



Company: B.P.  
Project: La Plata County, CO NAD83  
Site: Tiffany Pad 4  
Well: Tiffany 4-1  
Wellbore: Lateral 1  
Design: Plan #2

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 #2 (Tiffany 4-1/Lateral 1)

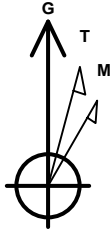
Created By: Janie Collins Date: 10:38, March 22 2017

WELL DETAILS: Tiffany 4-1

+N/-S      +E/-W      GL 6460' & RKB 11' @ 6471.00usft (Aztec 507) 6460.00  
0.00      0.00      Northing      Easting      Latitude      Longitude      Slot  
1159793.57      2402838.16      37.0875389      -107.5472999

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3175.20	65.00	331.57	2937.43	466.30	-252.44	0.00	0.00	530.25	
3436.66	91.15	331.57	2991.00	689.32	-373.19	10.00	0.00	783.86	
8184.36	91.15	331.57	2896.00	4863.53	-2633.18	0.00	0.00	5530.60	Tiff 4-1 Lat 1 PBHL



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

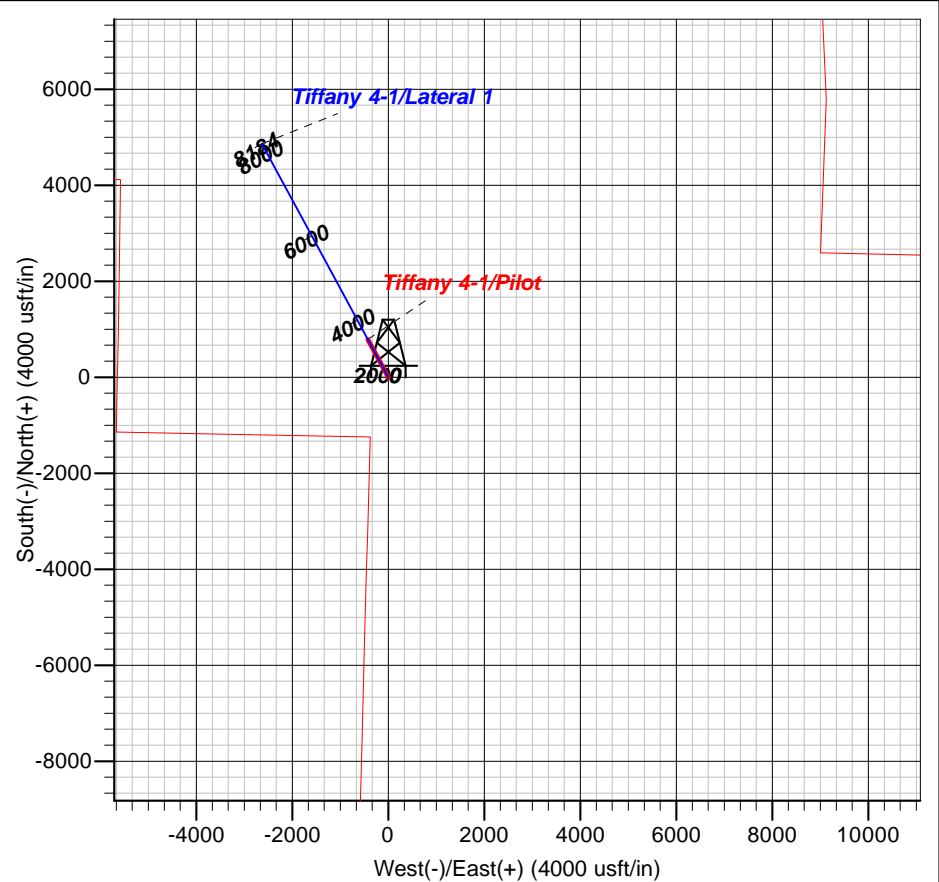
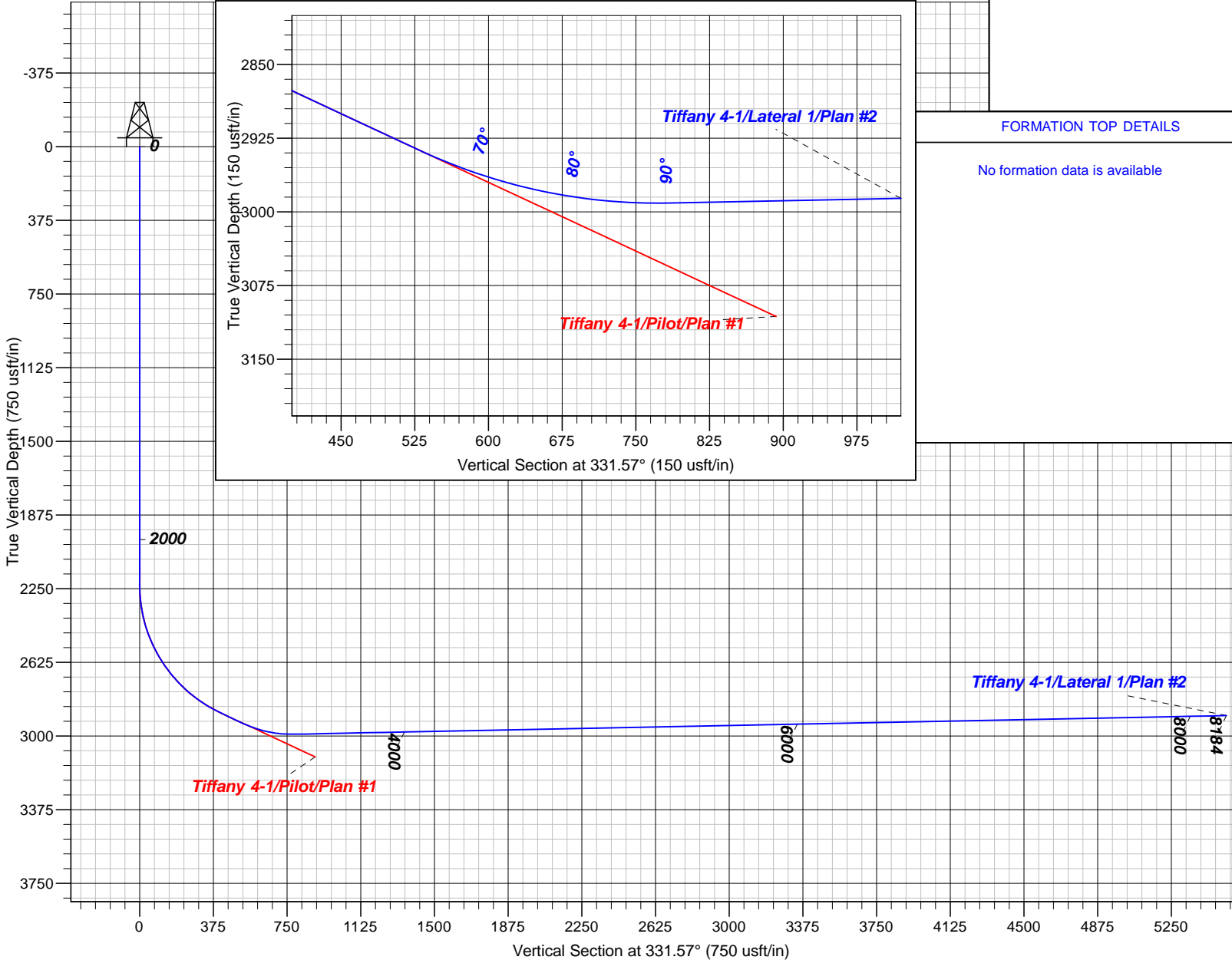
Magnetic Field  
Strength: 50147.3snT  
Dip Angle: 63.65°  
Date: 3/6/2017  
Model: HDGM

FORMATION TOP DETAILS

No formation data is available

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Tiff 4-1 Lat 1 PBHL	2896.00	4863.53	-2633.18	1164657.10	2400204.98	37.1007339	-107.5566916





