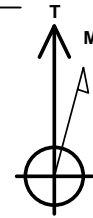


BILL BARRETT CORP
Circle B 6-66-9-0164CH
Weld Cty, CO

Geodetic System: US State Plane 1983
Zone: Colorado Northern Zone
KB @ 4837.0usft (Original Well Elev)
Ground Level: 4814.0
Latitude: 40° 30' 33.400 N
Longitude: 104° 47' 5.900 W

Magnetic North is 8.52° East of True North (Magnetic Declination)



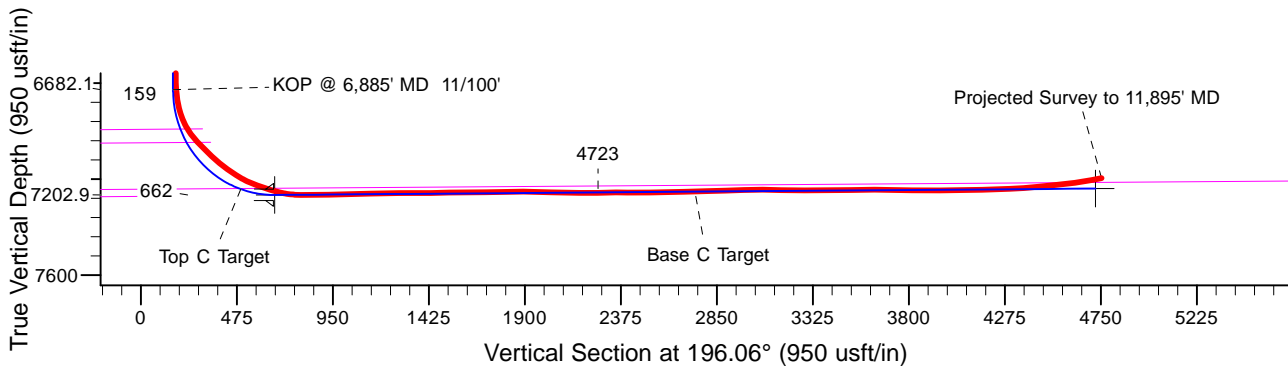
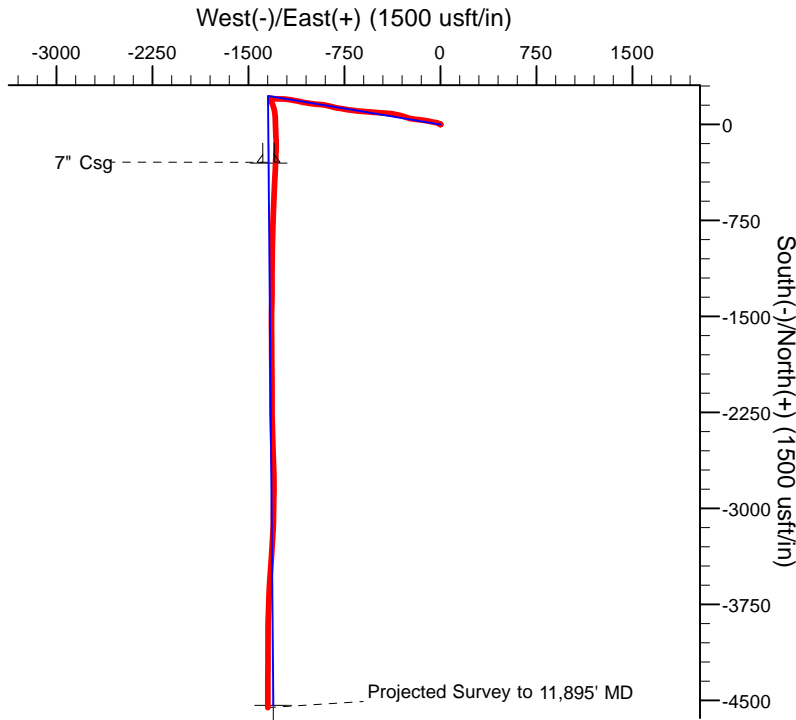
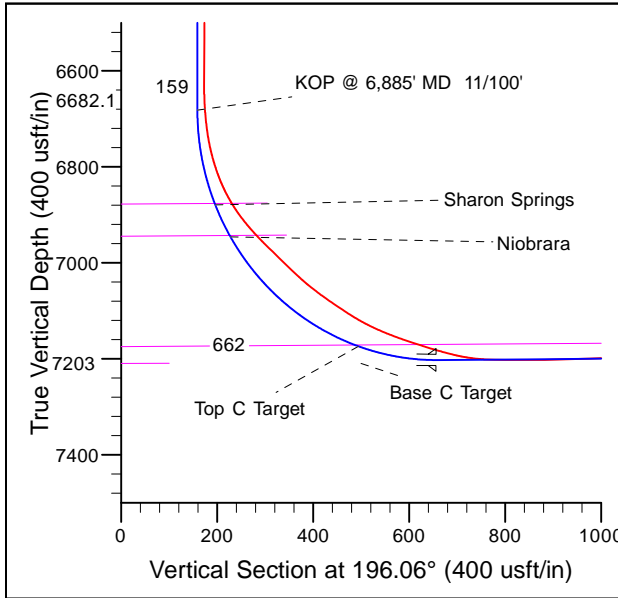
Azimuths to True North
Magnetic North: 8.53°

