

Project: Western - San Juan North (NAD 83)
 Site: SEC 29 -T33N-R07W
 Well: Beuten GU A #4
 Wellbore: OH
 Design: Plan #3 (7/5/2011)



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	150.0	0.00	0.00	150.0	0.0	0.0	0.00	0.00	0.0	
3	1045.4	44.77	205.75	957.0	-299.4	-144.4	5.00	205.75	332.4	
4	1125.4	44.77	205.75	1013.8	-350.1	-168.9	0.00	0.00	388.7	
5	1125.5	44.77	205.76	1013.9	-350.2	-168.9	5.00	129.41	388.8	
6	2287.4	44.77	205.76	1838.8	-1087.1	-524.5	0.00	0.00	1207.0	
7	3082.8	5.00	205.73	2546.0	-1382.5	-667.0	5.00	-180.00	1535.0	FC Beuten GU A #4
8	3356.8	5.00	205.73	2819.0	-1404.0	-677.4	0.00	0.00	1558.9	PC Beuten GU A #4
9	3532.5	5.00	205.73	2994.0	-1417.8	-684.0	0.00	0.00	1574.2	BHL Beuten GU A #4



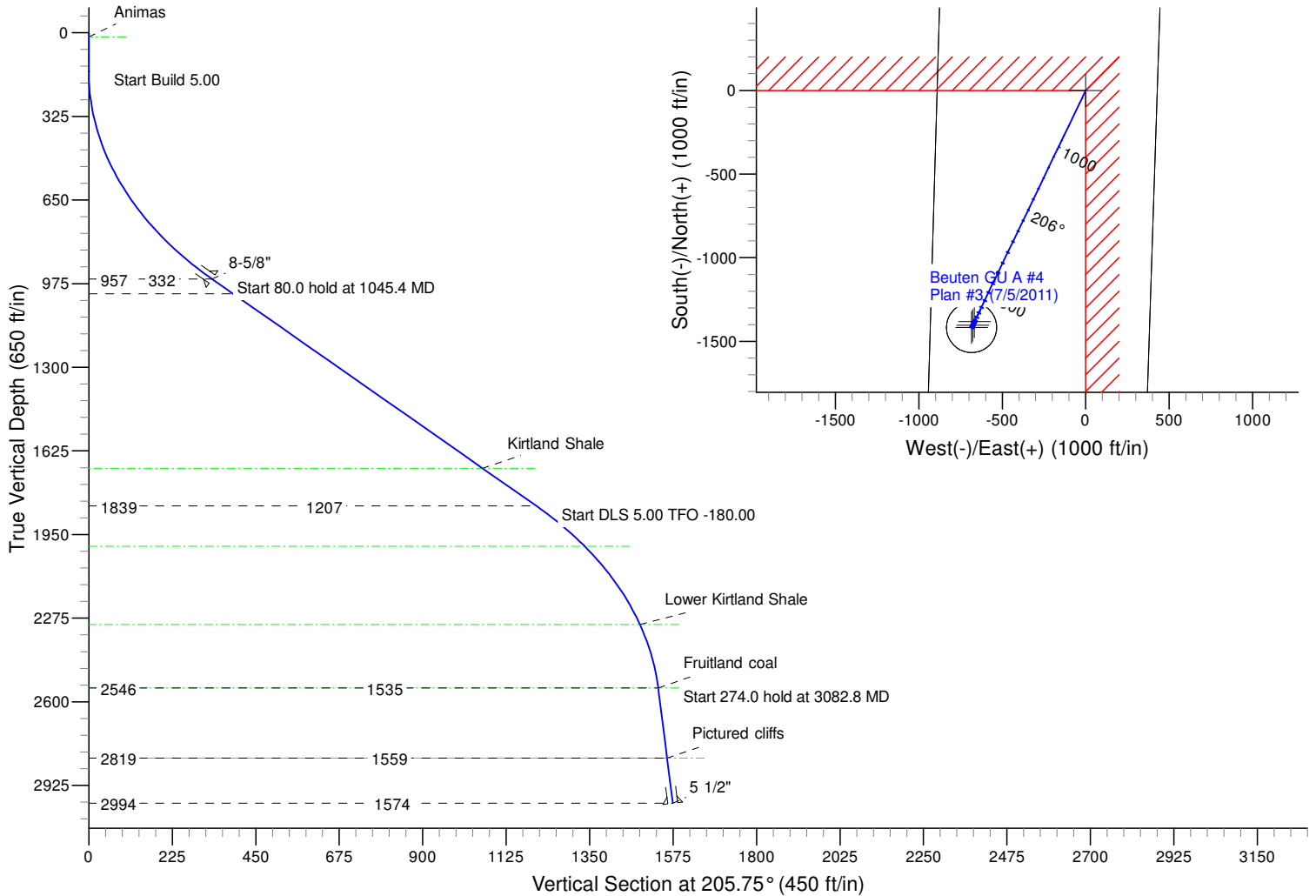
Azimuths to Grid North
 True North: 1.30°
 Magnetic North: 11.18°
 Magnetic Field
 Strength: 50943.3snT
 Dip Angle: 63.82°
 Date: 5/25/2011
 Model: BGGM2010

