



Bill Barrett Corporation

COMPANY DETAILS: BILL BARRETT CORP

Calculation Method: Minimum Curvature
Error System: ISCWSA
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic
Warning Method: Error Ratio

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Pappenheim 6-62-27-1609BH, True North
Vertical (TVD) Reference: KB @ 4770.0ft (Original Well Elev)
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: KB @ 4770.0ft (Original Well Elev)
Calculation Method: Minimum Curvature

WELL DETAILS: Pappenheim 6-62-27-1609BH

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1413268.22	3329048.00	40° 27' 42.480 N	104° 19' 2.748 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1215.6	3.23	352.37	1215.5	6.0	-0.8	1.50	352.37	-0.4	
4	5230.5	3.23	352.37	5224.0	230.6	-30.9	0.00	0.00	-15.6	
5	5446.1	0.00	0.00	5439.5	236.6	-31.7	1.50	180.00	-16.0	
6	5946.1	0.00	0.00	5939.5	236.6	-31.7	0.00	0.00	-16.0	
7	6698.4	90.27	89.10	6417.0	244.1	448.0	12.00	89.10	463.1	27-1609BH LP
8	10928.4	90.27	89.10	6397.0	310.2	4677.4	0.00	0.00	4687.7	27-1609BH PBHL

PROJECT DETAILS: WELD COUNTY, COLORADO

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

FORMATION TOP DETAILS

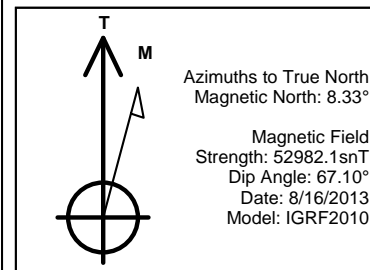
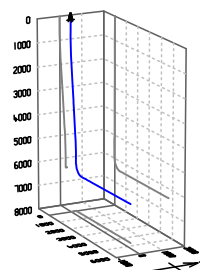
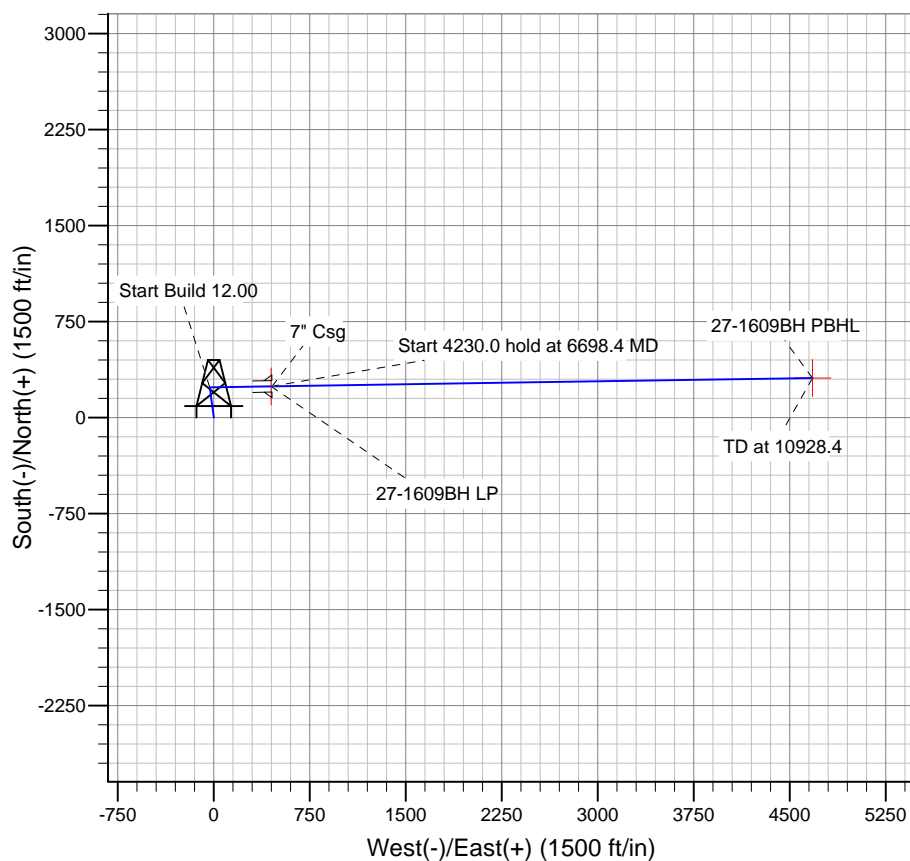
