

Project: Western - San Juan North (NAD 83)  
 Site: SEC 23 -T34N-R08W  
 Well: Witt 34-23 #2  
 Wellbore: Wellbore #1  
 Design: Plan 1 Version 1



### 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	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	



Azimuths to Grid North  
 True North: 1.34°  
 Magnetic North: 11.55°

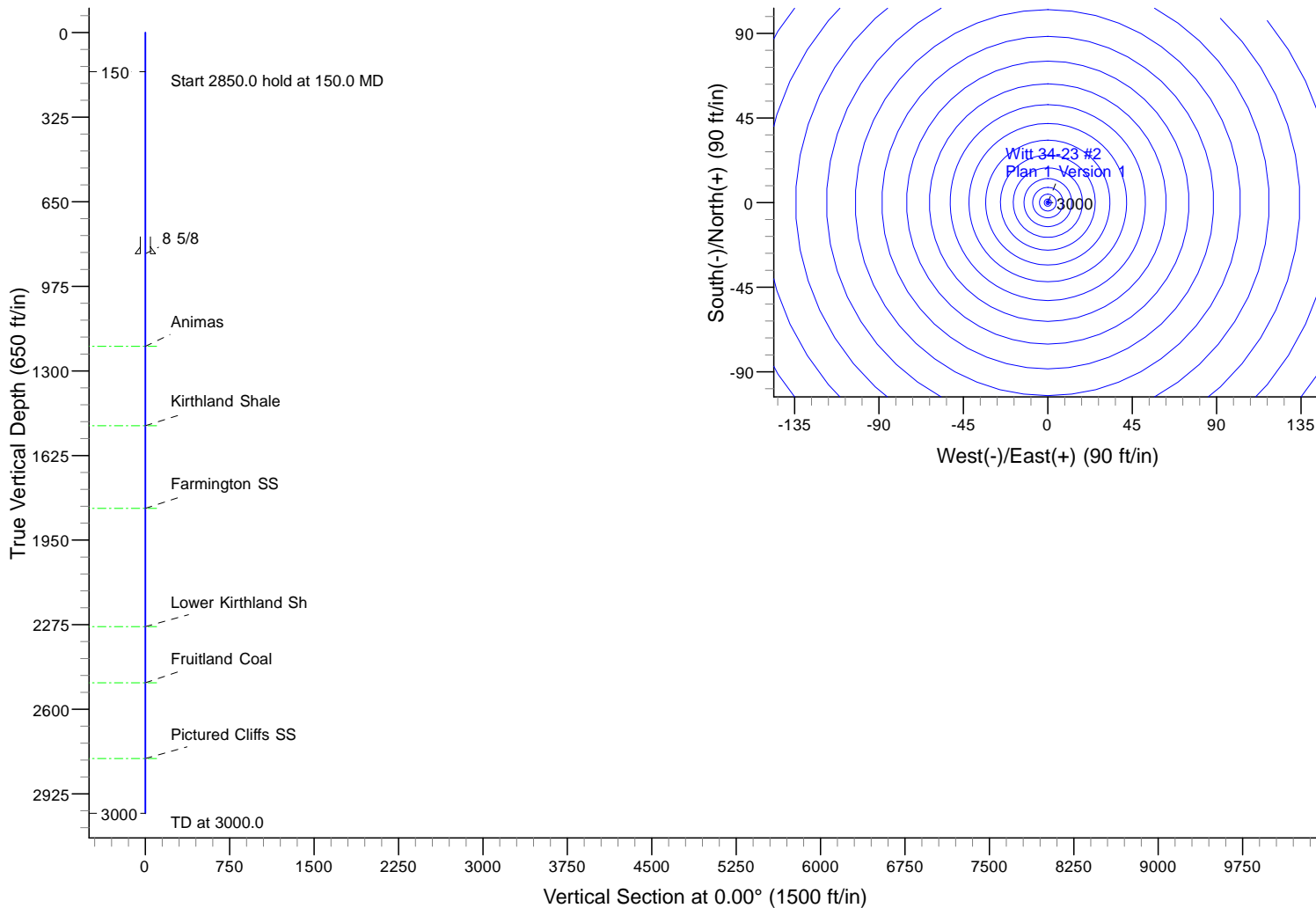
Magnetic Field  
 Strength: 51236.3snT  
 Dip Angle: 63.94°  
 Date: 1/21/2009  
 Model: BGGM2011

### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1206.0	1206.0	Animas
1511.0	1511.0	Kirthland Shale
1828.0	1828.0	Farmington SS
2282.0	2282.0	Lower Kirthland Sh
2498.0	2498.0	Fruitland Coal
2789.0	2789.0	Pictured Cliffs SS

### WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Drill window witt 2	0.0	0.0	0.0	1191739.41	2362800.42	Polygon
FC witt 2	2498.0	0.0	0.0	1191739.41	2362800.42	Point
PC witt 2	2789.0	0.0	0.0	1191739.41	2362800.42	Point
BHL witt 2	2964.0	0.0	0.0	1191739.41	2362800.42	Point



