



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



### Well Details: Tiffany 2-3

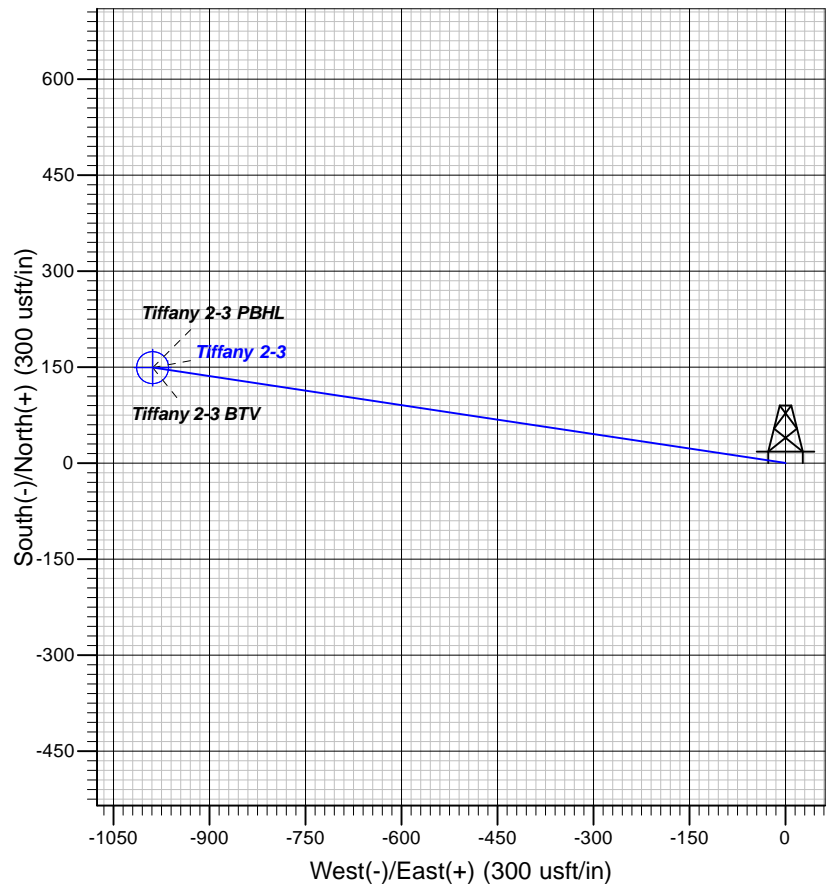
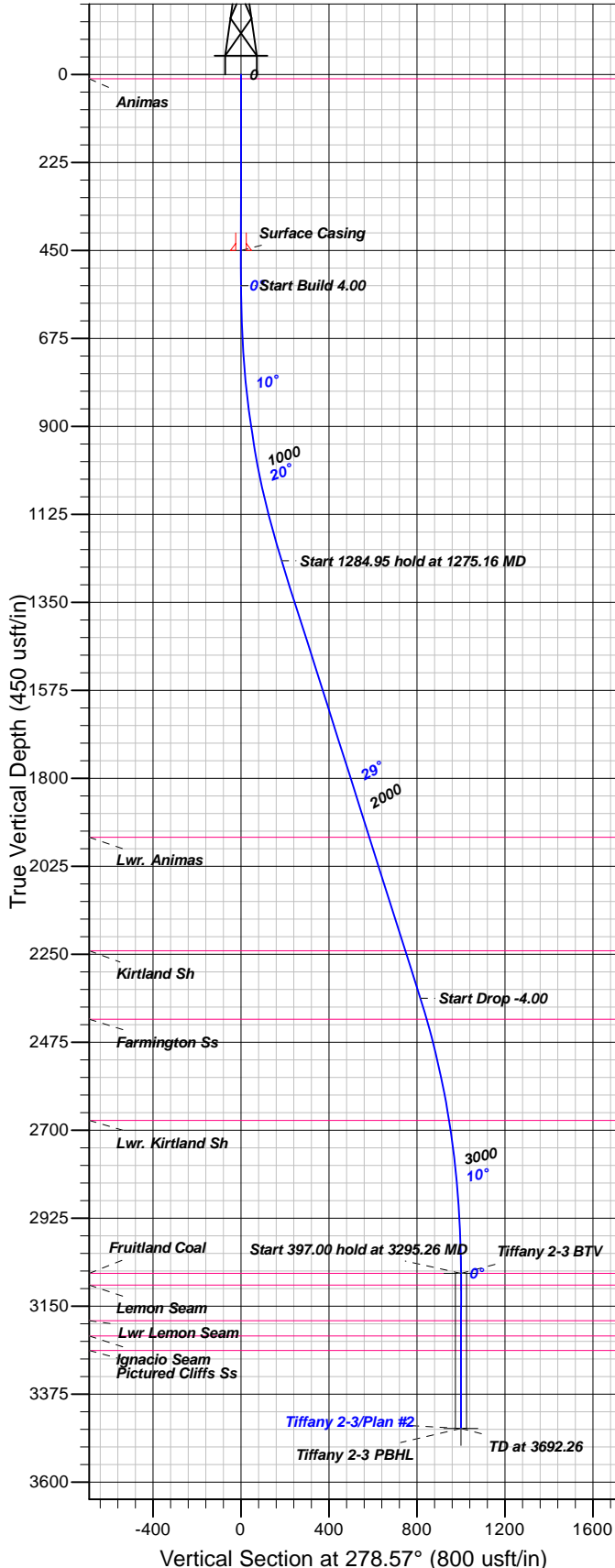
GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1163311.22	2408584.27	37.0975416	-107.5278681	Tiffany 2-3