Magnetic Field
Strength: 52904.8snT
Dip Angle: 67.04°
Date: 2/15/2014
Model: IGRF2010

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0
2229.0	18.43	279.38	2207.9	31.9	-193.4	1.50	279.38	22.8
5463.2	18.43	279.38	5276.2	198.6	-1202.5	0.00	0.00	141.9
6385.0	0.00	0.00	6182.1	222.5	-1347.5	2.00	180.00	159.0
6885.0	0.00	0.00	6682.1	222.5	-1347.5	0.00	0.00	159.0
7707.1	90.43	179.51	7202.9	-302.3	-1343.1	11.00	179.51	662.0
11944.3	90.43	179.51	7171.1	-4539.2	-1307.2	0.00	0.00	4723.7

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4459.2	4602.1	Sussex
4864.4	5029.2	Shannon
6879.5	7087.4	Sharon Springs
6946.2	7161.9	Niobrara
7174.1	7529.0	Top C Target



Plan: Updated 01-25-14 (Circle B 6-66-9-0164CH/Nabors M22)

Created By: Mike Kirby	Date: 9:28, February 25 2014
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: x	Date: x

Survey Report

Company:	BILL BARRETT CORP	Local Co-ordinate Reference:	Well Circle B 6-66-9-0164CH
Project:	Weld Cty, CO	TVD Reference:	KB @ 4837.0usft (Original Well Elev)
Site:	Circle B 6-66-9 Pad	MD Reference:	KB @ 4837.0usft (Original Well Elev)
Well:	Circle B 6-66-9-0164CH	North Reference:	True
Wellbore:	Nabors M22	Survey Calculation Method:	Minimum Curvature
Design:	Nabors M#22	Database:	Rocky Mountain R5000 Database

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

Site		Circle B 6-66-9 Pad					
Site Position:		Northing:	1,429,172.04	usft	Latitude:	40° 30' 33.400 N	
From:	Lat/Long	Easting:	3,198,819.48	usft	Longitude:	104° 47' 5.900 W	
Position Uncertainty:		0.0	usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.46 °

Well	Circle B 6-66-9-0164CH					
Well Position	+N/-S	0.0 usft	Northing:	1,429,169.30 usft	Latitude:	40° 30' 33.372 N
	+E/-W	0.0 usft	Easting:	3,198,834.02 usft	Longitude:	104° 47' 5.712 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,814.0 usft

Wellbore	Nabors M22				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/15/2014	8.52	67.04	52,905