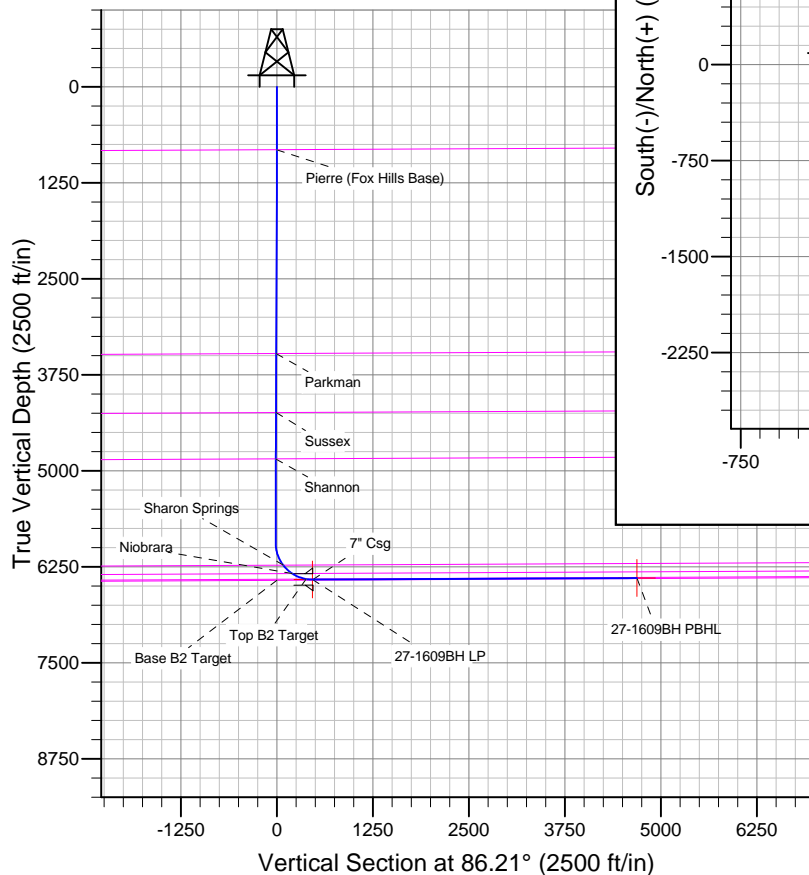
TVDPath	MDPath	Formation
820.0	820.0	Base B2 Target
3473.1	3476.8	Pierre (Fox Hills Base)
4242.1	4247.0	Sussex
4846.1	4852.0	Shannon
6229.7	6258.0	Sharon Springs
6339.1	6419.6	Niobrara
6410.3	6616.0	Top B2 Target

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
27-1609BH PBHL	6397.0	310.1	4677.4	Point
27-1609BH LP	6417.0	244.1	448.0	Point

CASING DETAILS

TVD	MD	Name	Size
6416.9	6705.0	7" Csg	7



BILL BARRETT CORP

WELD COUNTY, COLORADO

Pappenheim 6-62-27 Pad #2

Pappenheim 6-62-27-1609BH

Wellbore #1

Plan: Design #1

Standard Planning Report

16 August, 2013

Bill Barrett Corp

Planning Report

Database:	Compass	Local Co-ordinate Reference:	Well Pappenheim 6-62-27-1609BH
Company:	BILL BARRETT CORP	TVD Reference:	KB @ 4770.0ft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB @ 4770.0ft (Original Well Elev)
Site:	Pappenheim 6-62-27 Pad #2	North Reference:	True
Well:	Pappenheim 6-62-27-1609BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	WELD COUNTY, COLORADO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Pappenheim 6-62-27 Pad #2				
Site Position:		Northing:	1,413,290.08ft	Latitude:	40° 27' 42.696 N	
From:	Lat/Long	Easting:	3,329,047.70ft	Longitude:	104° 19' 2.748 W	
Position Uncertainty:		0.0 ft	Slot Radius:	"	Grid Convergence:	0.76 °

