



Company: B.P.
Project: La Plata County, CO NAD83
Site: Tiffany Pad 2
Well: Tiffany 2-1



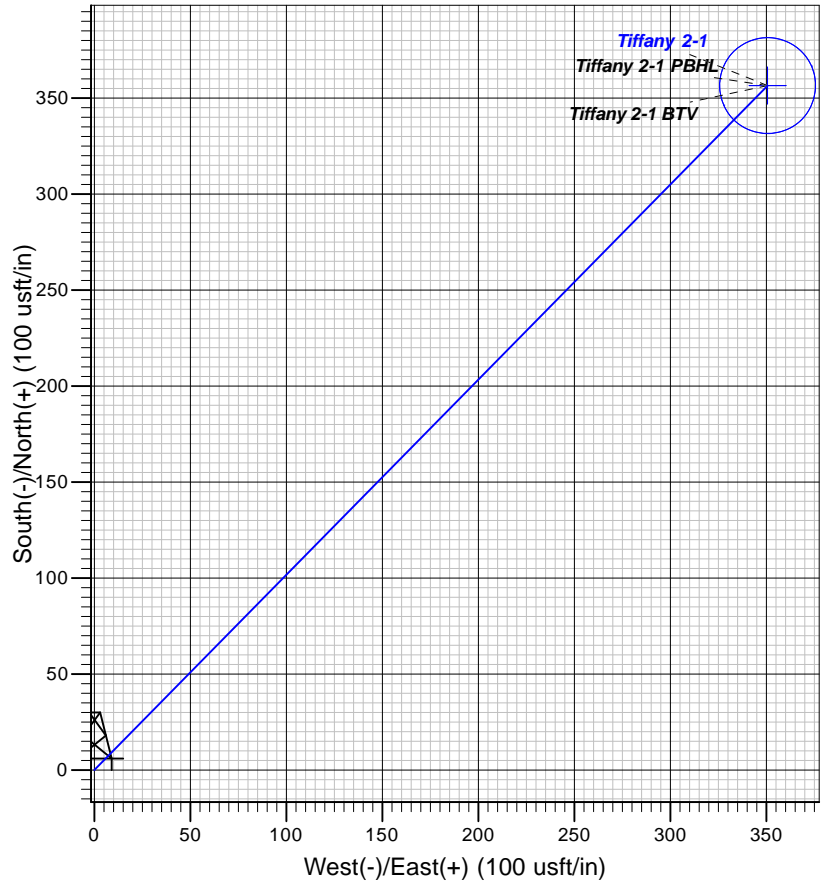
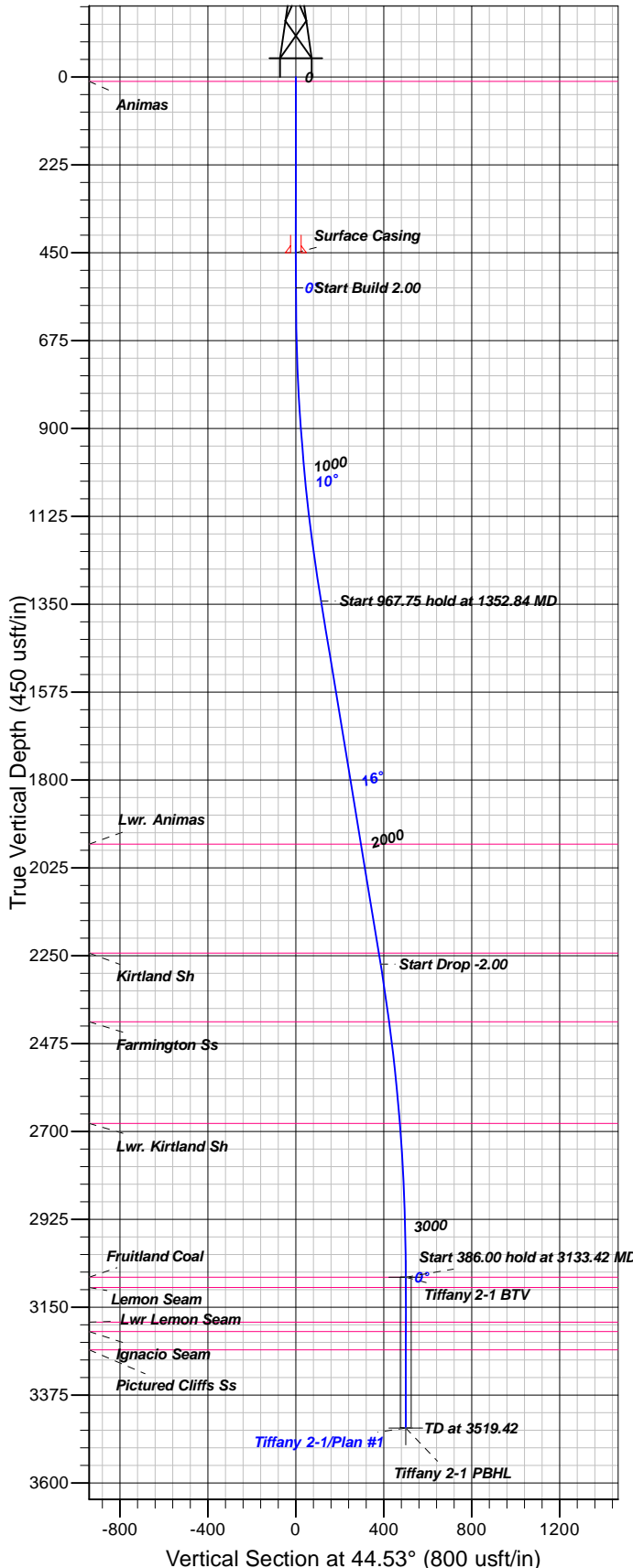
Well Details: Tiffany 2-1

