



Company: B.P.
Project: La Plata County, CO NAD83
Site: Tiffany Pad 4
Well: Tiffany 4-3
Wellbore: Lateral 2
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 2)

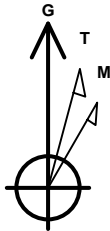
Created By: Janie Collins Date: 17:44, April 25 2017

WELL DETAILS: Tiffany 4-3

+N/-S	+E/-W	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507) 6460.00				
0.00	0.00	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
3210.00	65.00	162.16	2905.77	-387.91	-235.75	0.00	0.00	346.25	
3472.87	90.51	168.72	2961.12	-634.53	-172.43	10.00	14.95	599.74	
10246.48	90.51	168.72	2901.00	-7277.01	1152.56	0.00	0.00	7367.72	Tiff 4-3 Lat 2 PBHL



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

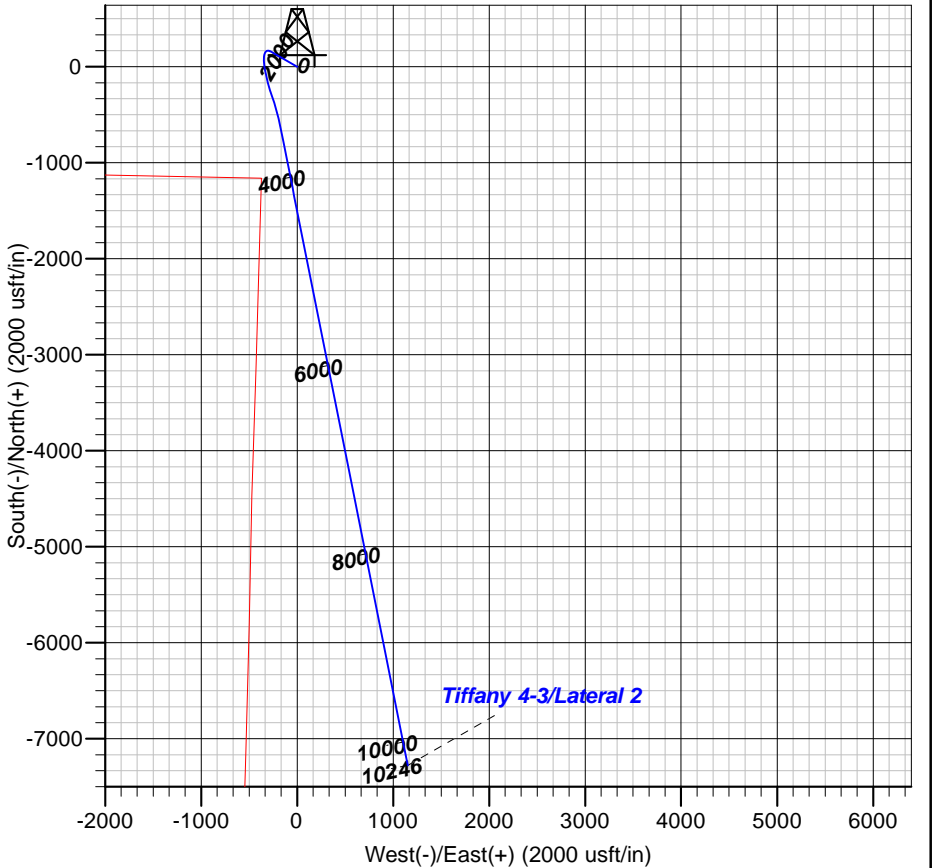
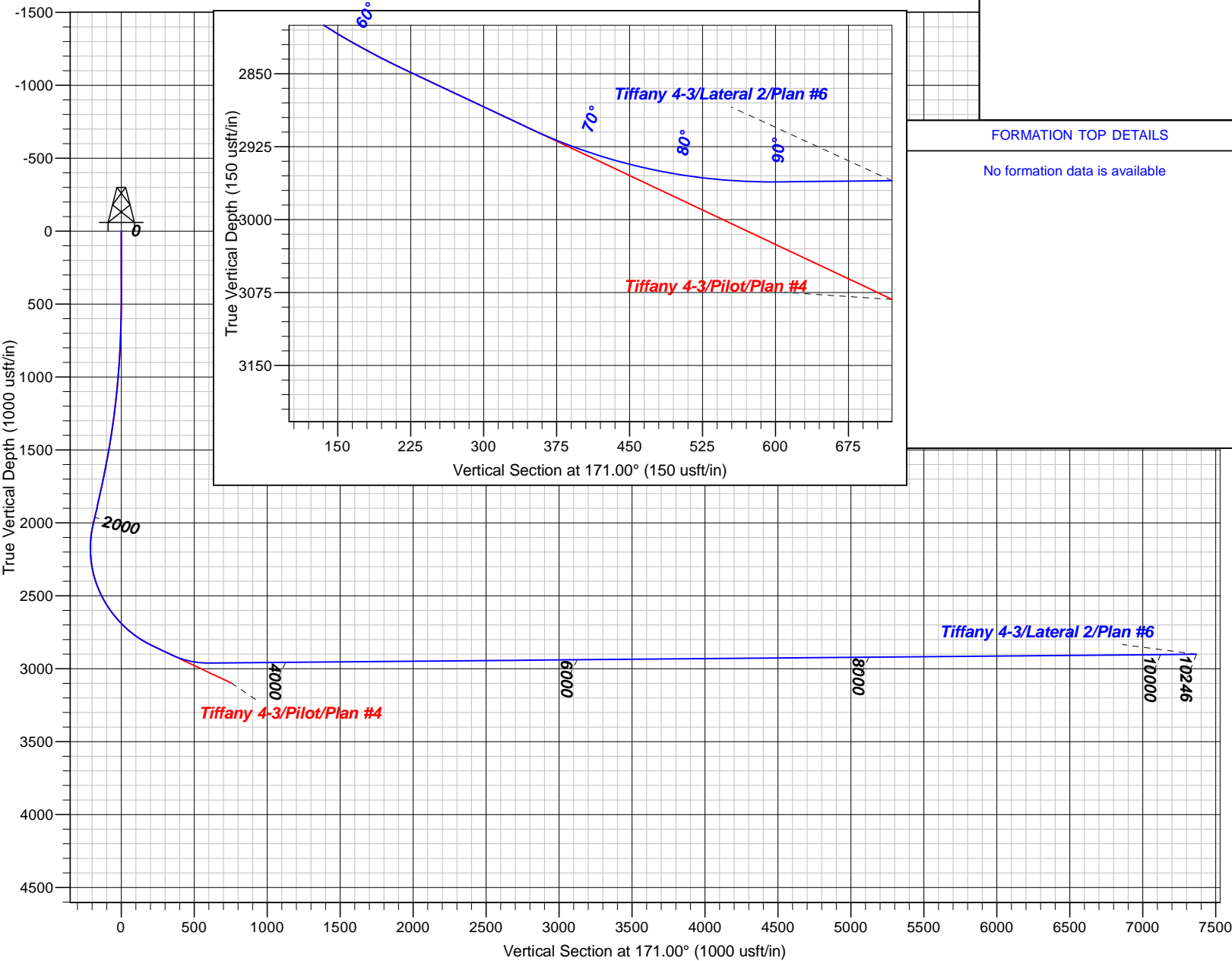
Magnetic Field
Strength: 50146.7snT
Dip Angle: 63.65°
Date: 3/6/2017
Model: HDGM

