



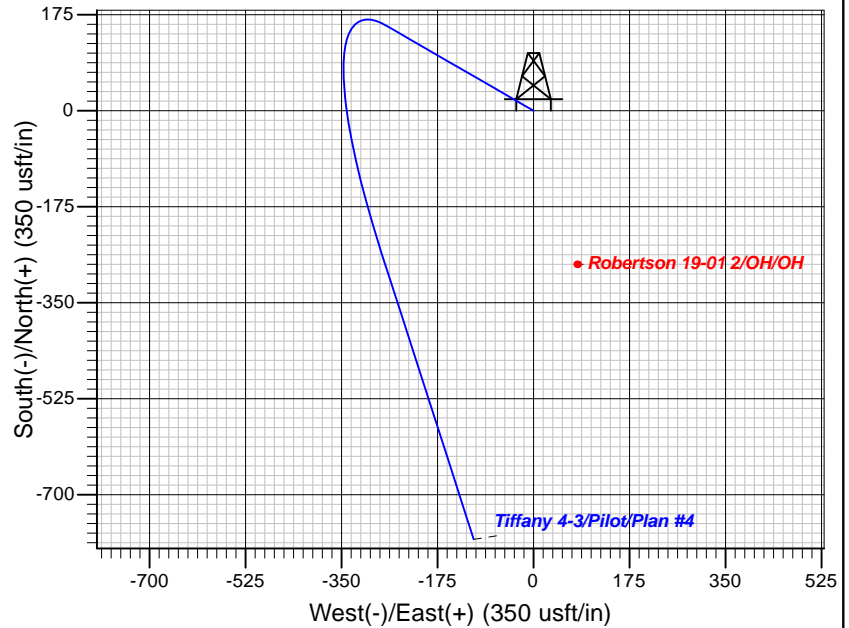
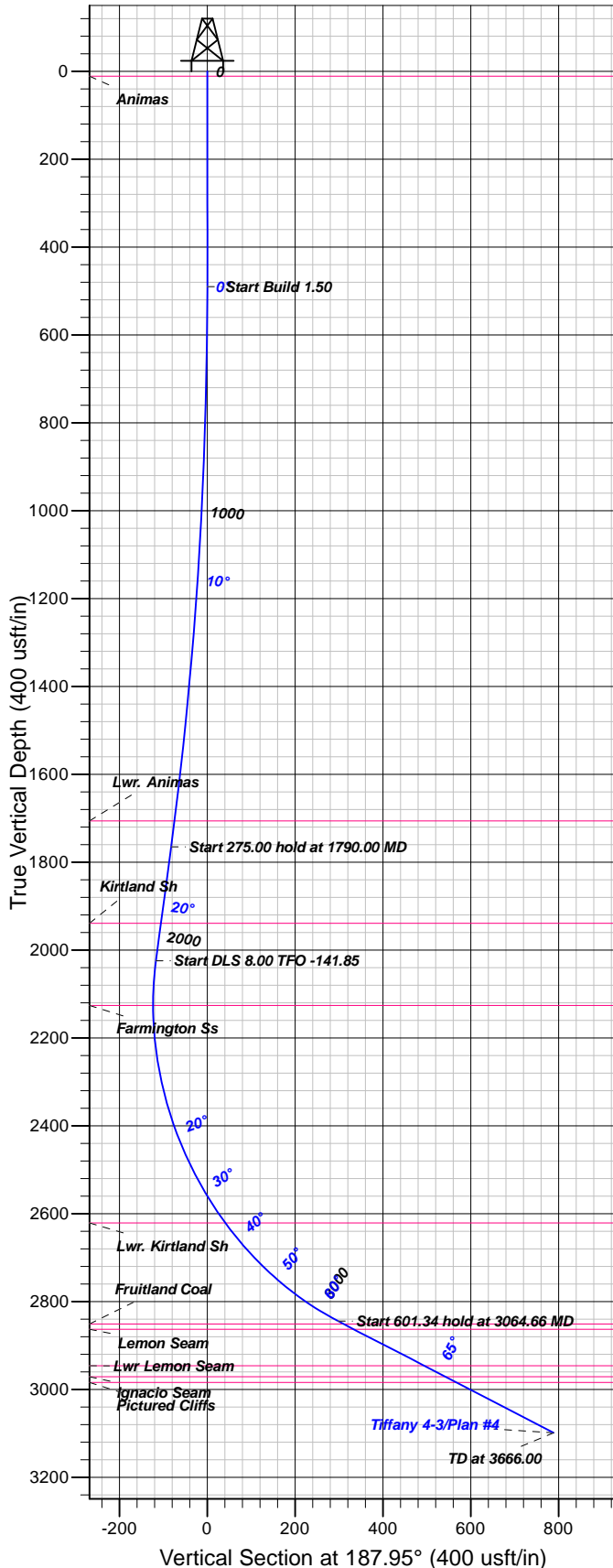
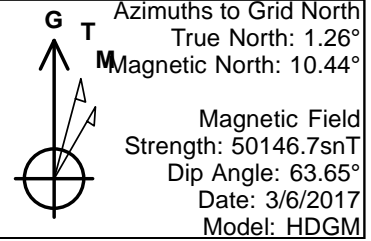
Company: B.P.  
Project: La Plata County, CO NAD83  
Site: Tiffany Pad 4  
Well: Tiffany 4-3