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1163257.22	2408649.91	37.0973973	-107.5276390	Tiffany 2-1

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

Magnetic Field
Strength: 50257.1snT
Dip Angle: 63.65°
Date: 3/17/2016
Model: HDGM



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
11.00	11.00	Animas
1964.00	2000.77	Lwr. Animas
2243.00	2291.39	Kirtland Sh
2419.00	2473.60	Farmington Ss
2679.00	2738.17	Lwr. Kirtland Sh
3073.00	3133.42	Fruitland Coal
3099.00	3159.42	Lemon Seam
3188.00	3248.42	Lwr. Lemon Seam
3212.00	3272.42	Ignacio Seam
3259.00	3319.42	Pictured Cliffs Ss

Plan: Plan #1

10:45, April 19 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	1352.84	16.26	44.53	1341.97	81.66	80.32	2.00	44.53	114.54	
4	2320.58	16.26	44.53	2271.03	274.79	270.31	0.00	0.00	385.46	
5	3133.42	0.00	0.00	3073.00	356.45	350.63	2.00	180.00	500.00	Tiffany 2-1 BTM
6	3519.42	0.00	0.00	3459.00	356.45	350.63	0.00	0.00	500.00	Tiffany 2-1 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Tiffany 2-1 BTM	3073.00	356.45	350.63	1163613.67	2409000.54	37.0983969	-107.5264637	Circle (Radius: 25.00)
- plan hits target center								
Tiffany 2-1 PBHL	3459.00	356.45	350.63	1163613.67	2409000.54	37.0983969	-107.5264637	Point
- plan hits target center								



B.P.

La Plata County, CO NAD83

Tiffany Pad 2

Tiffany 2-1 - Slot Tiffany 2-1

Pilot

Plan: Plan #1

Standard Planning Report

19 April, 2016





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 2-1 - Slot Tiffany 2-1
Company:	B.P.	TVD Reference:	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
Site:	Tiffany Pad 2	North Reference:	Grid
Well:	Tiffany 2-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Plan #1		

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

Well	Tiffany 2-1 - Slot Tiffany 2-1			
Well Position	+N/-S	0.00 usft	Northing:	1,163,257.22 usft
	+E/-W	0.00 usft	Easting:	2,408,649.91 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft
			Ground Level:	6,669.66 usft

Wellbore	Pilot				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/17/2016	9.28	63.65	50,257

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	44.53

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
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	
1,352.84	16.26	44.53	1,341.97	81.66	80.32	2.00	2.00	0.00	44.53	
2,320.58	16.26	44.53	2,271.03	274.79	270.31	0.00	0.00	0.00	0.00	
3,133.42	0.00	0.00	3,073.00	356.45	350.63	2.00	-2.00	0.00	180.00	Tiffany 2-1 BTV
3,519.42	0.00	0.00	3,459.00	356.45	350.63	0.00	0.00	0.00	0.00	Tiffany 2-1 PBHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 2-1 - Slot Tiffany 2-1
Company:	B.P.	TVD Reference:	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
Site:	Tiffany Pad 2	North Reference:	Grid
Well:	Tiffany 2-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Plan #1		