Design	Nabors M#22				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	196.06	

Survey Program	Date	2/25/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	11,895.0	End of Well Report (Nabors M22)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.28	32.84	100.0	0.2	0.1	-0.2	0.28	0.28	0.00	
200.0	0.43	307.76	200.0	0.6	0.0	-0.6	0.49	0.15	-85.08	
300.0	0.16	311.63	300.0	1.0	-0.4	-0.8	0.27	-0.27	3.87	
400.0	0.31	199.71	400.0	0.8	-0.6	-0.6	0.40	0.15	-111.92	
500.0	0.39	175.31	500.0	0.2	-0.7	0.0	0.17	0.08	-24.40	
600.0	0.62	176.95	600.0	-0.7	-0.6	0.8	0.23	0.23	1.64	
700.0	0.16	149.41	700.0	-1.3	-0.5	1.4	0.48	-0.46	-27.54	
Tie On to Gyro Surveys										
749.0	0.16	77.76	749.0	-1.4	-0.4	1.4	0.38	0.00	-146.22	
867.0	0.40	256.50	867.0	-1.4	-0.7	1.6	0.47	0.20	151.47	

Survey Report

Company:	BILL BARRETT CORP	Local Co-ordinate Reference:	Well Circle B 6-66-9-0164CH
Project:	Weld Cty, CO	TVD Reference:	KB @ 4837.0usft (Original Well Elev)
Site:	Circle B 6-66-9 Pad	MD Reference:	KB @ 4837.0usft (Original Well Elev)
Well:	Circle B 6-66-9-0164CH	North Reference:	True
Wellbore:	Nabors M22	Survey Calculation Method:	Minimum Curvature
Design:	Nabors M#22	Database:	Rocky Mountain R5000 Database

