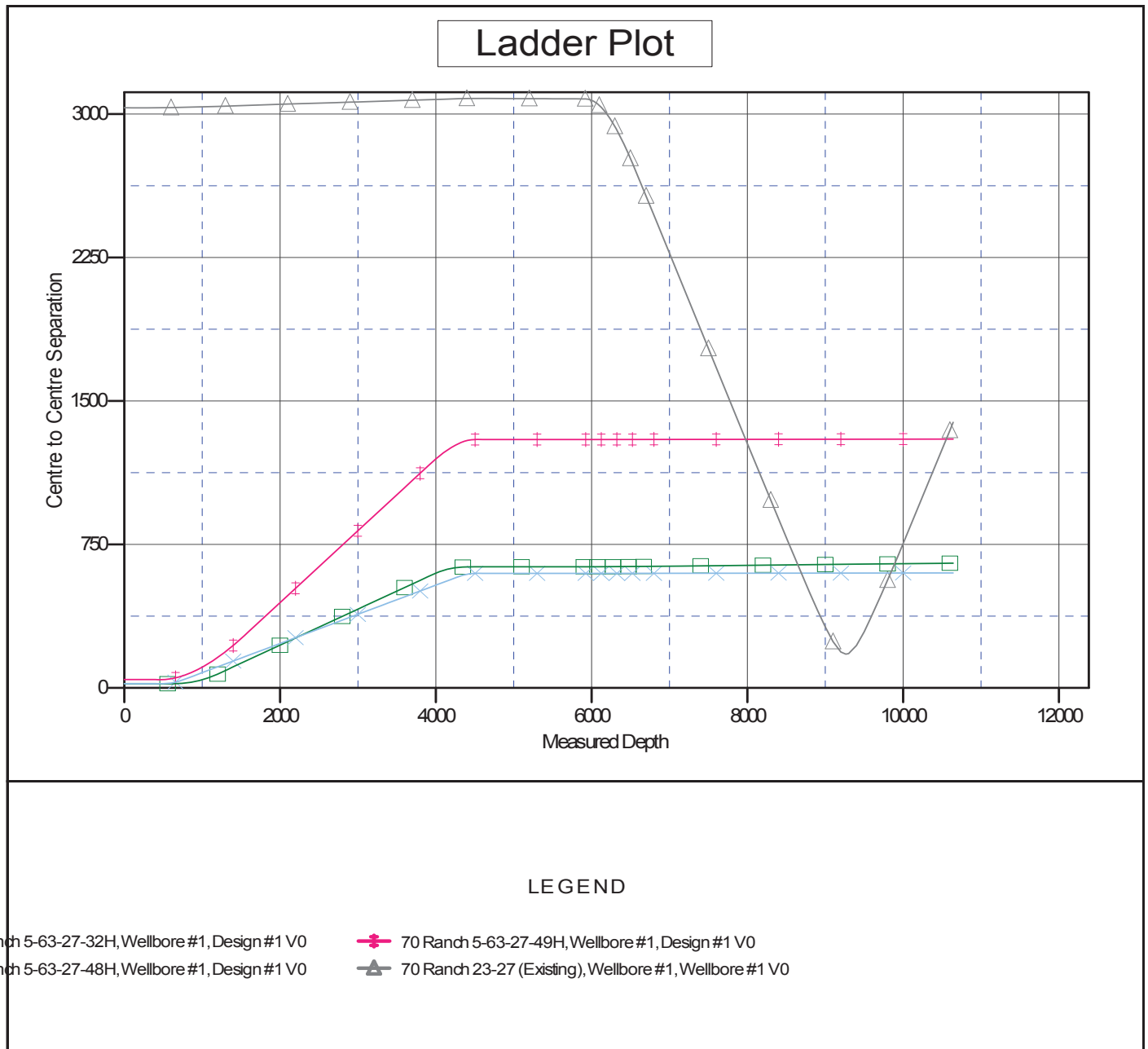
Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation 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	6,391.00	7,844.94	6,391.00	42.73	44.29	-179.52	-1,077.40	-1,473.70	1,299.45	1,214.12	85.33	15.229		
7,800.00	6,391.00	7,944.94	6,391.00	45.38	46.82	-179.52	-1,076.56	-1,573.70	1,299.50	1,208.88	90.62	14.340		
7,900.00	6,391.00	8,044.94	6,391.00	48.05	49.39	-179.52	-1,075.72	-1,673.69	1,299.55	1,203.60	95.95	13.545		
8,000.00	6,391.00	8,144.94	6,391.00	50.74	51.98	-179.52	-1,074.88	-1,773.69	1,299.60	1,198.29	101.31	12.829		
8,100.00	6,391.00	8,244.94	6,391.00	53.43	54.60	-179.52	-1,074.05	-1,873.69	1,299.65	1,192.96	106.69	12.181		
8,200.00	6,391.00	8,344.94	6,391.00	56.14	57.24	-179.52	-1,073.21	-1,973.68	1,299.70	1,187.60	112.10	11.594		
8,300.00	6,391.00	8,444.94	6,391.00	58.86	59.89	-179.52	-1,072.37	-2,073.68	1,299.75	1,182.22	117.53	11.059		
8,400.00	6,391.00	8,544.94	6,391.00	61.58	62.56	-179.52	-1,071.53	-2,173.68	1,299.80	1,176.82	122.98	10.570		
8,500.00	6,391.00	8,644.94	6,391.00	64.32	65.24	-179.52	-1,070.69	-2,273.67	1,299.84	1,171.41	128.44	10.120		
8,600.00	6,391.00	8,744.94	6,391.00	67.06	67.93	-179.52	-1,069.85	-2,373.67	1,299.89	1,165.98	133.91	9.707		
8,700.00	6,391.00	8,844.94	6,391.00	69.80	70.63	-179.52	-1,069.02	-2,473.67	1,299.94	1,160.55	139.40	9.326		
8,800.00	6,391.00	8,944.94	6,391.00	72.55	73.34	-179.52	-1,068.18	-2,573.66	1,299.99	1,155.10	144.89	8.972		
8,900.00	6,391.00	9,044.94	6,391.00	75.31	76.06	-179.52	-1,067.34	-2,673.66	1,300.04	1,149.64	150.40	8.644		
9,000.00	6,391.00	9,144.94	6,391.00	78.06	78.79	-179.52	-1,066.50	-2,773.65	1,300.09	1,144.18	155.91	8.339		
9,100.00	6,391.00	9,244.94	6,391.00	80.82	81.52	-179.52	-1,065.66	-2,873.65	1,300.14	1,138.71	161.43	8.054		
9,200.00	6,391.00	9,344.94	6,391.00	83.59	84.25	-179.52	-1,064.82	-2,973.65	1,300.19	1,133.23	166.96	7.788		