**B.P.**

**La Plata County, CO NAD83**

**Tiffany Pad 4**

**Tiffany 4-1**

**Lateral 1**

**Plan: Plan #2**

## **Standard Planning Report**

**22 March, 2017**





<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 4-1
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
<b>Site:</b>	Tiffany Pad 4	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 4-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral 1		
<b>Design:</b>	Plan #2		

<b>Project</b>	La Plata County, CO NAD83		
<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		

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 4-1					
Well Position	+N/-S	0.00 usft	Northing:	1,159,793.57 usft	Latitude:	37.0875389
	+E/-W	0.00 usft	Easting:	2,402,838.16 usft	Longitude:	-107.5473000
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,460.00 usft

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

<b>Design</b>	Plan #2				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN		<b>Tie On Depth:</b>	3,175.20
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	331.57	

<b>Plan Sections</b>										
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
3,175.20	65.00	331.57	2,937.43	466.30	-252.44	0.00	0.00	0.00	0.00	
3,436.67	91.15	331.57	2,991.00	689.32	-373.19	10.00	10.00	0.00	0.00	
8,184.36	91.15	331.57	2,896.00	4,863.53	-2,633.18	0.00	0.00	0.00	0.00	Tiff 4-1 Lat 1 PBHL



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 4-1
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
<b>Site:</b>	Tiffany Pad 4	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 4-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral 1		
<b>Design:</b>	Plan #2		