PROJECT DETAILS: Western - San Juan North (NAD 83)	WELL DETAILS: Witt 34-23 #2	Plan: Plan 1 Version 1 (Witt 34-23 #2/Wellbore #1)	
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: 6678.6	Created By: Lucas Munisteri	Date: 16:02, July 27 2011
	Ref. Sec.: Slot - (0.0N, 0.0E) North: 1191739.40 Lat: 37° 10' 21.936 N East: 2362800.42 Long: 107° 41' 13.488 W	Checked: _____ Reviewed: _____ Approved: _____	Date: _____ Date: _____ Date: _____

# **North America - Onshore US - BP**

**Western - San Juan North (NAD 83)**

**SEC 23 -T34N-R08W**

**Witt 34-23 #2**

**Wellbore #1**

**Plan: Plan 1 Version 1**

## **Standard Planning Report**

**27 July, 2011**

**bp**  
Planning Report

<b>Database:</b>	EDM .16 Hou Prod - WH21P	<b>Local Co-ordinate Reference:</b>	Well Witt 34-23 #2
<b>Company:</b>	North America - Onshore US - BP	<b>TVD Reference:</b>	WELL @ 6689.0ft (Original Well Elev)
<b>Project:</b>	Western - San Juan North (NAD 83)	<b>MD Reference:</b>	WELL @ 6689.0ft (Original Well Elev)
<b>Site:</b>	SEC 23 -T34N-R08W	<b>North Reference:</b>	Grid
<b>Well:</b>	Witt 34-23 #2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan 1 Version 1		

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

Site		SEC 23 -T34N-R08W			
Site Position:		Northing:	1,194,584.52 ft	Latitude:	37° 10' 50.448 N
From:	Lat/Long	Easting:	2,364,487.36 ft	Longitude:	107° 40' 53.472 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-1.34 °

Well	Witt 34-23 #2					
Well Position	+N/-S	0.0 ft	Northing:	1,191,739.40 ft	Latitude:	37° 10' 21.936 N
	+E/-W	0.0 ft	Easting:	2,362,800.42 ft	Longitude:	107° 41' 13.488 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	6,678.6 ft	Ground Level:	6,678.6 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2011	1/21/2009	10.21	63.94	51,236

<b>Design</b>	Plan 1 Version 1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	0.00	

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	

**bp**  
Planning Report

<b>Database:</b>	EDM .16 Hou Prod - WH21P	<b>Local Co-ordinate Reference:</b>	Well Witt 34-23 #2
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<b>Project:</b>	Western - San Juan North (NAD 83)	<b>MD Reference:</b>	WELL @ 6689.0ft (Original Well Elev)
<b>Site:</b>	SEC 23 -T34N-R08W	<b>North Reference:</b>	Grid
<b>Well:</b>	Witt 34-23 #2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan 1 Version 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
150.0	0.00	0.00	150.0	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
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	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00

**bp**  
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<b>Well:</b>	Witt 34-23 #2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan 1 Version 1		

Targets										
Target Name										
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting			
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	Latitude	Longitude	
FC witt 2	0.00	0.00	2,498.0	0.0	0.0	1,191,739.41	2,362,800.42	37° 10' 21.936 N	107° 41' 13.488 W	
- plan hits target center										
- Point										
Drill window witt 2	0.00	0.00	0.0	0.0	0.0	1,191,739.41	2,362,800.42	37° 10' 21.936 N	107° 41' 13.488 W	
- plan hits target center										
- Polygon										
Point 1			0.0	780.1	-1,912.6	1,192,519.51	2,360,887.80			
Point 2			0.0	666.7	2,065.7	1,192,406.11	2,364,866.15			
Point 3			0.0	-653.0	2,035.9	1,191,086.40	2,364,836.35			
Point 4			0.0	-539.4	-1,946.3	1,191,200.00	2,360,854.10			
PC witt 2	0.00	0.00	2,789.0	0.0	0.0	1,191,739.41	2,362,800.42	37° 10' 21.936 N	107° 41' 13.488 W	
- plan hits target center										
- Point										
BHL witt 2	0.00	0.00	2,964.0	0.0	0.0	1,191,739.41	2,362,800.42	37° 10' 21.936 N	107° 41' 13.488 W	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
850.0	850.0	8 5/8	8-5/8	12-1/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,206.0	1,206.0	Animas		0.00	359.97
1,511.0	1,511.0	Kirthland Shale		0.00	359.97
1,828.0	1,828.0	Farmington SS		0.00	359.97
2,282.0	2,282.0	Lower Kirthland Sh		0.00	359.97
2,498.0	2,498.0	Fruitland Coal		0.00	359.97
2,789.0	2,789.0	Pictured Cliffs SS		0.00	359.97