**G T**  
**M**

Azimuths to Grid North  
True North: 1.24°  
Magnetic North: 10.53°

Magnetic Field  
Strength: 50257.8snT  
Dip Angle: 63.65°  
Date: 3/17/2016  
Model: HDGM



#### FORMATION TOP DETAILS

TVDP	MD	Formation
11.00	11.00	Animas
1951.00	2087.52	Lwr. Animas
2241.00	2420.41	Kirtland Sh
2416.00	2620.59	Farmington Ss
2675.00	2899.23	Lwr. Kirtland Sh
3066.00	3295.26	Fruitland Coal
3096.00	3325.26	Lemon Seam
3187.00	3416.26	Lwr Lemon Seam
3226.00	3455.26	Ignacio Seam
3263.00	3492.26	Pictured Cliffs Ss

#### Plan: Plan #2

12:35, April 21 2016  
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

TVD	MD	Name	Size
450.00	450.00	Surface Casing	8.62

#### 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	540.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	
3	1275.16	29.41	278.57	1243.30	27.51	-182.49	4.00	278.57	184.55	
4	2560.10	29.41	278.57	2362.70	121.56	-806.34	0.00	0.00	815.45	
5	3295.26	0.00	0.00	3066.00	149.07	-988.83	4.00	180.00	1000.00	Tiffany 2-3 BTV
6	3692.26	0.00	0.00	3463.00	149.07	-988.83	0.00	0.00	1000.00	Tiffany 2-3 PBHL

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Tiffany 2-3 BTV	3066.00	149.07	-988.83	11633460.29	2407595.44	37.0978919	-107.5312686	Circle (Radius: 25.00)
- plan hits target center								
Tiffany 2-3 PBHL	3463.00	149.07	-988.83	11633460.29	2407595.44	37.0978919	-107.5312686	Point
- plan hits target center								



**B.P.**

La Plata County, CO NAD83

Tiffany Pad 2

Tiffany 2-3 - Slot Tiffany 2-3

Pilot

Plan: Plan #2

## **Standard Planning Report**

21 April, 2016





<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 2-3 - Slot Tiffany 2-3
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
<b>Site:</b>	Tiffany Pad 2	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 2-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<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		

<b>Site</b>	Tiffany Pad 2			
<b>Site Position:</b>		<b>Northing:</b>	1,163,257.22 usft	<b>Latitude:</b> 37.0973972
<b>From:</b> Map		<b>Easting:</b>	2,408,649.91 usft	<b>Longitude:</b> -107.5276391
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -1.24 °