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)
959.0	2.70	302.40	958.9	-0.4	-2.8	1.1	2.65	2.50	49.89
1,051.0	5.00	304.30	1,050.7	3.1	-8.0	-0.7	2.50	2.50	2.07
1,143.0	6.60	294.70	1,142.3	7.5	-16.1	-2.8	2.03	1.74	-10.43
1,236.0	7.40	287.30	1,234.6	11.6	-26.6	-3.7	1.29	0.86	-7.96
1,328.0	8.80	280.10	1,325.7	14.5	-39.2	-3.1	1.88	1.52	-7.83
1,420.0	9.10	281.50	1,416.5	17.2	-53.3	-1.8	0.40	0.33	1.52
1,512.0	8.60	282.90	1,507.4	20.2	-67.1	-0.9	0.59	-0.54	1.52
1,605.0	8.10	279.20	1,599.5	22.8	-80.4	0.3	0.79	-0.54	-3.98
1,697.0	8.20	280.10	1,690.5	25.0	-93.2	1.8	0.18	0.11	0.98
1,789.0	9.70	280.80	1,781.4	27.6	-107.3	3.2	1.63	1.63	0.76
1,881.0	11.00	278.30	1,871.9	30.3	-123.6	5.0	1.49	1.41	-2.72
1,977.0	12.30	279.30	1,965.9	33.3	-142.8	7.5	1.37	1.35	1.04
2,072.0	12.80	276.80	2,058.7	36.2	-163.2	10.4	0.78	0.53	-2.63
2,166.0	14.00	276.20	2,150.1	38.6	-184.8	14.0	1.29	1.28	-0.64
2,262.0	15.00	276.60	2,243.0	41.3	-208.7	18.0	1.05	1.04	0.42
2,357.0	15.90	280.90	2,334.6	45.2	-233.7	21.2	1.53	0.95	4.53
2,452.0	15.10	288.50	2,426.2	51.6	-258.2	21.9	2.30	-0.84	8.00
2,547.0	17.60	288.10	2,517.3	60.0	-283.6	20.8	2.63	2.63	-0.42
2,643.0	18.60	285.60	2,608.6	68.6	-312.2	20.4	1.32	1.04	-2.60
2,738.0	17.40	284.20	2,698.9	76.2	-340.5	21.0	1.34	-1.26	-1.47
2,833.0	18.90	278.90	2,789.2	82.0	-369.5	23.4	2.35	1.58	-5.58
2,928.0	20.70	276.50	2,878.6	86.3	-401.4	28.1	2.08	1.89	-2.53
3,023.0	18.20	275.50	2,968.1	89.6	-432.8	33.6	2.65	-2.63	-1.05
3,118.0	19.40	271.10	3,058.1	91.4	-463.4	40.4	1.95	1.26	-4.63
3,213.0	21.00	272.90	3,147.2	92.5	-496.2	48.3	1.81	1.68	1.89
3,308.0	18.60	273.30	3,236.6	94.3	-528.3	55.6	2.53	-2.53	0.42
3,404.0	18.60	274.70	3,327.6	96.4	-558.8	62.0	0.47	0.00	1.46
3,499.0	18.70	275.50	3,417.6	99.1	-589.1	67.7	0.29	0.11	0.84
3,594.0	20.40	275.30	3,507.1	102.1	-620.7	73.6	1.79	1.79	-0.21
3,689.0	20.50	276.30	3,596.1	105.4	-653.8	79.5	0.38	0.11	1.05
3,784.0	20.60	278.70	3,685.1	109.8	-686.8	84.5	0.89	0.11	2.53
3,879.0	21.90	278.60	3,773.6	115.0	-720.9	88.9	1.37	1.37	-0.11
3,974.0	23.10	278.00	3,861.4	120.2	-756.8	93.9	1.29	1.26	-0.63
4,069.0	23.30	280.60	3,948.7	126.3	-793.8	98.3	1.10	0.21	2.74
4,165.0	22.20	282.90	4,037.2	133.8	-830.1	101.1	1.47	-1.15	2.40
4,260.0	19.80	283.50	4,125.9	141.6	-863.2	102.8	2.54	-2.53	0.63
4,355.0	17.10	282.40	4,216.0	148.3	-892.5	104.4	2.87	-2.84	-1.16
4,450.0	17.40	277.30	4,306.8	153.1	-920.3	107.4	1.62	0.32	-5.37
4,545.0	19.10	275.50	4,397.0	156.4	-949.8	112.4	1.89	1.79	-1.89
4,640.0	18.60	274.80	4,486.9	159.2	-980.4	118.3	0.58	-0.53	-0.74
4,735.0	18.60	276.30	4,576.9	162.1	-1,010.6	123.8	0.50	0.00	1.58
4,830.0	17.20	279.70	4,667.3	166.1	-1,039.5	127.9	1.84	-1.47	3.58
4,924.0	17.80	281.60	4,757.0	171.4	-1,067.2	130.6	0.88	0.64	2.02

Survey Report

Company:	BILL BARRETT CORP	Local Co-ordinate Reference:	Well Circle B 6-66-9-0164CH
Project:	Weld Cty, CO	TVD Reference:	KB @ 4837.0usft (Original Well Elev)
Site:	Circle B 6-66-9 Pad	MD Reference:	KB @ 4837.0usft (Original Well Elev)
Well:	Circle B 6-66-9-0164CH	North Reference:	True
Wellbore:	Nabors M22	Survey Calculation Method:	Minimum Curvature
Design:	Nabors M#22	Database:	Rocky Mountain R5000 Database

