

Well Planning Proposal FOR

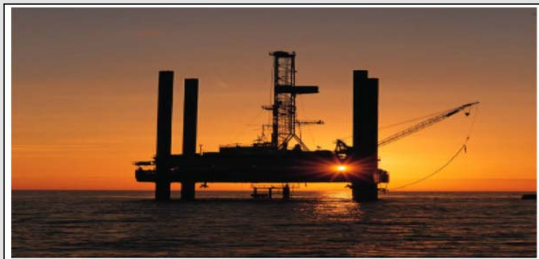
Bill Barrett Corp.
70 Ranch 4-63-3-48H
Weld Co., CO

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

Presented By:

Pat Rasmussen
Regional Manager

Bret Wolford
Well Planner



Sharewell
Energy Services, LP



Bill Barrett Corp.
Project: Weld Co., CO
Site: Sec.3-T4N-R63W
Well: 70 Ranch 4-63-3-48H
Wellbore: Wellbore #1
Design: Design #1
Lat: 40° 20' 21.948 N
Long: 104° 24' 59.040 W
Pad GL: 4541.00
KB: WELL @ 4559.00usft



PROJECT DETAILS: Weld Co., CO

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



Azimuths to True North
Magnetic North: 8.56°

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

WELL DETAILS: 70 Ranch 4-63-3-48H

	+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude	Slot
	0.00	0.00	1368340.637	3302055.941	40° 20' 21.948 N	104° 24' 59.040 W	

WELLBORE TARGET DETAILS (LAT/LONG)

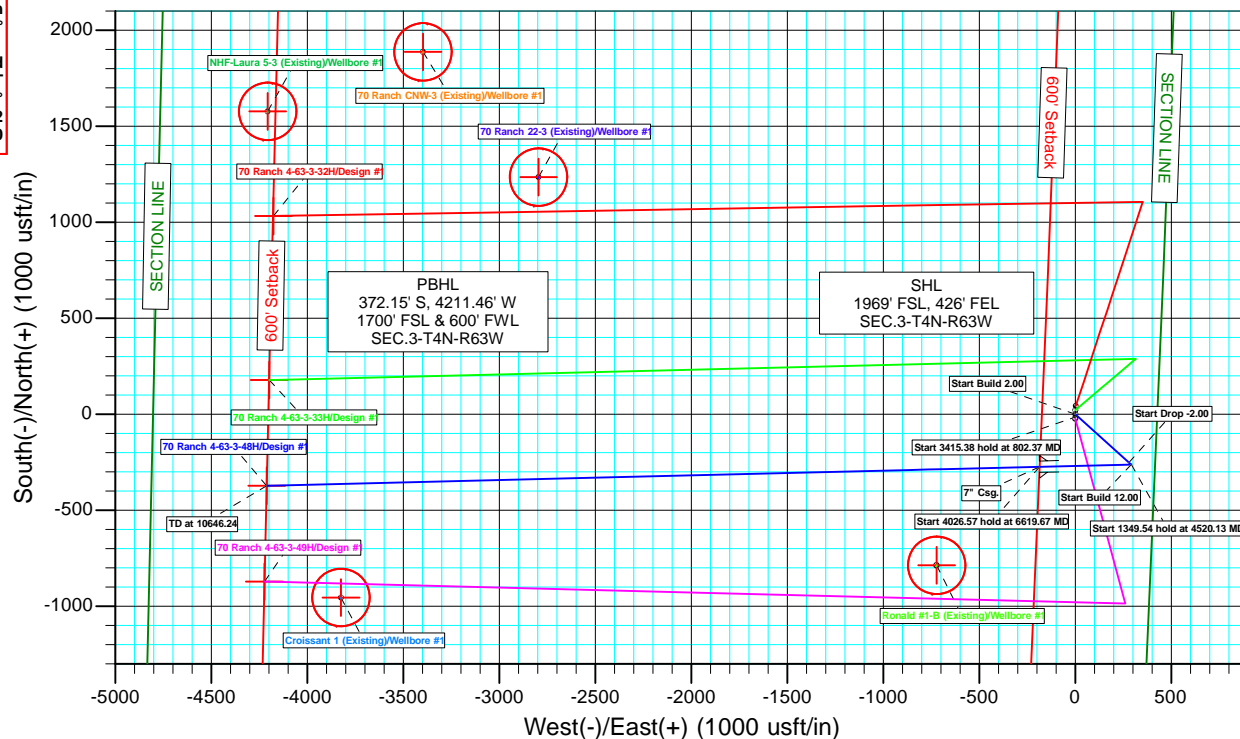
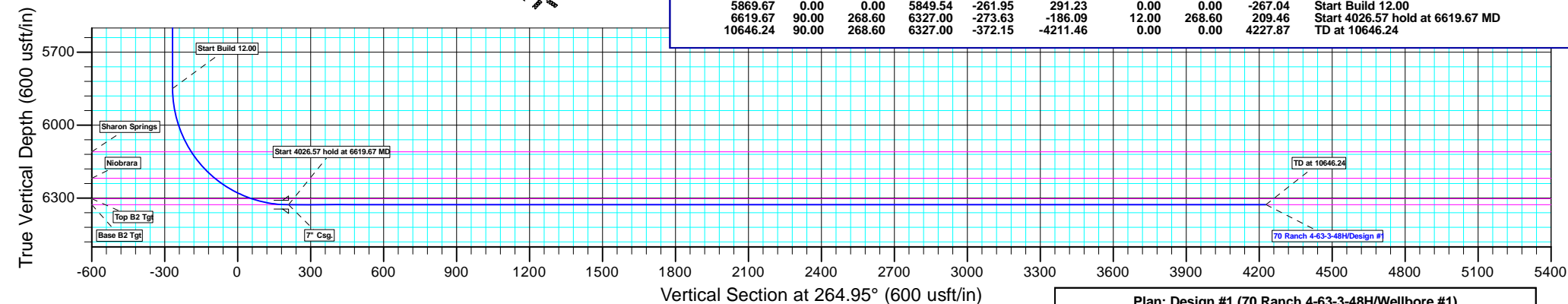
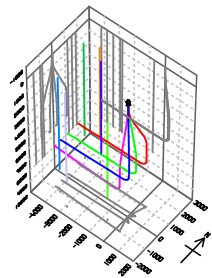
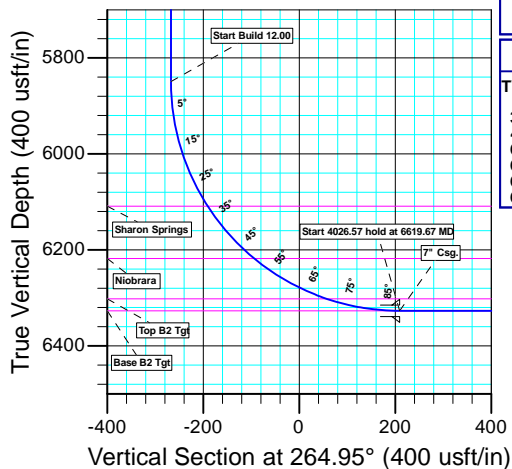
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
4-63-3-48H PBHL	6327.00	-372.15	-4211.46	40° 20' 18.267 N	104° 25' 53.428 W	

CASING DETAILS

TVD	MD	Name	Size
6327.00	6619.67	7" Csg.	7

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
199.00	199.00	Pierre
3949.00	3967.17	Terry/Sussex
4599.00	4619.13	Shannon
6109.00	6143.97	Sharon Springs
6218.00	6290.56	Niobrara
6302.00	6464.46	Top B2 Tgt
6327.00	6617.52	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
802.37	6.05	131.97	801.81	-10.66	11.85	2.00	131.97	-10.87	Start 3415.38 hold at 802.37 MD
4217.75	6.05	131.97	4198.19	-251.29	279.38	0.00	0.00	-256.17	Start Drop -2.00
4520.13	0.00	0.00	4500.00	-261.95	291.23	2.00	180.00	-267.04	Start 1349.54 hold at 4520.13 MD
5869.67	0.00	0.00	5849.54	-261.95	291.23	0.00	0.00	-267.04	Start Build 12.00
6619.67	90.00	268.60	6327.00	-273.63	-186.09	12.00	268.60	209.46	Start 4026.57 hold at 6619.67 MD
10646.24	90.00	268.60	6327.00	-372.15	-4211.46	0.00	0.00	4227.87	TD at 10646.24

Plan: Design #1 (70 Ranch 4-63-3-48H/Wellbore #1)

Created By: Bret Wolford

Date: 14:38, April 20 2012



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO
Sec.3-T4N-R63W
70 Ranch 4-63-3-48H

Wellbore #1

Plan: Design #1

Standard Planning Report

20 April, 2012



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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

Site		Sec.3-T4N-R63W			
Site Position:		Northing:	1,368,318.789 usft	Latitude:	40° 20' 21.732 N
From:	Lat/Long	Easting:	3,302,056.208 usft	Longitude:	104° 24' 59.040 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.70 °

Well	70 Ranch 4-63-3-48H					
Well Position	+N/-S	21.85 usft	Northing:	1,368,340.637 usft	Latitude:	40° 20' 21.948 N
	+E/-W	0.00 usft	Easting:	3,302,055.941 usft	Longitude:	104° 24' 59.040 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,541.00 usft

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

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	264.95

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	
802.37	6.05	131.97	801.81	-10.66	11.85	2.00	2.00	0.00	131.97	
4,217.75	6.05	131.97	4,198.19	-251.29	279.38	0.00	0.00	0.00	0.00	
4,520.13	0.00	0.00	4,500.00	-261.95	291.23	2.00	-2.00	0.00	180.00	
5,869.67	0.00	0.00	5,849.54	-261.95	291.23	0.00	0.00	0.00	0.00	
6,619.67	90.00	268.60	6,327.00	-273.63	-186.09	12.00	12.00	0.00	268.60	4-63-3-48H PBHL
10,646.24	90.00	268.60	6,327.00	-372.15	-4,211.46	0.00	0.00	0.00	0.00	4-63-3-48H PBHL

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
199.00	0.00	0.00	199.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	131.97	599.98	-1.17	1.30	-1.19	2.00	2.00	0.00
700.00	4.00	131.97	699.84	-4.67	5.19	-4.76	2.00	2.00	0.00
Start 3415.38 hold at 802.37 MD									
802.37	6.05	131.97	801.81	-10.66	11.85	-10.87	2.00	2.00	0.00
900.00	6.05	131.97	898.90	-17.54	19.50	-17.88	0.00	0.00	0.00
1,000.00	6.05	131.97	998.34	-24.59	27.33	-25.06	0.00	0.00	0.00
1,100.00	6.05	131.97	1,097.78	-31.63	35.17	-32.25	0.00	0.00	0.00
1,200.00	6.05	131.97	1,197.23	-38.68	43.00	-39.43	0.00	0.00	0.00
1,300.00	6.05	131.97	1,296.67	-45.72	50.83	-46.61	0.00	0.00	0.00
1,400.00	6.05	131.97	1,396.11	-52.77	58.66	-53.79	0.00	0.00	0.00
1,500.00	6.05	131.97	1,495.56	-59.81	66.50	-60.97	0.00	0.00	0.00
1,600.00	6.05	131.97	1,595.00	-66.86	74.33	-68.16	0.00	0.00	0.00
1,700.00	6.05	131.97	1,694.44	-73.90	82.16	-75.34	0.00	0.00	0.00
1,800.00	6.05	131.97	1,793.89	-80.95	90.00	-82.52	0.00	0.00	0.00
1,900.00	6.05	131.97	1,893.33	-87.99	97.83	-89.70	0.00	0.00	0.00
2,000.00	6.05	131.97	1,992.77	-95.04	105.66	-96.89	0.00	0.00	0.00
2,100.00	6.05	131.97	2,092.22	-102.08	113.50	-104.07	0.00	0.00	0.00
2,200.00	6.05	131.97	2,191.66	-109.13	121.33	-111.25	0.00	0.00	0.00
2,300.00	6.05	131.97	2,291.10	-116.18	129.16	-118.43	0.00	0.00	0.00
2,400.00	6.05	131.97	2,390.55	-123.22	136.99	-125.62	0.00	0.00	0.00
2,500.00	6.05	131.97	2,489.99	-130.27	144.83	-132.80	0.00	0.00	0.00
2,600.00	6.05	131.97	2,589.43	-137.31	152.66	-139.98	0.00	0.00	0.00
2,700.00	6.05	131.97	2,688.88	-144.36	160.49	-147.16	0.00	0.00	0.00
2,800.00	6.05	131.97	2,788.32	-151.40	168.33	-154.35	0.00	0.00	0.00
2,900.00	6.05	131.97	2,887.77	-158.45	176.16	-161.53	0.00	0.00	0.00
3,000.00	6.05	131.97	2,987.21	-165.49	183.99	-168.71	0.00	0.00	0.00
3,100.00	6.05	131.97	3,086.65	-172.54	191.82	-175.89	0.00	0.00	0.00
3,200.00	6.05	131.97	3,186.10	-179.58	199.66	-183.07	0.00	0.00	0.00
3,300.00	6.05	131.97	3,285.54	-186.63	207.49	-190.26	0.00	0.00	0.00
3,400.00	6.05	131.97	3,384.98	-193.67	215.32	-197.44	0.00	0.00	0.00
3,500.00	6.05	131.97	3,484.43	-200.72	223.16	-204.62	0.00	0.00	0.00
3,600.00	6.05	131.97	3,583.87	-207.77	230.99	-211.80	0.00	0.00	0.00
3,700.00	6.05	131.97	3,683.31	-214.81	238.82	-218.99	0.00	0.00	0.00
3,800.00	6.05	131.97	3,782.76	-221.86	246.65	-226.17	0.00	0.00	0.00
3,900.00	6.05	131.97	3,882.20	-228.90	254.49	-233.35	0.00	0.00	0.00
Terry/Sussex									
3,967.17	6.05	131.97	3,949.00	-233.63	259.75	-238.18	0.00	0.00	0.00
4,000.00	6.05	131.97	3,981.64	-235.95	262.32	-240.53	0.00	0.00	0.00
4,100.00	6.05	131.97	4,081.09	-242.99	270.15	-247.72	0.00	0.00	0.00
4,200.00	6.05	131.97	4,180.53	-250.04	277.99	-254.90	0.00	0.00	0.00
Start Drop -2.00									
4,217.75	6.05	131.97	4,198.19	-251.29	279.38	-256.17	0.00	0.00	0.00
4,300.00	4.40	131.97	4,280.09	-256.30	284.95	-261.28	2.00	-2.00	0.00
4,400.00	2.40	131.97	4,379.91	-260.27	289.36	-265.33	2.00	-2.00	0.00
4,500.00	0.40	131.97	4,479.87	-261.90	291.18	-266.99	2.00	-2.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Start 1349.54 hold at 4520.13 MD									
4,520.13	0.00	0.00	4,500.00	-261.95	291.23	-267.04	2.00	-2.00	0.00
4,600.00	0.00	0.00	4,579.87	-261.95	291.23	-267.04	0.00	0.00	0.00
Shannon									
4,619.13	0.00	0.00	4,599.00	-261.95	291.23	-267.04	0.00	0.00	0.00
4,700.00	0.00	0.00	4,679.87	-261.95	291.23	-267.04	0.00	0.00	0.00
4,800.00	0.00	0.00	4,779.87	-261.95	291.23	-267.04	0.00	0.00	0.00
4,900.00	0.00	0.00	4,879.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,000.00	0.00	0.00	4,979.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,100.00	0.00	0.00	5,079.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,200.00	0.00	0.00	5,179.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,300.00	0.00	0.00	5,279.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,400.00	0.00	0.00	5,379.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,500.00	0.00	0.00	5,479.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,600.00	0.00	0.00	5,579.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,700.00	0.00	0.00	5,679.87	-261.95	291.23	-267.04	0.00	0.00	0.00
5,800.00	0.00	0.00	5,779.87	-261.95	291.23	-267.04	0.00	0.00	0.00
Start Build 12.00									
5,869.67	0.00	0.00	5,849.54	-261.95	291.23	-267.04	0.00	0.00	0.00
5,875.00	0.64	268.60	5,854.87	-261.95	291.20	-267.01	12.00	12.00	0.00
5,900.00	3.64	268.60	5,879.85	-261.97	290.27	-266.08	12.00	12.00	0.00
5,925.00	6.64	268.60	5,904.75	-262.03	288.03	-263.85	12.00	12.00	0.00
5,950.00	9.64	268.60	5,929.49	-262.11	284.49	-260.31	12.00	12.00	0.00
5,975.00	12.64	268.60	5,954.02	-262.23	279.66	-255.49	12.00	12.00	0.00
6,000.00	15.64	268.60	5,978.26	-262.38	273.56	-249.40	12.00	12.00	0.00
6,025.00	18.64	268.60	6,002.15	-262.56	266.19	-242.05	12.00	12.00	0.00
6,050.00	21.64	268.60	6,025.61	-262.77	257.59	-233.46	12.00	12.00	0.00
6,075.00	24.64	268.60	6,048.60	-263.01	247.77	-223.66	12.00	12.00	0.00
6,100.00	27.64	268.60	6,071.04	-263.28	236.76	-212.67	12.00	12.00	0.00
6,125.00	30.64	268.60	6,092.87	-263.58	224.59	-200.52	12.00	12.00	0.00
Sharon Springs									
6,143.97	32.92	268.60	6,109.00	-263.83	214.60	-190.55	12.00	12.00	0.00
6,150.00	33.64	268.60	6,114.04	-263.91	211.30	-187.25	12.00	12.00	0.00
6,175.00	36.64	268.60	6,134.48	-264.26	196.91	-172.89	12.00	12.00	0.00
6,200.00	39.64	268.60	6,154.14	-264.64	181.48	-157.48	12.00	12.00	0.00
6,225.00	42.64	268.60	6,172.97	-265.04	165.04	-141.07	12.00	12.00	0.00
6,250.00	45.64	268.60	6,190.91	-265.46	147.64	-123.70	12.00	12.00	0.00
6,275.00	48.64	268.60	6,207.91	-265.91	129.32	-105.41	12.00	12.00	0.00
Niobrara									
6,290.56	50.51	268.60	6,218.00	-266.20	117.48	-93.59	12.00	12.00	0.00
6,300.00	51.64	268.60	6,223.93	-266.38	110.14	-86.26	12.00	12.00	0.00
6,325.00	54.64	268.60	6,238.93	-266.87	90.14	-66.30	12.00	12.00	0.00
6,350.00	57.64	268.60	6,252.85	-267.38	69.39	-45.59	12.00	12.00	0.00
6,375.00	60.64	268.60	6,265.68	-267.90	47.94	-24.17	12.00	12.00	0.00
6,400.00	63.64	268.60	6,277.36	-268.45	25.85	-2.12	12.00	12.00	0.00
6,425.00	66.64	268.60	6,287.87	-269.00	3.17	20.52	12.00	12.00	0.00
6,450.00	69.64	268.60	6,297.17	-269.57	-20.02	43.67	12.00	12.00	0.00
Top B2 Tgt									
6,464.46	71.38	268.60	6,302.00	-269.90	-33.65	57.28	12.00	12.00	0.00
6,475.00	72.64	268.60	6,305.26	-270.15	-43.67	67.28	12.00	12.00	0.00
6,500.00	75.64	268.60	6,312.09	-270.73	-67.71	91.28	12.00	12.00	0.00
6,525.00	78.64	268.60	6,317.65	-271.33	-92.07	115.60	12.00	12.00	0.00
6,550.00	81.64	268.60	6,321.93	-271.93	-116.69	140.17	12.00	12.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,575.00	84.64	268.60	6,324.92	-272.54	-141.50	164.94	12.00	12.00	0.00
6,600.00	87.64	268.60	6,326.60	-273.15	-166.43	189.83	12.00	12.00	0.00
Base B2 Tgt									
6,617.52	89.74	268.60	6,327.00	-273.58	-183.95	207.31	12.00	12.00	0.00
Start 4026.57 hold at 6619.67 MD - 7" Csg.									
6,619.67	90.00	268.60	6,327.00	-273.63	-186.09	209.46	12.00	12.00	0.00
6,700.00	90.00	268.60	6,327.00	-275.60	-266.40	289.62	0.00	0.00	0.00
6,800.00	90.00	268.60	6,327.00	-278.04	-366.37	389.42	0.00	0.00	0.00
6,900.00	90.00	268.60	6,327.00	-280.49	-466.34	489.22	0.00	0.00	0.00
7,000.00	90.00	268.60	6,327.00	-282.94	-566.31	589.02	0.00	0.00	0.00
7,100.00	90.00	268.60	6,327.00	-285.38	-666.28	688.81	0.00	0.00	0.00
7,200.00	90.00	268.60	6,327.00	-287.83	-766.25	788.61	0.00	0.00	0.00
7,300.00	90.00	268.60	6,327.00	-290.28	-866.22	888.41	0.00	0.00	0.00
7,400.00	90.00	268.60	6,327.00	-292.72	-966.19	988.21	0.00	0.00	0.00
7,500.00	90.00	268.60	6,327.00	-295.17	-1,066.16	1,088.00	0.00	0.00	0.00
7,600.00	90.00	268.60	6,327.00	-297.62	-1,166.13	1,187.80	0.00	0.00	0.00
7,700.00	90.00	268.60	6,327.00	-300.06	-1,266.10	1,287.60	0.00	0.00	0.00
7,800.00	90.00	268.60	6,327.00	-302.51	-1,366.07	1,387.39	0.00	0.00	0.00
7,900.00	90.00	268.60	6,327.00	-304.96	-1,466.04	1,487.19	0.00	0.00	0.00
8,000.00	90.00	268.60	6,327.00	-307.40	-1,566.01	1,586.99	0.00	0.00	0.00
8,100.00	90.00	268.60	6,327.00	-309.85	-1,665.98	1,686.79	0.00	0.00	0.00
8,200.00	90.00	268.60	6,327.00	-312.30	-1,765.95	1,786.58	0.00	0.00	0.00
8,300.00	90.00	268.60	6,327.00	-314.74	-1,865.92	1,886.38	0.00	0.00	0.00
8,400.00	90.00	268.60	6,327.00	-317.19	-1,965.89	1,986.18	0.00	0.00	0.00
8,500.00	90.00	268.60	6,327.00	-319.64	-2,065.86	2,085.98	0.00	0.00	0.00
8,600.00	90.00	268.60	6,327.00	-322.08	-2,165.83	2,185.77	0.00	0.00	0.00
8,700.00	90.00	268.60	6,327.00	-324.53	-2,265.80	2,285.57	0.00	0.00	0.00
8,800.00	90.00	268.60	6,327.00	-326.98	-2,365.77	2,385.37	0.00	0.00	0.00
8,900.00	90.00	268.60	6,327.00	-329.42	-2,465.74	2,485.17	0.00	0.00	0.00
9,000.00	90.00	268.60	6,327.00	-331.87	-2,565.71	2,584.96	0.00	0.00	0.00
9,100.00	90.00	268.60	6,327.00	-334.32	-2,665.68	2,684.76	0.00	0.00	0.00
9,200.00	90.00	268.60	6,327.00	-336.76	-2,765.65	2,784.56	0.00	0.00	0.00
9,300.00	90.00	268.60	6,327.00	-339.21	-2,865.62	2,884.36	0.00	0.00	0.00
9,400.00	90.00	268.60	6,327.00	-341.66	-2,965.59	2,984.15	0.00	0.00	0.00
9,500.00	90.00	268.60	6,327.00	-344.10	-3,065.56	3,083.95	0.00	0.00	0.00
9,600.00	90.00	268.60	6,327.00	-346.55	-3,165.53	3,183.75	0.00	0.00	0.00
9,700.00	90.00	268.60	6,327.00	-349.00	-3,265.50	3,283.55	0.00	0.00	0.00
9,800.00	90.00	268.60	6,327.00	-351.45	-3,365.47	3,383.34	0.00	0.00	0.00
9,900.00	90.00	268.60	6,327.00	-353.89	-3,465.44	3,483.14	0.00	0.00	0.00
10,000.00	90.00	268.60	6,327.00	-356.34	-3,565.41	3,582.94	0.00	0.00	0.00
10,100.00	90.00	268.60	6,327.00	-358.79	-3,665.38	3,682.73	0.00	0.00	0.00
10,200.00	90.00	268.60	6,327.00	-361.23	-3,765.35	3,782.53	0.00	0.00	0.00
10,300.00	90.00	268.60	6,327.00	-363.68	-3,865.32	3,882.33	0.00	0.00	0.00
10,400.00	90.00	268.60	6,327.00	-366.13	-3,965.29	3,982.13	0.00	0.00	0.00
10,500.00	90.00	268.60	6,327.00	-368.57	-4,065.26	4,081.92	0.00	0.00	0.00
10,600.00	90.00	268.60	6,327.00	-371.02	-4,165.23	4,181.72	0.00	0.00	0.00
TD at 10646.24 - 4-63-3-48H PBHL									
10,646.24	90.00	268.60	6,327.00	-372.15	-4,211.46	4,227.87	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Company:	Bill Barrett Corp.	TVD Reference:	WELL @ 4559.00usft
Project:	Weld Co., CO	MD Reference:	WELL @ 4559.00usft
Site:	Sec.3-T4N-R63W	North Reference:	True
Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
4-63-3-48H PBHL	0.00	0.00	6,327.00	-372.15	-4,211.46	1,367,917.052	3,297,849.343	40° 20' 18.267 N	104° 25' 53.428 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(usft)	(usft)			(")	(")
6,619.67	6,327.00	7" Csg.		7	8-3/4