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
16.0	16.0	Animas
1692.0	2080.6	Kirtland Shale
1995.0	2490.6	Farmington SS
2299.0	2830.4	Lower Kirtland Shale
2546.0	3082.8	Fruitland coal
2819.0	3356.8	Pictured cliffs

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Drilling Window Beuten GU A #4	0.0	0.0	0.0	1156679.80	2379541.42	Polygon
FC Beuten GU A #4	2546.0	-1382.5	-667.0	1155297.24	2378874.40	Point
PC Beuten GU A #4	2819.0	-1404.0	-677.4	1155275.75	2378864.00	Point
BHL Beuten GU A #4	2994.0	-1417.8	-684.0	1155261.95	2378857.40	Circle (Radius: 150.0)



PROJECT DETAILS: Western - San Juan North (NAD 83)	WELL DETAILS: Beuten GU A #4	Plan: Plan #3 (7/5/2011) (Beuten GU A #4/OH)	
Geodetic System: US State Plane 1983 Datum: North American Datum 1983 Ellipsoid: GRS 1980 Zone: Colorado Southern Zone System Datum: Mean Sea Level	Ground Level: 6470.0 Ref. Sec.: Slot - (0.0N, 0.0E) North: 1156679.80 Lat: 37° 4' 39.216 N East: 2379541.42 Long: 107° 37' 36.840 W	Created By: Lucas Munisteri Checked: _____ Reviewed: _____ Approved: _____	Date: 10:25, July 05 2011 Date: _____ Date: _____ Date: _____

North America - Onshore US - BP

Western - San Juan North (NAD 83)

SEC 29 -T33N-R07W

Beuten GU A #4

OH

Plan: Plan #3 (7/5/2011)

Standard Planning Report

05 July, 2011

bp
Planning Report

Database:	EDM .16 Hou Prod - WH21P	Local Co-ordinate Reference:	Well Beuten GU A #4
Company:	North America - Onshore US - BP	TVD Reference:	KBE @ 6486.0ft (H&P 292)
Project:	Western - San Juan North (NAD 83)	MD Reference:	KBE @ 6486.0ft (H&P 292)
Site:	SEC 29 -T33N-R07W	North Reference:	Grid
Well:	Beuten GU A #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 (7/5/2011)		

Project	Western - San Juan North (NAD 83), LAPLATA COUNTY COLORADO, USA		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		Using geodetic scale factor

Site						SEC 29 -T33N-R07W											
Site Position:			Northing:			1,156,719.84ft			Latitude:			37° 4' 39.612 N					
From:			Lat/Long			Easting:			2,379,542.33ft			Longitude:			107° 37' 36.840 W		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			-1.30 °		

Well	Beuten GU A #4					
Well Position	+N/-S	0.0 ft	Northing:	1,156,679.80 ft	Latitude:	37° 4' 39.216 N
	+E/-W	0.0 ft	Easting:	2,379,541.42 ft	Longitude:	107° 37' 36.840 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,470.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2010	5/25/2011	9.87	63.82	50,943

Design	Plan #3 (7/5/2011)			
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	205.75