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)
5,019.0	17.30	281.50	4,847.6	177.1	-1,095.3	132.8	0.53	-0.53	-0.11
5,114.0	17.30	280.70	4,938.3	182.5	-1,123.0	135.3	0.25	0.00	-0.84
5,210.0	16.80	281.40	5,030.0	187.9	-1,150.7	137.7	0.56	-0.52	0.73
5,305.0	15.10	280.30	5,121.4	192.9	-1,176.3	140.1	1.82	-1.79	-1.16
5,400.0	11.60	276.40	5,213.8	196.1	-1,198.0	142.9	3.80	-3.68	-4.11
5,494.0	12.40	272.10	5,305.8	197.6	-1,217.4	146.9	1.28	0.85	-4.57
5,590.0	12.60	272.30	5,399.5	198.4	-1,238.2	151.9	0.21	0.21	0.21
5,685.0	8.70	270.80	5,492.8	198.9	-1,255.7	156.3	4.12	-4.11	-1.58
5,780.0	9.10	272.50	5,586.7	199.3	-1,270.4	159.9	0.50	0.42	1.79
5,875.0	9.30	274.30	5,680.5	200.2	-1,285.6	163.3	0.37	0.21	1.89
5,970.0	7.50	271.90	5,774.4	201.0	-1,299.4	166.3	1.93	-1.89	-2.53
6,065.0	5.80	274.80	5,868.8	201.6	-1,310.4	168.8	1.82	-1.79	3.05
6,160.0	4.00	274.80	5,963.4	202.3	-1,318.5	170.4	1.89	-1.89	0.00
6,254.0	2.10	273.40	6,057.3	202.7	-1,323.5	171.4	2.02	-2.02	-1.49
6,349.0	1.60	267.20	6,152.3	202.7	-1,326.6	172.2	0.57	-0.53	-6.53
6,444.0	1.20	272.60	6,247.2	202.7	-1,328.9	172.9	0.44	-0.42	5.68
6,539.0	0.80	281.00	6,342.2	202.8	-1,330.5	173.2	0.45	-0.42	8.84
6,634.0	0.50	275.70	6,437.2	203.0	-1,331.6	173.3	0.32	-0.32	-5.58
6,729.0	0.10	341.30	6,532.2	203.1	-1,332.0	173.3	0.49	-0.42	69.05
6,824.0	0.30	14.90	6,627.2	203.5	-1,332.0	173.0	0.24	0.21	35.37
6,919.0	9.40	157.50	6,721.8	196.5	-1,329.0	178.8	10.15	9.58	150.11
7,014.0	24.30	158.00	6,812.5	171.1	-1,318.6	200.4	15.68	15.68	0.53
7,059.0	32.00	158.90	6,852.1	151.3	-1,310.8	217.2	17.14	17.11	2.00
7,109.0	39.00	164.20	6,892.8	123.8	-1,301.8	241.2	15.28	14.00	10.60
7,154.0	43.80	170.10	6,926.5	94.8	-1,295.2	267.2	13.74	10.67	13.11
7,204.0	46.70	178.50	6,961.8	59.5	-1,291.8	300.2	13.26	5.80	16.80
7,249.0	47.00	178.70	6,992.6	26.7	-1,291.0	331.5	0.74	0.67	0.44
7,300.0	48.60	177.50	7,026.8	-11.0	-1,289.7	367.4	3.59	3.14	-2.35
7,345.0	53.60	177.50	7,055.1	-46.0	-1,288.2	400.6	11.11	11.11	0.00
7,395.0	57.10	178.00	7,083.5	-87.1	-1,286.6	439.6	7.05	7.00	1.00
7,440.0	58.40	178.00	7,107.5	-125.2	-1,285.2	475.8	2.89	2.89	0.00
7,490.0	64.60	180.30	7,131.3	-169.1	-1,284.6	517.8	13.04	12.40	4.60
7,535.0	69.20	181.30	7,149.0	-210.4	-1,285.2	557.8	10.42	10.22	2.22
7,585.0	72.10	182.60	7,165.6	-257.6	-1,286.8	603.5	6.30	5.80	2.60
7,630.0	73.70	182.90	7,178.8	-300.5	-1,288.9	645.4	3.61	3.56	0.67
7,640.2	74.26	182.71	7,181.6	-310.3	-1,289.4	654.9	5.79	5.51	-1.86
CB 0164CH LP (copy) (copy)									
7,679.0	76.40	182.00	7,191.4	-347.8	-1,290.9	691.4	5.79	5.51	-1.83
7,721.0	82.90	182.10	7,199.0	-389.1	-1,292.4	731.4	15.48	15.48	0.24
7,751.0	87.60	182.70	7,201.5	-419.0	-1,293.6	760.5	15.79	15.67	2.00
7,877.0	91.20	183.00	7,202.8	-544.8	-1,299.9	883.1	2.87	2.86	0.24
7,972.0	92.40	182.90	7,199.8	-639.6	-1,304.8	975.6	1.27	1.26	-0.11
8,067.0	90.20	181.70	7,197.6	-734.5	-1,308.6	1,067.8	2.64	-2.32	-1.26