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(usft)	(usft)				(°)	(°)
199.00	199.00	Pierre			0.00	
3,967.17	3,949.00	Terry/Sussex			0.00	
4,619.13	4,599.00	Shannon			0.00	
6,143.97	6,109.00	Sharon Springs			0.00	
6,290.56	6,218.00	Niobrara			0.00	
6,464.46	6,302.00	Top B2 Tgt			0.00	
6,617.52	6,327.00	Base B2 Tgt			0.00	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)		
500.00	500.00	0.00	0.00	Start Build 2.00	
802.37	801.81	-10.66	11.85	Start 3415.38 hold at 802.37 MD	
4,217.75	4,198.19	-251.29	279.38	Start Drop -2.00	
4,520.13	4,500.00	-261.95	291.23	Start 1349.54 hold at 4520.13 MD	
5,869.67	5,849.54	-261.95	291.23	Start Build 12.00	
6,619.67	6,327.00	-273.63	-186.09	Start 4026.57 hold at 6619.67 MD	
10,646.24	6,327.00	-372.15	-4,211.46	TD at 10646.24	



Bill Barrett Corporation

Bill Barrett Corp.

Weld Co., CO

Sec.3-T4N-R63W

70 Ranch 4-63-3-48H

Wellbore #1

Design #1

Anticollision Report

20 April, 2012



Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

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

Survey Tool Program		Date	04/20/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	10,646.24	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.3-T4N-R63W						
70 Ranch 4-63-3-32H - Wellbore #1 - Design #1	500.00	500.00	43.80	41.82	22.096	CC, ES
70 Ranch 4-63-3-32H - Wellbore #1 - Design #1	10,646.82	10,832.68	1,405.16	1,160.06	5.733	SF
70 Ranch 4-63-3-33H - Wellbore #1 - Design #1	500.00	500.00	21.86	19.88	11.026	CC, ES
70 Ranch 4-63-3-33H - Wellbore #1 - Design #1	10,646.24	10,659.81	550.48	305.45	2.247	SF
70 Ranch 4-63-3-49H - Wellbore #1 - Design #1	500.00	500.00	21.86	19.88	11.026	CC, ES
70 Ranch 4-63-3-49H - Wellbore #1 - Design #1	10,646.82	10,749.48	499.39	253.98	2.035	SF
Croissant 1 (Existing) - Wellbore #1 - Wellbore #1	10,273.87	6,336.00	591.29	472.05	4.959	CC
Croissant 1 (Existing) - Wellbore #1 - Wellbore #1	10,300.00	6,336.00	591.87	471.90	4.934	ES
Croissant 1 (Existing) - Wellbore #1 - Wellbore #1	10,400.00	6,336.00	604.59	481.85	4.926	SF
Croissant 24-3 (Existing) - Wellbore #1 - Wellbore #1	9,394.87	6,335.00	1,134.02	1,039.15	11.954	CC
Croissant 24-3 (Existing) - Wellbore #1 - Wellbore #1	9,400.00	6,335.00	1,134.03	1,039.02	11.936	ES
Croissant 24-3 (Existing) - Wellbore #1 - Wellbore #1	9,800.00	6,335.00	1,204.21	1,098.13	11.352	SF
Ronald #1-B (Existing) - Wellbore #1 - Wellbore #1	7,167.98	6,308.00	499.96	464.79	14.215	CC, ES
Ronald #1-B (Existing) - Wellbore #1 - Wellbore #1	7,300.00	6,308.00	517.10	478.69	13.464	SF

Offset Design	Sec.3-T4N-R63W - 70 Ranch 4-63-3-32H - Wellbore #1 - Design #1										Offset Site Error:	0.00 usft
Survey Program:	0-MWD										Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	3.65	43.72	2.79	43.80			
100.00	100.00	100.00	100.00	0.09	0.09	3.65	43.72	2.79	43.80	43.62	0.18	237.666
200.00	200.00	200.00	200.00	0.32	0.32	3.65	43.72	2.79	43.80	43.17	0.63	69.109
300.00	300.00	300.00	300.00	0.54	0.54	3.65	43.72	2.79	43.80	42.72	1.08	40.433
400.00	400.00	400.00	400.00	0.77	0.77	3.65	43.72	2.79	43.80	42.27	1.53	28.576
466.67	466.67	466.67	466.67	0.92	0.92	3.65	43.72	2.79	43.80	41.97	1.83	23.903
500.00	500.00	500.00	500.00	0.99	0.99	3.65	43.72	2.79	43.80	41.82	1.98	22.096 CC, ES
600.00	599.98	598.46	598.44	1.19	1.21	2.48	45.32	3.31	46.56	44.15	2.41	19.319
700.00	699.84	696.42	696.27	1.39	1.44	-0.32	50.11	4.88	54.89	52.06	2.84	19.344
802.37	801.81	795.70	795.17	1.62	1.67	-3.59	58.20	7.54	69.32	66.02	3.30	21.021
900.00	898.90	889.24	888.04	1.86	1.91	-5.61	68.80	11.01	87.44	83.69	3.75	23.338
1,000.00	998.34	983.92	981.62	2.12	2.19	-6.31	82.46	15.49	108.99	104.77	4.22	25.828
1,100.00	1,097.78	1,077.28	1,073.38	2.40	2.50	-6.27	98.80	20.85	133.46	128.75	4.71	28.359
1,200.00	1,197.23	1,169.14	1,163.07	2.68	2.84	-5.84	117.64	27.02	160.79	155.59	5.20	30.896

