



Company: B.P.
Project: La Plata County, CO NAD83
Site: Tiffany Pad 4
Well: Tiffany 4-3
Wellbore: Lateral 1
Design: Plan #6

PROJECT DETAILS:La Plata County, CO NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Southern Zone
System Datum: Mean Sea Level
Local North: Grid



Plan: Plan #6 (Tiffany 4-3/Lateral 1)

Created By: Janie Collins Date: 17:31, April 25 2017

WELL DETAILS: Tiffany 4-3

GL 6460' & RKB 11' @ 6471.00usft (Aztec 507) 6460.00				
Northing	Easting	Latitude	Longitude	Slot
1159708.59	2402835.93	37.0873054	-107.5473012	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3284.00	65.00	162.16	2937.04	-451.75	-215.20	0.00	0.00	360.12	
3540.92	90.46	158.63	2991.20	-686.13	-131.31	10.00	-8.17	609.01	
10370.75	90.46	158.63	2936.00	-7046.08	2357.59	0.00	0.00	7430.04	Tiff 4-3 Lat 1 PBHL



Azimuths to Grid North
True North: 1.26°
Magnetic North: 10.44°

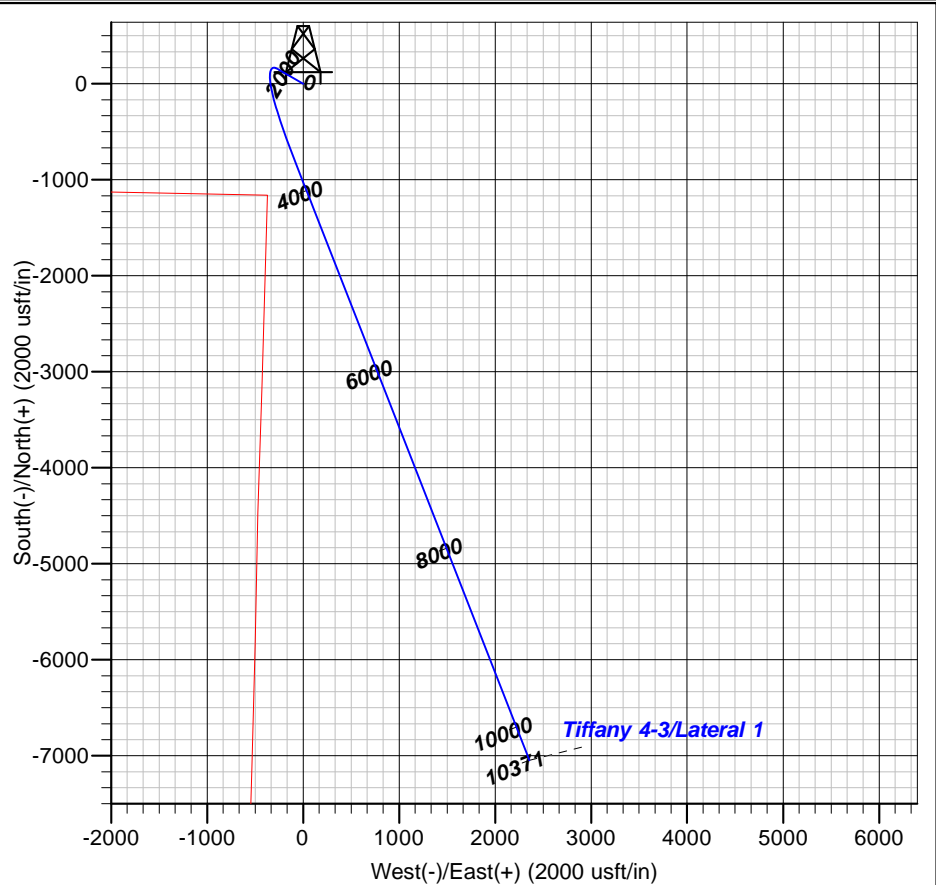
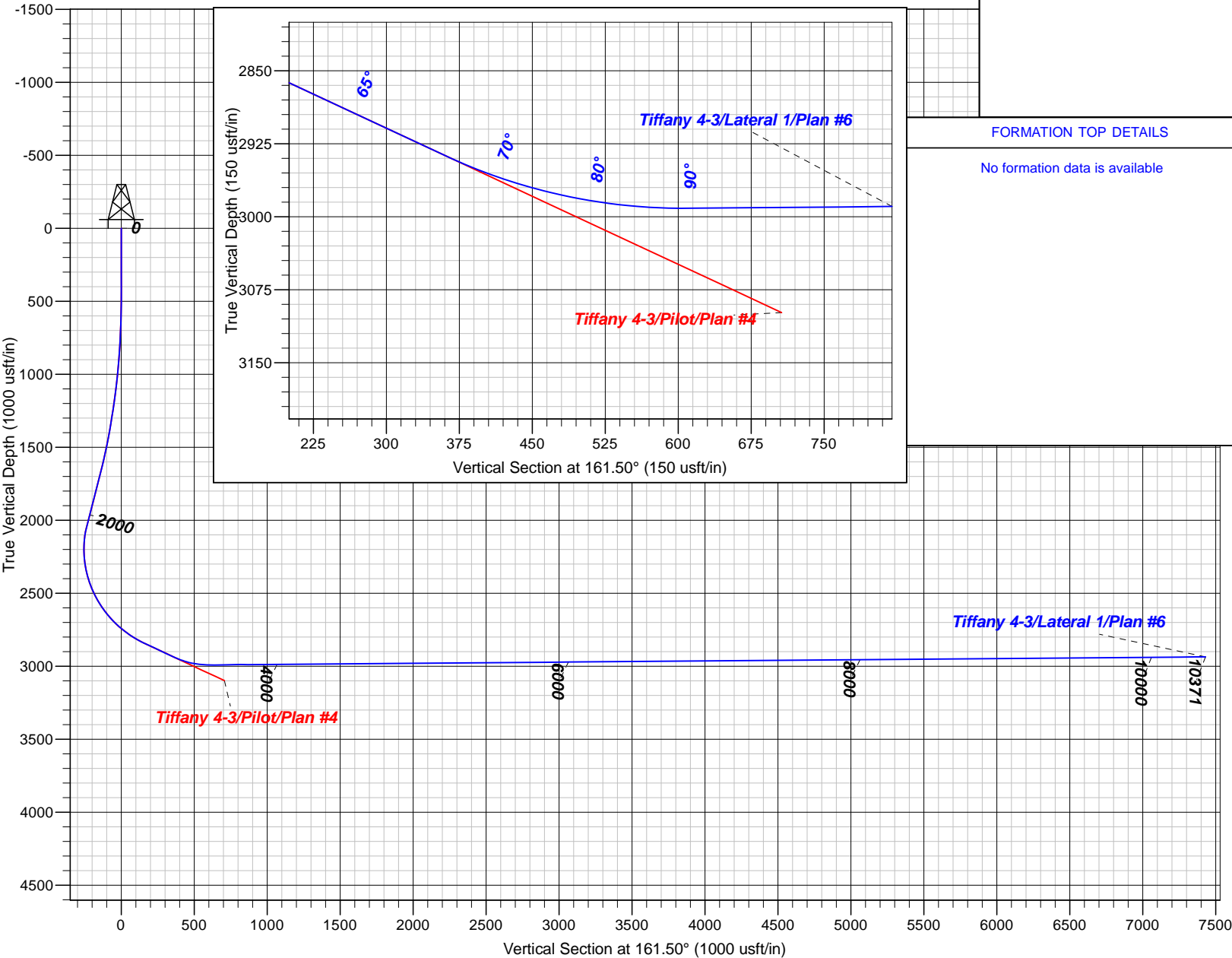
Magnetic Field
Strength: 50146.7snT
Dip Angle: 63.65°
Date: 3/6/2017
Model: HDGM

FORMATION TOP DETAILS

No formation data is available

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Tiff 4-3 Lat 1 PBHL	2936.00	-7046.08	2357.59	1152662.51	2405193.52	37.0681004	-107.5386939





B.P.