Well							Pappenheim 6-62-27-1609BH						
Well Position		+N-S	-21.9 ft	Northing:		1,413,268.22 ft		Latitude:		40° 27' 42.480 N			
		+E-W	0.0 ft	Easting:		3,329,048.00 ft		Longitude:		104° 19' 2.748 W			
Position Uncertainty			0.0 ft	Wellhead Elevation:		ft		Ground Level:		4,750.0 ft			

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/16/2013	8.33	67.10	52,982

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	86.21

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,215.6	3.23	352.37	1,215.5	6.0	-0.8	1.50	1.50	0.00	352.37	
5,230.5	3.23	352.37	5,224.0	230.6	-30.9	0.00	0.00	0.00	0.00	
5,446.1	0.00	0.00	5,439.5	236.6	-31.7	1.50	-1.50	0.00	180.00	
5,946.1	0.00	0.00	5,939.5	236.6	-31.7	0.00	0.00	0.00	0.00	
6,698.4	90.27	89.10	6,417.0	244.1	448.0	12.00	12.00	0.00	89.10	27-1609BH LP
10,928.4	90.27	89.10	6,397.0	310.2	4,677.4	0.00	0.00	0.00	0.00	27-1609BH PBHL

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Planning Report

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Company:	BILL BARRETT CORP	TVD Reference:	KB @ 4770.0ft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB @ 4770.0ft (Original Well Elev)
Site:	Pappenheim 6-62-27 Pad #2	North Reference:	True
Well:	Pappenheim 6-62-27-1609BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
820.0	0.00	0.00	820.0	0.0	0.0	0.0	0.00	0.00	0.00
Pierre (Fox Hills Base)									
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	1.50	352.37	1,100.0	1.3	-0.2	-0.1	1.50	1.50	0.00
1,200.0	3.00	352.37	1,199.9	5.2	-0.7	-0.4	1.50	1.50	0.00
1,215.6	3.23	352.37	1,215.5	6.0	-0.8	-0.4	1.50	1.50	0.00
1,300.0	3.23	352.37	1,299.8	10.7	-1.4	-0.7	0.00	0.00	0.00
1,400.0	3.23	352.37	1,399.6	16.3	-2.2	-1.1	0.00	0.00	0.00
1,500.0	3.23	352.37	1,499.4	21.9	-2.9	-1.5	0.00	0.00	0.00
1,600.0	3.23	352.37	1,599.3	27.5	-3.7	-1.9	0.00	0.00	0.00
1,700.0	3.23	352.37	1,699.1	33.1	-4.4	-2.2	0.00	0.00	0.00
