

### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
350.0	0.00	338.57	350.0	0.0	0.0	0.00	338.57	0.0	
430.0	0.00	338.57	430.0	0.0	0.0	0.00	338.57	0.0	
1454.5	30.73	338.57	1406.1	249.7	-98.0	3.00	338.57	268.2	
2173.4	30.73	338.57	2024.0	591.6	-232.2	0.00	0.00	635.5	FC CLARY 3
2765.5	30.73	338.57	2533.0	873.3	-342.8	0.00	0.00	938.1	PC Clary 3
2935.2	30.73	338.57	2678.9	954.0	-374.4	0.00	0.00	1024.9	BHL CLARY 3



Azimuths to Grid North  
True North: 1.45°  
Magnetic North: 11.56°

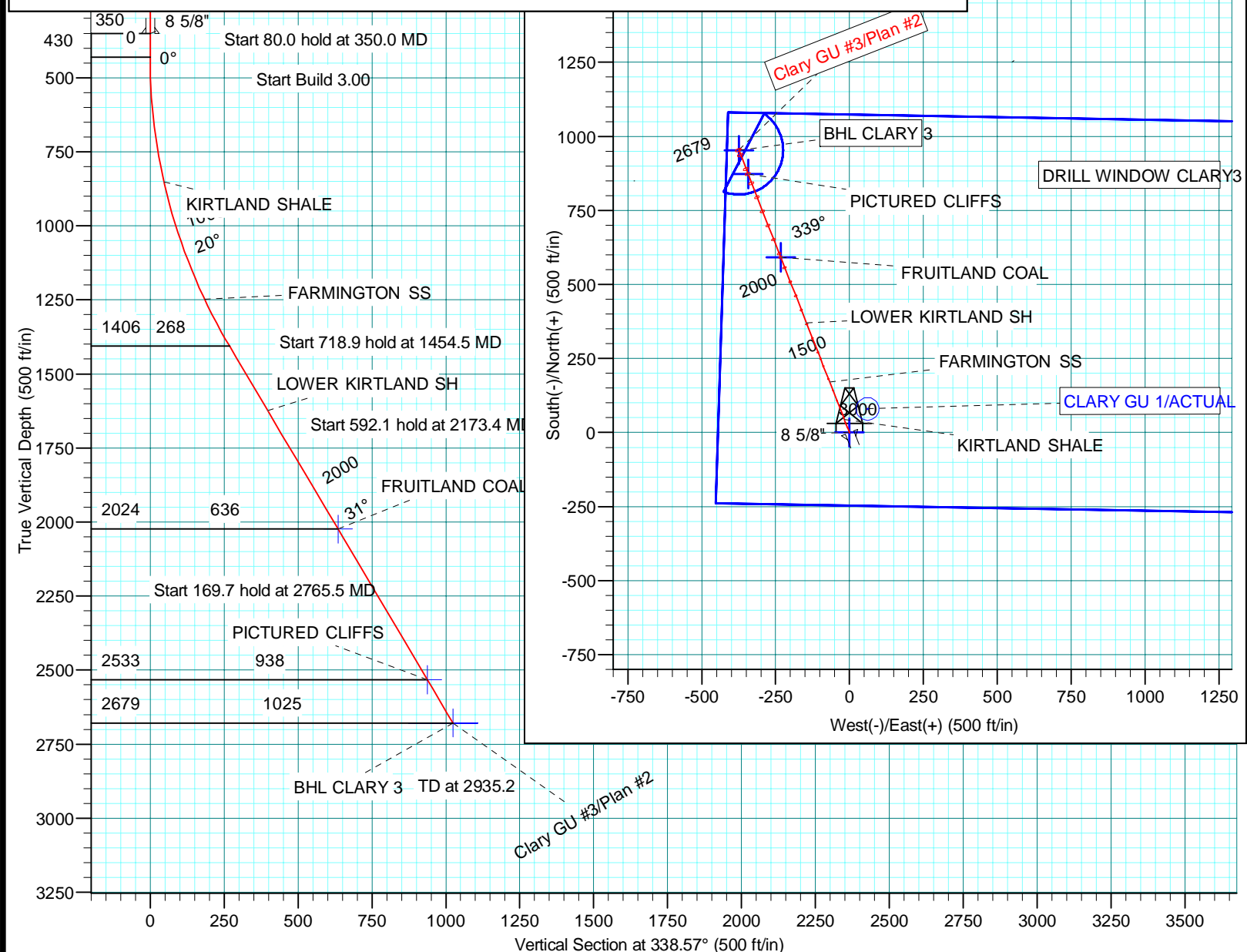
Magnetic Field  
Strength: 51099.6snT  
Dip Angle: 63.89°  
Date: 6/17/2010  
Model: BGGM2009

### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
0.0	0.0	ANIMAS
851.0	854.5	KIRTLAND SHALE
1247.0	1274.2	FARMINGTON SS
1624.0	1708.0	LOWER KIRTLAND SH
2024.0	2173.4	FRUITLAND COAL
2533.0	2765.5	PICTURED CLIFFS

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
DRILL WINDOW CLARY3	0.0	0.0	0.0	1198006.14	2308997.30	Polygon
FC CLARY 3	2024.0	591.6	-232.2	1198597.74	2308765.09	Point
PC Clary 3	2533.0	873.3	-342.8	1198879.45	2308654.49	Point
BHL CLARY 3	2678.9	954.0	-374.4	1198960.15	2308622.89	Circle (Radius: 150.0)



Plan: Plan #2 (Clary GU #3/Wellbore #1)

Created By: Masoud Khodadad 3/30/2007

Checked: \_\_\_\_\_

Reviewed: \_\_\_\_\_

PROJECT DETAILS: Western - San Juan North (NAD 83)

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

System Datum: Mean Sea Level

WELL DETAILS: Clary GU #3

Ground Level: 6337.0  
Northing: 1198006.14 Easting: 2308997.30 Latitude: 37° 11' 10.896 N Longitude: 107° 52' 19.992 W

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

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

**SEC 18-T34N-R9W**

**Clary GU #3**

**Wellbore #1**

**Plan: Plan #2**

## **Standard Planning Report**

**22 June, 2010**

**BP**  
Planning Report

<b>Database:</b>	EDM .16 Hou Prod - WH21P	<b>Local Co-ordinate Reference:</b>	Well Clary GU #3
<b>Company:</b>	North America - Onshore US - BP	<b>TVD Reference:</b>	WELL @ 6353.0ft (Original Well Elev)
<b>Project:</b>	Western - San Juan North (NAD 83)	<b>MD Reference:</b>	WELL @ 6353.0ft (Original Well Elev)
<b>Site:</b>	SEC 18-T34N-R9W	<b>North Reference:</b>	Grid
<b>Well:</b>	Clary GU #3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

<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 18-T34N-R9W			
Site Position:		Northing:	1,198,176.86 ft	Latitude:	37° 11' 13.020 N
From:	Lat/Long	Easting:	2,310,738.45 ft	Longitude:	107° 51' 58.536 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-1.45 °

Well	Clary GU #3					
Well Position	+N/-S	0.0 ft	Northing:	1,198,006.14 ft	Latitude:	37° 11' 10.896 N
	+E/-W	0.0 ft	Easting:	2,308,997.30 ft	Longitude:	107° 52' 19.992 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	6,353.0 ft	Ground Level:	6,337.0 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>
	BGGM2009	6/17/2010	10.11	63.89	51,100

<b>Design</b>	Plan #2				
<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	338.57	

<b>Plan Sections</b>										
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	
350.0	0.00	338.57	350.0	0.0	0.0	0.00	0.00	0.00	338.57	
430.0	0.00	338.57	430.0	0.0	0.0	0.00	0.00	0.00	338.57	
1,454.5	30.73	338.57	1,406.1	249.7	-98.0	3.00	3.00	0.00	338.57	
2,173.4	30.73	338.57	2,024.0	591.6	-232.2	0.00	0.00	0.00	0.00	FC CLARY 3
2,765.5	30.73	338.57	2,533.0	873.3	-342.8	0.00	0.00	0.00	0.00	PC Clary 3
2,935.2	30.73	338.57	2,678.9	954.0	-374.4	0.00	0.00	0.00	0.00	BHL CLARY 3