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.3-T4N-R63W - 70 Ranch 4-63-3-32H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
1,300.00	1,296.67	1,259.36	1,250.50	2.96	3.23	-5.22	138.79	33.96	190.94	185.23	5.71	33.424		
1,400.00	1,396.11	1,347.82	1,335.50	3.25	3.66	-4.54	162.06	41.59	223.86	217.63	6.23	35.937		
1,500.00	1,495.56	1,434.39	1,417.91	3.54	4.12	-3.86	187.23	49.84	259.50	252.74	6.75	38.432		
1,600.00	1,595.00	1,518.98	1,497.63	3.83	4.61	-3.19	214.11	58.66	297.77	290.49	7.28	40.897		
1,700.00	1,694.44	1,608.54	1,581.39	4.13	5.17	-2.45	244.23	68.53	337.90	330.07	7.83	43.167		
1,800.00	1,793.89	1,700.01	1,666.92	4.42	5.76	-1.83	275.06	78.64	378.14	369.76	8.38	45.145		
1,900.00	1,893.33	1,791.48	1,752.44	4.72	6.36	-1.32	305.88	88.75	418.41	409.48	8.93	46.852		
2,000.00	1,992.77	1,882.95	1,837.97	5.02	6.97	-0.90	336.71	98.85	458.71	449.22	9.49	48.343		
2,100.00	2,092.22	1,974.43	1,923.49	5.32	7.58	-0.55	367.53	108.96	499.03	488.97	10.05	49.652		
2,200.00	2,191.66	2,065.90	2,009.02	5.62	8.20	-0.26	398.36	119.07	539.36	528.74	10.62	50.810		
2,300.00	2,291.10	2,157.37	2,094.55	5.92	8.82	0.00	429.18	129.17	579.70	568.51	11.18	51.840		
2,400.00	2,390.55	2,248.84	2,180.07	6.22	9.44	0.22	460.01	139.28	620.05	608.30	11.75	52.761		
2,500.00	2,489.99	2,340.31	2,265.60	6.52	10.06	0.42	490.83	149.39	660.41	648.08	12.32	53.590		
2,600.00	2,589.44	2,431.78	2,351.12	6.82	10.69	0.59	521.66	159.49	700.77	687.87	12.90	54.339		
2,700.00	2,688.88	2,523.25	2,436.65	7.12	11.31	0.75	552.48	169.60	741.14	727.67	13.47	55.018		
2,800.00	2,788.32	2,614.72	2,522.17	7.42	11.94	0.89	583.31	179.71	781.51	767.47	14.05	55.637		
2,900.00	2,887.77	2,706.19	2,607.70	7.72	12.57	1.01	614.13	189.81	821.89	807.27	14.62	56.203		
3,000.00	2,987.21	2,797.66	2,693.22	8.03	13.20	1.13	644.96	199.92	862.27	847.07	15.20	56.722		
3,100.00	3,086.65	2,889.14	2,778.75	8.33	13.83	1.23	675.78	210.03	902.65	886.87	15.78	57.200		
3,200.00	3,186.10	2,980.61	2,864.27	8.63	14.47	1.32	706.61	220.14	943.04	926.68	16.36	57.641		
3,300.00	3,285.54	3,072.08	2,949.80	8.93	15.10	1.41	737.43	230.24	983.43	966.49	16.94	58.049		
3,400.00	3,384.98	3,163.55	3,035.33	9.24	15.73	1.49	768.26	240.35	1,023.82	1,006.29	17.52	58.429		
3,500.00	3,484.43	3,255.02	3,120.85	9.54	16.37	1.56	799.08	250.46	1,064.21	1,046.10	18.10	58.782		
3,600.00	3,583.87	3,346.49	3,206.38	9.84	17.00	1.63	829.91	260.56	1,104.60	1,085.91	18.69	59.111		
3,700.00	3,683.31	3,437.96	3,291.90	10.15	17.63	1.70	860.73	270.67	1,144.99	1,125.72	19.27	59.419		
3,800.00	3,782.76	3,529.43	3,377.43	10.45	18.27	1.76	891.56	280.78	1,185.39	1,165.54	19.85	59.707		
3,900.00	3,882.20	3,620.90	3,462.95	10.75	18.90	1.81	922.38	290.88	1,225.78	1,205.35	20.44	59.978		
4,000.00	3,981.64	3,763.54	3,597.18	11.06	19.72	2.07	968.20	305.91	1,264.79	1,243.65	21.13	59.844		
4,100.00	4,081.09	3,928.96	3,755.59	11.36	20.48	2.31	1,013.41	320.73	1,298.86	1,277.02	21.85	59.453		
4,200.00	4,180.53	4,100.63	3,922.59	11.66	21.15	2.42	1,051.05	333.07	1,327.55	1,305.00	22.55	58.875		
4,217.76	4,198.19	4,131.69	3,953.05	11.72	21.26	2.43	1,056.84	334.97	1,332.06	1,309.39	22.67	58.760		
4,300.00	4,280.09	4,277.93	4,097.25	11.92	21.71	2.47	1,079.88	342.52	1,349.86	1,326.58	23.28	57.984		
4,400.00	4,379.91	4,459.97	4,278.18	12.11	22.13	2.50	1,098.74	348.71	1,364.10	1,340.19	23.91	57.054		
4,500.00	4,479.87	4,644.70	4,462.69	12.27	22.40	2.52	1,106.68	351.31	1,370.02	1,345.58	24.44	56.065		
4,520.13	4,500.00	4,682.02	4,500.00	12.30	22.44	2.52	1,106.92	351.39	1,370.19	1,337.23	32.96	41.574		
4,600.00	4,579.87	4,761.89	4,579.87	12.42	22.51	2.52	1,106.92	351.39	1,370.19	1,337.01	33.17	41.306		
4,700.00	4,679.87	4,861.89	4,679.87	12.58	22.60	2.52	1,106.92	351.39	1,370.19	1,336.76	33.43	40.986		
4,800.00	4,779.87	4,961.89	4,779.87	12.73	22.69	2.52	1,106.92	351.39	1,370.19	1,336.49	33.69	40.667		
4,900.00	4,879.87	5,061.89	4,879.87	12.89	22.79	2.52	1,106.92	351.39	1,370.19	1,336.23	33.96	40.348		
5,000.00	4,979.87	5,161.89	4,979.87	13.04	22.89	2.52	1,106.92	351.39	1,370.19	1,335.96	34.23	40.030		
5,100.00	5,079.87	5,261.89	5,079.87	13.20	22.99	2.52	1,106.92	351.39	1,370.19	1,335.68	34.50	39.713		
5,200.00	5,179.87	5,361.89	5,179.87	13.37	23.09	2.52	1,106.92	351.39	1,370.19	1,335.41	34.78	39.397		
5,300.00	5,279.87	5,461.89	5,279.87	13.53	23.19	2.52	1,106.92	351.39	1,370.19	1,335.13	35.06	39.082		
5,400.00	5,379.87	5,561.89	5,379.87	13.70	23.29	2.52	1,106.92	351.39	1,370.19	1,334.84	35.34	38.768		
5,500.00	5,479.87	5,661.89	5,479.87	13.86	23.40	2.52	1,106.92	351.39	1,370.19	1,334.56	35.63	38.456		
5,600.00	5,579.87	5,761.89	5,579.87	14.03	23.51	2.52	1,106.92	351.39	1,370.19	1,334.27	35.92	38.146		
5,700.00	5,679.87	5,861.89	5,679.87	14.20	23.61	2.52	1,106.92	351.39	1,370.19	1,333.97	36.21	37.837		
5,800.00	5,779.87	5,961.89	5,779.87	14.37	23.72	2.52	1,106.92	351.39	1,370.19	1,333.68	36.51	37.530		
5,869.67	5,849.54	6,031.56	5,849.54	14.50	23.80	2.52	1,106.92	351.39	1,370.19	1,333.47	36.72	37.318		
5,875.00	5,854.87	6,038.00	5,855.99	14.50	23.81	2.52	1,106.91	351.34	1,370.19	1,341.03	29.16	46.993		
5,900.00	5,879.85	6,068.23	5,886.18	14.54	23.84	2.50	1,106.89	349.98	1,370.18	1,340.95	29.23	46.879		
5,925.00	5,904.75	6,098.42	5,916.19	14.57	23.86	2.45	1,106.84	346.71	1,370.17	1,340.89	29.28	46.792		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,950.00	5,929.49	6,128.56	5,945.88	14.59	23.87	2.39	1,106.75	341.57	1,370.16	1,340.84	29.32	46.730		
5,975.00	5,954.02	6,158.63	5,975.12	14.61	23.87	2.30	1,106.64	334.58	1,370.14	1,340.79	29.34	46.691		
6,000.00	5,978.26	6,188.59	6,003.76	14.62	23.87	2.19	1,106.49	325.80	1,370.11	1,340.75	29.36	46.672		
6,025.00	6,002.15	6,218.43	6,031.68	14.63	23.86	2.05	1,106.32	315.29	1,370.08	1,340.73	29.36	46.668		
6,050.00	6,025.61	6,248.13	6,058.76	14.63	23.84	1.90	1,106.12	303.11	1,370.05	1,340.70	29.35	46.677		
6,075.00	6,048.60	6,277.67	6,084.90	14.63	23.82	1.74	1,105.90	289.36	1,370.02	1,340.68	29.34	46.692		
6,100.00	6,071.04	6,307.02	6,109.98	14.63	23.79	1.56	1,105.65	274.11	1,369.99	1,340.66	29.33	46.708		
6,125.00	6,092.87	6,336.19	6,133.92	14.63	23.76	1.38	1,105.37	257.47	1,369.96	1,340.64	29.32	46.719		
6,150.00	6,114.04	6,365.14	6,156.64	14.62	23.73	1.18	1,105.08	239.53	1,369.94	1,340.61	29.32	46.716		
6,175.00	6,134.48	6,393.88	6,178.07	14.61	23.69	0.98	1,104.76	220.41	1,369.92	1,340.58	29.34	46.692		
6,200.00	6,154.14	6,422.38	6,198.16	14.60	23.66	0.78	1,104.43	200.19	1,369.90	1,340.53	29.37	46.640		
6,225.00	6,172.97	6,450.64	6,216.85	14.60	23.62	0.58	1,104.08	179.00	1,369.90	1,340.47	29.43	46.550		
6,231.63	6,177.81	6,458.09	6,221.56	14.60	23.61	0.53	1,103.99	173.23	1,369.90	1,340.45	29.45	46.515		
6,250.00	6,190.91	6,478.65	6,234.10	14.59	23.59	0.39	1,103.72	156.94	1,369.90	1,340.38	29.52	46.413		
6,275.00	6,207.91	6,506.41	6,249.90	14.59	23.55	0.20	1,103.35	134.12	1,369.91	1,340.27	29.64	46.224		
6,300.00	6,223.93	6,533.92	6,264.21	14.59	23.52	0.02	1,102.96	110.64	1,369.94	1,340.14	29.80	45.977		
6,325.00	6,238.93	6,561.16	6,277.04	14.60	23.48	-0.15	1,102.57	86.61	1,369.97	1,339.97	30.00	45.668		
6,350.00	6,252.85	6,588.15	6,288.36	14.61	23.46	-0.30	1,102.16	62.13	1,370.02	1,339.78	30.25	45.295		
6,375.00	6,265.68	6,614.87	6,298.20	14.63	23.43	-0.45	1,101.76	37.28	1,370.09	1,339.54	30.54	44.857		
6,400.00	6,277.36	6,641.34	6,306.56	14.68	23.41	-0.57	1,101.34	12.18	1,370.17	1,339.28	30.89	44.357		
6,425.00	6,287.87	6,667.55	6,313.46	14.75	23.39	-0.68	1,100.93	-13.10	1,370.26	1,338.98	31.29	43.798		
6,450.00	6,297.17	6,693.50	6,318.91	14.87	23.38	-0.77	1,100.51	-38.47	1,370.38	1,338.64	31.73	43.186		
6,475.00	6,305.26	6,719.21	6,322.94	15.04	23.38	-0.84	1,100.09	-63.85	1,370.50	1,338.28	32.23	42.524		
6,500.00	6,312.09	6,744.67	6,325.58	15.26	23.38	-0.90	1,099.68	-89.17	1,370.65	1,337.88	32.77	41.828		
6,525.00	6,317.65	6,769.90	6,326.86	15.52	23.40	-0.93	1,099.27	-114.36	1,370.81	1,337.46	33.35	41.101		
6,550.00	6,321.93	6,794.75	6,327.00	15.81	23.42	-0.94	1,098.86	-139.21	1,370.99	1,337.01	33.97	40.354		
6,575.00	6,324.92	6,819.57	6,327.00	16.14	23.46	-0.94	1,098.45	-164.02	1,371.18	1,336.52	34.66	39.562		
6,600.00	6,326.60	6,844.51	6,327.00	16.48	23.51	-0.94	1,098.04	-188.96	1,371.38	1,336.00	35.37	38.768		
6,619.67	6,327.00	6,864.17	6,327.00	16.77	23.56	-0.94	1,097.72	-208.62	1,371.53	1,335.59	35.95	38.154		
6,700.00	6,327.00	6,944.50	6,327.00	18.07	23.95	-0.94	1,096.40	-288.93	1,372.18	1,333.66	38.52	35.619		
6,800.00	6,327.00	7,044.50	6,327.00	19.93	24.90	-0.94	1,094.76	-388.92	1,372.99	1,330.80	42.19	32.545		
6,900.00	6,327.00	7,144.49	6,327.00	21.99	26.38	-0.94	1,093.11	-488.90	1,373.79	1,327.55	46.24	29.709		
7,000.00	6,327.00	7,244.49	6,327.00	24.19	28.23	-0.94	1,091.47	-588.88	1,374.59	1,324.00	50.60	27.168		
7,100.00	6,327.00	7,344.49	6,327.00	26.51	30.30	-0.94	1,089.83	-688.87	1,375.40	1,320.22	55.18	24.928		
7,200.00	6,327.00	7,444.48	6,327.00	28.91	32.53	-0.94	1,088.19	-788.85	1,376.20	1,316.27	59.93	22.963		
7,300.00	6,327.00	7,544.48	6,327.00	31.37	34.85	-0.94	1,086.54	-888.83	1,377.01	1,312.19	64.82	21.243		
7,400.00	6,327.00	7,644.48	6,327.00	33.89	37.25	-0.94	1,084.90	-988.82	1,377.81	1,307.99	69.82	19.734		
7,500.00	6,327.00	7,744.47	6,327.00	36.45	39.70	-0.94	1,083.26	-1,088.80	1,378.62	1,303.71	74.91	18.405		
7,600.00	6,327.00	7,844.47	6,327.00	39.04	42.20	-0.94	1,081.62	-1,188.78	1,379.42	1,299.36	80.06	17.230		
7,700.00	6,327.00	7,944.47	6,327.00	41.66	44.74	-0.94	1,079.98	-1,288.77	1,380.23	1,294.96	85.27	16.186		
7,800.00	6,327.00	8,044.46	6,327.00	44.30	47.31	-0.94	1,078.33	-1,388.75	1,381.03	1,290.50	90.53	15.255		
7,900.00	6,327.00	8,144.46	6,327.00	46.96	49.90	-0.94	1,076.69	-1,488.73	1,381.84	1,286.01	95.83	14.420		
8,000.00	6,327.00	8,244.46	6,327.00	49.64	52.52	-0.94	1,075.05	-1,588.72	1,382.64	1,281.48	101.16	13.668		
8,100.00	6,327.00	8,344.45	6,327.00	52.33	55.15	-0.94	1,073.41	-1,688.70	1,383.45	1,276.93	106.52	12.988		
8,200.00	6,327.00	8,444.45	6,327.00	55.03	57.80	-0.94	1,071.77	-1,788.68	1,384.25	1,272.35	111.90	12.370		
8,300.00	6,327.00	8,544.45	6,327.00	57.74	60.46	-0.94	1,070.12	-1,888.67	1,385.05	1,267.75	117.31	11.807		
8,400.00	6,327.00	8,644.44	6,327.00	60.45	63.14	-0.94	1,068.48	-1,988.65	1,385.86	1,263.13	122.73	11.292		
8,500.00	6,327.00	8,744.44	6,327.00	63.18	65.82	-0.94	1,066.84	-2,088.63	1,386.66	1,258.50	128.17	10.819		
8,600.00	6,327.00	8,844.44	6,327.00	65.91	68.52	-0.94	1,065.20	-2,188.62	1,387.47	1,253.85	133.62	10.384		
8,700.00	6,327.00	8,944.43	6,327.00	68.65	71.22	-0.94	1,063.55	-2,288.60	1,388.27	1,249.19	139.08	9.982		
8,800.00	6,327.00	9,044.43	6,327.00	71.39	73.93	-0.94	1,061.91	-2,388.58	1,389.08	1,244.52	144.56	9.609		
8,900.00	6,327.00	9,144.43	6,327.00	74.13	76.65	-0.94	1,060.27	-2,488.57	1,389.88	1,239.84	150.04	9.263		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.3-T4N-R63W - 70 Ranch 4-63-3-32H - Wellbore #1 - Design #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,000.00	6,327.00	9,244.42	6,327.00	76.89	79.37	-0.94	1,058.63	-2,588.55	1,390.69	1,235.15	155.53	8.941	
9,100.00	6,327.00	9,344.42	6,327.00	79.64	82.10	-0.94	1,056.99	-2,688.53	1,391.49	1,230.46	161.04	8.641	
9,200.00	6,327.00	9,444.42	6,327.00	82.40	84.83	-0.94	1,055.34	-2,788.52	1,392.30	1,225.75	166.54	8.360	
9,300.00	6,327.00	9,544.41	6,327.00	85.16	87.57	-0.94	1,053.70	-2,888.50	1,393.10	1,221.04	172.06	8.097	
9,400.00	6,327.00	9,644.41	6,327.00	87.92	90.31	-0.94	1,052.06	-2,988.48	1,393.91	1,216.33	177.58	7.850	
9,500.00	6,327.00	9,744.41	6,327.00	90.68	93.06	-0.94	1,050.42	-3,088.47	1,394.71	1,211.61	183.10	7.617	
9,600.00	6,327.00	9,844.40	6,327.00	93.45	95.81	-0.94	1,048.77	-3,188.45	1,395.51	1,206.88	188.63	7.398	
9,700.00	6,327.00	9,944.40	6,327.00	96.22	98.56	-0.94	1,047.13	-3,288.43	1,396.32	1,202.15	194.17	7.191	
9,800.00	6,327.00	10,044.40	6,327.00	98.99	101.31	-0.94	1,045.49	-3,388.41	1,397.12	1,197.42	199.71	6.996	
9,900.00	6,327.00	10,144.39	6,327.00	101.77	104.07	-0.94	1,043.85	-3,488.40	1,397.93	1,192.68	205.25	6.811	
10,000.00	6,327.00	10,244.39	6,327.00	104.54	106.83	-0.94	1,042.21	-3,588.38	1,398.73	1,187.94	210.79	6.636	
10,100.00	6,327.00	10,344.39	6,327.00	107.32	109.59	-0.94	1,040.56	-3,688.36	1,399.54	1,183.20	216.34	6.469	
10,200.00	6,327.00	10,444.39	6,327.00	110.09	112.36	-0.94	1,038.92	-3,788.35	1,400.34	1,178.45	221.89	6.311	
10,300.00	6,327.00	10,544.38	6,327.00	112.87	115.12	-0.94	1,037.28	-3,888.33	1,401.15	1,173.70	227.45	6.160	
10,400.00	6,327.00	10,644.38	6,327.00	115.65	117.89	-0.94	1,035.64	-3,988.31	1,401.95	1,168.95	233.00	6.017	
10,500.00	6,327.00	10,744.38	6,327.00	118.43	120.66	-0.94	1,033.99	-4,088.30	1,402.76	1,164.19	238.56	5.880	
10,600.00	6,327.00	10,832.68	6,327.00	121.21	123.10	-0.46	1,032.54	-4,176.59	1,403.61	1,159.81	243.80	5.757	
10,646.24	6,327.00	10,832.68	6,327.00	122.50	123.10	1.42	1,032.54	-4,176.59	1,405.13	1,160.04	245.08	5.733	
10,646.82	6,327.00	10,832.68	6,327.00	122.51	123.10	1.45	1,032.54	-4,176.59	1,405.16	1,160.06	245.09	5.733 SF	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.86	0.00	21.86					
100.00	100.00	100.00	100.00	0.09	0.09	0.00	21.86	0.00	21.86	21.67	0.18	118.592		
200.00	200.00	200.00	200.00	0.32	0.32	0.00	21.86	0.00	21.86	21.22	0.63	34.484		
300.00	300.00	300.00	300.00	0.54	0.54	0.00	21.86	0.00	21.86	20.77	1.08	20.175		
400.00	400.00	400.00	400.00	0.77	0.77	0.00	21.86	0.00	21.86	20.32	1.53	14.259		
466.67	466.67	466.67	466.67	0.92	0.92	0.00	21.86	0.00	21.86	20.02	1.83	11.927		