La Plata County, CO NAD83

Tiffany Pad 4

Tiffany 4-3

Lateral 1

Plan: Plan #6

Standard Planning Report

25 April, 2017





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 4-3
Company:	B.P.	TVD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Site:	Tiffany Pad 4	North Reference:	Grid
Well:	Tiffany 4-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #6		

Project	La Plata County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		

Site	Tiffany Pad 4					
Site Position:		Northing:	1,159,793.57 usft	Latitude:	37.0875389	
From:	Map	Easting:	2,402,838.16 usft	Longitude:	-107.5473000	
Position Uncertainty:		0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.26 °

Well	Tiffany 4-3					
Well Position	+N/-S	-84.98 usft	Northing:	1,159,708.59 usft	Latitude:	37.0873054
	+E/-W	-2.23 usft	Easting:	2,402,835.93 usft	Longitude:	-107.5473012
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,460.00 usft

Wellbore	Lateral 1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/6/2017	9.18	63.65	50,147

Design	Plan #6			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	3,284.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	161.50

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
3,284.00	65.00	162.16	2,937.04	-451.75	-215.20	0.00	0.00	0.00	0.00	
3,540.92	90.46	158.63	2,991.20	-686.13	-131.31	10.00	9.91	-1.37	-8.17	
10,370.75	90.46	158.63	2,936.00	-7,046.08	2,357.59	0.00	0.00	0.00	0.00	Tiff 4-3 Lat 1 PBHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 4-3
Company:	B.P.	TVD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Site:	Tiffany Pad 4	North Reference:	Grid
Well:	Tiffany 4-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #6		