**BP**  
Planning Report

<b>Database:</b>	EDM .16 Hou Prod - WH21P	<b>Local Co-ordinate Reference:</b>	Well Clary GU #3
<b>Company:</b>	North America - Onshore US - BP	<b>TVD Reference:</b>	WELL @ 6353.0ft (Original Well Elev)
<b>Project:</b>	Western - San Juan North (NAD 83)	<b>MD Reference:</b>	WELL @ 6353.0ft (Original Well Elev)
<b>Site:</b>	SEC 18-T34N-R9W	<b>North Reference:</b>	Grid
<b>Well:</b>	Clary GU #3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

**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
<b>ANIMAS - DRILL WINDOW CLARY3</b>									
100.0	0.00	338.57	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	338.57	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	338.57	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	338.57	350.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Start 80.0 hold at 350.0 MD - 8 5/8"</b>									
400.0	0.00	338.57	400.0	0.0	0.0	0.0	0.00	0.00	0.00
430.0	0.00	338.57	430.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Start Build 3.00</b>									
500.0	2.10	338.57	500.0	1.2	-0.5	1.3	3.00	3.00	0.00
600.0	5.10	338.57	599.8	7.0	-2.8	7.6	3.00	3.00	0.00
700.0	8.10	338.57	699.1	17.7	-7.0	19.1	3.00	3.00	0.00
800.0	11.10	338.57	797.7	33.3	-13.1	35.7	3.00	3.00	0.00
854.5	12.73	338.57	851.0	43.7	-17.2	47.0	3.00	3.00	0.00
<b>KIRTLAND SHALE</b>									
900.0	14.10	338.57	895.3	53.6	-21.0	57.5	3.00	3.00	0.00
1,000.0	17.10	338.57	991.6	78.6	-30.8	84.4	3.00	3.00	0.00
1,100.0	20.10	338.57	1,086.3	108.3	-42.5	116.3	3.00	3.00	0.00
1,200.0	23.10	338.57	1,179.3	142.5	-55.9	153.1	3.00	3.00	0.00
1,274.2	25.32	338.57	1,247.0	170.8	-67.1	183.5	3.00	3.00	0.00
<b>FARMINGTON SS</b>									
1,300.0	26.10	338.57	1,270.2	181.3	-71.1	194.7	3.00	3.00	0.00
1,400.0	29.10	338.57	1,358.8	224.4	-88.1	241.0	3.00	3.00	0.00
1,454.5	30.73	338.57	1,406.1	249.7	-98.0	268.2	3.00	3.00	0.00
<b>Start 718.9 hold at 1454.5 MD</b>									
1,500.0	30.73	338.57	1,445.2	271.3	-106.5	291.5	0.00	0.00	0.00
1,600.0	30.73	338.57	1,531.2	318.9	-125.2	342.6	0.00	0.00	0.00
1,700.0	30.73	338.57	1,617.1	366.4	-143.8	393.7	0.00	0.00	0.00
1,708.0	30.73	338.57	1,624.0	370.3	-145.3	397.8	0.00	0.00	0.00
<b>LOWER KIRTLAND SH</b>									
1,800.0	30.73	338.57	1,703.1	414.0	-162.5	444.8	0.00	0.00	0.00
1,900.0	30.73	338.57	1,789.0	461.6	-181.2	495.9	0.00	0.00	0.00
2,000.0	30.73	338.57	1,875.0	509.1	-199.8	547.0	0.00	0.00	0.00
2,100.0	30.73	338.57	1,960.9	556.7	-218.5	598.1	0.00	0.00	0.00
2,173.3	30.73	338.57	2,024.0	591.6	-232.2	635.5	0.00	0.00	0.00
<b>Start 592.1 hold at 2173.4 MD - FRUITLAND COAL - FC CLARY 3</b>									
2,200.0	30.73	338.57	2,046.9	604.3	-237.2	649.2	0.00	0.00	0.00
2,300.0	30.73	338.57	2,132.9	651.8	-255.9	700.3	0.00	0.00	0.00
2,400.0	30.73	338.57	2,218.8	699.4	-274.5	751.4	0.00	0.00	0.00
2,500.0	30.73	338.57	2,304.8	747.0	-293.2	802.5	0.00	0.00	0.00
2,600.0	30.73	338.57	2,390.7	794.5	-311.9	853.6	0.00	0.00	0.00
2,700.0	30.73	338.57	2,476.7	842.1	-330.5	904.7	0.00	0.00	0.00
2,765.5	30.73	338.57	2,533.0	873.3	-342.8	938.1	0.00	0.00	0.00
<b>Start 169.7 hold at 2765.5 MD - PICTURED CLIFFS - PC Clary 3</b>									
2,800.0	30.73	338.57	2,562.7	889.7	-349.2	955.8	0.00	0.00	0.00
2,900.0	30.73	338.57	2,648.6	937.2	-367.9	1,006.9	0.00	0.00	0.00
2,935.2	30.73	338.57	2,678.9	954.0	-374.4	1,024.9	0.00	0.00	0.00
<b>TD at 2935.2 - BHL CLARY 3</b>									