500.00	500.00	500.00	500.00	0.99	0.99	0.00	21.86	0.00	21.86	19.88	1.98	11.026 CC, ES		
600.00	599.98	599.46	599.44	1.19	1.21	0.05	22.97	1.32	24.15	21.74	2.41	10.028		
700.00	699.84	698.60	698.44	1.39	1.43	0.12	26.30	5.25	31.00	28.17	2.83	10.951		
802.37	801.81	799.46	798.92	1.62	1.67	0.11	31.96	11.94	42.72	39.43	3.29	12.968		
900.00	898.90	895.89	894.76	1.86	1.92	0.60	38.86	20.09	56.55	52.79	3.76	15.043		
1,000.00	998.34	994.88	993.12	2.12	2.19	0.96	45.99	28.52	70.78	66.53	4.25	16.659		
1,100.00	1,097.78	1,093.86	1,091.48	2.40	2.46	1.20	53.12	36.95	85.01	80.26	4.75	17.892		
1,200.00	1,197.23	1,192.84	1,189.85	2.68	2.74	1.37	60.26	45.37	99.24	93.97	5.26	18.855		
1,300.00	1,296.67	1,291.82	1,288.21	2.96	3.03	1.50	67.39	53.80	113.47	107.68	5.78	19.624		
1,400.00	1,396.11	1,390.80	1,386.58	3.25	3.31	1.60	74.52	62.23	127.70	121.39	6.31	20.250		
1,500.00	1,495.56	1,489.79	1,484.94	3.54	3.60	1.68	81.65	70.66	141.93	135.09	6.83	20.766		
1,600.00	1,595.00	1,588.77	1,583.31	3.83	3.90	1.75	88.79	79.08	156.16	148.79	7.37	21.200		
1,700.00	1,694.44	1,687.75	1,681.67	4.13	4.19	1.80	95.92	87.51	170.39	162.49	7.90	21.569		
1,800.00	1,793.89	1,786.73	1,780.04	4.42	4.48	1.85	103.05	95.94	184.62	176.18	8.44	21.886		
1,900.00	1,893.33	1,885.72	1,878.40	4.72	4.78	1.89	110.18	104.37	198.85	189.87	8.97	22.160		
2,000.00	1,992.77	1,984.70	1,976.76	5.02	5.07	1.92	117.32	112.79	213.08	203.57	9.51	22.401		
2,100.00	2,092.22	2,083.68	2,075.13	5.32	5.37	1.95	124.45	121.22	227.31	217.26	10.05	22.612		
2,200.00	2,191.66	2,182.66	2,173.49	5.62	5.67	1.98	131.58	129.65	241.54	230.95	10.59	22.801		
2,300.00	2,291.10	2,281.64	2,271.86	5.92	5.96	2.00	138.71	138.08	255.77	244.64	11.14	22.969		
2,400.00	2,390.55	2,380.63	2,370.22	6.22	6.26	2.02	145.85	146.51	270.00	258.32	11.68	23.120		
2,500.00	2,489.99	2,479.61	2,468.59	6.52	6.56	2.04	152.98	154.93	284.23	272.01	12.22	23.256		
2,600.00	2,589.44	2,578.59	2,566.95	6.82	6.86	2.06	160.11	163.36	298.46	285.70	12.77	23.380		
2,700.00	2,688.88	2,677.57	2,665.32	7.12	7.16	2.08	167.24	171.79	312.70	299.38	13.31	23.493		
2,800.00	2,788.32	2,776.56	2,763.68	7.42	7.46	2.09	174.38	180.22	326.93	313.07	13.86	23.596		
2,900.00	2,887.77	2,875.54	2,862.05	7.72	7.76	2.10	181.51	188.64	341.16	326.76	14.40	23.690		
3,000.00	2,987.21	2,974.52	2,960.41	8.03	8.05	2.12	188.64	197.07	355.39	340.44	14.95	23.778		
3,100.00	3,086.65	3,073.50	3,058.77	8.33	8.35	2.13	195.77	205.50	369.62	354.13	15.49	23.858		
3,200.00	3,186.10	3,172.48	3,157.14	8.63	8.65	2.14	202.91	213.93	383.85	367.81	16.04	23.933		
3,300.00	3,285.54	3,271.47	3,255.50	8.93	8.95	2.15	210.04	222.36	398.08	381.50	16.59	24.002		
3,400.00	3,384.98	3,370.45	3,353.87	9.24	9.25	2.16	217.17	230.78	412.31	395.18	17.13	24.067		
3,500.00	3,484.43	3,469.43	3,452.23	9.54	9.55	2.16	224.30	239.21	426.54	408.87	17.68	24.127		
3,600.00	3,583.87	3,568.41	3,550.60	9.84	9.85	2.17	231.44	247.64	440.78	422.55	18.23	24.184		
3,700.00	3,683.31	3,667.39	3,648.96	10.15	10.15	2.18	238.57	256.07	455.01	436.23	18.77	24.237		
3,800.00	3,782.76	3,766.38	3,747.33	10.45	10.45	2.19	245.70	264.49	469.24	449.92	19.32	24.287		
3,900.00	3,882.20	3,865.36	3,845.69	10.75	10.75	2.19	252.83	272.92	483.47	463.60	19.87	24.334		
4,000.00	3,981.64	3,964.34	3,944.05	11.06	11.05	2.20	259.97	281.35	497.70	477.28	20.42	24.378		
4,100.00	4,081.09	4,063.32	4,042.42	11.36	11.35	2.20	267.10	289.78	511.93	490.97	20.96	24.419		
4,200.00	4,180.53	4,162.31	4,140.78	11.66	11.66	2.21	274.23	298.20	526.16	504.65	21.51	24.459		
4,217.76	4,198.19	4,179.88	4,158.25	11.72	11.71	2.21	275.50	299.70	528.69	507.08	21.61	24.466		
4,300.00	4,280.09	4,270.04	4,247.93	11.92	11.95	2.32	281.48	306.77	539.18	517.14	22.04	24.460		
4,400.00	4,379.91	4,384.40	4,362.01	12.11	12.19	2.45	286.51	312.71	547.57	525.10	22.47	24.369		
4,500.00	4,479.87	4,499.29	4,476.85	12.27	12.38	2.50	288.60	315.18	551.03	528.20	22.83	24.133		
4,520.13	4,500.00	4,522.44	4,500.00	12.30	12.41	2.50	288.66	315.25	551.13	528.86	22.28	24.742		
4,600.00	4,579.87	4,602.31	4,579.87	12.42	12.54	2.50	288.66	315.25	551.13	528.58	22.56	24.435		
4,700.00	4,679.87	4,702.31	4,679.87	12.58	12.71	2.50	288.66	315.25	551.13	528.22	22.91	24.058		
4,800.00	4,779.87	4,802.31	4,779.87	12.73	12.89	2.50	288.66	315.25	551.13	527.87	23.26	23.690		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.3-T4N-R63W - 70 Ranch 4-63-3-33H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,900.00	4,879.87	4,902.31	4,879.87	12.89	13.06	2.50	288.66	315.25	551.13	527.51	23.62	23.330		
5,000.00	4,979.87	5,002.31	4,979.87	13.04	13.24	2.50	288.66	315.25	551.13	527.15	23.99	22.977		
5,100.00	5,079.87	5,102.31	5,079.87	13.20	13.42	2.50	288.66	315.25	551.13	526.78	24.35	22.633		
5,200.00	5,179.87	5,202.31	5,179.87	13.37	13.60	2.50	288.66	315.25	551.13	526.41	24.72	22.296		
5,300.00	5,279.87	5,302.31	5,279.87	13.53	13.78	2.50	288.66	315.25	551.13	526.04	25.09	21.966		
5,400.00	5,379.87	5,402.31	5,379.87	13.70	13.97	2.50	288.66	315.25	551.13	525.67	25.46	21.644		
5,500.00	5,479.87	5,502.31	5,479.87	13.86	14.15	2.50	288.66	315.25	551.13	525.29	25.84	21.330		
5,600.00	5,579.87	5,602.31	5,579.87	14.03	14.34	2.50	288.66	315.25	551.13	524.91	26.22	21.022		
5,700.00	5,679.87	5,702.31	5,679.87	14.20	14.53	2.50	288.66	315.25	551.13	524.53	26.60	20.722		
5,800.00	5,779.87	5,802.31	5,779.87	14.37	14.71	2.50	288.66	315.25	551.13	524.15	26.98	20.428		
5,869.67	5,849.54	5,871.98	5,849.54	14.50	14.84	2.50	288.66	315.25	551.13	523.88	27.25	20.228		
5,875.00	5,854.87	5,877.76	5,855.32	14.50	14.85	2.50	288.66	315.21	551.13	523.24	27.89	19.760		
5,900.00	5,879.85	5,904.89	5,882.43	14.54	14.89	2.48	288.63	314.12	551.13	523.16	27.97	19.706		
5,925.00	5,904.75	5,932.01	5,909.41	14.57	14.92	2.44	288.57	311.48	551.11	523.09	28.03	19.663		
5,950.00	5,929.49	5,959.11	5,936.19	14.59	14.94	2.37	288.46	307.32	551.09	523.02	28.07	19.631		
5,975.00	5,954.02	5,986.19	5,962.67	14.61	14.95	2.29	288.32	301.66	551.07	522.96	28.10	19.609		
6,000.00	5,978.26	6,013.24	5,988.75	14.62	14.96	2.18	288.15	294.51	551.03	522.91	28.12	19.595		
6,025.00	6,002.15	6,040.25	6,014.35	14.63	14.96	2.05	287.94	285.91	550.99	522.86	28.13	19.589		
6,050.00	6,025.61	6,067.22	6,039.38	14.63	14.95	1.91	287.69	275.90	550.94	522.82	28.13	19.589		
6,075.00	6,048.60	6,094.13	6,063.76	14.63	14.94	1.74	287.42	264.51	550.89	522.77	28.12	19.592		
6,100.00	6,071.04	6,120.99	6,087.42	14.63	14.92	1.56	287.10	251.79	550.84	522.73	28.11	19.597		
6,125.00	6,092.87	6,147.78	6,110.26	14.63	14.90	1.38	286.76	237.80	550.78	522.68	28.10	19.601		
6,150.00	6,114.04	6,174.51	6,132.23	14.62	14.88	1.18	286.39	222.60	550.71	522.62	28.10	19.601		
6,175.00	6,134.48	6,201.16	6,153.26	14.61	14.86	0.97	285.99	206.23	550.65	522.54	28.10	19.594		
6,200.00	6,154.14	6,227.74	6,173.28	14.60	14.85	0.76	285.56	188.77	550.58	522.45	28.12	19.577		
6,225.00	6,172.97	6,254.23	6,192.25	14.60	14.83	0.55	285.11	170.28	550.51	522.34	28.17	19.545		
6,250.00	6,190.91	6,280.63	6,210.10	14.59	14.82	0.33	284.63	150.84	550.44	522.21	28.24	19.495		
6,275.00	6,207.91	6,306.95	6,226.79	14.59	14.82	0.12	284.14	130.51	550.37	522.04	28.34	19.424		
6,300.00	6,223.93	6,333.16	6,242.29	14.59	14.83	-0.08	283.62	109.37	550.31	521.84	28.47	19.329		
6,325.00	6,238.93	6,359.29	6,256.55	14.60	14.86	-0.28	283.08	87.49	550.24	521.60	28.65	19.207		
6,350.00	6,252.85	6,385.31	6,269.54	14.61	14.92	-0.46	282.53	64.96	550.18	521.31	28.87	19.057		
6,375.00	6,265.68	6,411.23	6,281.24	14.63	15.01	-0.64	281.97	41.84	550.12	520.98	29.14	18.878		
6,400.00	6,277.36	6,437.05	6,291.64	14.68	15.14	-0.80	281.39	18.22	550.07	520.61	29.46	18.671		
6,425.00	6,287.87	6,462.76	6,300.70	14.75	15.31	-0.94	280.80	-5.84	550.02	520.19	29.84	18.435		
6,450.00	6,297.17	6,488.37	6,308.43	14.87	15.52	-1.06	280.20	-30.24	549.98	519.72	30.26	18.174		
6,475.00	6,305.26	6,513.87	6,314.82	15.04	15.77	-1.17	279.60	-54.92	549.94	519.20	30.74	17.890		
6,500.00	6,312.09	6,539.27	6,319.86	15.26	16.05	-1.26	278.99	-79.80	549.91	518.64	31.27	17.586		
6,525.00	6,317.65	6,564.56	6,323.56	15.52	16.35	-1.33	278.38	-104.81	549.89	518.04	31.85	17.266		
6,550.00	6,321.93	6,589.75	6,325.92	15.81	16.67	-1.37	277.76	-129.87	549.87	517.40	32.47	16.934		
6,575.00	6,324.92	6,614.83	6,326.95	16.14	17.01	-1.40	277.15	-154.92	549.86	516.73	33.13	16.596		
6,600.00	6,326.60	6,639.80	6,327.00	16.48	17.38	-1.40	276.54	-179.89	549.85	516.01	33.85	16.245		
6,619.67	6,327.00	6,659.46	6,327.00	16.77	17.69	-1.40	276.06	-199.55	549.85	515.42	34.43	15.970		
6,700.00	6,327.00	6,739.79	6,327.00	18.07	19.02	-1.40	274.09	-279.85	549.85	512.82	37.04	14.846		
6,800.00	6,327.00	6,839.79	6,327.00	19.93	20.89	-1.40	271.65	-379.82	549.85	509.12	40.73	13.499		
6,900.00	6,327.00	6,939.79	6,327.00	21.99	22.95	-1.40	269.20	-479.79	549.85	505.03	44.83	12.266		
7,000.00	6,327.00	7,039.79	6,327.00	24.19	25.14	-1.40	266.75	-579.76	549.85	500.63	49.22	11.171		
7,100.00	6,327.00	7,139.79	6,327.00	26.51	27.45	-1.40	264.31	-679.73	549.85	496.01	53.84	10.213		
7,200.00	6,327.00	7,239.79	6,327.00	28.91	29.84	-1.40	261.86	-779.70	549.85	491.22	58.63	9.378		
7,300.00	6,327.00	7,339.79	6,327.00	31.37	32.30	-1.40	259.41	-879.67	549.85	486.30	63.56	8.651		
7,400.00	6,327.00	7,439.79	6,327.00	33.89	34.81	-1.40	256.96	-979.64	549.85	481.27	68.59	8.017		
7,500.00	6,327.00	7,539.79	6,327.00	36.45	37.36	-1.40	254.52	-1,079.61	549.85	476.15	73.70	7.461		
7,600.00	6,327.00	7,639.79	6,327.00	39.04	39.95	-1.40	252.07	-1,179.58	549.85	470.97	78.88	6.971		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.3-T4N-R63W - 70 Ranch 4-63-3-33H - Wellbore #1 - Design #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,700.00	6,327.00	7,739.79	6,327.00	41.66	42.56	-1.40	249.62	-1,279.55	549.85	465.74	84.11	6.537		
7,800.00	6,327.00	7,839.79	6,327.00	44.30	45.19	-1.40	247.18	-1,379.52	549.85	460.46	89.39	6.151		
7,900.00	6,327.00	7,939.79	6,327.00	46.96	47.84	-1.40	244.73	-1,479.49	549.85	455.15	94.71	5.806		
8,000.00	6,327.00	8,039.79	6,327.00	49.64	50.51	-1.40	242.28	-1,579.46	549.85	449.80	100.06	5.495		
8,100.00	6,327.00	8,139.79	6,327.00	52.33	53.20	-1.40	239.84	-1,679.43	549.85	444.42	105.43	5.215		
8,200.00	6,327.00	8,239.79	6,327.00	55.03	55.89	-1.40	237.39	-1,779.40	549.85	439.03	110.83	4.961		
8,300.00	6,327.00	8,339.79	6,327.00	57.74	58.60	-1.40	234.94	-1,879.37	549.85	433.61	116.24	4.730		
8,400.00	6,327.00	8,439.79	6,327.00	60.45	61.31	-1.40	232.50	-1,979.34	549.85	428.18	121.68	4.519		
8,500.00	6,327.00	8,539.79	6,327.00	63.18	64.03	-1.40	230.05	-2,079.31	549.85	422.73	127.12	4.325		
8,600.00	6,327.00	8,639.79	6,327.00	65.91	66.76	-1.40	227.60	-2,179.28	549.85	417.27	132.59	4.147		
8,700.00	6,327.00	8,739.79	6,327.00	68.65	69.49	-1.40	225.16	-2,279.25	549.85	411.79	138.06	3.983		
8,800.00	6,327.00	8,839.79	6,327.00	71.39	72.23	-1.40	222.71	-2,379.22	549.85	406.31	143.54	3.831		
8,900.00	6,327.00	8,939.79	6,327.00	74.13	74.97	-1.40	220.26	-2,479.19	549.85	400.82	149.03	3.689		
9,000.00	6,327.00	9,039.79	6,327.00	76.89	77.72	-1.40	217.82	-2,579.16	549.85	395.32	154.53	3.558		
9,100.00	6,327.00	9,139.79	6,327.00	79.64	80.47	-1.40	215.37	-2,679.13	549.85	389.81	160.04	3.436		
9,200.00	6,327.00	9,239.79	6,327.00	82.40	83.23	-1.40	212.92	-2,779.10	549.85	384.30	165.55	3.321		
9,300.00	6,327.00	9,339.79	6,327.00	85.16	85.98	-1.40	210.48	-2,879.07	549.85	378.78	171.07	3.214		
9,400.00	6,327.00	9,439.79	6,327.00	87.92	88.74	-1.40	208.03	-2,979.04	549.85	373.25	176.60	3.114		
9,500.00	6,327.00	9,539.79	6,327.00	90.68	91.51	-1.40	205.58	-3,079.01	549.85	367.72	182.13	3.019		
9,600.00	6,327.00	9,639.79	6,327.00	93.45	94.27	-1.40	203.14	-3,178.98	549.85	362.19	187.66	2.930		
9,700.00	6,327.00	9,739.79	6,327.00	96.22	97.04	-1.40	200.69	-3,278.95	549.85	356.65	193.20	2.846		
9,800.00	6,327.00	9,839.79	6,327.00	98.99	99.81	-1.40	198.24	-3,378.92	549.85	351.11	198.74	2.767		
9,900.00	6,327.00	9,939.79	6,327.00	101.77	102.58	-1.40	195.79	-3,478.89	549.85	345.56	204.29	2.692		
10,000.00	6,327.00	10,039.79	6,327.00	104.54	105.35	-1.40	193.35	-3,578.86	549.85	340.02	209.84	2.620		
10,100.00	6,327.00	10,139.79	6,327.00	107.32	108.13	-1.40	190.90	-3,678.83	549.85	334.46	215.39	2.553		
10,200.00	6,327.00	10,239.79	6,327.00	110.09	110.90	-1.40	188.45	-3,778.80	549.85	328.91	220.94	2.489		
10,300.00	6,327.00	10,339.79	6,327.00	112.87	113.68	-1.40	186.01	-3,878.77	549.85	323.35	226.50	2.428		
10,400.00	6,327.00	10,439.79	6,327.00	115.65	116.46	-1.40	183.56	-3,978.74	549.85	317.79	232.06	2.369		
10,500.00	6,327.00	10,539.79	6,327.00	118.43	119.23	-1.40	181.11	-4,078.71	549.85	312.23	237.62	2.314		
10,600.00	6,327.00	10,639.79	6,327.00	121.21	122.02	-1.40	178.67	-4,178.68	549.85	306.67	243.18	2.261		
10,615.62	6,327.00	10,655.41	6,327.00	121.65	122.45	-1.40	178.29	-4,194.30	549.85	305.80	244.05	2.253		
10,646.24	6,327.00	10,659.81	6,327.00	122.50	122.57	1.33	178.18	-4,198.69	550.48	305.45	245.02	2.247 SF		
10,646.82	6,327.00	10,659.81	6,327.00	122.51	122.57	1.39	178.18	-4,198.69	550.50	305.47	245.03	2.247		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-180.00	-21.86	0.00	21.86					
100.00	100.00	100.00	100.00	0.09	0.09	-180.00	-21.86	0.00	21.86	21.67	0.18	118.592		
200.00	200.00	200.00	200.00	0.32	0.32	-180.00	-21.86	0.00	21.86	21.22	0.63	34.484		
300.00	300.00	300.00	300.00	0.54	0.54	-180.00	-21.86	0.00	21.86	20.77	1.08	20.175		
400.00	400.00	400.00	400.00	0.77	0.77	-180.00	-21.86	0.00	21.86	20.32	1.53	14.259		