### Well Details: Tiffany 4-3

GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1159708.59	2402835.93	37.0873054	-107.5473012	



#### FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
11.00	11.00	Animas
1706.00	1727.54	Lwr. Animas
1939.00	1974.54	Kirtland Sh
2126.00	2171.12	Farmington Ss
2621.00	2705.48	Lwr. Kirtland Sh
2851.00	3080.41	Fruitland Coal
2863.00	3108.80	Lemon Seam
2946.00	3305.20	Lwr. Lemon Seam
2971.00	3364.35	Ignacio Seam
2984.00	3395.11	Pictured Cliffs

Plan: Plan #4

21:57, April 19 2017  
Created By: Janie Collins

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

#### CASING DETAILS

No casing data is available

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	490.00	0.00	0.00	490.00	0.00	0.00	0.00	0.00	0.00	
3	1790.00	19.50	300.00	1765.05	109.55	-189.74	1.50	300.00	-82.24	
4	2065.00	19.50	300.00	2024.27	155.45	-269.24	0.00	0.00	-116.70	
5	3064.66	65.00	162.16	2844.34	-262.52	-276.10	8.00	-141.85	298.19	
6	3666.00	65.00	162.16	3098.48	-781.31	-109.14	0.00	0.00	788.90	

#### DESIGN TARGET DETAILS

No target data is available.



**B.P.**

La Plata County, CO NAD83

Tiffany Pad 4

Tiffany 4-3

Pilot

Plan: Plan #4

## **Standard Planning Report**

19 April, 2017





<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 4-3
<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 4-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	Plan #4		

<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 4-3					
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

<b>Wellbore</b>	Pilot				
<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 #4			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<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	187.95

<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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
490.00	0.00	0.00	490.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,790.00	19.50	300.00	1,765.05	109.55	-189.74	1.50	1.50	0.00	300.00	
2,065.00	19.50	300.00	2,024.27	155.45	-269.24	0.00	0.00	0.00	0.00	
3,064.66	65.00	162.16	2,844.34	-262.52	-276.10	8.00	4.55	-13.79	-141.85	
3,666.00	65.00	162.16	3,098.48	-781.31	-109.14	0.00	0.00	0.00	0.00	



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 4-3
<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 4-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	Plan #4		