FORMATION TOP DETAILS

No formation data is available

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Tiff 4-3 Lat 2 PBHL	2901.00	-7277.01	1152.56	1152431.58	2403988.49	37.0673941	-107.5428055





B.P.

La Plata County, CO NAD83

Tiffany Pad 4

Tiffany 4-3

Lateral 2

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 2		
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 2				
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:	3,210.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	171.00

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
3,210.00	65.00	162.16	2,905.77	-387.91	-235.75	0.00	0.00	0.00	0.00	
3,472.87	90.51	168.72	2,961.12	-634.53	-172.43	10.00	9.70	2.50	14.95	
10,246.48	90.51	168.72	2,901.00	-7,277.01	1,152.56	0.00	0.00	0.00	0.00	Tiff 4-3 Lat 2 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 2		
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)
3,210.00	65.00	162.16	2,905.77	-387.91	-235.75	346.25	0.00	0.00	0.00
3,300.00	73.71	164.57	2,937.47	-468.53	-211.71	429.65	10.00	9.68	2.68
3,400.00	83.42	167.01	2,957.27	-563.44	-187.71	527.14	10.00	9.71	2.44
3,472.87	90.51	168.72	2,961.12	-634.53	-172.43	599.74	10.00	9.72	2.35
3,500.00	90.51	168.72	2,960.88	-661.14	-167.12	626.85	0.00	0.00	0.00
3,600.00	90.51	168.72	2,959.99	-759.20	-147.56	726.77	0.00	0.00	0.00
3,700.00	90.51	168.72	2,959.11	-857.26	-128.00	826.69	0.00	0.00	0.00
3,800.00	90.51	168.72	2,958.22	-955.33	-108.44	926.60	0.00	0.00	0.00
3,900.00	90.51	168.72	2,957.33	-1,053.39	-88.88	1,026.52	0.00	0.00	0.00
4,000.00	90.51	168.72	2,956.44	-1,151.46	-69.32	1,126.44	0.00	0.00	0.00
4,100.00	90.51	168.72	2,955.56	-1,249.52	-49.76	1,226.35	0.00	0.00	0.00
4,200.00	90.51	168.72	2,954.67	-1,347.59	-30.20	1,326.27	0.00	0.00	0.00
4,300.00	90.51	168.72	2,953.78	-1,445.65	-10.63	1,426.19	0.00	0.00	0.00
4,400.00	90.51	168.72	2,952.89	-1,543.71	8.93	1,526.10	0.00	0.00	0.00
4,500.00	90.51	168.72	2,952.01	-1,641.78	28.49	1,626.02	0.00	0.00	0.00
4,600.00	90.51	168.72	2,951.12	-1,739.84	48.05	1,725.94	0.00	0.00	0.00
4,700.00	90.51	168.72	2,950.23	-1,837.91	67.61	1,825.85	0.00	0.00	0.00
4,800.00	90.51	168.72	2,949.34	-1,935.97	87.17	1,925.77	0.00	0.00	0.00
4,900.00	90.51	168.72	2,948.46	-2,034.03	106.73	2,025.69	0.00	0.00	0.00
5,000.00	90.51	168.72	2,947.57	-2,132.10	126.29	2,125.61	0.00	0.00	0.00
5,100.00	90.51	168.72	2,946.68	-2,230.16	145.86	2,225.52	0.00	0.00	0.00
5,200.00	90.51	168.72	2,945.79	-2,328.23	165.42	2,325.44	0.00	0.00	0.00
5,300.00	90.51	168.72	2,944.91	-2,426.29	184.98	2,425.36	0.00	0.00	0.00
5,400.00	90.51	168.72	2,944.02	-2,524.35	204.54	2,525.27	0.00	0.00	0.00
5,500.00	90.51	168.72	2,943.13	-2,622.42	224.10	2,625.19	0.00	0.00	0.00
5,600.00	90.51	168.72	2,942.24	-2,720.48	243.66	2,725.11	0.00	0.00	0.00
5,700.00	90.51	168.72	2,941.35	-2,818.55	263.22	2,825.02	0.00	0.00	0.00
5,800.00	90.51	168.72	2,940.47	-2,916.61	282.78	2,924.94	0.00	0.00	0.00
5,900.00	90.51	168.72	2,939.58	-3,014.68	302.34	3,024.86	0.00	0.00	0.00
6,000.00	90.51	168.72	2,938.69	-3,112.74	321.91	3,124.77	0.00	0.00	0.00
6,100.00	90.51	168.72	2,937.80	-3,210.80	341.47	3,224.69	0.00	0.00	0.00
6,200.00	90.51	168.72	2,936.92	-3,308.87	361.03	3,324.61	0.00	0.00	0.00
6,300.00	90.51	168.72	2,936.03	-3,406.93	380.59	3,424.52	0.00	0.00	0.00
6,400.00	90.51	168.72	2,935.14	-3,505.00	400.15	3,524.44	0.00	0.00	0.00
6,500.00	90.51	168.72	2,934.25	-3,603.06	419.71	3,624.36	0.00	0.00	0.00
6,600.00	90.51	168.72	2,933.37	-3,701.12	439.27	3,724.27	0.00	0.00	0.00
6,700.00	90.51	168.72	2,932.48	-3,799.19	458.83	3,824.19	0.00	0.00	0.00
6,800.00	90.51	168.72	2,931.59	-3,897.25	478.39	3,924.11	0.00	0.00	0.00
6,900.00	90.51	168.72	2,930.70	-3,995.32	497.96	4,024.03	0.00	0.00	0.00
7,000.00	90.51	168.72	2,929.82	-4,093.38	517.52	4,123.94	0.00	0.00	0.00
7,100.00	90.51	168.72	2,928.93	-4,191.44	537.08	4,223.86	0.00	0.00	0.00
7,200.00	90.51	168.72	2,928.04	-4,289.51	556.64	4,323.78	0.00	0.00	0.00
7,300.00	90.51	168.72	2,927.15	-4,387.57	576.20	4,423.69	0.00	0.00	0.00
7,400.00	90.51	168.72	2,926.27	-4,485.64	595.76	4,523.61	0.00	0.00	0.00
7,500.00	90.51	168.72	2,925.38	-4,583.70	615.32	4,623.53	0.00	0.00	0.00
7,600.00	90.51	168.72	2,924.49	-4,681.77	634.88	4,723.44	0.00	0.00	0.00
7,700.00	90.51	168.72	2,923.60	-4,779.83	654.45	4,823.36	0.00	0.00	0.00
7,800.00	90.51	168.72	2,922.72	-4,877.89	674.01	4,923.28	0.00	0.00	0.00
7,900.00	90.51	168.72	2,921.83	-4,975.96	693.57	5,023.19	0.00	0.00	0.00
8,000.00	90.51	168.72	2,920.94	-5,074.02	713.13	5,123.11	0.00	0.00	0.00
8,100.00	90.51	168.72	2,920.05	-5,172.09	732.69	5,223.03	0.00	0.00	0.00
8,200.00	90.51	168.72	2,919.16	-5,270.15	752.25	5,322.94	0.00	0.00	0.00