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	
150.0	0.00	0.00	150.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,045.4	44.77	205.75	957.0	-299.4	-144.4	5.00	5.00	0.00	205.75	
1,125.4	44.77	205.75	1,013.8	-350.1	-168.9	0.00	0.00	0.00	0.00	
1,125.5	44.77	205.76	1,013.9	-350.2	-168.9	5.00	-3.17	5.48	129.41	
2,287.4	44.77	205.76	1,838.8	-1,087.1	-524.5	0.00	0.00	0.00	0.00	
3,082.8	5.00	205.73	2,546.0	-1,382.5	-667.0	5.00	-5.00	0.00	-180.00	FC Beuten GU A #4
3,356.8	5.00	205.73	2,819.0	-1,404.0	-677.4	0.00	0.00	0.00	0.00	PC Beuten GU A #4
3,532.5	5.00	205.73	2,994.0	-1,417.8	-684.0	0.00	0.00	0.00	0.00	BHL Beuten GU A #4

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Planning Report

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Project:	Western - San Juan North (NAD 83)	MD Reference:	KBE @ 6486.0ft (H&P 292)
Site:	SEC 29 -T33N-R07W	North Reference:	Grid
Well:	Beuten GU A #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 (7/5/2011)		

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
16.0	0.00	0.00	16.0	0.0	0.0	0.0	0.00	0.00	0.00
Animas									
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	0.00
1,045.4	44.77	205.75	957.0	-299.4	-144.4	332.4	5.00	5.00	0.00
8-5/8"									
1,125.4	44.77	205.75	1,013.8	-350.1	-168.9	388.7	0.00	0.00	0.00
1,125.5	44.77	205.76	1,013.9	-350.2	-168.9	388.8	5.00	-3.17	5.48
2,080.6	44.77	205.76	1,692.0	-955.9	-461.2	1,061.4	0.00	0.00	0.00
Kirtland Shale									
2,287.4	44.77	205.76	1,838.8	-1,087.1	-524.5	1,207.0	0.00	0.00	0.00
2,490.6	34.61	205.76	1,995.0	-1,203.8	-580.8	1,336.6	5.00	-5.00	0.00
Farmington SS									
2,830.4	17.62	205.75	2,299.0	-1,338.0	-645.5	1,485.6	5.00	-5.00	0.00
Lower Kirtland Shale									
3,082.8	5.00	205.73	2,546.0	-1,382.5	-667.0	1,535.0	5.00	-5.00	-0.01
Fruitland coal - FC Beuten GU A #4									
3,356.8	5.00	205.73	2,819.0	-1,404.0	-677.4	1,558.9	0.00	0.00	0.00
Pictured cliffs - PC Beuten GU A #4									
3,532.5	5.00	205.73	2,994.0	-1,417.8	-684.0	1,574.2	0.00	0.00	0.00
5 1/2" - BHL Beuten GU A #4									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PC Beuten GU A #4	0.00	0.00	2,819.0	-1,404.0	-677.4	1,155,275.75	2,378,864.00	37° 4' 25.185 N	107° 37' 44.802 W
- plan hits target center									
- Point									
FC Beuten GU A #4	0.00	0.00	2,546.0	-1,382.5	-667.0	1,155,297.24	2,378,874.40	37° 4' 25.400 N	107° 37' 44.680 W
- plan hits target center									
- Point									
Drilling Window Beute	0.00	0.00	0.0	0.0	0.0	1,156,679.80	2,379,541.42	37° 4' 39.216 N	107° 37' 36.840 W
- plan hits target center									
- Polygon									
Point 1			0.0	1,100.0	463.9	1,157,779.83	2,380,005.33		
Point 2			0.0	1,134.0	-858.3	1,157,813.83	2,378,683.09		
Point 3			0.0	-2,834.6	-973.2	1,153,845.11	2,378,568.19		
Point 4			0.0	-2,886.0	334.0	1,153,793.70	2,379,875.43		
BHL Beuten GU A #4	0.00	360.00	2,994.0	-1,417.8	-684.0	1,155,261.95	2,378,857.40	37° 4' 25.047 N	107° 37' 44.880 W
- plan hits target center									
- Circle (radius 150.0)									

bp
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Well:	Beuten GU A #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 (7/5/2011)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,045.4	957.0	8-5/8"	8-5/8	12-1/32	
3,532.5	2,994.0	5 1/2"	5-1/2	7-7/8	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
16.0	16.0	Animas		0.00	0.02
2,080.6	1,692.0	Kirtland Shale		0.00	0.02
2,490.6	1,995.0	Farmington SS		0.00	0.02
2,830.4	2,299.0	Lower Kirtland Shale		0.00	0.02
3,082.8	2,546.0	Fruitland coal		0.00	0.02
3,356.8	2,819.0	Pictured cliffs		0.00	0.02