Survey Report

Company:	BILL BARRETT CORP	Local Co-ordinate Reference:	Well Circle B 6-66-9-0164CH
Project:	Weld Cty, CO	TVD Reference:	KB @ 4837.0usft (Original Well Elev)
Site:	Circle B 6-66-9 Pad	MD Reference:	KB @ 4837.0usft (Original Well Elev)
Well:	Circle B 6-66-9-0164CH	North Reference:	True
Wellbore:	Nabors M22	Survey Calculation Method:	Minimum Curvature
Design:	Nabors M#22	Database:	Rocky Mountain R5000 Database

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)
8,163.0	91.10	181.40	7,196.5	-830.5	-1,311.2	1,160.8	0.99	0.94	-0.31
8,258.0	91.70	181.00	7,194.2	-925.4	-1,313.2	1,252.6	0.76	0.63	-0.42
8,352.0	89.80	181.10	7,193.0	-1,019.4	-1,314.9	1,343.4	2.02	-2.02	0.11
8,447.0	90.20	180.10	7,193.0	-1,114.4	-1,315.9	1,434.9	1.13	0.42	-1.05
8,542.0	91.50	179.70	7,191.6	-1,209.4	-1,315.7	1,526.1	1.43	1.37	-0.42
8,637.0	89.90	181.30	7,190.4	-1,304.3	-1,316.6	1,617.7	2.38	-1.68	1.68
8,732.0	91.50	181.00	7,189.3	-1,399.3	-1,318.5	1,709.4	1.71	1.68	-0.32
8,827.0	90.80	181.00	7,187.4	-1,494.3	-1,320.1	1,801.2	0.74	-0.74	0.00
8,922.0	89.80	179.50	7,186.9	-1,589.3	-1,320.5	1,892.6	1.90	-1.05	-1.58
9,018.0	88.60	179.70	7,188.2	-1,685.3	-1,319.9	1,984.6	1.27	-1.25	0.21
9,113.0	88.30	179.40	7,190.8	-1,780.2	-1,319.1	2,075.7	0.45	-0.32	-0.32
9,209.0	89.70	179.40	7,192.4	-1,876.2	-1,318.1	2,167.6	1.46	1.46	0.00
9,304.0	90.90	179.40	7,192.0	-1,971.2	-1,317.1	2,258.6	1.26	1.26	0.00
9,399.0	90.80	180.30	7,190.5	-2,066.2	-1,316.9	2,349.8	0.95	-0.11	0.95
9,493.0	89.20	179.80	7,190.5	-2,160.2	-1,317.0	2,440.2	1.78	-1.70	-0.53
9,588.0	90.20	179.30	7,191.0	-2,255.2	-1,316.2	2,531.3	1.18	1.05	-0.53
9,683.0	91.70	178.50	7,189.5	-2,350.1	-1,314.4	2,622.0	1.79	1.58	-0.84
9,779.0	92.40	178.40	7,186.0	-2,446.0	-1,311.8	2,713.5	0.74	0.73	-0.10
9,874.0	90.20	178.10	7,183.9	-2,541.0	-1,308.9	2,803.9	2.34	-2.32	-0.32
9,969.0	92.00	177.20	7,182.1	-2,635.9	-1,305.0	2,894.0	2.12	1.89	-0.95
10,064.0	92.60	178.40	7,178.2	-2,730.7	-1,301.3	2,984.1	1.41	0.63	1.26
10,160.0	89.00	181.10	7,176.9	-2,826.7	-1,300.9	3,076.3	4.69	-3.75	2.81