500.00	500.00	500.00	500.00	0.99	0.99	-180.00	-21.86	0.00	21.86	19.88	1.98	11.026 CC, ES		
600.00	599.98	599.26	599.24	1.19	1.19	-177.83	-23.52	0.45	22.38	20.00	2.38	9.391		
700.00	699.84	698.46	698.30	1.39	1.38	-171.89	-28.49	1.79	24.11	21.35	2.76	8.727		
802.37	801.81	800.00	799.45	1.62	1.59	-163.60	-37.01	4.10	27.56	24.37	3.19	8.629		
900.00	898.90	896.47	895.21	1.86	1.83	-158.13	-48.30	7.15	33.35	29.69	3.66	9.123		
1,000.00	998.34	995.06	992.60	2.12	2.12	-157.17	-63.05	11.14	42.12	37.96	4.16	10.123		
1,100.00	1,097.78	1,093.07	1,088.85	2.40	2.46	-158.72	-80.91	15.97	53.63	48.94	4.69	11.437		
1,200.00	1,197.23	1,190.30	1,183.64	2.68	2.85	-161.27	-101.75	21.61	67.97	62.74	5.23	12.999		
1,300.00	1,296.67	1,286.52	1,276.68	2.96	3.30	-164.03	-125.43	28.02	85.28	79.51	5.77	14.769		
1,400.00	1,396.11	1,381.54	1,367.70	3.25	3.80	-166.63	-151.75	35.14	105.64	99.32	6.32	16.710		
1,500.00	1,495.56	1,478.55	1,460.04	3.54	4.35	-168.93	-180.44	42.90	127.94	121.06	6.88	18.605		
1,600.00	1,595.00	1,575.92	1,552.72	3.83	4.92	-170.58	-209.25	50.70	150.40	142.97	7.43	20.239		
1,700.00	1,694.44	1,673.29	1,645.40	4.13	5.50	-171.79	-238.06	58.49	172.95	164.96	7.99	21.637		
1,800.00	1,793.89	1,770.66	1,738.08	4.42	6.09	-172.73	-266.87	66.28	195.56	187.00	8.56	22.846		
1,900.00	1,893.33	1,868.02	1,830.77	4.72	6.68	-173.48	-295.68	74.08	218.20	209.08	9.13	23.900		
2,000.00	1,992.77	1,965.39	1,923.45	5.02	7.28	-174.08	-324.49	81.87	240.88	231.17	9.70	24.825		
2,100.00	2,092.22	2,062.76	2,016.13	5.32	7.88	-174.58	-353.30	89.67	263.57	253.29	10.28	25.642		
2,200.00	2,191.66	2,160.13	2,108.81	5.62	8.48	-175.00	-382.12	97.46	286.28	275.42	10.86	26.369		
2,300.00	2,291.10	2,257.50	2,201.49	5.92	9.09	-175.36	-410.93	105.26	309.00	297.56	11.44	27.019		
2,400.00	2,390.55	2,354.86	2,294.17	6.22	9.69	-175.67	-439.74	113.05	331.73	319.71	12.02	27.603		
2,500.00	2,489.99	2,452.23	2,386.85	6.52	10.30	-175.94	-468.55	120.84	354.47	341.87	12.60	28.131		
2,600.00	2,589.44	2,549.60	2,479.53	6.82	10.91	-176.18	-497.36	128.64	377.21	364.03	13.18	28.609		
2,700.00	2,688.88	2,646.97	2,572.21	7.12	11.52	-176.39	-526.17	136.43	399.96	386.19	13.77	29.046		
2,800.00	2,788.32	2,744.34	2,664.89	7.42	12.13	-176.58	-554.98	144.23	422.72	408.36	14.36	29.445		
2,900.00	2,887.77	2,841.70	2,757.57	7.72	12.74	-176.75	-583.79	152.02	445.48	430.54	14.94	29.812		
3,000.00	2,987.21	2,939.07	2,850.25	8.03	13.36	-176.90	-612.60	159.82	468.24	452.71	15.53	30.150		
3,100.00	3,086.65	3,036.44	2,942.93	8.33	13.97	-177.04	-641.41	167.61	491.00	474.89	16.12	30.462		
3,200.00	3,186.10	3,133.81	3,035.61	8.63	14.58	-177.17	-670.22	175.40	513.77	497.06	16.71	30.751		
3,300.00	3,285.54	3,231.18	3,128.29	8.93	15.20	-177.29	-699.04	183.20	536.54	519.24	17.30	31.019		
3,400.00	3,384.98	3,328.54	3,220.98	9.24	15.81	-177.39	-727.85	190.99	559.31	541.43	17.89	31.269		
3,500.00	3,484.43	3,425.91	3,313.66	9.54	16.43	-177.49	-756.66	198.79	582.08	563.61	18.48	31.503		
3,600.00	3,583.87	3,523.28	3,406.34	9.84	17.04	-177.58	-785.47	206.58	604.86	585.79	19.07	31.721		
3,700.00	3,683.31	3,620.65	3,499.02	10.15	17.66	-177.66	-814.28	214.38	627.63	607.98	19.66	31.926		
3,800.00	3,782.76	3,718.02	3,591.70	10.45	18.27	-177.74	-843.09	222.17	650.41	630.16	20.25	32.119		
3,900.00	3,882.20	3,814.46	3,702.91	10.75	18.88	-177.94	-871.90	230.00	672.26	651.38	20.87	32.208		
4,000.00	3,981.64	3,911.89	3,826.06	11.06	19.39	-178.07	-900.71	237.82	694.08	672.26	21.50	32.108		
4,100.00	4,081.09	4,011.04	3,952.22	11.36	19.84	-178.08	-929.52	245.64	715.86	693.06	22.12	31.821		
4,200.00	4,180.53	4,221.41	4,080.71	11.66	20.22	-177.95	-958.33	253.46	737.64	714.86	22.74	31.368		
4,217.76	4,198.19	4,244.65	4,103.71	11.72	20.28	-177.91	-959.00	253.53	737.64	714.86	22.85	31.272		
4,300.00	4,280.09	4,352.50	4,210.78	11.92	20.53	-177.75	-971.46	256.90	759.46	737.64	23.28	30.893		
4,400.00	4,379.91	4,483.98	4,341.85	12.11	20.77	-177.64	-981.37	259.58	781.24	759.46	23.70	30.501		
4,500.00	4,479.87	4,615.69	4,473.48	12.27	20.93	-177.59	-985.47	260.69	803.02	781.24	24.03	30.135		
4,520.13	4,500.00	4,642.21	4,500.00	12.30	20.96	-177.59	-985.59	260.72	803.02	781.24	24.03	30.135		
4,600.00	4,579.87	4,722.08	4,579.87	12.42	21.03	-177.59	-985.59	260.72	803.02	781.24	24.03	30.135		
4,700.00	4,679.87	4,822.08	4,679.87	12.58	21.12	-177.59	-985.59	260.72	803.02	781.24	24.03	30.135		
4,800.00	4,779.87	4,922.08	4,779.87	12.73	21.21	-177.59	-985.59	260.72	803.02	781.24	24.03	30.135		
4,900.00	4,879.87	5,022.08	4,879.87	12.89	21.30	-177.59	-985.59	260.72	803.02	781.24	24.03	30.135		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,979.87	5,122.08	4,979.87	13.04	21.39	-177.59	-985.59	260.72	724.28	691.81	32.47	22.304		
5,100.00	5,079.87	5,222.08	5,079.87	13.20	21.48	-177.59	-985.59	260.72	724.28	691.54	32.74	22.121		
5,200.00	5,179.87	5,322.08	5,179.87	13.37	21.58	-177.59	-985.59	260.72	724.28	691.27	33.01	21.938		
5,300.00	5,279.87	5,422.08	5,279.87	13.53	21.67	-177.59	-985.59	260.72	724.28	690.99	33.29	21.756		
5,400.00	5,379.87	5,522.08	5,379.87	13.70	21.77	-177.59	-985.59	260.72	724.28	690.71	33.57	21.575		
5,500.00	5,479.87	5,622.08	5,479.87	13.86	21.88	-177.59	-985.59	260.72	724.28	690.43	33.85	21.394		
5,600.00	5,579.87	5,722.08	5,579.87	14.03	21.98	-177.59	-985.59	260.72	724.28	690.14	34.14	21.215		
5,700.00	5,679.87	5,822.08	5,679.87	14.20	22.08	-177.59	-985.59	260.72	724.28	689.85	34.43	21.036		
5,800.00	5,779.87	5,922.08	5,779.87	14.37	22.19	-177.59	-985.59	260.72	724.28	689.56	34.72	20.859		
5,869.67	5,849.54	5,991.75	5,849.54	14.50	22.27	-177.59	-985.59	260.72	724.28	689.35	34.93	20.736		
5,875.00	5,854.87	5,996.95	5,854.74	14.50	22.27	-177.59	-985.59	260.69	724.28	695.70	28.58	25.344		
5,900.00	5,879.85	6,021.33	5,879.10	14.54	22.29	-177.59	-985.56	259.80	724.23	695.58	28.66	25.273		
5,925.00	5,904.75	6,045.72	5,903.39	14.57	22.31	-177.60	-985.51	257.67	724.12	695.40	28.72	25.216		
5,950.00	5,929.49	6,070.11	5,927.54	14.59	22.33	-177.61	-985.42	254.31	723.94	695.18	28.76	25.172		
5,975.00	5,954.02	6,094.50	5,951.50	14.61	22.34	-177.63	-985.31	249.71	723.70	694.91	28.79	25.139		
6,000.00	5,978.26	6,118.90	5,975.19	14.62	22.35	-177.65	-985.16	243.90	723.39	694.59	28.80	25.117		
6,025.00	6,002.15	6,143.30	5,998.56	14.63	22.35	-177.68	-984.98	236.88	723.02	694.22	28.80	25.104		
6,050.00	6,025.61	6,167.71	6,021.55	14.63	22.36	-177.71	-984.77	228.67	722.59	693.80	28.79	25.097		
6,075.00	6,048.60	6,192.14	6,044.09	14.63	22.35	-177.74	-984.53	219.30	722.09	693.32	28.77	25.095		
6,100.00	6,071.04	6,216.57	6,066.14	14.63	22.35	-177.78	-984.27	208.78	721.54	692.79	28.75	25.095		
6,125.00	6,092.87	6,241.02	6,087.63	14.63	22.34	-177.82	-983.97	197.14	720.93	692.20	28.73	25.094		
6,150.00	6,114.04	6,265.47	6,108.51	14.62	22.33	-177.86	-983.64	184.41	720.26	691.55	28.71	25.088		
6,175.00	6,134.48	6,289.95	6,128.73	14.61	22.32	-177.91	-983.29	170.62	719.54	690.84	28.70	25.074		
6,200.00	6,154.14	6,314.44	6,148.22	14.60	22.31	-177.95	-982.92	155.80	718.76	690.07	28.70	25.048		
6,225.00	6,172.97	6,338.95	6,166.94	14.60	22.30	-178.00	-982.51	139.99	717.94	689.23	28.71	25.004		
6,250.00	6,190.91	6,363.47	6,184.83	14.59	22.29	-178.05	-982.09	123.23	717.06	688.31	28.75	24.940		
6,275.00	6,207.91	6,388.02	6,201.86	14.59	22.27	-178.10	-981.64	105.56	716.14	687.33	28.82	24.851		
6,300.00	6,223.93	6,412.58	6,217.96	14.59	22.26	-178.15	-981.17	87.02	715.18	686.27	28.92	24.732		
6,325.00	6,238.93	6,437.17	6,233.11	14.60	22.24	-178.20	-980.67	67.66	714.18	685.13	29.05	24.581		
6,350.00	6,252.85	6,461.79	6,247.25	14.61	22.23	-178.24	-980.16	47.52	713.14	683.91	29.23	24.395		
6,375.00	6,265.68	6,486.42	6,260.35	14.63	22.21	-178.29	-979.63	26.66	712.06	682.60	29.46	24.172		
6,400.00	6,277.36	6,511.09	6,272.36	14.68	22.20	-178.33	-979.08	5.13	710.95	681.22	29.73	23.912		
6,425.00	6,287.87	6,535.78	6,283.26	14.75	22.19	-178.37	-978.52	-17.01	709.82	679.76	30.06	23.614		
6,450.00	6,297.17	6,560.50	6,293.01	14.87	22.18	-178.41	-977.94	-39.72	708.66	678.22	30.44	23.282		
6,475.00	6,305.26	6,585.25	6,301.58	15.04	22.17	-178.44	-977.35	-62.92	707.47	676.60	30.87	22.917		
6,500.00	6,312.09	6,610.02	6,308.95	15.26	22.16	-178.47	-976.75	-86.57	706.27	674.91	31.36	22.522		
6,525.00	6,317.65	6,634.83	6,315.08	15.52	22.16	-178.49	-976.13	-110.60	705.05	673.16	31.89	22.106		
6,550.00	6,321.93	6,659.68	6,319.97	15.81	22.17	-178.51	-975.51	-134.94	703.82	671.34	32.48	21.669		
6,575.00	6,324.92	6,684.55	6,323.58	16.14	22.17	-178.53	-974.89	-159.54	702.58	669.47	33.11	21.218		
6,600.00	6,326.60	6,709.46	6,325.91	16.48	22.19	-178.54	-974.26	-184.33	701.33	667.55	33.78	20.759		
6,619.67	6,327.00	6,729.08	6,326.84	16.77	22.21	-178.54	-973.76	-203.92	700.35	666.01	34.34	20.396		
6,700.00	6,327.00	6,809.30	6,327.00	18.07	22.40	-178.54	-971.72	-284.12	696.34	659.45	36.89	18.874		
6,800.00	6,327.00	6,909.18	6,327.00	19.93	22.99	-178.54	-969.17	-383.96	691.35	650.81	40.54	17.053		
6,900.00	6,327.00	7,009.06	6,327.00	21.99	24.22	-178.54	-966.63	-483.81	686.36	641.77	44.60	15.391		
7,000.00	6,327.00	7,108.93	6,327.00	24.19	25.98	-178.54	-964.09	-583.65	681.37	632.42	48.96	13.917		
7,100.00	6,327.00	7,208.81	6,327.00	26.51	28.03	-178.54	-961.55	-683.49	676.38	622.83	53.55	12.630		
7,200.00	6,327.00	7,308.68	6,327.00	28.91	30.26	-178.54	-959.01	-783.34	671.39	613.07	58.33	11.511		
7,300.00	6,327.00	7,408.56	6,327.00	31.37	32.60	-178.54	-956.47	-883.18	666.40	603.17	63.24	10.538		
7,400.00	6,327.00	7,508.43	6,327.00	33.89	35.02	-178.54	-953.92	-983.02	661.41	593.16	68.25	9.690		
7,500.00	6,327.00	7,608.31	6,327.00	36.45	37.50	-178.54	-951.38	-1,082.87	656.42	583.07	73.36	8.948		
7,600.00	6,327.00	7,708.18	6,327.00	39.04	40.02	-178.54	-948.84	-1,182.71	651.43	572.90	78.53	8.295		
7,700.00	6,327.00	7,808.06	6,327.00	41.66	42.58	-178.54	-946.30	-1,282.55	646.44	562.69	83.76	7.718		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design		Sec.3-T4N-R63W - 70 Ranch 4-63-3-49H - Wellbore #1 - Design #1											Offset Site Error:		0.00 usft
Survey Program: 0-MWD													Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth	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)				
7,800.00	6,327.00	7,907.93	6,327.00	44.30	45.17	-178.54	-943.76	-1,382.39	641.45	552.42	89.03	7.205			
7,900.00	6,327.00	8,007.81	6,327.00	46.96	47.79	-178.54	-941.21	-1,482.24	636.46	542.12	94.35	6.746			
8,000.00	6,327.00	8,107.68	6,327.00	49.64	50.42	-178.54	-938.67	-1,582.08	631.47	531.78	99.69	6.334			
8,100.00	6,327.00	8,207.56	6,327.00	52.33	53.08	-178.54	-936.13	-1,681.92	626.48	521.42	105.06	5.963			
8,200.00	6,327.00	8,307.44	6,327.00	55.03	55.74	-178.54	-933.59	-1,781.77	621.49	511.03	110.46	5.626			
8,300.00	6,327.00	8,407.31	6,327.00	57.74	58.43	-178.54	-931.05	-1,881.61	616.50	500.63	115.87	5.320			
8,400.00	6,327.00	8,507.19	6,327.00	60.45	61.12	-178.54	-928.50	-1,981.45	611.51	490.20	121.31	5.041			
8,500.00	6,327.00	8,607.06	6,327.00	63.18	63.82	-178.54	-925.96	-2,081.30	606.52	479.76	126.76	4.785			
8,600.00	6,327.00	8,706.94	6,327.00	65.91	66.54	-178.54	-923.42	-2,181.14	601.53	469.31	132.22	4.550			
8,700.00	6,327.00	8,806.81	6,327.00	68.65	69.25	-178.54	-920.88	-2,280.98	596.54	458.85	137.69	4.332			
8,800.00	6,327.00	8,906.69	6,327.00	71.39	71.98	-178.54	-918.34	-2,380.83	591.55	448.37	143.18	4.132			
8,900.00	6,327.00	9,006.56	6,327.00	74.13	74.71	-178.54	-915.80	-2,480.67	586.56	437.89	148.67	3.945			
9,000.00	6,327.00	9,106.44	6,327.00	76.89	77.45	-178.54	-913.25	-2,580.51	581.57	427.40	154.17	3.772			
9,100.00	6,327.00	9,206.31	6,327.00	79.64	80.19	-178.54	-910.71	-2,680.35	576.58	416.90	159.68	3.611			
9,200.00	6,327.00	9,306.19	6,327.00	82.40	82.94	-178.54	-908.17	-2,780.20	571.59	406.39	165.20	3.460			
9,300.00	6,327.00	9,406.07	6,327.00	85.16	85.69	-178.54	-905.63	-2,880.04	566.60	395.88	170.72	3.319			
9,400.00	6,327.00	9,505.94	6,327.00	87.92	88.45	-178.54	-903.09	-2,979.88	561.61	385.36	176.24	3.187			
9,500.00	6,327.00	9,605.82	6,327.00	90.68	91.20	-178.54	-900.54	-3,079.73	556.62	374.84	181.78	3.062			
9,600.00	6,327.00	9,705.69	6,327.00	93.45	93.97	-178.54	-898.00	-3,179.57	551.63	364.32	187.31	2.945			
9,700.00	6,327.00	9,805.57	6,327.00	96.22	96.73	-178.54	-895.46	-3,279.41	546.64	353.79	192.85	2.834			
9,800.00	6,327.00	9,905.44	6,327.00	98.99	99.50	-178.54	-892.92	-3,379.26	541.65	343.25	198.40	2.730			
9,900.00	6,327.00	10,005.32	6,327.00	101.77	102.26	-178.54	-890.38	-3,479.10	536.66	332.71	203.95	2.631			
10,000.00	6,327.00	10,105.19	6,327.00	104.54	105.03	-178.54	-887.83	-3,578.94	531.67	322.17	209.50	2.538			
10,100.00	6,327.00	10,205.07	6,327.00	107.32	107.81	-178.54	-885.29	-3,678.79	526.68	311.63	215.05	2.449			
10,200.00	6,327.00	10,304.94	6,327.00	110.09	110.58	-178.54	-882.75	-3,778.63	521.69	301.08	220.61	2.365			
10,300.00	6,327.00	10,404.82	6,327.00	112.87	113.36	-178.54	-880.21	-3,878.47	516.70	290.53	226.17	2.285			
10,400.00	6,327.00	10,504.69	6,327.00	115.65	116.13	-178.54	-877.67	-3,978.31	511.71	279.98	231.73	2.208			
10,500.00	6,327.00	10,604.57	6,327.00	118.43	118.91	-178.54	-875.13	-4,078.16	506.72	269.43	237.29	2.135			
10,600.00	6,327.00	10,704.45	6,327.00	121.21	121.69	-178.54	-872.58	-4,178.00	501.73	258.87	242.86	2.066			
10,646.24	6,327.00	10,749.48	6,327.00	122.50	122.95	-178.67	-871.44	-4,223.02	499.42	254.02	245.40	2.035			
10,646.82	6,327.00	10,749.48	6,327.00	122.51	122.95	-178.74	-871.44	-4,223.02	499.39	253.98	245.41	2.035 SF			