1,800.0	3.23	352.37	1,799.0	38.7	-5.2	-2.6	0.00	0.00	0.00
1,900.0	3.23	352.37	1,898.8	44.3	-5.9	-3.0	0.00	0.00	0.00
2,000.0	3.23	352.37	1,998.6	49.9	-6.7	-3.4	0.00	0.00	0.00
2,100.0	3.23	352.37	2,098.5	55.5	-7.4	-3.7	0.00	0.00	0.00
2,200.0	3.23	352.37	2,198.3	61.1	-8.2	-4.1	0.00	0.00	0.00
2,300.0	3.23	352.37	2,298.2	66.7	-8.9	-4.5	0.00	0.00	0.00
2,400.0	3.23	352.37	2,398.0	72.3	-9.7	-4.9	0.00	0.00	0.00
2,500.0	3.23	352.37	2,497.8	77.9	-10.4	-5.3	0.00	0.00	0.00
2,600.0	3.23	352.37	2,597.7	83.5	-11.2	-5.6	0.00	0.00	0.00
2,700.0	3.23	352.37	2,697.5	89.0	-11.9	-6.0	0.00	0.00	0.00
2,800.0	3.23	352.37	2,797.4	94.6	-12.7	-6.4	0.00	0.00	0.00
2,900.0	3.23	352.37	2,897.2	100.2	-13.4	-6.8	0.00	0.00	0.00
3,000.0	3.23	352.37	2,997.0	105.8	-14.2	-7.1	0.00	0.00	0.00
3,100.0	3.23	352.37	3,096.9	111.4	-14.9	-7.5	0.00	0.00	0.00
3,200.0	3.23	352.37	3,196.7	117.0	-15.7	-7.9	0.00	0.00	0.00
3,300.0	3.23	352.37	3,296.6	122.6	-16.4	-8.3	0.00	0.00	0.00
3,400.0	3.23	352.37	3,396.4	128.2	-17.2	-8.7	0.00	0.00	0.00
3,476.8	3.23	352.37	3,473.1	132.5	-17.8	-8.9	0.00	0.00	0.00
Parkman									
3,500.0	3.23	352.37	3,496.2	133.8	-17.9	-9.0	0.00	0.00	0.00
3,600.0	3.23	352.37	3,596.1	139.4	-18.7	-9.4	0.00	0.00	0.00
3,700.0	3.23	352.37	3,695.9	145.0	-19.4	-9.8	0.00	0.00	0.00
3,800.0	3.23	352.37	3,795.8	150.6	-20.2	-10.2	0.00	0.00	0.00
3,900.0	3.23	352.37	3,895.6	156.2	-20.9	-10.5	0.00	0.00	0.00
4,000.0	3.23	352.37	3,995.4	161.8	-21.7	-10.9	0.00	0.00	0.00
4,100.0	3.23	352.37	4,095.3	167.3	-22.4	-11.3	0.00	0.00	0.00
4,200.0	3.23	352.37	4,195.1	172.9	-23.2	-11.7	0.00	0.00	0.00
4,247.0	3.23	352.37	4,242.1	175.6	-23.5	-11.9	0.00	0.00	0.00
Sussex									
4,300.0	3.23	352.37	4,295.0	178.5	-23.9	-12.1	0.00	0.00	0.00
4,400.0	3.23	352.37	4,394.8	184.1	-24.7	-12.4	0.00	0.00	0.00
4,500.0	3.23	352.37	4,494.7	189.7	-25.4	-12.8	0.00	0.00	0.00