10,255.0	88.60	181.20	7,178.9	-2,921.6	-1,302.8	3,168.0	0.43	-0.42	0.11
10,350.0	90.20	180.50	7,179.9	-3,016.6	-1,304.2	3,259.7	1.84	1.68	-0.74
10,446.0	90.20	182.10	7,179.5	-3,112.6	-1,306.4	3,352.5	1.67	0.00	1.67
10,541.0	90.90	182.60	7,178.6	-3,207.5	-1,310.3	3,444.8	0.91	0.74	0.53
10,636.0	90.20	183.70	7,177.7	-3,302.4	-1,315.5	3,537.4	1.37	-0.74	1.16
10,731.0	90.00	184.40	7,177.6	-3,397.1	-1,322.2	3,630.3	0.77	-0.21	0.74
10,826.0	89.20	184.00	7,178.2	-3,491.9	-1,329.2	3,723.3	0.94	-0.84	-0.42
10,921.0	89.10	183.30	7,179.6	-3,586.7	-1,335.3	3,816.1	0.74	-0.11	-0.74
11,016.0	89.80	182.60	7,180.5	-3,681.5	-1,340.1	3,908.6	1.04	0.74	-0.74
11,111.0	90.60	181.90	7,180.2	-3,776.4	-1,343.9	4,000.8	1.12	0.84	-0.74
11,206.0	91.80	180.80	7,178.2	-3,871.4	-1,346.1	4,092.7	1.71	1.26	-1.16
11,302.0	90.50	180.50	7,176.3	-3,967.4	-1,347.2	4,185.2	1.39	-1.35	-0.31
11,396.0	92.10	180.40	7,174.2	-4,061.3	-1,347.9	4,275.7	1.71	1.70	-0.11
11,492.0	94.20	179.90	7,168.9	-4,157.2	-1,348.2	4,367.9	2.25	2.19	-0.52
11,566.0	95.30	180.10	7,162.8	-4,230.9	-1,348.2	4,438.8	1.51	1.49	0.27
11,661.0	95.60	180.40	7,153.7	-4,325.5	-1,348.6	4,529.8	0.45	0.32	0.32
11,757.0	97.70	180.20	7,142.6	-4,420.8	-1,349.1	4,621.5	2.20	2.19	-0.21
11,844.0	99.90	180.20	7,129.3	-4,506.8	-1,349.4	4,704.2	2.53	2.53	0.00
CB 0164CH PBHL (copy) (copy)									
11,895.0	99.90	180.20	7,120.5	-4,557.1	-1,349.6	4,752.6	0.00	0.00	0.00
Projected Survey to 11,895' MD									

Survey Report

Company:	BILL BARRETT CORP	Local Co-ordinate Reference:	Well Circle B 6-66-9-0164CH
Project:	Weld Cty, CO	TVD Reference:	KB @ 4837.0usft (Original Well Elev)
Site:	Circle B 6-66-9 Pad	MD Reference:	KB @ 4837.0usft (Original Well Elev)
Well:	Circle B 6-66-9-0164CH	North Reference:	True
Wellbore:	Nabors M22	Survey Calculation Method:	Minimum Curvature
Design:	Nabors M#22	Database:	Rocky Mountain R5000 Database

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
700.0	700.0	-1.3	-0.5	Tie On to Gyro Surveys
11,895.0	7,120.5	-4,557.1	-1,349.6	Projected Survey to 11,895' MD

Checked By: _____ Approved By: _____ Date: _____