9,300.00	6,391.00	9,444.94	6,391.00	86.36	86.99	-179.52	-1,063.99	-3,073.64	1,300.24	1,127.75	172.49	7.538		
9,400.00	6,391.00	9,544.94	6,391.00	89.13	89.74	-179.52	-1,063.15	-3,173.64	1,300.29	1,122.26	178.03	7.304		
9,500.00	6,391.00	9,644.94	6,391.00	91.90	92.49	-179.52	-1,062.31	-3,273.64	1,300.34	1,116.76	183.57	7.083		
9,600.00	6,391.00	9,744.94	6,391.00	94.68	95.24	-179.52	-1,061.47	-3,373.63	1,300.39	1,111.26	189.12	6.876		
9,700.00	6,391.00	9,844.94	6,391.00	97.45	98.00	-179.52	-1,060.63	-3,473.63	1,300.43	1,105.76	194.67	6.680		
9,800.00	6,391.00	9,944.94	6,391.00	100.23	100.75	-179.52	-1,059.79	-3,573.63	1,300.48	1,100.26	200.23	6.495		
9,900.00	6,391.00	10,044.94	6,391.00	103.01	103.52	-179.52	-1,058.96	-3,673.62	1,300.53	1,094.75	205.79	6.320		
10,000.00	6,391.00	10,144.94	6,391.00	105.79	106.28	-179.52	-1,058.12	-3,773.62	1,300.58	1,089.23	211.35	6.154		
10,100.00	6,391.00	10,244.94	6,391.00	108.58	109.05	-179.52	-1,057.28	-3,873.62	1,300.63	1,083.72	216.92	5.996		
10,200.00	6,391.00	10,344.94	6,391.00	111.36	111.82	-179.52	-1,056.44	-3,973.61	1,300.68	1,078.20	222.48	5.846		
10,300.00	6,391.00	10,444.94	6,391.00	114.15	114.59	-179.52	-1,055.60	-4,073.61	1,300.73	1,072.68	228.05	5.704		
10,400.00	6,391.00	10,544.94	6,391.00	116.94	117.36	-179.52	-1,054.77	-4,173.61	1,300.78	1,067.15	233.63	5.568		
10,500.00	6,391.00	10,644.94	6,391.00	119.72	120.13	-179.52	-1,053.93	-4,273.60	1,300.83	1,061.63	239.20	5.438		
10,600.00	6,391.00	10,744.94	6,391.00	122.51	122.91	-179.52	-1,053.09	-4,373.60	1,300.88	1,056.10	244.78	5.314		
10,642.55	6,391.00	10,787.50	6,391.00	123.70	124.09	-179.52	-1,052.73	-4,416.15	1,300.90	1,053.75	247.15	5.264 SF		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	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 @ 4613.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 5-63-27-33H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