<b>Well</b>	Tiffany 2-3 - Slot Tiffany 2-3			
<b>Well Position</b>	<b>+N/-S</b>	54.00 usft	<b>Northing:</b>	1,163,311.22 usft
	<b>+E/-W</b>	-65.64 usft	<b>Easting:</b>	2,408,584.27 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	0.00 usft
			<b>Ground Level:</b>	6,669.66 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	3/17/2016	9.28	63.65	50,258

<b>Design</b>	Plan #2			
<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	278.57

<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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
540.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,275.16	29.41	278.57	1,243.30	27.51	-182.49	4.00	4.00	0.00	278.57	
2,560.10	29.41	278.57	2,362.70	121.56	-806.34	0.00	0.00	0.00	0.00	
3,295.26	0.00	0.00	3,066.00	149.07	-988.83	4.00	-4.00	0.00	180.00	Tiffany 2-3 BTV
3,692.26	0.00	0.00	3,463.00	149.07	-988.83	0.00	0.00	0.00	0.00	Tiffany 2-3 PBHL



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 2-3 - Slot Tiffany 2-3
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
<b>Site:</b>	Tiffany Pad 2	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 2-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<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)
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
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface Casing</b>									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
540.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.40	278.57	599.98	0.19	-1.24	1.26	4.00	4.00	0.00
700.00	6.40	278.57	699.67	1.33	-8.83	8.93	4.00	4.00	0.00
800.00	10.40	278.57	798.57	3.51	-23.27	23.53	4.00	4.00	0.00
900.00	14.40	278.57	896.22	6.71	-44.50	45.00	4.00	4.00	0.00
1,000.00	18.40	278.57	992.13	10.92	-72.41	73.23	4.00	4.00	0.00
1,100.00	22.40	278.57	1,085.84	16.11	-106.87	108.08	4.00	4.00	0.00
1,200.00	26.40	278.57	1,176.89	22.27	-147.71	149.38	4.00	4.00	0.00
1,275.16	29.41	278.57	1,243.30	27.51	-182.49	184.55	4.00	4.00	0.00
1,300.00	29.41	278.57	1,264.95	29.33	-194.55	196.75	0.00	0.00	0.00
1,400.00	29.41	278.57	1,352.06	36.65	-243.10	245.85	0.00	0.00	0.00
1,500.00	29.41	278.57	1,439.18	43.97	-291.65	294.95	0.00	0.00	0.00
1,600.00	29.41	278.57	1,526.30	51.29	-340.20	344.05	0.00	0.00	0.00
1,700.00	29.41	278.57	1,613.41	58.61	-388.75	393.15	0.00	0.00	0.00
1,800.00	29.41	278.57	1,700.53	65.93	-437.31	442.25	0.00	0.00	0.00
1,900.00	29.41	278.57	1,787.64	73.24	-485.86	491.35	0.00	0.00	0.00
2,000.00	29.41	278.57	1,874.76	80.56	-534.41	540.45	0.00	0.00	0.00
2,087.52	29.41	278.57	1,951.00	86.97	-576.90	583.42	0.00	0.00	0.00
<b>Lwr. Animas</b>									
2,100.00	29.41	278.57	1,961.88	87.88	-582.96	589.55	0.00	0.00	0.00
2,200.00	29.41	278.57	2,048.99	95.20	-631.51	638.65	0.00	0.00	0.00
2,300.00	29.41	278.57	2,136.11	102.52	-680.06	687.75	0.00	0.00	0.00
2,400.00	29.41	278.57	2,223.22	109.84	-728.61	736.85	0.00	0.00	0.00
2,420.41	29.41	278.57	2,241.00	111.33	-738.52	746.86	0.00	0.00	0.00
<b>Kirtland Sh</b>									
2,500.00	29.41	278.57	2,310.34	117.16	-777.16	785.95	0.00	0.00	0.00
2,560.10	29.41	278.57	2,362.70	121.56	-806.34	815.45	0.00	0.00	0.00
2,600.00	27.81	278.57	2,397.72	124.41	-825.23	834.56	4.00	-4.00	0.00
2,620.59	26.99	278.57	2,416.00	125.82	-834.60	844.03	4.00	-4.00	0.00
<b>Farmington Ss</b>									
2,700.00	23.81	278.57	2,487.73	130.90	-868.28	878.09	4.00	-4.00	0.00
2,800.00	19.81	278.57	2,580.55	136.43	-905.01	915.23	4.00	-4.00	0.00
2,899.23	15.84	278.57	2,675.00	140.96	-935.04	945.60	4.00	-4.00	0.00
<b>Lwr. Kirtland Sh</b>									
2,900.00	15.81	278.57	2,675.74	140.99	-935.25	945.81	4.00	-4.00	0.00
3,000.00	11.81	278.57	2,772.83	144.55	-958.85	969.68	4.00	-4.00	0.00
3,100.00	7.81	278.57	2,871.35	147.09	-975.69	986.72	4.00	-4.00	0.00
3,200.00	3.81	278.57	2,970.81	148.60	-985.70	996.84	4.00	-4.00	0.00
3,295.26	0.00	0.00	3,066.00	149.07	-988.83	1,000.00	4.00	-4.00	85.48
<b>Fruitland Coal - Tiffany 2-3 BTV</b>									
3,300.00	0.00	0.00	3,070.74	149.07	-988.83	1,000.00	0.00	0.00	0.00
3,325.26	0.00	0.00	3,096.00	149.07	-988.83	1,000.00	0.00	0.00	0.00