## 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)
3,175.20	65.00	331.57	2,937.43	466.30	-252.44	530.25	0.00	0.00	0.00
3,200.00	67.48	331.57	2,947.42	486.26	-263.25	552.95	10.00	10.00	0.00
3,300.00	77.48	331.57	2,977.49	570.02	-308.59	648.19	10.00	10.00	0.00
3,400.00	87.48	331.57	2,990.56	657.09	-355.73	747.20	10.00	10.00	0.00
3,436.67	91.15	331.57	2,991.00	689.32	-373.19	783.86	10.00	10.00	0.00
3,500.00	91.15	331.57	2,989.73	745.01	-403.34	847.18	0.00	0.00	0.00
3,600.00	91.15	331.57	2,987.73	832.93	-450.94	947.16	0.00	0.00	0.00
3,700.00	91.15	331.57	2,985.73	920.85	-498.54	1,047.14	0.00	0.00	0.00
3,800.00	91.15	331.57	2,983.73	1,008.77	-546.14	1,147.12	0.00	0.00	0.00
3,900.00	91.15	331.57	2,981.72	1,096.69	-593.74	1,247.10	0.00	0.00	0.00
4,000.00	91.15	331.57	2,979.72	1,184.61	-641.35	1,347.08	0.00	0.00	0.00
4,100.00	91.15	331.57	2,977.72	1,272.53	-688.95	1,447.06	0.00	0.00	0.00
4,200.00	91.15	331.57	2,975.72	1,360.45	-736.55	1,547.04	0.00	0.00	0.00
4,300.00	91.15	331.57	2,973.72	1,448.37	-784.15	1,647.02	0.00	0.00	0.00
4,400.00	91.15	331.57	2,971.72	1,536.29	-831.75	1,747.00	0.00	0.00	0.00
4,500.00	91.15	331.57	2,969.72	1,624.21	-879.35	1,846.98	0.00	0.00	0.00
4,600.00	91.15	331.57	2,967.72	1,712.14	-926.96	1,946.96	0.00	0.00	0.00
4,700.00	91.15	331.57	2,965.72	1,800.06	-974.56	2,046.94	0.00	0.00	0.00
4,800.00	91.15	331.57	2,963.72	1,887.98	-1,022.16	2,146.92	0.00	0.00	0.00
4,900.00	91.15	331.57	2,961.72	1,975.90	-1,069.76	2,246.90	0.00	0.00	0.00
5,000.00	91.15	331.57	2,959.72	2,063.82	-1,117.36	2,346.88	0.00	0.00	0.00
5,100.00	91.15	331.57	2,957.71	2,151.74	-1,164.97	2,446.86	0.00	0.00	0.00
5,200.00	91.15	331.57	2,955.71	2,239.66	-1,212.57	2,546.84	0.00	0.00	0.00
5,300.00	91.15	331.57	2,953.71	2,327.58	-1,260.17	2,646.82	0.00	0.00	0.00
5,400.00	91.15	331.57	2,951.71	2,415.50	-1,307.77	2,746.80	0.00	0.00	0.00
5,500.00	91.15	331.57	2,949.71	2,503.42	-1,355.37	2,846.78	0.00	0.00	0.00
5,600.00	91.15	331.57	2,947.71	2,591.34	-1,402.98	2,946.76	0.00	0.00	0.00
5,700.00	91.15	331.57	2,945.71	2,679.26	-1,450.58	3,046.74	0.00	0.00	0.00
5,800.00	91.15	331.57	2,943.71	2,767.18	-1,498.18	3,146.72	0.00	0.00	0.00
5,900.00	91.15	331.57	2,941.71	2,855.10	-1,545.78	3,246.70	0.00	0.00	0.00
6,000.00	91.15	331.57	2,939.71	2,943.03	-1,593.38	3,346.68	0.00	0.00	0.00
6,100.00	91.15	331.57	2,937.71	3,030.95	-1,640.99	3,446.66	0.00	0.00	0.00
6,200.00	91.15	331.57	2,935.70	3,118.87	-1,688.59	3,546.64	0.00	0.00	0.00
6,300.00	91.15	331.57	2,933.70	3,206.79	-1,736.19	3,646.62	0.00	0.00	0.00
6,400.00	91.15	331.57	2,931.70	3,294.71	-1,783.79	3,746.60	0.00	0.00	0.00
6,500.00	91.15	331.57	2,929.70	3,382.63	-1,831.39	3,846.58	0.00	0.00	0.00
6,600.00	91.15	331.57	2,927.70	3,470.55	-1,878.99	3,946.56	0.00	0.00	0.00
6,700.00	91.15	331.57	2,925.70	3,558.47	-1,926.60	4,046.54	0.00	0.00	0.00
6,800.00	91.15	331.57	2,923.70	3,646.39	-1,974.20	4,146.52	0.00	0.00	0.00
6,900.00	91.15	331.57	2,921.70	3,734.31	-2,021.80	4,246.50	0.00	0.00	0.00
7,000.00	91.15	331.57	2,919.70	3,822.23	-2,069.40	4,346.48	0.00	0.00	0.00
7,100.00	91.15	331.57	2,917.70	3,910.15	-2,117.00	4,446.46	0.00	0.00	0.00
7,200.00	91.15	331.57	2,915.70	3,998.07	-2,164.61	4,546.44	0.00	0.00	0.00
7,300.00	91.15	331.57	2,913.69	4,085.99	-2,212.21	4,646.42	0.00	0.00	0.00
7,400.00	91.15	331.57	2,911.69	4,173.92	-2,259.81	4,746.40	0.00	0.00	0.00
7,500.00	91.15	331.57	2,909.69	4,261.84	-2,307.41	4,846.38	0.00	0.00	0.00
7,600.00	91.15	331.57	2,907.69	4,349.76	-2,355.01	4,946.36	0.00	0.00	0.00
7,700.00	91.15	331.57	2,905.69	4,437.68	-2,402.62	5,046.34	0.00	0.00	0.00
7,800.00	91.15	331.57	2,903.69	4,525.60	-2,450.22	5,146.32	0.00	0.00	0.00
7,900.00	91.15	331.57	2,901.69	4,613.52	-2,497.82	5,246.30	0.00	0.00	0.00
8,000.00	91.15	331.57	2,899.69	4,701.44	-2,545.42	5,346.28	0.00	0.00	0.00
8,100.00	91.15	331.57	2,897.69	4,789.36	-2,593.02	5,446.26	0.00	0.00	0.00



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<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
<b>Site:</b>	Tiffany Pad 4	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 4-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral 1		
<b>Design:</b>	Plan #2		

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)
8,184.36	91.15	331.57	2,896.00	4,863.53	-2,633.18	5,530.60	0.00	0.00	0.00
Tiff 4-1 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 4-1 Lat 1 PBHL	0.00	360.00	2,896.00	4,863.53	-2,633.18	1,164,657.10	2,400,204.98	37.1007339	-107.5566917
- plan hits target center									
- Point									