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 8000-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	9.00	0.00	0.00	0.01	-104.01	-954.15	-3,824.72	3,941.94					
100.00	100.00	109.00	100.00	0.09	0.12	-104.01	-954.15	-3,824.72	3,941.94	3,941.73	0.21	N/A		
200.00	200.00	209.00	200.00	0.32	0.24	-104.01	-954.15	-3,824.72	3,941.94	3,941.39	0.55	7,141.259		
300.00	300.00	309.00	300.00	0.54	0.35	-104.01	-954.15	-3,824.72	3,941.94	3,941.05	0.89	4,433.423		
400.00	400.00	409.00	400.00	0.77	0.46	-104.01	-954.15	-3,824.72	3,941.94	3,940.72	1.23	3,214.531		
500.00	500.00	509.00	500.00	0.99	0.57	-104.01	-954.15	-3,824.72	3,941.94	3,940.38	1.56	2,521.334		
600.00	599.98	608.98	599.98	1.19	0.68	-103.99	-954.15	-3,824.72	3,942.92	3,941.04	1.88	2,099.266		
700.00	699.84	708.84	699.84	1.39	0.80	-103.92	-954.15	-3,824.72	3,945.85	3,943.67	2.18	1,806.539		
802.37	801.81	810.81	801.81	1.62	0.91	-103.82	-954.15	-3,824.72	3,950.89	3,948.37	2.52	1,568.503		
900.00	898.90	907.90	898.90	1.86	1.02	-103.69	-954.15	-3,824.72	3,956.68	3,953.82	2.86	1,384.102		
1,000.00	998.34	1,007.34	998.34	2.12	1.13	-103.57	-954.15	-3,824.72	3,962.63	3,959.41	3.22	1,230.935		
1,100.00	1,097.78	1,106.78	1,097.78	2.40	1.24	-103.44	-954.15	-3,824.72	3,968.60	3,965.01	3.59	1,105.977		
1,200.00	1,197.23	1,206.23	1,197.23	2.68	1.36	-103.32	-954.15	-3,824.72	3,974.59	3,970.63	3.96	1,002.825		
1,300.00	1,296.67	1,305.67	1,296.67	2.96	1.47	-103.19	-954.15	-3,824.72	3,980.60	3,976.26	4.34	916.617		
1,400.00	1,396.11	1,405.11	1,396.11	3.25	1.58	-103.07	-954.15	-3,824.72	3,986.63	3,981.90	4.73	843.710		
1,500.00	1,495.56	1,504.56	1,495.56	3.54	1.69	-102.94	-954.15	-3,824.72	3,992.67	3,987.56	5.11	781.373		
1,600.00	1,595.00	1,604.00	1,595.00	3.83	1.80	-102.82	-954.15	-3,824.72	3,998.74	3,993.24	5.50	727.539		
1,700.00	1,694.44	1,703.44	1,694.44	4.13	1.91	-102.70	-954.15	-3,824.72	4,004.82	3,998.94	5.88	680.629		
1,800.00	1,793.89	1,802.89	1,793.89	4.42	2.03	-102.57	-954.15	-3,824.72	4,010.92	4,004.65	6.27	639.420		
1,900.00	1,893.33	1,902.33	1,893.33	4.72	2.14	-102.45	-954.15	-3,824.72	4,017.04	4,010.38	6.66	602.953		
2,000.00	1,992.77	2,001.77	1,992.77	5.02	2.25	-102.33	-954.15	-3,824.72	4,023.18	4,016.13	7.05	570.468		
2,100.00	2,092.22	2,101.22	2,092.22	5.32	2.36	-102.21	-954.15	-3,824.72	4,029.34	4,021.90	7.44	541.359		
2,200.00	2,191.66	2,200.66	2,191.66	5.62	2.47	-102.09	-954.15	-3,824.72	4,035.52	4,027.68	7.83	515.131		
2,300.00	2,291.10	2,300.10	2,291.10	5.92	2.59	-101.97	-954.15	-3,824.72	4,041.71	4,033.48	8.23	491.384		
2,400.00	2,390.55	2,399.55	2,390.55	6.22	2.70	-101.85	-954.15	-3,824.72	4,047.92	4,039.30	8.62	469.785		
2,500.00	2,489.99	2,498.99	2,489.99	6.52	2.81	-101.73	-954.15	-3,824.72	4,054.15	4,045.14	9.01	450.058		
2,600.00	2,589.44	2,598.44	2,589.44	6.82	2.92	-101.61	-954.15	-3,824.72	4,060.39	4,050.99	9.40	431.973		
2,700.00	2,688.88	2,697.88	2,688.88	7.12	3.03	-101.49	-954.15	-3,824.72	4,066.66	4,056.87	9.79	415.335		
2,800.00	2,788.32	2,797.32	2,788.32	7.42	3.14	-101.37	-954.15	-3,824.72	4,072.94	4,062.76	10.18	399.978		
2,900.00	2,887.77	2,896.77	2,887.77	7.72	3.26	-101.25	-954.15	-3,824.72	4,079.24	4,068.67	10.57	385.761		
3,000.00	2,987.21	2,996.21	2,987.21	8.03	3.37	-101.13	-954.15	-3,824.72	4,085.56	4,074.59	10.97	372.563		
3,100.00	3,086.65	3,095.65	3,086.65	8.33	3.48	-101.01	-954.15	-3,824.72	4,091.89	4,080.53	11.36	360.278		
3,200.00	3,186.10	3,195.10	3,186.10	8.63	3.59	-100.89	-954.15	-3,824.72	4,098.24	4,086.49	11.75	348.817		
3,300.00	3,285.54	3,294.54	3,285.54	8.93	3.70	-100.78	-954.15	-3,824.72	4,104.61	4,092.47	12.14	338.098		
3,400.00	3,384.98	3,393.98	3,384.98	9.24	3.81	-100.66	-954.15	-3,824.72	4,111.00	4,098.47	12.53	328.053		
3,500.00	3,484.43	3,493.43	3,484.43	9.54	3.93	-100.54	-954.15	-3,824.72	4,117.40	4,104.48	12.92	318.621		
3,600.00	3,583.87	3,592.87	3,583.87	9.84	4.04	-100.43	-954.15	-3,824.72	4,123.82	4,110.51	13.31	309.748		
3,700.00	3,683.31	3,692.31	3,683.31	10.15	4.15	-100.31	-954.15	-3,824.72	4,130.26	4,116.55	13.70	301.385		
3,800.00	3,782.76	3,791.76	3,782.76	10.45	4.26	-100.20	-954.15	-3,824.72	4,136.71	4,122.62	14.09	293.490		
3,900.00	3,882.20	3,891.20	3,882.20	10.75	4.37	-100.08	-954.15	-3,824.72	4,143.18	4,128.70	14.49	286.025		
4,000.00	3,981.64	3,990.64	3,981.64	11.06	4.48	-99.97	-954.15	-3,824.72	4,149.67	4,134.79	14.88	278.957		
4,100.00	4,081.09	4,090.09	4,081.09	11.36	4.60	-99.85	-954.15	-3,824.72	4,156.17	4,140.91	15.27	272.254		
4,200.00	4,180.53	4,189.53	4,180.53	11.66	4.71	-99.74	-954.15	-3,824.72	4,162.69	4,147.04	15.66	265.889		
4,217.76	4,198.19	4,207.19	4,198.19	11.72	4.73	-99.72	-954.15	-3,824.72	4,163.85	4,148.13	15.72	264.792		
4,300.00	4,280.09	4,289.09	4,280.09	11.92	4.82	-99.64	-954.15	-3,824.72	4,168.50	4,152.49	16.00	260.472		
4,400.00	4,379.91	4,388.91	4,379.91	12.11	4.93	-99.57	-954.15	-3,824.72	4,172.19	4,155.90	16.29	256.180		
4,500.00	4,479.87	4,488.87	4,479.87	12.27	5.04	-99.55	-954.15	-3,824.72	4,173.71	4,157.16	16.55	252.197		
4,520.13	4,500.00	4,509.00	4,500.00	12.30	5.07	-99.55	-954.15	-3,824.72	4,173.75	4,157.73	16.03	260.440		
4,600.00	4,579.87	4,588.87	4,579.87	12.42	5.16	-99.55	-954.15	-3,824.72	4,173.75	4,157.50	16.26	256.727		
4,700.00	4,679.87	4,688.87	4,679.87	12.58	5.27	-99.55	-954.15	-3,824.72	4,173.75	4,157.21	16.54	252.324		
4,800.00	4,779.87	4,788.87	4,779.87	12.73	5.38	-99.55	-954.15	-3,824.72	4,173.75	4,156.93	16.83	248.042		
4,900.00	4,879.87	4,888.87	4,879.87	12.89	5.49	-99.55	-954.15	-3,824.72	4,173.75	4,156.64	17.11	243.878		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 8000-MWVD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,979.87	4,988.87	4,979.87	13.04	5.61	-99.55	-954.15	-3,824.72	4,173.75	4,156.35	17.40	239.828		
5,100.00	5,079.87	5,088.87	5,079.87	13.20	5.72	-99.55	-954.15	-3,824.72	4,173.75	4,156.06	17.69	235.888		
5,200.00	5,179.87	5,188.87	5,179.87	13.37	5.83	-99.55	-954.15	-3,824.72	4,173.75	4,155.77	17.99	232.057		
5,300.00	5,279.87	5,288.87	5,279.87	13.53	5.94	-99.55	-954.15	-3,824.72	4,173.75	4,155.47	18.28	228.329		
5,400.00	5,379.87	5,388.87	5,379.87	13.70	6.06	-99.55	-954.15	-3,824.72	4,173.75	4,155.18	18.57	224.702		
5,500.00	5,479.87	5,488.87	5,479.87	13.86	6.17	-99.55	-954.15	-3,824.72	4,173.75	4,154.88	18.87	221.173		
5,600.00	5,579.87	5,588.87	5,579.87	14.03	6.28	-99.55	-954.15	-3,824.72	4,173.75	4,154.58	19.17	217.738		
5,700.00	5,679.87	5,688.87	5,679.87	14.20	6.39	-99.55	-954.15	-3,824.72	4,173.75	4,154.29	19.47	214.394		
5,800.00	5,779.87	5,788.87	5,779.87	14.37	6.51	-99.55	-954.15	-3,824.72	4,173.75	4,153.99	19.77	211.139		
5,869.67	5,849.54	5,858.54	5,849.54	14.50	6.58	-99.55	-954.15	-3,824.72	4,173.75	4,153.78	19.98	208.922		
5,875.00	5,854.87	5,863.87	5,854.87	14.50	6.59	-99.55	-954.15	-3,824.72	4,173.72	4,153.31	20.42	204.425		
5,900.00	5,879.85	5,888.85	5,879.85	14.54	6.62	-99.55	-954.15	-3,824.72	4,172.80	4,152.36	20.44	204.121		
5,925.00	5,904.75	5,913.75	5,904.75	14.57	6.65	-99.55	-954.15	-3,824.72	4,170.58	4,150.14	20.44	204.045		
5,950.00	5,929.49	5,938.49	5,929.49	14.59	6.67	-99.56	-954.15	-3,824.72	4,167.08	4,146.67	20.41	204.195		
5,975.00	5,954.02	5,963.02	5,954.02	14.61	6.70	-99.57	-954.15	-3,824.72	4,162.30	4,141.95	20.35	204.569		
6,000.00	5,978.26	5,987.26	5,978.26	14.62	6.73	-99.58	-954.15	-3,824.72	4,156.25	4,136.00	20.26	205.165		
6,025.00	6,002.15	6,011.15	6,002.15	14.63	6.76	-99.60	-954.15	-3,824.72	4,148.96	4,128.82	20.14	205.981		
6,050.00	6,025.61	6,034.61	6,025.61	14.63	6.78	-99.61	-954.15	-3,824.72	4,140.44	4,120.44	20.00	207.015		
6,075.00	6,048.60	6,057.60	6,048.60	14.63	6.81	-99.63	-954.15	-3,824.72	4,130.72	4,110.89	19.83	208.265		
6,100.00	6,071.04	6,080.04	6,071.04	14.63	6.83	-99.65	-954.15	-3,824.72	4,119.82	4,100.18	19.64	209.725		
6,125.00	6,092.87	6,101.87	6,092.87	14.63	6.86	-99.68	-954.15	-3,824.72	4,107.78	4,088.34	19.43	211.390		
6,150.00	6,114.04	6,123.04	6,114.04	14.62	6.88	-99.70	-954.15	-3,824.72	4,094.62	4,075.42	19.20	213.249		
6,175.00	6,134.48	6,143.48	6,134.48	14.61	6.90	-99.73	-954.15	-3,824.72	4,080.38	4,061.43	18.95	215.287		
6,200.00	6,154.14	6,163.14	6,154.14	14.60	6.93	-99.77	-954.15	-3,824.72	4,065.11	4,046.42	18.69	217.480		
6,225.00	6,172.97	6,181.97	6,172.97	14.60	6.95	-99.80	-954.15	-3,824.72	4,048.84	4,030.42	18.42	219.796		
6,250.00	6,190.91	6,199.91	6,190.91	14.59	6.97	-99.84	-954.15	-3,824.72	4,031.62	4,013.47	18.15	222.184		
6,275.00	6,207.91	6,216.91	6,207.91	14.59	6.99	-99.87	-954.15	-3,824.72	4,013.49	3,995.62	17.87	224.575		
6,300.00	6,223.93	6,232.93	6,223.93	14.59	7.00	-99.91	-954.15	-3,824.72	3,994.51	3,976.91	17.61	226.870		
6,325.00	6,238.93	6,247.93	6,238.93	14.60	7.02	-99.96	-954.15	-3,824.72	3,974.74	3,957.37	17.36	228.932		
6,350.00	6,252.85	6,261.85	6,252.85	14.61	7.04	-100.00	-954.15	-3,824.72	3,954.21	3,937.06	17.15	230.570		
6,375.00	6,265.68	6,274.68	6,265.68	14.63	7.05	-100.05	-954.15	-3,824.72	3,933.00	3,916.01	16.99	231.528		
6,400.00	6,277.36	6,286.36	6,277.36	14.68	7.06	-100.10	-954.15	-3,824.72	3,911.15	3,894.25	16.90	231.468		
6,425.00	6,287.87	6,296.87	6,287.87	14.75	7.08	-100.15	-954.15	-3,824.72	3,888.73	3,871.82	16.91	229.968		
6,450.00	6,297.17	6,306.17	6,297.17	14.87	7.09	-100.20	-954.15	-3,824.72	3,865.80	3,848.74	17.07	226.524		
6,475.00	6,305.26	6,314.26	6,305.26	15.04	7.10	-100.25	-954.15	-3,824.72	3,842.43	3,825.01	17.42	220.609		
6,500.00	6,312.09	6,321.09	6,312.09	15.26	7.10	-100.31	-954.15	-3,824.72	3,818.67	3,800.64	18.03	211.780		
6,525.00	6,317.65	6,326.65	6,317.65	15.52	7.11	-100.37	-954.15	-3,824.72	3,794.59	3,775.61	18.98	199.913		
6,550.00	6,321.93	6,330.93	6,321.93	15.81	7.11	-100.42	-954.15	-3,824.72	3,770.27	3,749.96	20.31	185.609		
6,575.00	6,324.92	6,333.92	6,324.92	16.14	7.12	-100.48	-954.15	-3,824.72	3,745.76	3,723.83	21.93	170.808		
6,600.00	6,326.60	6,335.60	6,326.60	16.48	7.12	-100.55	-954.15	-3,824.72	3,721.13	3,697.76	23.38	159.174		
6,619.67	6,327.00	6,336.00	6,327.00	16.77	7.12	-100.59	-954.15	-3,824.72	3,701.72	3,677.83	23.89	154.958		
6,700.00	6,327.00	6,336.00	6,327.00	18.07	7.12	-100.80	-954.15	-3,824.72	3,622.45	3,597.27	25.17	143.895		
6,800.00	6,327.00	6,336.00	6,327.00	19.93	7.12	-101.06	-954.15	-3,824.72	3,523.82	3,496.81	27.02	130.436		
6,900.00	6,327.00	6,336.00	6,327.00	21.99	7.12	-101.34	-954.15	-3,824.72	3,425.28	3,396.22	29.06	117.863		
7,000.00	6,327.00	6,336.00	6,327.00	24.19	7.12	-101.64	-954.15	-3,824.72	3,326.83	3,295.57	31.26	106.425		
7,100.00	6,327.00	6,336.00	6,327.00	26.51	7.12	-101.96	-954.15	-3,824.72	3,228.47	3,194.90	33.57	96.165		
7,200.00	6,327.00	6,336.00	6,327.00	28.91	7.12	-102.29	-954.15	-3,824.72	3,130.22	3,094.24	35.97	87.019		
7,300.00	6,327.00	6,336.00	6,327.00	31.37	7.12	-102.65	-954.15	-3,824.72	3,032.07	2,993.64	38.44	78.882		
7,400.00	6,327.00	6,336.00	6,327.00	33.89	7.12	-103.03	-954.15	-3,824.72	2,934.06	2,893.10	40.96	71.638		
7,500.00	6,327.00	6,336.00	6,327.00	36.45	7.12	-103.44	-954.15	-3,824.72	2,836.18	2,792.67	43.52	65.175		
7,600.00	6,327.00	6,336.00	6,327.00	39.04	7.12	-103.87	-954.15	-3,824.72	2,738.46	2,692.35	46.11	59.390		
7,700.00	6,327.00	6,336.00	6,327.00	41.66	7.12	-104.34	-954.15	-3,824.72	2,640.91	2,592.18	48.73	54.194		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 8000-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
7,800.00	6,327.00	6,336.00	6,327.00	44.30	7.12	-104.84	-954.15	-3,824.72	2,543.54	2,492.17	51.37	49.511	
7,900.00	6,327.00	6,336.00	6,327.00	46.96	7.12	-105.39	-954.15	-3,824.72	2,446.39	2,392.36	54.03	45.275	
8,000.00	6,327.00	6,336.00	6,327.00	49.64	7.12	-105.98	-954.15	-3,824.72	2,349.48	2,292.77	56.71	41.429	
8,100.00	6,327.00	6,336.00	6,327.00	52.33	7.12	-106.62	-954.15	-3,824.72	2,252.84	2,193.44	59.40	37.926	
8,200.00	6,327.00	6,336.00	6,327.00	55.03	7.12	-107.32	-954.15	-3,824.72	2,156.51	2,094.41	62.10	34.725	
8,300.00	6,327.00	6,336.00	6,327.00	57.74	7.12	-108.08	-954.15	-3,824.72	2,060.52	1,995.71	64.81	31.792	
8,400.00	6,327.00	6,336.00	6,327.00	60.45	7.12	-108.91	-954.15	-3,824.72	1,964.94	1,897.41	67.53	29.097	
8,500.00	6,327.00	6,336.00	6,327.00	63.18	7.12	-109.84	-954.15	-3,824.72	1,869.81	1,799.56	70.26	26.614	
8,600.00	6,327.00	6,336.00	6,327.00	65.91	7.12	-110.86	-954.15	-3,824.72	1,775.23	1,702.24	72.99	24.322	
8,700.00	6,327.00	6,336.00	6,327.00	68.65	7.12	-111.99	-954.15	-3,824.72	1,681.27	1,605.54	75.73	22.201	
8,800.00	6,327.00	6,336.00	6,327.00	71.39	7.12	-113.26	-954.15	-3,824.72	1,588.05	1,509.57	78.47	20.237	
8,900.00	6,327.00	6,336.00	6,327.00	74.13	7.12	-114.69	-954.15	-3,824.72	1,495.70	1,414.48	81.22	18.416	
9,000.00	6,327.00	6,336.00	6,327.00	76.89	7.12	-116.30	-954.15	-3,824.72	1,404.40	1,320.43	83.97	16.725	
9,100.00	6,327.00	6,336.00	6,327.00	79.64	7.12	-118.14	-954.15	-3,824.72	1,314.37	1,227.65	86.73	15.156	
9,200.00	6,327.00	6,336.00	6,327.00	82.40	7.12	-120.24	-954.15	-3,824.72	1,225.89	1,136.40	89.48	13.700	
9,300.00	6,327.00	6,336.00	6,327.00	85.16	7.12	-122.67	-954.15	-3,824.72	1,139.31	1,047.07	92.24	12.351	
9,400.00	6,327.00	6,336.00	6,327.00	87.92	7.12	-125.49	-954.15	-3,824.72	1,055.11	960.10	95.01	11.105	
9,500.00	6,327.00	6,336.00	6,327.00	90.68	7.12	-128.78	-954.15	-3,824.72	973.90	876.13	97.77	9.961	
9,600.00	6,327.00	6,336.00	6,327.00	93.45	7.12	-132.67	-954.15	-3,824.72	896.50	795.96	100.54	8.917	
9,700.00	6,327.00	6,336.00	6,327.00	96.22	7.12	-137.26	-954.15	-3,824.72	823.98	720.67	103.31	7.976	
9,800.00	6,327.00	6,336.00	6,327.00	98.99	7.12	-142.69	-954.15	-3,824.72	757.74	651.65	106.08	7.143	
9,900.00	6,327.00	6,336.00	6,327.00	101.77	7.12	-149.10	-954.15	-3,824.72	699.57	590.71	108.86	6.426	
10,000.00	6,327.00	6,336.00	6,327.00	104.54	7.12	-156.55	-954.15	-3,824.72	651.63	540.00	111.63	5.837	
10,100.00	6,327.00	6,336.00	6,327.00	107.32	7.12	-165.02	-954.15	-3,824.72	616.32	501.91	114.41	5.387	
10,200.00	6,327.00	6,336.00	6,327.00	110.09	7.12	-174.28	-954.15	-3,824.72	595.88	478.70	117.19	5.085	
10,273.87	6,327.00	6,336.00	6,327.00	112.14	7.12	-178.60	-954.15	-3,824.72	591.29	472.05	119.24	4.959 CC	
10,300.00	6,327.00	6,336.00	6,327.00	112.87	7.12	176.07	-954.15	-3,824.72	591.87	471.90	119.97	4.934 ES	
10,400.00	6,327.00	6,336.00	6,327.00	115.65	7.12	166.56	-954.15	-3,824.72	604.59	481.85	122.75	4.926 SF	
10,500.00	6,327.00	6,336.00	6,327.00	118.43	7.12	157.67	-954.15	-3,824.72	633.06	507.53	125.53	5.043	
10,600.00	6,327.00	6,336.00	6,327.00	121.21	7.12	149.72	-954.15	-3,824.72	675.27	546.96	128.31	5.263	
10,646.24	6,327.00	6,336.00	6,327.00	122.50	7.12	146.40	-954.15	-3,824.72	698.78	569.18	129.60	5.392	
10,646.82	6,327.00	6,336.00	6,327.00	122.51	7.12	146.36	-954.15	-3,824.72	699.08	569.48	129.61	5.394	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 8000-MWVD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	8.00	0.00	0.00	0.01	-116.70	-1,475.21	-2,932.72	3,282.85					
100.00	100.00	108.00	100.00	0.09	0.12	-116.70	-1,475.21	-2,932.72	3,282.85	3,282.64	0.21	N/A		
200.00	200.00	208.00	200.00	0.32	0.23	-116.70	-1,475.21	-2,932.72	3,282.85	3,282.30	0.55	5,959.372		
300.00	300.00	308.00	300.00	0.54	0.35	-116.70	-1,475.21	-2,932.72	3,282.85	3,281.96	0.89	3,696.826		
400.00	400.00	408.00	400.00	0.77	0.46	-116.70	-1,475.21	-2,932.72	3,282.85	3,281.62	1.23	2,679.516		
500.00	500.00	508.00	500.00	0.99	0.57	-116.70	-1,475.21	-2,932.72	3,282.85	3,281.29	1.56	2,101.277		
600.00	599.98	607.98	599.98	1.19	0.68	-116.67	-1,475.21	-2,932.72	3,283.48	3,281.61	1.88	1,749.111		
700.00	699.84	707.84	699.84	1.39	0.80	-116.59	-1,475.21	-2,932.72	3,285.39	3,283.21	2.18	1,503.972		
802.37	801.81	809.81	801.81	1.62	0.91	-116.44	-1,475.21	-2,932.72	3,288.68	3,286.16	2.52	1,303.254		
900.00	898.90	906.90	898.90	1.86	1.02	-116.28	-1,475.21	-2,932.72	3,292.48	3,289.61	2.87	1,147.271		
1,000.00	998.34	1,006.34	998.34	2.12	1.13	-116.11	-1,475.21	-2,932.72	3,296.40	3,293.16	3.24	1,017.894		
1,100.00	1,097.78	1,105.78	1,097.78	2.40	1.24	-115.94	-1,475.21	-2,932.72	3,300.35	3,296.73	3.62	912.595		
1,200.00	1,197.23	1,205.23	1,197.23	2.68	1.35	-115.77	-1,475.21	-2,932.72	3,304.32	3,300.32	4.00	825.893		
1,300.00	1,296.67	1,304.67	1,296.67	2.96	1.47	-115.60	-1,475.21	-2,932.72	3,308.33	3,303.94	4.39	753.612		
1,400.00	1,396.11	1,404.11	1,396.11	3.25	1.58	-115.43	-1,475.21	-2,932.72	3,312.36	3,307.58	4.78	692.623		
1,500.00	1,495.56	1,503.56	1,495.56	3.54	1.69	-115.26	-1,475.21	-2,932.72	3,316.42	3,311.25	5.18	640.584		
1,600.00	1,595.00	1,603.00	1,595.00	3.83	1.80	-115.10	-1,475.21	-2,932.72	3,320.51	3,314.94	5.57	595.726		
1,700.00	1,694.44	1,702.44	1,694.44	4.13	1.91	-114.93	-1,475.21	-2,932.72	3,324.63	3,318.66	5.97	556.703		
1,800.00	1,793.89	1,801.89	1,793.89	4.42	2.03	-114.76	-1,475.21	-2,932.72	3,328.78	3,322.41	6.37	522.474		
1,900.00	1,893.33	1,901.33	1,893.33	4.72	2.14	-114.60	-1,475.21	-2,932.72	3,332.96	3,326.19	6.77	492.224		
2,000.00	1,992.77	2,000.77	1,992.77	5.02	2.25	-114.43	-1,475.21	-2,932.72	3,337.16	3,329.99	7.17	465.312		
2,100.00	2,092.22	2,100.22	2,092.22	5.32	2.36	-114.26	-1,475.21	-2,932.72	3,341.39	3,333.82	7.57	441.223		
2,200.00	2,191.66	2,199.66	2,191.66	5.62	2.47	-114.10	-1,475.21	-2,932.72	3,345.65	3,337.68	7.97	419.541		
2,300.00	2,291.10	2,299.10	2,291.10	5.92	2.58	-113.93	-1,475.21	-2,932.72	3,349.94	3,341.56	8.38	399.928		
2,400.00	2,390.55	2,398.55	2,390.55	6.22	2.70	-113.77	-1,475.21	-2,932.72	3,354.26	3,345.48	8.78	382.105		
2,500.00	2,489.99	2,497.99	2,489.99	6.52	2.81	-113.61	-1,475.21	-2,932.72	3,358.60	3,349.42	9.18	365.840		
2,600.00	2,589.44	2,597.44	2,589.44	6.82	2.92	-113.44	-1,475.21	-2,932.72	3,362.97	3,353.38	9.58	350.941		