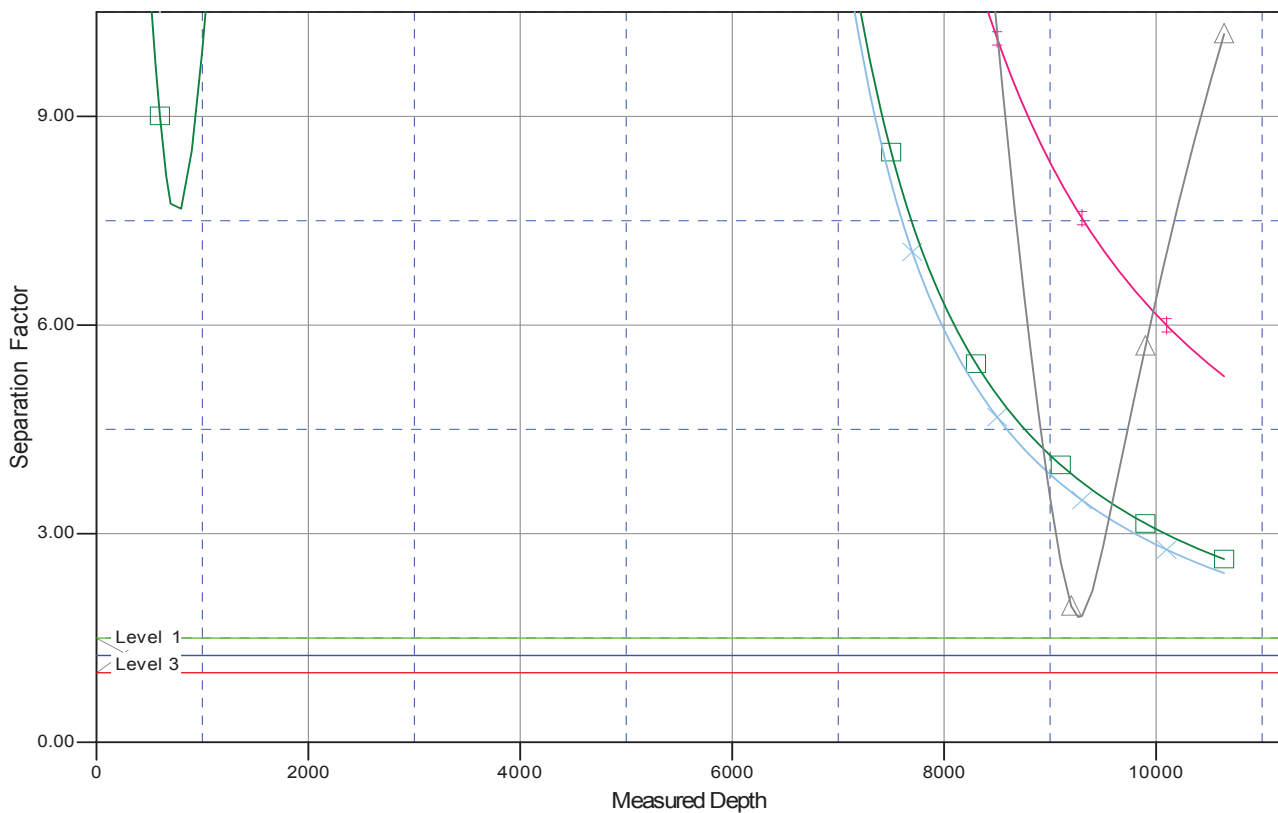


Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 5-63-27-33H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4613.00usft
Reference Site:	Sec.27-T5N-R63W	MD Reference:	WELL @ 4613.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 5-63-27-33H	Survey Calculation 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 @ 4613.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 5-63-27-33H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

Separation Factor Plot



LEGEND

70 Ranch 5-63-27-32H, Wellbore #1, Design #1 V0
70 Ranch 5-63-27-48H, Wellbore #1, Design #1 V0
70 Ranch 5-63-27-49H, Wellbore #1, Design #1 V0
70 Ranch 23-27 (Existing), Wellbore #1, Wellbore #1 V0