Bill Barrett Corp

Planning Report

Database:	Compass	Local Co-ordinate Reference:	Well Pappenheim 6-62-27-1609BH
Company:	BILL BARRETT CORP	TVD Reference:	KB @ 4770.0ft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB @ 4770.0ft (Original Well Elev)
Site:	Pappenheim 6-62-27 Pad #2	North Reference:	True
Well:	Pappenheim 6-62-27-1609BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,600.0	3.23	352.37	4,594.5	195.3	-26.2	-13.2	0.00	0.00	0.00
4,700.0	3.23	352.37	4,694.3	200.9	-26.9	-13.6	0.00	0.00	0.00
4,800.0	3.23	352.37	4,794.2	206.5	-27.7	-13.9	0.00	0.00	0.00
4,852.0	3.23	352.37	4,846.1	209.4	-28.1	-14.1	0.00	0.00	0.00
Shannon									
4,900.0	3.23	352.37	4,894.0	212.1	-28.4	-14.3	0.00	0.00	0.00
5,000.0	3.23	352.37	4,993.9	217.7	-29.2	-14.7	0.00	0.00	0.00
5,100.0	3.23	352.37	5,093.7	223.3	-29.9	-15.1	0.00	0.00	0.00
5,200.0	3.23	352.37	5,193.5	228.9	-30.7	-15.5	0.00	0.00	0.00
5,230.5	3.23	352.37	5,224.0	230.6	-30.9	-15.6	0.00	0.00	0.00
5,300.0	2.19	352.37	5,293.4	233.8	-31.3	-15.8	1.50	-1.50	0.00
5,400.0	0.69	352.37	5,393.4	236.3	-31.7	-16.0	1.50	-1.50	0.00
5,446.1	0.00	0.00	5,439.5	236.6	-31.7	-16.0	1.50	-1.50	0.00
5,500.0	0.00	0.00	5,493.4	236.6	-31.7	-16.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,593.4	236.6	-31.7	-16.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,693.4	236.6	-31.7	-16.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,793.4	236.6	-31.7	-16.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,893.4	236.6	-31.7	-16.0	0.00	0.00	0.00
5,946.1	0.00	0.00	5,939.5	236.6	-31.7	-16.0	0.00	0.00	0.00
6,000.0	6.46	89.10	5,993.3	236.6	-28.7	-12.9	12.00	12.00	0.00
6,100.0	18.46	89.10	6,090.7	237.0	-7.1	8.6	12.00	12.00	0.00
6,200.0	30.46	89.10	6,181.6	237.6	34.2	49.9	12.00	12.00	0.00
6,258.0	37.43	89.10	6,229.7	238.1	66.6	82.2	12.00	12.00	0.00
Sharon Springs									
6,300.0	42.46	89.10	6,261.9	238.6	93.5	109.1	12.00	12.00	0.00
6,400.0	54.46	89.10	6,328.0	239.7	168.2	183.7	12.00	12.00	0.00
6,419.6	56.82	89.10	6,339.1	240.0	184.4	199.9	12.00	12.00	0.00
Niobrara									
6,500.0	66.46	89.10	6,377.2	241.1	255.1	270.5	12.00	12.00	0.00
6,600.0	78.46	89.10	6,407.3	242.6	350.2	365.5	12.00	12.00	0.00
6,616.0	80.38	89.10	6,410.3	242.8	366.0	381.2	12.00	12.00	0.00
Top B2 Target									
6,698.4	90.27	89.10	6,417.0	244.1	448.0	463.2	12.00	12.00	0.00
27-1609BH LP									
6,700.0	90.27	89.10	6,417.0	244.1	449.6	464.7	0.00	0.00	0.00
6,705.0	90.27	89.10	6,416.9	244.2	454.6	469.7	0.00	0.00	0.00
7" Csg									
6,800.0	90.27	89.10	6,416.5	245.7	549.6	564.6	0.00	0.00	0.00
6,900.0	90.27	89.10	6,416.0	247.2	649.6	664.5	0.00	0.00	0.00
7,000.0	90.27	89.10	6,415.5	248.8	749.5	764.4	0.00	0.00	0.00
7,100.0	90.27	89.10	6,415.1	250.4	849.5	864.2	0.00	0.00	0.00
7,200.0	90.27	89.10	6,414.6	251.9	949.5	964.1	0.00	0.00	0.00
7,300.0	90.27	89.10	6,414.1	253.5	1,049.5	1,064.0	0.00	0.00	0.00
7,400.0	90.27	89.10	6,413.7	255.1	1,149.5	1,163.8	0.00	0.00	0.00
7,500.0	90.27	89.10	6,413.2	256.6	1,249.5	1,263.7	0.00	0.00	0.00
7,600.0	90.27	89.10	6,412.7	258.2	1,349.5	1,363.6	0.00	0.00	0.00
7,700.0	90.27	89.10	6,412.2	259.7	1,449.4	1,463.5	0.00	0.00	0.00
7,800.0	90.27	89.10	6,411.8	261.3	1,549.4	1,563.3	0.00	0.00	0.00
7,900.0	90.27	89.10	6,411.3	262.9	1,649.4	1,663.2	0.00	0.00	0.00
8,000.0	90.27	89.10	6,410.8	264.4	1,749.4	1,763.1	0.00	0.00	0.00
8,100.0	90.27	89.10	6,410.4	266.0	1,849.4	1,862.9	0.00	0.00	0.00
8,200.0	90.27	89.10	6,409.9	267.6	1,949.4	1,962.8	0.00	0.00	0.00
8,300.0	90.27	89.10	6,409.4	269.1	2,049.4	2,062.7	0.00	0.00	0.00