2,700.00	2,688.88	2,696.88	2,688.88	7.12	3.03	-113.28	-1,475.21	-2,932.72	3,367.36	3,357.38	9.98	337.243		
2,800.00	2,788.32	2,796.32	2,788.32	7.42	3.14	-113.12	-1,475.21	-2,932.72	3,371.79	3,361.40	10.39	324.608		
2,900.00	2,887.77	2,895.77	2,887.77	7.72	3.25	-112.96	-1,475.21	-2,932.72	3,376.24	3,365.45	10.79	312.919		
3,000.00	2,987.21	2,995.21	2,987.21	8.03	3.37	-112.79	-1,475.21	-2,932.72	3,380.72	3,369.53	11.19	302.074		
3,100.00	3,086.65	3,094.65	3,086.65	8.33	3.48	-112.63	-1,475.21	-2,932.72	3,385.22	3,373.63	11.59	291.986		
3,200.00	3,186.10	3,194.10	3,186.10	8.63	3.59	-112.47	-1,475.21	-2,932.72	3,389.76	3,377.76	12.00	282.578		
3,300.00	3,285.54	3,293.54	3,285.54	8.93	3.70	-112.31	-1,475.21	-2,932.72	3,394.31	3,381.92	12.40	273.785		
3,400.00	3,384.98	3,392.98	3,384.98	9.24	3.81	-112.15	-1,475.21	-2,932.72	3,398.90	3,386.10	12.80	265.550		
3,500.00	3,484.43	3,492.43	3,484.43	9.54	3.93	-111.99	-1,475.21	-2,932.72	3,403.51	3,390.31	13.20	257.820		
3,600.00	3,583.87	3,591.87	3,583.87	9.84	4.04	-111.83	-1,475.21	-2,932.72	3,408.15	3,394.55	13.60	250.551		
3,700.00	3,683.31	3,691.31	3,683.31	10.15	4.15	-111.67	-1,475.21	-2,932.72	3,412.81	3,398.81	14.00	243.704		
3,800.00	3,782.76	3,790.76	3,782.76	10.45	4.26	-111.52	-1,475.21	-2,932.72	3,417.50	3,403.10	14.41	237.244		
3,900.00	3,882.20	3,890.20	3,882.20	10.75	4.37	-111.36	-1,475.21	-2,932.72	3,422.22	3,407.41	14.81	231.138		
4,000.00	3,981.64	3,989.64	3,981.64	11.06	4.48	-111.20	-1,475.21	-2,932.72	3,426.96	3,411.75	15.21	225.358		
4,100.00	4,081.09	4,089.09	4,081.09	11.36	4.60	-111.04	-1,475.21	-2,932.72	3,431.73	3,416.12	15.61	219.880		
4,200.00	4,180.53	4,188.53	4,180.53	11.66	4.71	-110.89	-1,475.21	-2,932.72	3,436.52	3,420.52	16.01	214.680		
4,217.76	4,198.19	4,206.19	4,198.19	11.72	4.73	-110.86	-1,475.21	-2,932.72	3,437.38	3,421.30	16.08	213.784		
4,300.00	4,280.09	4,288.09	4,280.09	11.92	4.82	-110.75	-1,475.21	-2,932.72	3,440.80	3,424.44	16.36	210.263		
4,400.00	4,379.91	4,387.91	4,379.91	12.11	4.93	-110.66	-1,475.21	-2,932.72	3,443.53	3,426.88	16.65	206.809		
4,500.00	4,479.87	4,487.87	4,479.87	12.27	5.04	-110.62	-1,475.21	-2,932.72	3,444.65	3,427.74	16.92	203.639		
4,520.13	4,500.00	4,508.00	4,500.00	12.30	5.07	-110.62	-1,475.21	-2,932.72	3,444.69	3,429.07	15.61	220.603		
4,600.00	4,579.87	4,587.87	4,579.87	12.42	5.16	-110.62	-1,475.21	-2,932.72	3,444.69	3,428.83	15.85	217.304		
4,700.00	4,679.87	4,687.87	4,679.87	12.58	5.27	-110.62	-1,475.21	-2,932.72	3,444.69	3,428.54	16.14	213.409		
4,800.00	4,779.87	4,787.87	4,779.87	12.73	5.38	-110.62	-1,475.21	-2,932.72	3,444.69	3,428.25	16.43	209.628		
4,900.00	4,879.87	4,887.87	4,879.87	12.89	5.49	-110.62	-1,475.21	-2,932.72	3,444.69	3,427.96	16.73	205.959		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 8000-MWVD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,979.87	4,987.87	4,979.87	13.04	5.61	-110.62	-1,475.21	-2,932.72	3,444.69	3,427.67	17.02	202.397		
5,100.00	5,079.87	5,087.87	5,079.87	13.20	5.72	-110.62	-1,475.21	-2,932.72	3,444.69	3,427.37	17.32	198.939		
5,200.00	5,179.87	5,187.87	5,179.87	13.37	5.83	-110.62	-1,475.21	-2,932.72	3,444.69	3,427.07	17.61	195.582		
5,300.00	5,279.87	5,287.87	5,279.87	13.53	5.94	-110.62	-1,475.21	-2,932.72	3,444.69	3,426.78	17.91	192.321		
5,400.00	5,379.87	5,387.87	5,379.87	13.70	6.06	-110.62	-1,475.21	-2,932.72	3,444.69	3,426.48	18.21	189.154		
5,500.00	5,479.87	5,487.87	5,479.87	13.86	6.17	-110.62	-1,475.21	-2,932.72	3,444.69	3,426.17	18.51	186.076		
5,600.00	5,579.87	5,587.87	5,579.87	14.03	6.28	-110.62	-1,475.21	-2,932.72	3,444.69	3,425.87	18.81	183.086		
5,700.00	5,679.87	5,687.87	5,679.87	14.20	6.39	-110.62	-1,475.21	-2,932.72	3,444.69	3,425.57	19.12	180.180		
5,800.00	5,779.87	5,787.87	5,779.87	14.37	6.50	-110.62	-1,475.21	-2,932.72	3,444.69	3,425.26	19.42	177.354		
5,869.67	5,849.54	5,857.54	5,849.54	14.50	6.58	-110.62	-1,475.21	-2,932.72	3,444.69	3,425.05	19.64	175.432		
5,875.00	5,854.87	5,862.87	5,854.87	14.50	6.59	-110.62	-1,475.21	-2,932.72	3,444.66	3,423.93	20.73	166.147		
5,900.00	5,879.85	5,887.85	5,879.85	14.54	6.62	-110.63	-1,475.21	-2,932.72	3,443.78	3,423.01	20.77	165.844		
5,925.00	5,904.75	5,912.75	5,904.75	14.57	6.64	-110.64	-1,475.21	-2,932.72	3,441.66	3,420.89	20.77	165.699		
5,950.00	5,929.49	5,937.49	5,929.49	14.59	6.67	-110.66	-1,475.21	-2,932.72	3,438.32	3,417.57	20.75	165.710		
5,975.00	5,954.02	5,962.02	5,954.02	14.61	6.70	-110.69	-1,475.21	-2,932.72	3,433.76	3,413.06	20.70	165.872		
6,000.00	5,978.26	5,986.26	5,978.26	14.62	6.73	-110.72	-1,475.21	-2,932.72	3,428.00	3,407.37	20.63	166.179		
6,025.00	6,002.15	6,010.15	6,002.15	14.63	6.75	-110.76	-1,475.21	-2,932.72	3,421.05	3,400.52	20.53	166.624		
6,050.00	6,025.61	6,033.61	6,025.61	14.63	6.78	-110.81	-1,475.21	-2,932.72	3,412.93	3,392.52	20.41	167.197		
6,075.00	6,048.60	6,056.60	6,048.60	14.63	6.81	-110.86	-1,475.21	-2,932.72	3,403.67	3,383.39	20.27	167.888		
6,100.00	6,071.04	6,079.04	6,071.04	14.63	6.83	-110.93	-1,475.21	-2,932.72	3,393.28	3,373.17	20.12	168.681		
6,125.00	6,092.87	6,100.87	6,092.87	14.63	6.86	-110.99	-1,475.21	-2,932.72	3,381.81	3,361.87	19.95	169.555		
6,150.00	6,114.04	6,122.04	6,114.04	14.62	6.88	-111.07	-1,475.21	-2,932.72	3,369.29	3,349.53	19.76	170.482		
6,175.00	6,134.48	6,142.48	6,134.48	14.61	6.90	-111.15	-1,475.21	-2,932.72	3,355.74	3,336.17	19.58	171.426		
6,200.00	6,154.14	6,162.14	6,154.14	14.60	6.93	-111.24	-1,475.21	-2,932.72	3,341.22	3,321.83	19.39	172.339		
6,225.00	6,172.97	6,180.97	6,172.97	14.60	6.95	-111.34	-1,475.21	-2,932.72	3,325.75	3,306.55	19.21	173.159		
6,250.00	6,190.91	6,198.91	6,190.91	14.59	6.97	-111.44	-1,475.21	-2,932.72	3,309.39	3,290.35	19.04	173.806		
6,275.00	6,207.91	6,215.91	6,207.91	14.59	6.99	-111.55	-1,475.21	-2,932.72	3,292.19	3,273.29	18.90	174.180		
6,300.00	6,223.93	6,231.93	6,223.93	14.59	7.00	-111.67	-1,475.21	-2,932.72	3,274.18	3,255.38	18.80	174.164		
6,325.00	6,238.93	6,246.93	6,238.93	14.60	7.02	-111.79	-1,475.21	-2,932.72	3,255.42	3,236.67	18.75	173.623		
6,350.00	6,252.85	6,260.85	6,252.85	14.61	7.04	-111.92	-1,475.21	-2,932.72	3,235.97	3,217.21	18.77	172.415		
6,375.00	6,265.68	6,273.68	6,265.68	14.63	7.05	-112.05	-1,475.21	-2,932.72	3,215.89	3,197.01	18.87	170.410		
6,400.00	6,277.36	6,285.36	6,277.36	14.68	7.06	-112.19	-1,475.21	-2,932.72	3,195.22	3,176.14	19.07	167.512		
6,425.00	6,287.87	6,295.87	6,287.87	14.75	7.08	-112.34	-1,475.21	-2,932.72	3,174.02	3,154.63	19.39	163.690		
6,450.00	6,297.17	6,305.17	6,297.17	14.87	7.09	-112.49	-1,475.21	-2,932.72	3,152.36	3,132.54	19.83	159.004		
6,475.00	6,305.26	6,313.26	6,305.26	15.04	7.10	-112.64	-1,475.21	-2,932.72	3,130.30	3,109.93	20.38	153.625		
6,500.00	6,312.09	6,320.09	6,312.09	15.26	7.10	-112.80	-1,475.21	-2,932.72	3,107.90	3,086.88	21.02	147.830		
6,525.00	6,317.65	6,325.65	6,317.65	15.52	7.11	-112.97	-1,475.21	-2,932.72	3,085.23	3,063.50	21.73	141.977		
6,550.00	6,321.93	6,329.93	6,321.93	15.81	7.11	-113.14	-1,475.21	-2,932.72	3,062.34	3,039.89	22.44	136.456		
6,575.00	6,324.92	6,332.92	6,324.92	16.14	7.12	-113.31	-1,475.21	-2,932.72	3,039.30	3,016.21	23.09	131.631		
6,600.00	6,326.60	6,334.60	6,326.60	16.48	7.12	-113.49	-1,475.21	-2,932.72	3,016.17	2,992.57	23.61	127.771		
6,619.67	6,327.00	6,335.00	6,327.00	16.77	7.12	-113.63	-1,475.21	-2,932.72	2,997.96	2,974.07	23.89	125.504		
6,700.00	6,327.00	6,335.00	6,327.00	18.07	7.12	-114.22	-1,475.21	-2,932.72	2,923.76	2,898.58	25.17	116.146		
6,800.00	6,327.00	6,335.00	6,327.00	19.93	7.12	-115.01	-1,475.21	-2,932.72	2,831.85	2,804.83	27.01	104.826		
6,900.00	6,327.00	6,335.00	6,327.00	21.99	7.12	-115.85	-1,475.21	-2,932.72	2,740.51	2,711.45	29.06	94.304		
7,000.00	6,327.00	6,335.00	6,327.00	24.19	7.12	-116.74	-1,475.21	-2,932.72	2,649.80	2,618.54	31.26	84.770		
7,100.00	6,327.00	6,335.00	6,327.00	26.51	7.12	-117.70	-1,475.21	-2,932.72	2,559.77	2,526.20	33.57	76.249		
7,200.00	6,327.00	6,335.00	6,327.00	28.91	7.12	-118.73	-1,475.21	-2,932.72	2,470.52	2,434.55	35.97	68.682		
7,300.00	6,327.00	6,335.00	6,327.00	31.37	7.12	-119.83	-1,475.21	-2,932.72	2,382.12	2,343.68	38.44	61.975		
7,400.00	6,327.00	6,335.00	6,327.00	33.89	7.12	-121.02	-1,475.21	-2,932.72	2,294.67	2,253.72	40.96	56.028		
7,500.00	6,327.00	6,335.00	6,327.00	36.45	7.12	-122.30	-1,475.21	-2,932.72	2,208.29	2,164.77	43.52	50.747		
7,600.00	6,327.00	6,335.00	6,327.00	39.04	7.12	-123.69	-1,475.21	-2,932.72	2,123.10	2,077.00	46.11	46.045		
7,700.00	6,327.00	6,335.00	6,327.00	41.66	7.12	-125.19	-1,475.21	-2,932.72	2,039.26	1,990.53	48.73	41.849		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 8000-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,800.00	6,327.00	6,335.00	6,327.00	44.30	7.12	-126.82	-1,475.21	-2,932.72	1,956.94	1,905.57	51.37	38.094		
7,900.00	6,327.00	6,335.00	6,327.00	46.96	7.12	-128.59	-1,475.21	-2,932.72	1,876.34	1,822.31	54.03	34.726		
8,000.00	6,327.00	6,335.00	6,327.00	49.64	7.12	-130.51	-1,475.21	-2,932.72	1,797.68	1,740.97	56.71	31.700		
8,100.00	6,327.00	6,335.00	6,327.00	52.33	7.12	-132.61	-1,475.21	-2,932.72	1,721.25	1,661.85	59.40	28.977		
8,200.00	6,327.00	6,335.00	6,327.00	55.03	7.12	-134.91	-1,475.21	-2,932.72	1,647.34	1,585.24	62.10	26.527		
8,300.00	6,327.00	6,335.00	6,327.00	57.74	7.12	-137.41	-1,475.21	-2,932.72	1,576.31	1,511.50	64.81	24.322		
8,400.00	6,327.00	6,335.00	6,327.00	60.45	7.12	-140.14	-1,475.21	-2,932.72	1,508.57	1,441.04	67.53	22.339		
8,500.00	6,327.00	6,335.00	6,327.00	63.18	7.12	-143.12	-1,475.21	-2,932.72	1,444.57	1,374.32	70.26	20.561		
8,600.00	6,327.00	6,335.00	6,327.00	65.91	7.12	-146.37	-1,475.21	-2,932.72	1,384.85	1,311.86	72.99	18.973		
8,700.00	6,327.00	6,335.00	6,327.00	68.65	7.12	-149.90	-1,475.21	-2,932.72	1,329.98	1,254.25	75.73	17.563		
8,800.00	6,327.00	6,335.00	6,327.00	71.39	7.12	-153.72	-1,475.21	-2,932.72	1,280.57	1,202.10	78.47	16.319		
8,900.00	6,327.00	6,335.00	6,327.00	74.13	7.12	-157.83	-1,475.21	-2,932.72	1,237.29	1,156.08	81.22	15.234		
9,000.00	6,327.00	6,335.00	6,327.00	76.89	7.12	-162.20	-1,475.21	-2,932.72	1,200.80	1,116.83	83.97	14.300		
9,100.00	6,327.00	6,335.00	6,327.00	79.64	7.12	-166.83	-1,475.21	-2,932.72	1,171.73	1,085.00	86.72	13.511		
9,200.00	6,327.00	6,335.00	6,327.00	82.40	7.12	-171.65	-1,475.21	-2,932.72	1,150.64	1,061.16	89.48	12.859		
9,300.00	6,327.00	6,335.00	6,327.00	85.16	7.12	-176.62	-1,475.21	-2,932.72	1,137.98	1,045.73	92.24	12.337		
9,394.87	6,327.00	6,335.00	6,327.00	87.78	7.12	178.60	-1,475.21	-2,932.72	1,134.02	1,039.15	94.87	11.954 CC		
9,400.00	6,327.00	6,335.00	6,327.00	87.92	7.12	178.34	-1,475.21	-2,932.72	1,134.03	1,039.02	95.01	11.936 ES		
9,500.00	6,327.00	6,335.00	6,327.00	90.68	7.12	173.30	-1,475.21	-2,932.72	1,138.88	1,041.11	97.77	11.648		
9,600.00	6,327.00	6,335.00	6,327.00	93.45	7.12	168.35	-1,475.21	-2,932.72	1,152.42	1,051.88	100.54	11.462		
9,700.00	6,327.00	6,335.00	6,327.00	96.22	7.12	163.54	-1,475.21	-2,932.72	1,174.35	1,071.04	103.31	11.367		
9,800.00	6,327.00	6,335.00	6,327.00	98.99	7.12	158.94	-1,475.21	-2,932.72	1,204.21	1,098.13	106.08	11.352 SF		
9,900.00	6,327.00	6,335.00	6,327.00	101.77	7.12	154.59	-1,475.21	-2,932.72	1,241.43	1,132.57	108.86	11.404		
10,000.00	6,327.00	6,335.00	6,327.00	104.54	7.12	150.51	-1,475.21	-2,932.72	1,285.37	1,173.74	111.63	11.514		
10,100.00	6,327.00	6,335.00	6,327.00	107.32	7.12	146.72	-1,475.21	-2,932.72	1,335.36	1,220.95	114.41	11.672		
10,200.00	6,327.00	6,335.00	6,327.00	110.09	7.12	143.22	-1,475.21	-2,932.72	1,390.76	1,273.58	117.19	11.868		
10,300.00	6,327.00	6,335.00	6,327.00	112.87	7.12	140.00	-1,475.21	-2,932.72	1,450.95	1,330.98	119.96	12.095		
10,400.00	6,327.00	6,335.00	6,327.00	115.65	7.12	137.05	-1,475.21	-2,932.72	1,515.34	1,392.60	122.74	12.346		
10,500.00	6,327.00	6,335.00	6,327.00	118.43	7.12	134.34	-1,475.21	-2,932.72	1,583.44	1,457.92	125.53	12.615		
10,600.00	6,327.00	6,335.00	6,327.00	121.21	7.12	131.86	-1,475.21	-2,932.72	1,654.79	1,526.48	128.31	12.897		
10,646.24	6,327.00	6,335.00	6,327.00	122.50	7.12	130.78	-1,475.21	-2,932.72	1,688.76	1,559.17	129.59	13.031		
10,646.82	6,327.00	6,335.00	6,327.00	122.51	7.12	130.77	-1,475.21	-2,932.72	1,689.19	1,559.58	129.60	13.033		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 8000-MWVD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	19.00	0.00	0.00	-137.46	-786.86	-722.01	1,068.09					
100.00	100.00	81.00	100.00	0.09	0.09	-137.46	-786.86	-722.01	1,067.92	1,067.73	0.18	5,823.444		
200.00	200.00	181.00	200.00	0.32	0.20	-137.46	-786.86	-722.01	1,067.92	1,067.40	0.52	2,051.600		
300.00	300.00	281.00	300.00	0.54	0.32	-137.46	-786.86	-722.01	1,067.92	1,067.06	0.86	1,245.130		
400.00	400.00	381.00	400.00	0.77	0.43	-137.46	-786.86	-722.01	1,067.92	1,066.72	1.19	893.788		
500.00	500.00	481.00	500.00	0.99	0.54	-137.46	-786.86	-722.01	1,067.92	1,066.39	1.53	697.088		
600.00	599.98	580.98	599.98	1.19	0.65	-137.37	-786.86	-722.01	1,067.94	1,066.09	1.85	578.136		
700.00	699.84	680.84	699.84	1.39	0.77	-137.09	-786.86	-722.01	1,068.01	1,065.85	2.16	495.415		
802.37	801.81	782.81	801.81	1.62	0.88	-136.61	-786.86	-722.01	1,068.19	1,065.70	2.50	427.593		
900.00	898.90	879.90	898.90	1.86	0.99	-136.05	-786.86	-722.01	1,068.50	1,065.65	2.85	374.984		
1,000.00	998.34	979.34	998.34	2.12	1.10	-135.49	-786.86	-722.01	1,068.91	1,065.69	3.22	331.565		
1,100.00	1,097.78	1,078.78	1,097.78	2.40	1.21	-134.93	-786.86	-722.01	1,069.43	1,065.82	3.61	296.395		
1,200.00	1,197.23	1,178.23	1,197.23	2.68	1.32	-134.36	-786.86	-722.01	1,070.06	1,066.06	4.00	267.564		
1,300.00	1,296.67	1,277.67	1,296.67	2.96	1.44	-133.80	-786.86	-722.01	1,070.78	1,066.39	4.40	243.624		
1,400.00	1,396.11	1,377.11	1,396.11	3.25	1.55	-133.24	-786.86	-722.01	1,071.61	1,066.81	4.79	223.499		
1,500.00	1,495.56	1,476.56	1,495.56	3.54	1.66	-132.68	-786.86	-722.01	1,072.54	1,067.34	5.20	206.386		
1,600.00	1,595.00	1,576.00	1,595.00	3.83	1.77	-132.12	-786.86	-722.01	1,073.57	1,067.97	5.60	191.683		
1,700.00	1,694.44	1,675.44	1,694.44	4.13	1.88	-131.56	-786.86	-722.01	1,074.71	1,068.70	6.01	178.932		
1,800.00	1,793.89	1,774.89	1,793.89	4.42	1.99	-131.00	-786.86	-722.01	1,075.95	1,069.54	6.41	167.782		
1,900.00	1,893.33	1,874.33	1,893.33	4.72	2.11	-130.45	-786.86	-722.01	1,077.29	1,070.47	6.82	157.957		
2,000.00	1,992.77	1,973.77	1,992.77	5.02	2.22	-129.89	-786.86	-722.01	1,078.73	1,071.50	7.23	149.242		
2,100.00	2,092.22	2,073.22	2,092.22	5.32	2.33	-129.34	-786.86	-722.01	1,080.27	1,072.63	7.64	141.464		
2,200.00	2,191.66	2,172.66	2,191.66	5.62	2.44	-128.79	-786.86	-722.01	1,081.91	1,073.87	8.04	134.485		
2,300.00	2,291.10	2,272.10	2,291.10	5.92	2.55	-128.24	-786.86	-722.01	1,083.66	1,075.20	8.45	128.189		
2,400.00	2,390.55	2,371.55	2,390.55	6.22	2.67	-127.69	-786.86	-722.01	1,085.50	1,076.64	8.86	122.486		
2,500.00	2,489.99	2,470.99	2,489.99	6.52	2.78	-127.14	-786.86	-722.01	1,087.44	1,078.17	9.27	117.296		
2,600.00	2,589.44	2,570.44	2,589.44	6.82	2.89	-126.60	-786.86	-722.01	1,089.48	1,079.80	9.68	112.557		
2,700.00	2,688.88	2,669.88	2,688.88	7.12	3.00	-126.06	-786.86	-722.01	1,091.61	1,081.53	10.09	108.214		
2,800.00	2,788.32	2,769.32	2,788.32	7.42	3.11	-125.52	-786.86	-722.01	1,093.85	1,083.35	10.50	104.221		
2,900.00	2,887.77	2,868.77	2,887.77	7.72	3.22	-124.98	-786.86	-722.01	1,096.18	1,085.28	10.90	100.538		
3,000.00	2,987.21	2,968.21	2,987.21	8.03	3.34	-124.44	-786.86	-722.01	1,098.61	1,087.30	11.31	97.133		
3,100.00	3,086.65	3,067.65	3,086.65	8.33	3.45	-123.91	-786.86	-722.01	1,101.13	1,089.41	11.72	93.976		
3,200.00	3,186.10	3,167.10	3,186.10	8.63	3.56	-123.38	-786.86	-722.01	1,103.75	1,091.62	12.12	91.043		
3,300.00	3,285.54	3,266.54	3,285.54	8.93	3.67	-122.85	-786.86	-722.01	1,106.46	1,093.93	12.53	88.310		
3,400.00	3,384.98	3,365.98	3,384.98	9.24	3.78	-122.33	-786.86	-722.01	1,109.26	1,096.33	12.93	85.760		
3,500.00	3,484.43	3,465.43	3,484.43	9.54	3.89	-121.80	-786.86	-722.01	1,112.16	1,098.82	13.34	83.376		
3,600.00	3,583.87	3,564.87	3,583.87	9.84	4.01	-121.29	-786.86	-722.01	1,115.15	1,101.41	13.74	81.142		
3,700.00	3,683.31	3,664.31	3,683.31	10.15	4.12	-120.77	-786.86	-722.01	1,118.23	1,104.08	14.15	79.045		
3,800.00	3,782.76	3,763.76	3,782.76	10.45	4.23	-120.25	-786.86	-722.01	1,121.40	1,106.85	14.55	77.075		
3,900.00	3,882.20	3,863.20	3,882.20	10.75	4.34	-119.74	-786.86	-722.01	1,124.66	1,109.71	14.95	75.220		
4,000.00	3,981.64	3,962.64	3,981.64	11.06	4.45	-119.24	-786.86	-722.01	1,128.01	1,112.66	15.35	73.472		
4,100.00	4,081.09	4,062.09	4,081.09	11.36	4.57	-118.73	-786.86	-722.01	1,131.45	1,115.70	15.75	71.821		
4,200.00	4,180.53	4,161.53	4,180.53	11.66	4.68	-118.23	-786.86	-722.01	1,134.98	1,118.82	16.15	70.261		
4,217.76	4,198.19	4,179.19	4,198.19	11.72	4.70	-118.14	-786.86	-722.01	1,135.61	1,119.39	16.22	69.993		
4,300.00	4,280.09	4,261.09	4,280.09	11.92	4.79	-117.78	-786.86	-722.01	1,138.18	1,121.67	16.51	68.940		
4,400.00	4,379.91	4,360.91	4,379.91	12.11	4.90	-117.50	-786.86	-722.01	1,140.25	1,123.45	16.80	67.891		
4,500.00	4,479.87	4,460.87	4,479.87	12.27	5.01	-117.39	-786.86	-722.01	1,141.11	1,124.05	17.06	66.889		
4,520.13	4,500.00	4,481.00	4,500.00	12.30	5.04	-117.39	-786.86	-722.01	1,141.13	1,125.76	15.37	74.222		
4,600.00	4,579.87	4,560.87	4,579.87	12.42	5.13	-117.39	-786.86	-722.01	1,141.13	1,125.52	15.61	73.082		
4,700.00	4,679.87	4,660.87	4,679.87	12.58	5.24	-117.39	-786.86	-722.01	1,141.13	1,125.23	15.91	71.739		
4,800.00	4,779.87	4,760.87	4,779.87	12.73	5.35	-117.39	-786.86	-722.01	1,141.13	1,124.93	16.20	70.438		
4,900.00	4,879.87	4,860.87	4,879.87	12.89	5.46	-117.39	-786.86	-722.01	1,141.13	1,124.64	16.50	69.176		