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 2		
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	90.51	168.72	2,918.28	-5,368.21	771.81	5,422.86	0.00	0.00	0.00
8,400.00	90.51	168.72	2,917.39	-5,466.28	791.37	5,522.78	0.00	0.00	0.00
8,500.00	90.51	168.72	2,916.50	-5,564.34	810.93	5,622.69	0.00	0.00	0.00
8,600.00	90.51	168.72	2,915.61	-5,662.41	830.50	5,722.61	0.00	0.00	0.00
8,700.00	90.51	168.72	2,914.73	-5,760.47	850.06	5,822.53	0.00	0.00	0.00
8,800.00	90.51	168.72	2,913.84	-5,858.54	869.62	5,922.45	0.00	0.00	0.00
8,900.00	90.51	168.72	2,912.95	-5,956.60	889.18	6,022.36	0.00	0.00	0.00
9,000.00	90.51	168.72	2,912.06	-6,054.66	908.74	6,122.28	0.00	0.00	0.00
9,100.00	90.51	168.72	2,911.18	-6,152.73	928.30	6,222.20	0.00	0.00	0.00
9,200.00	90.51	168.72	2,910.29	-6,250.79	947.86	6,322.11	0.00	0.00	0.00
9,300.00	90.51	168.72	2,909.40	-6,348.86	967.42	6,422.03	0.00	0.00	0.00
9,400.00	90.51	168.72	2,908.51	-6,446.92	986.98	6,521.95	0.00	0.00	0.00
9,500.00	90.51	168.72	2,907.63	-6,544.98	1,006.55	6,621.86	0.00	0.00	0.00
9,600.00	90.51	168.72	2,906.74	-6,643.05	1,026.11	6,721.78	0.00	0.00	0.00
9,700.00	90.51	168.72	2,905.85	-6,741.11	1,045.67	6,821.70	0.00	0.00	0.00
9,800.00	90.51	168.72	2,904.96	-6,839.18	1,065.23	6,921.61	0.00	0.00	0.00
9,900.00	90.51	168.72	2,904.08	-6,937.24	1,084.79	7,021.53	0.00	0.00	0.00
10,000.00	90.51	168.72	2,903.19	-7,035.30	1,104.35	7,121.45	0.00	0.00	0.00
10,100.00	90.51	168.72	2,902.30	-7,133.37	1,123.91	7,221.36	0.00	0.00	0.00
10,200.00	90.51	168.72	2,901.41	-7,231.43	1,143.47	7,321.28	0.00	0.00	0.00
10,246.48	90.51	168.72	2,901.00	-7,277.01	1,152.56	7,367.72	0.00	0.00	0.00
Tiff 4-3 Lat 2 PBHL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Tiff 4-3 Lat 2 PBHL - plan hits target center - Point	0.00	360.00	2,901.00	-7,277.01	1,152.56	1,152,431.58	2,403,988.50	37.0673940	-107.5428056