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
Animas									
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
Surface Casing									
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	1.20	44.53	600.00	0.45	0.44	0.63	2.00	2.00	0.00
700.00	3.20	44.53	699.92	3.18	3.13	4.47	2.00	2.00	0.00
800.00	5.20	44.53	799.64	8.41	8.27	11.79	2.00	2.00	0.00
900.00	7.20	44.53	899.05	16.10	15.84	22.59	2.00	2.00	0.00
1,000.00	9.20	44.53	998.03	26.27	25.84	36.85	2.00	2.00	0.00
1,100.00	11.20	44.53	1,096.44	38.90	38.26	54.56	2.00	2.00	0.00
1,200.00	13.20	44.53	1,194.18	53.96	53.08	75.69	2.00	2.00	0.00
1,300.00	15.20	44.53	1,291.12	71.45	70.28	100.22	2.00	2.00	0.00
1,352.84	16.26	44.53	1,341.97	81.66	80.32	114.54	2.00	2.00	0.00
1,400.00	16.26	44.53	1,387.25	91.07	89.58	127.75	0.00	0.00	0.00
1,500.00	16.26	44.53	1,483.25	111.03	109.21	155.74	0.00	0.00	0.00
1,600.00	16.26	44.53	1,579.26	130.98	128.85	183.73	0.00	0.00	0.00
1,700.00	16.26	44.53	1,675.26	150.94	148.48	211.73	0.00	0.00	0.00
1,800.00	16.26	44.53	1,771.26	170.90	168.11	239.72	0.00	0.00	0.00
1,900.00	16.26	44.53	1,867.26	190.86	187.74	267.72	0.00	0.00	0.00
2,000.00	16.26	44.53	1,963.26	210.81	207.37	295.71	0.00	0.00	0.00
2,000.77	16.26	44.53	1,964.00	210.97	207.52	295.93	0.00	0.00	0.00
Lwr. Animas									
2,100.00	16.26	44.53	2,059.26	230.77	227.00	323.71	0.00	0.00	0.00
2,200.00	16.26	44.53	2,155.27	250.73	246.63	351.70	0.00	0.00	0.00
2,291.39	16.26	44.53	2,243.00	268.97	264.57	377.28	0.00	0.00	0.00
Kirtland Sh									
2,300.00	16.26	44.53	2,251.27	270.68	266.26	379.69	0.00	0.00	0.00
2,320.58	16.26	44.53	2,271.03	274.79	270.31	385.46	0.00	0.00	0.00
2,400.00	14.67	44.53	2,347.57	289.89	285.15	406.63	2.00	-2.00	0.00
2,473.60	13.20	44.53	2,419.00	302.52	297.58	424.35	2.00	-2.00	0.00
Farmington Ss									
2,500.00	12.67	44.53	2,444.73	306.73	301.72	430.26	2.00	-2.00	0.00
2,600.00	10.67	44.53	2,542.66	321.15	315.91	450.48	2.00	-2.00	0.00
2,700.00	8.67	44.53	2,641.23	333.12	327.68	467.27	2.00	-2.00	0.00
2,738.17	7.91	44.53	2,679.00	337.04	331.54	472.77	2.00	-2.00	0.00
Lwr. Kirtland Sh									
2,800.00	6.67	44.53	2,740.33	342.63	337.04	480.62	2.00	-2.00	0.00
2,900.00	4.67	44.53	2,839.84	349.67	343.97	490.49	2.00	-2.00	0.00
3,000.00	2.67	44.53	2,939.63	354.24	348.45	496.89	2.00	-2.00	0.00
3,100.00	0.67	44.53	3,039.58	356.31	350.49	499.80	2.00	-2.00	0.00
3,133.42	0.00	0.00	3,073.00	356.45	350.63	500.00	2.00	-2.00	-133.25
Fruitland Coal - Tiffany 2-1 BTV									
3,159.42	0.00	0.00	3,099.00	356.45	350.63	500.00	0.00	0.00	0.00
Lemon Seam									



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Site:	Tiffany Pad 2	North Reference:	Grid
Well:	Tiffany 2-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Plan #1		

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)
3,200.00	0.00	0.00	3,139.58	356.45	350.63	500.00	0.00	0.00	0.00
3,248.42	0.00	0.00	3,188.00	356.45	350.63	500.00	0.00	0.00	0.00
Lwr Lemon Seam									
3,272.42	0.00	0.00	3,212.00	356.45	350.63	500.00	0.00	0.00	0.00
Ignacio Seam									
3,300.00	0.00	0.00	3,239.58	356.45	350.63	500.00	0.00	0.00	0.00
3,319.42	0.00	0.00	3,259.00	356.45	350.63	500.00	0.00	0.00	0.00
Pictured Cliffs Ss									
3,400.00	0.00	0.00	3,339.58	356.45	350.63	500.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,439.58	356.45	350.63	500.00	0.00	0.00	0.00
3,519.42	0.00	0.00	3,459.00	356.45	350.63	500.00	0.00	0.00	0.00
Tiffany 2-1 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
Tiffany 2-1 BTV - plan hits target center - Circle (radius 25.00)	0.00	0.00	3,073.00	356.45	350.63	1,163,613.67	2,409,000.54	37.0983968	-107.5264637
Tiffany 2-1 PBHL - plan hits target center - Point	0.00	0.00	3,459.00	356.45	350.63	1,163,613.67	2,409,000.54	37.0983968	-107.5264637

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
2,000.77	1,964.00	Lwr. Animas		0.00	0.00
2,291.39	2,243.00	Kirtland Sh		0.00	0.00
2,473.60	2,419.00	Farmington Ss		0.00	0.00
2,738.17	2,679.00	Lwr. Kirtland Sh		0.00	0.00
3,133.42	3,073.00	Fruitland Coal		0.00	0.00
3,159.42	3,099.00	Lemon Seam		0.00	0.00
3,248.42	3,188.00	Lwr Lemon Seam		0.00	0.00
3,272.42	3,212.00	Ignacio Seam		0.00	0.00
3,319.42	3,259.00	Pictured Cliffs Ss		0.00	0.00



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 2-1 - Slot Tiffany 2-1
Company:	B.P.	TVD Reference:	GL 6669.66' & RKB 11' @ 6680.66usft (Aztec 507)
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Site:	Tiffany Pad 2	North Reference:	Grid
Well:	Tiffany 2-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Plan #1		