**BP**  
Planning Report

<b>Database:</b>	EDM .16 Hou Prod - WH21P	<b>Local Co-ordinate Reference:</b>	Well Clary GU #3
<b>Company:</b>	North America - Onshore US - BP	<b>TVD Reference:</b>	WELL @ 6353.0ft (Original Well Elev)
<b>Project:</b>	Western - San Juan North (NAD 83)	<b>MD Reference:</b>	WELL @ 6353.0ft (Original Well Elev)
<b>Site:</b>	SEC 18-T34N-R9W	<b>North Reference:</b>	Grid
<b>Well:</b>	Clary GU #3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
FC CLARY 3 - plan hits target center - Point	0.00	360.00	2,024.0	591.6	-232.2	1,198,597.74	2,308,765.09	37° 11' 16.685 N	107° 52' 23.046 W
PC Clary 3 - plan hits target center - Point	0.00	0.00	2,533.0	873.3	-342.8	1,198,879.45	2,308,654.49	37° 11' 19.441 N	107° 52' 24.501 W
DRILL WINDOW CLAR\	0.00	360.00	0.0	0.0	0.0	1,198,006.14	2,308,997.30	37° 11' 10.896 N	107° 52' 19.992 W
- plan hits target center									
- Polygon									
Point 1			0.0	1,012.1	3,558.2	1,199,018.25	2,312,555.53		
Point 2			0.0	1,081.1	-410.0	1,199,087.25	2,308,587.29		
Point 3			0.0	-238.2	-452.4	1,197,767.94	2,308,544.89		
Point 4			0.0	-307.6	3,525.8	1,197,698.54	2,312,523.13		
BHL CLARY 3 - plan hits target center - Circle (radius 150.0)	0.00	360.00	2,678.9	954.0	-374.4	1,198,960.15	2,308,622.89	37° 11' 20.231 N	107° 52' 24.917 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
350.0	350.0	8 5/8"	8-5/8	12-1/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
0.0	0.0	ANIMAS		0.00	
854.5	851.0	KIRTLAND SHALE		0.00	
1,274.2	1,247.0	FARMINGTON SS		0.00	
1,708.0	1,624.0	LOWER KIRTLAND SH		0.00	
2,173.4	2,024.0	FRUITLAND COAL		0.00	
2,765.5	2,533.0	PICTURED CLIFFS		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
350.0	350.0	0.0	0.0	Start 80.0 hold at 350.0 MD	
430.0	430.0	0.0	0.0	Start Build 3.00	
1,454.5	1,406.1	249.7	-98.0	Start 718.9 hold at 1454.5 MD	
2,173.4	2,024.0	591.6	-232.2	Start 592.1 hold at 2173.4 MD	
2,765.5	2,533.0	873.3	-342.8	Start 169.7 hold at 2765.5 MD	
2,935.2	2,678.9	954.0	-374.4	TD at 2935.2	