Planned 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)
3,284.00	65.00	162.16	2,937.04	-451.75	-215.20	360.12	0.00	0.00	0.00
3,300.00	66.58	161.91	2,943.60	-465.63	-210.70	374.71	10.00	9.90	-1.55
3,400.00	76.49	160.48	2,975.23	-555.29	-180.13	469.44	10.00	9.91	-1.44
3,500.00	86.41	159.16	2,990.09	-647.99	-146.04	568.16	10.00	9.91	-1.32
3,540.92	90.46	158.63	2,991.20	-686.13	-131.31	609.01	10.00	9.92	-1.29
3,600.00	90.46	158.63	2,990.73	-741.15	-109.78	668.02	0.00	0.00	0.00
3,700.00	90.46	158.63	2,989.92	-834.27	-73.34	767.89	0.00	0.00	0.00
3,800.00	90.46	158.63	2,989.11	-927.39	-36.90	867.76	0.00	0.00	0.00
3,900.00	90.46	158.63	2,988.30	-1,020.51	-0.46	967.63	0.00	0.00	0.00
4,000.00	90.46	158.63	2,987.49	-1,113.63	35.99	1,067.50	0.00	0.00	0.00
4,100.00	90.46	158.63	2,986.68	-1,206.75	72.43	1,167.37	0.00	0.00	0.00
4,200.00	90.46	158.63	2,985.88	-1,299.87	108.87	1,267.25	0.00	0.00	0.00
4,300.00	90.46	158.63	2,985.07	-1,392.99	145.31	1,367.12	0.00	0.00	0.00
4,400.00	90.46	158.63	2,984.26	-1,486.11	181.75	1,466.99	0.00	0.00	0.00
4,500.00	90.46	158.63	2,983.45	-1,579.23	218.19	1,566.86	0.00	0.00	0.00
4,600.00	90.46	158.63	2,982.64	-1,672.35	254.63	1,666.73	0.00	0.00	0.00
4,700.00	90.46	158.63	2,981.83	-1,765.47	291.08	1,766.60	0.00	0.00	0.00
4,800.00	90.46	158.63	2,981.03	-1,858.59	327.52	1,866.47	0.00	0.00	0.00
4,900.00	90.46	158.63	2,980.22	-1,951.71	363.96	1,966.34	0.00	0.00	0.00
5,000.00	90.46	158.63	2,979.41	-2,044.83	400.40	2,066.21	0.00	0.00	0.00
5,100.00	90.46	158.63	2,978.60	-2,137.95	436.84	2,166.09	0.00	0.00	0.00
5,200.00	90.46	158.63	2,977.79	-2,231.07	473.28	2,265.96	0.00	0.00	0.00
5,300.00	90.46	158.63	2,976.99	-2,324.19	509.73	2,365.83	0.00	0.00	0.00
5,400.00	90.46	158.63	2,976.18	-2,417.32	546.17	2,465.70	0.00	0.00	0.00
5,500.00	90.46	158.63	2,975.37	-2,510.44	582.61	2,565.57	0.00	0.00	0.00
5,600.00	90.46	158.63	2,974.56	-2,603.56	619.05	2,665.44	0.00	0.00	0.00
5,700.00	90.46	158.63	2,973.75	-2,696.68	655.49	2,765.31	0.00	0.00	0.00
5,800.00	90.46	158.63	2,972.94	-2,789.80	691.93	2,865.18	0.00	0.00	0.00
5,900.00	90.46	158.63	2,972.14	-2,882.92	728.38	2,965.05	0.00	0.00	0.00
6,000.00	90.46	158.63	2,971.33	-2,976.04	764.82	3,064.93	0.00	0.00	0.00
6,100.00	90.46	158.63	2,970.52	-3,069.16	801.26	3,164.80	0.00	0.00	0.00
6,200.00	90.46	158.63	2,969.71	-3,162.28	837.70	3,264.67	0.00	0.00	0.00
6,300.00	90.46	158.63	2,968.90	-3,255.40	874.14	3,364.54	0.00	0.00	0.00
6,400.00	90.46	158.63	2,968.09	-3,348.52	910.58	3,464.41	0.00	0.00	0.00
6,500.00	90.46	158.63	2,967.29	-3,441.64	947.02	3,564.28	0.00	0.00	0.00
6,600.00	90.46	158.63	2,966.48	-3,534.76	983.47	3,664.15	0.00	0.00	0.00
6,700.00	90.46	158.63	2,965.67	-3,627.88	1,019.91	3,764.02	0.00	0.00	0.00
6,800.00	90.46	158.63	2,964.86	-3,721.00	1,056.35	3,863.89	0.00	0.00	0.00
6,900.00	90.46	158.63	2,964.05	-3,814.12	1,092.79	3,963.77	0.00	0.00	0.00
7,000.00	90.46	158.63	2,963.24	-3,907.24	1,129.23	4,063.64	0.00	0.00	0.00
7,100.00	90.46	158.63	2,962.44	-4,000.36	1,165.67	4,163.51	0.00	0.00	0.00
7,200.00	90.46	158.63	2,961.63	-4,093.48	1,202.12	4,263.38	0.00	0.00	0.00
7,300.00	90.46	158.63	2,960.82	-4,186.60	1,238.56	4,363.25	0.00	0.00	0.00
7,400.00	90.46	158.63	2,960.01	-4,279.72	1,275.00	4,463.12	0.00	0.00	0.00
7,500.00	90.46	158.63	2,959.20	-4,372.84	1,311.44	4,562.99	0.00	0.00	0.00
7,600.00	90.46	158.63	2,958.40	-4,465.96	1,347.88	4,662.86	0.00	0.00	0.00
7,700.00	90.46	158.63	2,957.59	-4,559.08	1,384.32	4,762.73	0.00	0.00	0.00
7,800.00	90.46	158.63	2,956.78	-4,652.20	1,420.76	4,862.60	0.00	0.00	0.00
7,900.00	90.46	158.63	2,955.97	-4,745.32	1,457.21	4,962.48	0.00	0.00	0.00
8,000.00	90.46	158.63	2,955.16	-4,838.44	1,493.65	5,062.35	0.00	0.00	0.00
8,100.00	90.46	158.63	2,954.35	-4,931.56	1,530.09	5,162.22	0.00	0.00	0.00
8,200.00	90.46	158.63	2,953.55	-5,024.68	1,566.53	5,262.09	0.00	0.00	0.00