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

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 8000-MWVD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,979.87	4,960.87	4,979.87	13.04	5.58	-117.39	-786.86	-722.01	1,141.13	1,124.34	16.79	67.953		
5,100.00	5,079.87	5,060.87	5,079.87	13.20	5.69	-117.39	-786.86	-722.01	1,141.13	1,124.04	17.09	66.766		
5,200.00	5,179.87	5,160.87	5,179.87	13.37	5.80	-117.39	-786.86	-722.01	1,141.13	1,123.74	17.39	65.615		
5,300.00	5,279.87	5,260.87	5,279.87	13.53	5.91	-117.39	-786.86	-722.01	1,141.13	1,123.44	17.69	64.499		
5,400.00	5,379.87	5,360.87	5,379.87	13.70	6.02	-117.39	-786.86	-722.01	1,141.13	1,123.14	17.99	63.415		
5,500.00	5,479.87	5,460.87	5,479.87	13.86	6.14	-117.39	-786.86	-722.01	1,141.13	1,122.83	18.30	62.363		
5,600.00	5,579.87	5,560.87	5,579.87	14.03	6.25	-117.39	-786.86	-722.01	1,141.13	1,122.53	18.60	61.342		
5,700.00	5,679.87	5,660.87	5,679.87	14.20	6.36	-117.39	-786.86	-722.01	1,141.13	1,122.22	18.91	60.350		
5,800.00	5,779.87	5,760.87	5,779.87	14.37	6.47	-117.39	-786.86	-722.01	1,141.13	1,121.92	19.22	59.386		
5,869.67	5,849.54	5,830.54	5,849.54	14.50	6.55	-117.39	-786.86	-722.01	1,141.13	1,121.70	19.43	58.731		
5,875.00	5,854.87	5,835.87	5,854.87	14.50	6.56	-117.39	-786.86	-722.01	1,141.11	1,120.25	20.86	54.714		
5,900.00	5,879.85	5,860.85	5,879.85	14.54	6.59	-117.41	-786.86	-722.01	1,140.27	1,119.37	20.89	54.575		
5,925.00	5,904.75	5,885.75	5,904.75	14.57	6.61	-117.46	-786.86	-722.01	1,138.26	1,117.35	20.91	54.447		
5,950.00	5,929.49	5,910.49	5,929.49	14.59	6.64	-117.54	-786.86	-722.01	1,135.08	1,114.18	20.89	54.328		
5,975.00	5,954.02	5,935.02	5,954.02	14.61	6.67	-117.64	-786.86	-722.01	1,130.74	1,109.89	20.86	54.215		
6,000.00	5,978.26	5,959.26	5,978.26	14.62	6.70	-117.78	-786.86	-722.01	1,125.27	1,104.47	20.80	54.106		
6,025.00	6,002.15	5,983.15	6,002.15	14.63	6.72	-117.95	-786.86	-722.01	1,118.67	1,097.96	20.72	53.995		
6,050.00	6,025.61	6,006.61	6,025.61	14.63	6.75	-118.15	-786.86	-722.01	1,110.98	1,090.36	20.62	53.878		
6,075.00	6,048.60	6,029.60	6,048.60	14.63	6.78	-118.38	-786.86	-722.01	1,102.22	1,081.71	20.51	53.749		
6,100.00	6,071.04	6,052.04	6,071.04	14.63	6.80	-118.64	-786.86	-722.01	1,092.41	1,072.03	20.38	53.598		
6,125.00	6,092.87	6,073.87	6,092.87	14.63	6.83	-118.93	-786.86	-722.01	1,081.61	1,061.36	20.25	53.415		
6,150.00	6,114.04	6,095.04	6,114.04	14.62	6.85	-119.26	-786.86	-722.01	1,069.83	1,049.72	20.11	53.189		
6,175.00	6,134.48	6,115.48	6,134.48	14.61	6.87	-119.63	-786.86	-722.01	1,057.13	1,037.15	19.98	52.903		
6,200.00	6,154.14	6,135.14	6,154.14	14.60	6.89	-120.03	-786.86	-722.01	1,043.56	1,023.69	19.86	52.539		
6,225.00	6,172.97	6,153.97	6,172.97	14.60	6.92	-120.47	-786.86	-722.01	1,029.15	1,009.39	19.76	52.077		
6,250.00	6,190.91	6,171.91	6,190.91	14.59	6.94	-120.94	-786.86	-722.01	1,013.97	994.28	19.69	51.495		
6,275.00	6,207.91	6,188.91	6,207.91	14.59	6.96	-121.46	-786.86	-722.01	998.07	978.41	19.66	50.770		
6,300.00	6,223.93	6,204.93	6,223.93	14.59	6.97	-122.02	-786.86	-722.01	981.51	961.84	19.68	49.884		
6,325.00	6,238.93	6,219.93	6,238.93	14.60	6.99	-122.63	-786.86	-722.01	964.35	944.60	19.75	48.824		
6,350.00	6,252.85	6,233.85	6,252.85	14.61	7.01	-123.28	-786.86	-722.01	946.67	926.77	19.89	47.588		
6,375.00	6,265.68	6,246.68	6,265.68	14.63	7.02	-123.98	-786.86	-722.01	928.51	908.41	20.10	46.187		
6,400.00	6,277.36	6,258.36	6,277.36	14.68	7.03	-124.73	-786.86	-722.01	909.97	889.59	20.38	44.646		
6,425.00	6,287.87	6,268.87	6,287.87	14.75	7.05	-125.53	-786.86	-722.01	891.10	870.38	20.72	43.003		
6,450.00	6,297.17	6,278.17	6,297.17	14.87	7.06	-126.39	-786.86	-722.01	872.00	850.89	21.11	41.305		
6,475.00	6,305.26	6,286.26	6,305.26	15.04	7.06	-127.30	-786.86	-722.01	852.72	831.19	21.53	39.600		
6,500.00	6,312.09	6,293.09	6,312.09	15.26	7.07	-128.27	-786.86	-722.01	833.36	811.39	21.97	37.929		
6,525.00	6,317.65	6,298.65	6,317.65	15.52	7.08	-129.30	-786.86	-722.01	814.00	791.59	22.41	36.326		
6,550.00	6,321.93	6,302.93	6,321.93	15.81	7.08	-130.39	-786.86	-722.01	794.71	771.88	22.83	34.812		
6,575.00	6,324.92	6,305.92	6,324.92	16.14	7.09	-131.54	-786.86	-722.01	775.57	752.35	23.22	33.396		
6,600.00	6,326.60	6,307.60	6,326.60	16.48	7.09	-132.76	-786.86	-722.01	756.68	733.09	23.59	32.077		
6,619.67	6,327.00	6,308.00	6,327.00	16.77	7.09	-133.76	-786.86	-722.01	742.03	718.17	23.86	31.103		
6,700.00	6,327.00	6,308.00	6,327.00	18.07	7.09	-138.29	-786.86	-722.01	684.81	659.67	25.14	27.237		
6,800.00	6,327.00	6,308.00	6,327.00	19.93	7.09	-145.05	-786.86	-722.01	620.79	593.80	26.98	23.005		
6,900.00	6,327.00	6,308.00	6,327.00	21.99	7.09	-153.21	-786.86	-722.01	567.25	538.22	29.03	19.540		
7,000.00	6,327.00	6,308.00	6,327.00	24.19	7.09	-162.83	-786.86	-722.01	527.43	496.20	31.23	16.889		
7,100.00	6,327.00	6,308.00	6,327.00	26.51	7.09	-173.66	-786.86	-722.01	504.56	471.02	33.54	15.043		
7,167.98	6,327.00	6,308.00	6,327.00	28.14	7.09	178.60	-786.86	-722.01	499.96	464.79	35.17	14.215 CC, ES		
7,200.00	6,327.00	6,308.00	6,327.00	28.91	7.09	174.93	-786.86	-722.01	500.99	465.05	35.94	13.939		
7,300.00	6,327.00	6,308.00	6,327.00	31.37	7.09	163.81	-786.86	-722.01	517.10	478.69	38.41	13.464 SF		
7,400.00	6,327.00	6,308.00	6,327.00	33.89	7.09	153.70	-786.86	-722.01	551.18	510.25	40.93	13.468		
7,500.00	6,327.00	6,308.00	6,327.00	36.45	7.09	145.01	-786.86	-722.01	600.16	556.68	43.49	13.802		
7,600.00	6,327.00	6,308.00	6,327.00	39.04	7.09	137.77	-786.86	-722.01	660.76	614.68	46.08	14.340		

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

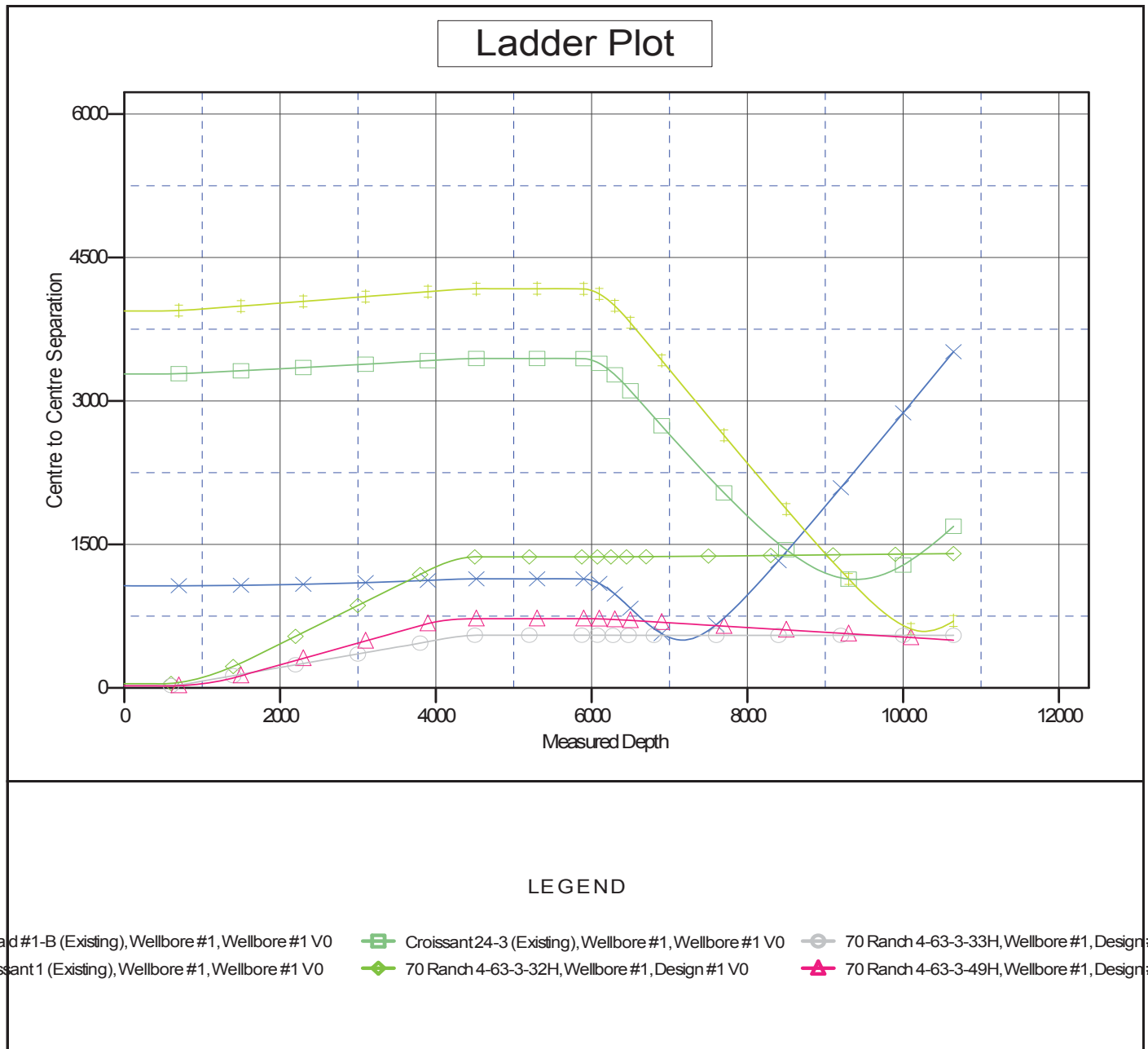
Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 8000-MWD													Offset Well Error:	0.00 usft
Sec.3-T4N-R63W - Ronald #1-B (Existing) - Wellbore #1 - Wellbore #1														
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	6,327.00	6,308.00	6,327.00	41.66	7.09	131.82	-786.86	-722.01	730.07	681.37	48.70	14.992		
7,800.00	6,327.00	6,308.00	6,327.00	44.30	7.09	126.94	-786.86	-722.01	805.86	754.52	51.34	15.696		
7,900.00	6,327.00	6,308.00	6,327.00	46.96	7.09	122.93	-786.86	-722.01	886.46	832.46	54.00	16.415		
8,000.00	6,327.00	6,308.00	6,327.00	49.64	7.09	119.60	-786.86	-722.01	970.68	914.00	56.68	17.126		
8,100.00	6,327.00	6,308.00	6,327.00	52.33	7.09	116.81	-786.86	-722.01	1,057.65	998.28	59.37	17.815		
8,200.00	6,327.00	6,308.00	6,327.00	55.03	7.09	114.45	-786.86	-722.01	1,146.74	1,084.67	62.07	18.475		
8,300.00	6,327.00	6,308.00	6,327.00	57.74	7.09	112.43	-786.86	-722.01	1,237.51	1,172.73	64.78	19.103		
8,400.00	6,327.00	6,308.00	6,327.00	60.45	7.09	110.69	-786.86	-722.01	1,329.60	1,262.10	67.50	19.698		
8,500.00	6,327.00	6,308.00	6,327.00	63.18	7.09	109.17	-786.86	-722.01	1,422.75	1,352.53	70.23	20.260		
8,600.00	6,327.00	6,308.00	6,327.00	65.91	7.09	107.84	-786.86	-722.01	1,516.78	1,443.83	72.96	20.790		
8,700.00	6,327.00	6,308.00	6,327.00	68.65	7.09	106.67	-786.86	-722.01	1,611.53	1,535.84	75.70	21.289		
8,800.00	6,327.00	6,308.00	6,327.00	71.39	7.09	105.63	-786.86	-722.01	1,706.88	1,628.44	78.44	21.760		
8,900.00	6,327.00	6,308.00	6,327.00	74.13	7.09	104.70	-786.86	-722.01	1,802.73	1,721.55	81.19	22.205		
9,000.00	6,327.00	6,308.00	6,327.00	76.89	7.09	103.86	-786.86	-722.01	1,899.01	1,815.07	83.94	22.624		
9,100.00	6,327.00	6,308.00	6,327.00	79.64	7.09	103.11	-786.86	-722.01	1,995.66	1,908.96	86.69	23.020		
9,200.00	6,327.00	6,308.00	6,327.00	82.40	7.09	102.42	-786.86	-722.01	2,092.62	2,003.17	89.45	23.394		
9,300.00	6,327.00	6,308.00	6,327.00	85.16	7.09	101.80	-786.86	-722.01	2,189.85	2,097.64	92.21	23.748		
9,400.00	6,327.00	6,308.00	6,327.00	87.92	7.09	101.22	-786.86	-722.01	2,287.33	2,192.35	94.98	24.083		
9,500.00	6,327.00	6,308.00	6,327.00	90.68	7.09	100.70	-786.86	-722.01	2,385.01	2,287.27	97.74	24.401		
9,600.00	6,327.00	6,308.00	6,327.00	93.45	7.09	100.21	-786.86	-722.01	2,482.88	2,382.36	100.51	24.703		
9,700.00	6,327.00	6,308.00	6,327.00	96.22	7.09	99.77	-786.86	-722.01	2,580.91	2,477.62	103.28	24.989		
9,800.00	6,327.00	6,308.00	6,327.00	98.99	7.09	99.35	-786.86	-722.01	2,679.08	2,573.03	106.05	25.262		
9,900.00	6,327.00	6,308.00	6,327.00	101.77	7.09	98.97	-786.86	-722.01	2,777.39	2,668.56	108.83	25.521		
10,000.00	6,327.00	6,308.00	6,327.00	104.54	7.09	98.61	-786.86	-722.01	2,875.81	2,764.21	111.60	25.769		
10,100.00	6,327.00	6,308.00	6,327.00	107.32	7.09	98.27	-786.86	-722.01	2,974.34	2,859.96	114.38	26.005		
10,200.00	6,327.00	6,308.00	6,327.00	110.09	7.09	97.96	-786.86	-722.01	3,072.96	2,955.81	117.15	26.230		
10,300.00	6,327.00	6,308.00	6,327.00	112.87	7.09	97.67	-786.86	-722.01	3,171.67	3,051.74	119.93	26.445		
10,400.00	6,327.00	6,308.00	6,327.00	115.65	7.09	97.39	-786.86	-722.01	3,270.46	3,147.74	122.71	26.651		
10,500.00	6,327.00	6,308.00	6,327.00	118.43	7.09	97.13	-786.86	-722.01	3,369.32	3,243.82	125.49	26.848		
10,600.00	6,327.00	6,308.00	6,327.00	121.21	7.09	96.89	-786.86	-722.01	3,468.24	3,339.97	128.28	27.037		
10,646.24	6,327.00	6,308.00	6,327.00	122.50	7.09	96.78	-786.86	-722.01	3,514.01	3,384.44	129.56	27.122		
10,646.82	6,327.00	6,308.00	6,327.00	122.51	7.09	96.78	-786.86	-722.01	3,514.58	3,385.00	129.57	27.124		

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 4559.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 4-63-3-48H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

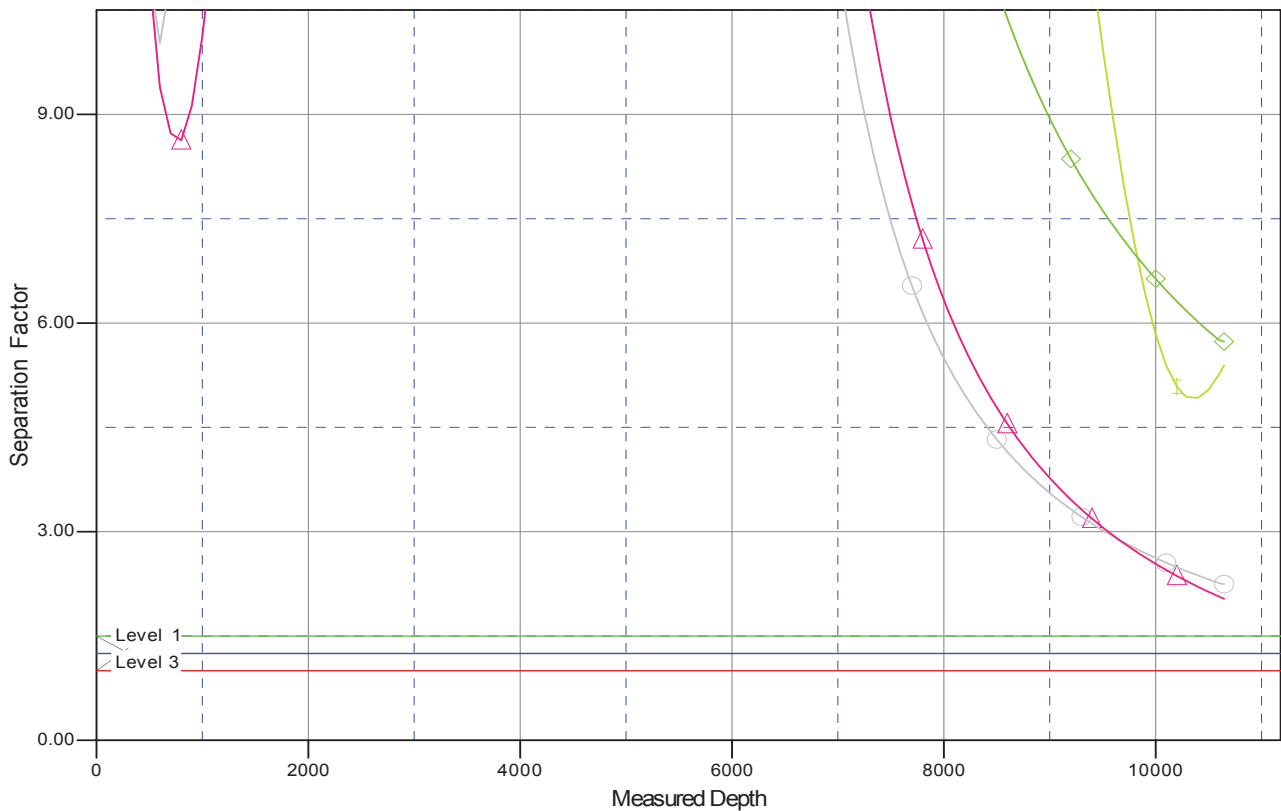


Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well 70 Ranch 4-63-3-48H
Project:	Weld Co., CO	TVD Reference:	WELL @ 4559.00usft
Reference Site:	Sec.3-T4N-R63W	MD Reference:	WELL @ 4559.00usft
Site Error:	0.00 usft	North Reference:	True
Reference Well:	70 Ranch 4-63-3-48H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 4559.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: 70 Ranch 4-63-3-48H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.70°

Separation Factor Plot



LEGEND

Croissant 24-3 (Existing), Wellbore #1, Wellbore #1 V0
 70 Ranch 4-63-3-32H, Wellbore #1, Design #1 V0
 70 Ranch 4-63-3-49H, Wellbore #1, Design #1 V0