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Planning Report

Database:	Compass	Local Co-ordinate Reference:	Well Pappenheim 6-62-27-1609BH
Company:	BILL BARRETT CORP	TVD Reference:	KB @ 4770.0ft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB @ 4770.0ft (Original Well Elev)
Site:	Pappenheim 6-62-27 Pad #2	North Reference:	True
Well:	Pappenheim 6-62-27-1609BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,400.0	90.27	89.10	6,408.9	270.7	2,149.4	2,162.6	0.00	0.00	0.00
8,500.0	90.27	89.10	6,408.5	272.2	2,249.3	2,262.4	0.00	0.00	0.00
8,600.0	90.27	89.10	6,408.0	273.8	2,349.3	2,362.3	0.00	0.00	0.00
8,700.0	90.27	89.10	6,407.5	275.4	2,449.3	2,462.2	0.00	0.00	0.00
8,800.0	90.27	89.10	6,407.1	276.9	2,549.3	2,562.0	0.00	0.00	0.00
8,900.0	90.27	89.10	6,406.6	278.5	2,649.3	2,661.9	0.00	0.00	0.00
9,000.0	90.27	89.10	6,406.1	280.1	2,749.3	2,761.8	0.00	0.00	0.00
9,100.0	90.27	89.10	6,405.6	281.6	2,849.3	2,861.6	0.00	0.00	0.00
9,200.0	90.27	89.10	6,405.2	283.2	2,949.2	2,961.5	0.00	0.00	0.00
9,300.0	90.27	89.10	6,404.7	284.7	3,049.2	3,061.4	0.00	0.00	0.00
9,400.0	90.27	89.10	6,404.2	286.3	3,149.2	3,161.3	0.00	0.00	0.00
9,500.0	90.27	89.10	6,403.8	287.9	3,249.2	3,261.1	0.00	0.00	0.00
9,600.0	90.27	89.10	6,403.3	289.4	3,349.2	3,361.0	0.00	0.00	0.00
9,700.0	90.27	89.10	6,402.8	291.0	3,449.2	3,460.9	0.00	0.00	0.00
9,800.0	90.27	89.10	6,402.3	292.6	3,549.2	3,560.7	0.00	0.00	0.00
9,900.0	90.27	89.10	6,401.9	294.1	3,649.2	3,660.6	0.00	0.00	0.00
10,000.0	90.27	89.10	6,401.4	295.7	3,749.1	3,760.5	0.00	0.00	0.00
10,100.0	90.27	89.10	6,400.9	297.2	3,849.1	3,860.4	0.00	0.00	0.00
10,200.0	90.27	89.10	6,400.5	298.8	3,949.1	3,960.2	0.00	0.00	0.00
10,300.0	90.27	89.10	6,400.0	300.4	4,049.1	4,060.1	0.00	0.00	0.00
10,400.0	90.27	89.10	6,399.5	301.9	4,149.1	4,160.0	0.00	0.00	0.00
10,500.0	90.27	89.10	6,399.0	303.5	4,249.1	4,259.8	0.00	0.00	0.00
10,600.0	90.27	89.10	6,398.6	305.0	4,349.1	4,359.7	0.00	0.00	0.00
10,700.0	90.27	89.10	6,398.1	306.6	4,449.0	4,459.6	0.00	0.00	0.00
10,800.0	90.27	89.10	6,397.6	308.2	4,549.0	4,559.5	0.00	0.00	0.00
10,900.0	90.27	89.10	6,397.2	309.7	4,649.0	4,659.3	0.00	0.00	0.00
10,928.4	90.27	89.10	6,397.0	310.2	4,677.4	4,687.7	0.00	0.00	0.00
27-1609BH PBHL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
6,705.0	6,416.9	7" Csg	7	8-3/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
820.0	820.0	Pierre (Fox Hills Base)		-0.27	89.10
3,476.8	3,473.0	Parkman		-0.27	89.10
4,247.0	4,242.0	Sussex		-0.27	89.10
4,852.0	4,846.0	Shannon		-0.27	89.10
6,258.0	6,230.0	Sharon Springs		-0.27	89.10
6,419.6	6,340.0	Niobrara		-0.27	89.10
6,616.0	6,412.0	Top B2 Target		-0.27	89.10
	6,427.0	Base B2 Target		-0.27	89.10

Bill Barrett Corp
Planning Report

Database:	Compass	Local Co-ordinate Reference:	Well Pappenheim 6-62-27-1609BH
Company:	BILL BARRETT CORP	TVD Reference:	KB @ 4770.0ft (Original Well Elev)
Project:	WELD COUNTY, COLORADO	MD Reference:	KB @ 4770.0ft (Original Well Elev)
Site:	Pappenheim 6-62-27 Pad #2	North Reference:	True
Well:	Pappenheim 6-62-27-1609BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		