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Company:	B.P.	TVD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Site:	Tiffany Pad 4	North Reference:	Grid
Well:	Tiffany 4-3	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #6		

Planned 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)
8,300.00	90.46	158.63	2,952.74	-5,117.80	1,602.97	5,361.96	0.00	0.00	0.00
8,400.00	90.46	158.63	2,951.93	-5,210.92	1,639.41	5,461.83	0.00	0.00	0.00
8,500.00	90.46	158.63	2,951.12	-5,304.04	1,675.86	5,561.70	0.00	0.00	0.00
8,600.00	90.46	158.63	2,950.31	-5,397.16	1,712.30	5,661.57	0.00	0.00	0.00
8,700.00	90.46	158.63	2,949.50	-5,490.28	1,748.74	5,761.44	0.00	0.00	0.00
8,800.00	90.46	158.63	2,948.70	-5,583.40	1,785.18	5,861.32	0.00	0.00	0.00
8,900.00	90.46	158.63	2,947.89	-5,676.52	1,821.62	5,961.19	0.00	0.00	0.00
9,000.00	90.46	158.63	2,947.08	-5,769.64	1,858.06	6,061.06	0.00	0.00	0.00
9,100.00	90.46	158.63	2,946.27	-5,862.76	1,894.51	6,160.93	0.00	0.00	0.00
9,200.00	90.46	158.63	2,945.46	-5,955.88	1,930.95	6,260.80	0.00	0.00	0.00
9,300.00	90.46	158.63	2,944.65	-6,049.00	1,967.39	6,360.67	0.00	0.00	0.00
9,400.00	90.46	158.63	2,943.85	-6,142.12	2,003.83	6,460.54	0.00	0.00	0.00
9,500.00	90.46	158.63	2,943.04	-6,235.24	2,040.27	6,560.41	0.00	0.00	0.00
9,600.00	90.46	158.63	2,942.23	-6,328.36	2,076.71	6,660.28	0.00	0.00	0.00
9,700.00	90.46	158.63	2,941.42	-6,421.48	2,113.15	6,760.16	0.00	0.00	0.00
9,800.00	90.46	158.63	2,940.61	-6,514.60	2,149.60	6,860.03	0.00	0.00	0.00
9,900.00	90.46	158.63	2,939.80	-6,607.72	2,186.04	6,959.90	0.00	0.00	0.00
10,000.00	90.46	158.63	2,939.00	-6,700.84	2,222.48	7,059.77	0.00	0.00	0.00
10,100.00	90.46	158.63	2,938.19	-6,793.96	2,258.92	7,159.64	0.00	0.00	0.00
10,200.00	90.46	158.63	2,937.38	-6,887.08	2,295.36	7,259.51	0.00	0.00	0.00
10,300.00	90.46	158.63	2,936.57	-6,980.20	2,331.80	7,359.38	0.00	0.00	0.00
10,370.75	90.46	158.63	2,936.00	-7,046.08	2,357.59	7,430.04	0.00	0.00	0.00
Tiff 4-3 Lat 1 PBHL									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Tiff 4-3 Lat 1 PBHL	0.00	360.00	2,936.00	-7,046.08	2,357.59	1,152,662.50	2,405,193.52	37.0681004	-107.5386940
- plan hits target center									
- Point									