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 2-3 - Slot Tiffany 2-3
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
<b>Site:</b>	Tiffany Pad 2	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 2-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<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)
<b>Lemon Seam</b>									
3,400.00	0.00	0.00	3,170.74	149.07	-988.83	1,000.00	0.00	0.00	0.00
3,416.26	0.00	0.00	3,187.00	149.07	-988.83	1,000.00	0.00	0.00	0.00
<b>Lwr Lemon Seam</b>									
3,455.26	0.00	0.00	3,226.00	149.07	-988.83	1,000.00	0.00	0.00	0.00
<b>Ignacio Seam</b>									
3,492.26	0.00	0.00	3,263.00	149.07	-988.83	1,000.00	0.00	0.00	0.00
<b>Pictured Cliffs Ss</b>									
3,500.00	0.00	0.00	3,270.74	149.07	-988.83	1,000.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,370.74	149.07	-988.83	1,000.00	0.00	0.00	0.00
3,692.26	0.00	0.00	3,463.00	149.07	-988.83	1,000.00	0.00	0.00	0.00
<b>Tiffany 2-3 PBHL</b>									

**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
Tiffany 2-3 BTV - plan hits target center - Circle (radius 25.00)	0.00	360.00	3,066.00	149.07	-988.83	1,163,460.29	2,407,595.44	37.0978919	-107.5312687
Tiffany 2-3 PBHL - plan hits target center - Point	0.00	360.00	3,463.00	149.07	-988.83	1,163,460.29	2,407,595.44	37.0978919	-107.5312687

**Casing Points**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
450.00	450.00	Surface Casing	8.62	12.25

**Formations**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
11.00	11.00	Animas		0.00	0.00
2,087.52	1,951.00	Lwr. Animas		0.00	0.00
2,420.41	2,241.00	Kirtland Sh		0.00	0.00
2,620.59	2,416.00	Farmington Ss		0.00	0.00
2,899.23	2,675.00	Lwr. Kirtland Sh		0.00	0.00
3,295.26	3,066.00	Fruitland Coal		0.00	0.00
3,325.26	3,096.00	Lemon Seam		0.00	0.00
3,416.26	3,187.00	Lwr Lemon Seam		0.00	0.00
3,455.26	3,226.00	Ignacio Seam		0.00	0.00
3,492.26	3,263.00	Pictured Cliffs Ss		0.00	0.00



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 2-3 - Slot Tiffany 2-3
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
<b>Site:</b>	Tiffany Pad 2	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 2-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	Plan #2		