## 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.00	0.00	0.00	11.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Animas</b>									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
490.00	0.00	0.00	490.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.15	300.00	500.00	0.01	-0.01	0.00	1.50	1.50	0.00
600.00	1.65	300.00	599.98	0.79	-1.37	-0.59	1.50	1.50	0.00
700.00	3.15	300.00	699.89	2.89	-5.00	-2.17	1.50	1.50	0.00
800.00	4.65	300.00	799.66	6.29	-10.89	-4.72	1.50	1.50	0.00
900.00	6.15	300.00	899.21	10.99	-19.04	-8.25	1.50	1.50	0.00
1,000.00	7.65	300.00	998.48	17.00	-29.44	-12.76	1.50	1.50	0.00
1,100.00	9.15	300.00	1,097.41	24.30	-42.09	-18.25	1.50	1.50	0.00
1,200.00	10.65	300.00	1,195.92	32.90	-56.98	-24.70	1.50	1.50	0.00
1,300.00	12.15	300.00	1,293.94	42.78	-74.10	-32.12	1.50	1.50	0.00
1,400.00	13.65	300.00	1,391.41	53.94	-93.43	-40.50	1.50	1.50	0.00
1,500.00	15.15	300.00	1,488.27	66.38	-114.97	-49.83	1.50	1.50	0.00
1,600.00	16.65	300.00	1,584.44	80.07	-138.69	-60.12	1.50	1.50	0.00
1,700.00	18.15	300.00	1,679.86	95.03	-164.59	-71.34	1.50	1.50	0.00
1,727.54	18.56	300.00	1,706.00	99.36	-172.10	-74.60	1.50	1.50	0.00
<b>Lwr. Animas</b>									
1,790.00	19.50	300.00	1,765.05	109.55	-189.74	-82.24	1.50	1.50	0.00
1,800.00	19.50	300.00	1,774.47	111.22	-192.63	-83.50	0.00	0.00	0.00
1,900.00	19.50	300.00	1,868.74	127.91	-221.54	-96.03	0.00	0.00	0.00
1,974.54	19.50	300.00	1,939.00	140.35	-243.09	-105.37	0.00	0.00	0.00
<b>Kirtland Sh</b>									
2,000.00	19.50	300.00	1,963.00	144.60	-250.45	-108.56	0.00	0.00	0.00
2,065.00	19.50	300.00	2,024.27	155.45	-269.24	-116.70	0.00	0.00	0.00
2,100.00	17.38	294.20	2,057.47	160.51	-279.07	-120.36	8.00	-6.05	-16.57
2,171.12	13.82	277.55	2,126.00	165.99	-297.19	-123.28	8.00	-5.01	-23.41
<b>Farmington Ss</b>									
2,200.00	12.80	268.51	2,154.10	166.36	-303.81	-122.73	8.00	-3.50	-31.29
2,300.00	12.33	231.18	2,251.87	159.36	-323.23	-113.12	8.00	-0.48	-37.34
2,400.00	16.31	202.58	2,348.86	139.67	-336.97	-91.71	8.00	3.99	-28.59
2,500.00	22.50	187.10	2,443.19	107.66	-344.74	-58.94	8.00	6.19	-15.48
2,599.99	29.54	178.35	2,533.03	63.96	-346.39	-15.43	8.00	7.04	-8.75
2,699.99	36.95	172.79	2,616.63	9.41	-341.91	37.98	8.00	7.40	-5.56
2,705.48	37.36	172.54	2,621.00	6.13	-341.48	41.17	8.00	7.52	-4.52
<b>Lwr. Kirtland Sh</b>									
2,799.99	44.53	168.89	2,692.35	-54.91	-331.36	100.23	8.00	7.59	-3.87
2,899.99	52.22	165.92	2,758.73	-127.77	-314.96	170.12	8.00	7.69	-2.97
2,999.99	59.97	163.52	2,814.48	-207.74	-293.03	246.28	8.00	7.75	-2.40
3,064.66	65.00	162.16	2,844.34	-262.52	-276.10	298.19	8.00	7.78	-2.10
3,080.41	65.00	162.16	2,851.00	-276.10	-271.73	311.04	0.00	0.00	0.00
<b>Fruitland Coal</b>									
3,099.99	65.00	162.16	2,859.28	-293.00	-266.29	327.02	0.00	0.00	0.00
3,108.80	65.00	162.16	2,863.00	-300.60	-263.85	334.21	0.00	0.00	0.00
<b>Lemon Seam</b>									
3,199.99	65.00	162.16	2,901.54	-379.27	-238.53	408.63	0.00	0.00	0.00
3,299.99	65.00	162.16	2,943.80	-465.55	-210.76	490.23	0.00	0.00	0.00



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 4-3
<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 4-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	Plan #4		

## 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)
3,305.20	65.00	162.16	2,946.00	-470.03	-209.32	494.47	0.00	0.00	0.00
<b>Lwr Lemon Seam</b>									
3,364.35	65.00	162.16	2,971.00	-521.07	-192.89	542.74	0.00	0.00	0.00
<b>Ignacio Seam</b>									
3,395.11	65.00	162.16	2,984.00	-547.61	-184.35	567.85	0.00	0.00	0.00
<b>Pictured Cliffs</b>									
3,399.99	65.00	162.16	2,986.06	-551.82	-183.00	571.83	0.00	0.00	0.00
3,499.99	65.00	162.16	3,028.32	-638.09	-155.23	653.43	0.00	0.00	0.00
3,599.99	65.00	162.16	3,070.59	-724.36	-127.46	735.03	0.00	0.00	0.00
3,666.00	65.00	162.16	3,098.48	-781.31	-109.14	788.90	0.00	0.00	0.00
<b>Tiff 4-3 Lat 1 ST1 PBHL - Tiff 4-3 Lat 2 PBHL - Tiff 4-3 Lat 2 ST1 PBHL - Tiff 4-3 Lat 1 PBHL</b>									

## Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
11.00	-6,460.00	Animas		0.00	360.00
1,727.54	-4,765.00	Lwr. Animas		0.00	360.00
1,974.54	-4,532.00	Kirtland Sh		0.00	360.00
2,171.12	-4,345.00	Farmington Ss		0.00	360.00
2,705.48	-3,850.00	Lwr. Kirtland Sh		0.00	360.00
3,080.41	-3,620.00	Fruitland Coal		0.00	360.00
3,108.80	-3,608.00	Lemon Seam		0.00	360.00
3,305.20	-3,525.00	Lwr Lemon Seam		0.00	360.00
3,364.35	-3,500.00	Ignacio Seam		0.00	360.00
3,395.11	-3,487.00	Pictured Cliffs		0.00	360.00