





**B.P.**

**La Plata County, CO NAD83**

**Tiffany Pad**

**Tiffany 1-3 - Slot C**

**Pilot**

**Plan: Plan #1**

## **Standard Planning Report**

**11 January, 2016**





<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Tiffany 1-3 - Slot C
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
<b>Site:</b>	Tiffany Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 1-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	Plan #1		

<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					
Site Position:		Northing:	1,165,118.91 usft	Latitude:	37.1020115	
From:	Map	Easting:	2,400,363.16 usft	Longitude:	-107.5561843	
Position Uncertainty:		0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.26 °

Well	Tiffany 1-3 - Slot C					
Well Position	+N/-S	-85.00 usft	Northing:	1,165,033.91 usft	Latitude:	37.1017781
	+E/-W	0.00 usft	Easting:	2,400,363.16 usft	Longitude:	-107.5561779
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,479.14 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	12/7/2015	9.30	63.67	50,285

<b>Design</b>	Plan #1			
<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	117.02

<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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.41	12.01	117.02	1,096.02	-28.48	55.85	2.00	2.00	0.00	117.02	
3,202.38	12.01	117.02	3,152.00	-227.15	445.43	0.00	0.00	0.00	0.00	Tiff 1-3 PBHL



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<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
<b>Site:</b>	Tiffany Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 1-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	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
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Casing									
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	117.02	599.98	-0.79	1.55	1.75	2.00	2.00	0.00
700.00	4.00	117.02	699.84	-3.17	6.22	6.98	2.00	2.00	0.00
800.00	6.00	117.02	799.45	-7.13	13.98	15.69	2.00	2.00	0.00
900.00	8.00	117.02	898.70	-12.67	24.84	27.88	2.00	2.00	0.00
1,000.00	10.00	117.02	997.47	-19.77	38.77	43.52	2.00	2.00	0.00
1,100.00	12.00	117.02	1,095.62	-28.44	55.77	62.60	2.00	2.00	0.00
1,100.41	12.01	117.02	1,096.02	-28.48	55.85	62.69	2.00	2.00	0.00
1,200.00	12.01	117.02	1,193.43	-37.89	74.30	83.41	0.00	0.00	0.00
1,300.00	12.01	117.02	1,291.25	-47.34	92.84	104.21	0.00	0.00	0.00
1,400.00	12.01	117.02	1,389.06	-56.80	111.37	125.02	0.00	0.00	0.00
1,500.00	12.01	117.02	1,486.87	-66.25	129.91	145.82	0.00	0.00	0.00
1,600.00	12.01	117.02	1,584.68	-75.70	148.44	166.63	0.00	0.00	0.00
1,671.89	12.01	117.02	1,655.00	-82.49	161.77	181.58	0.00	0.00	0.00
Lwr. Animas									
1,700.00	12.01	117.02	1,682.49	-85.15	166.97	187.43	0.00	0.00	0.00
1,800.00	12.01	117.02	1,780.31	-94.60	185.51	208.24	0.00	0.00	0.00
1,900.00	12.01	117.02	1,878.12	-104.05	204.04	229.04	0.00	0.00	0.00
2,000.00	12.01	117.02	1,975.93	-113.50	222.58	249.85	0.00	0.00	0.00
2,014.39	12.01	117.02	1,990.00	-114.86	225.24	252.84	0.00	0.00	0.00
Kirtland Sh									
2,100.00	12.01	117.02	2,073.74	-122.96	241.11	270.65	0.00	0.00	0.00
2,200.00	12.01	117.02	2,171.55	-132.41	259.65	291.46	0.00	0.00	0.00
2,216.82	12.01	117.02	2,188.00	-134.00	262.76	294.96	0.00	0.00	0.00
Farmington Ss									
2,300.00	12.01	117.02	2,269.36	-141.86	278.18	312.26	0.00	0.00	0.00
2,400.00	12.01	117.02	2,367.18	-151.31	296.71	333.07	0.00	0.00	0.00
2,500.00	12.01	117.02	2,464.99	-160.76	315.25	353.87	0.00	0.00	0.00
2,597.14	12.01	117.02	2,560.00	-169.94	333.25	374.08	0.00	0.00	0.00
Lwr. Kirtland Sh									
2,600.00	12.01	117.02	2,562.80	-170.21	333.78	374.68	0.00	0.00	0.00
2,700.00	12.01	117.02	2,660.61	-179.67	352.32	395.48	0.00	0.00	0.00
2,800.00	12.01	117.02	2,758.42	-189.12	370.85	416.29	0.00	0.00	0.00
2,803.66	12.01	117.02	2,762.00	-189.46	371.53	417.05	0.00	0.00	0.00
Fruitland Coal									
2,835.35	12.01	117.02	2,793.00	-192.46	377.40	423.64	0.00	0.00	0.00
Lemon Seam									
2,900.00	12.01	117.02	2,856.24	-198.57	389.39	437.09	0.00	0.00	0.00
2,921.23	12.01	117.02	2,877.00	-200.58	393.32	441.51	0.00	0.00	0.00
Lwr. Lemon Seam									
2,965.19	12.01	117.02	2,920.00	-204.73	401.47	450.66	0.00	0.00	0.00
Ignacio Seam									



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<b>Site:</b>	Tiffany Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Tiffany 1-3	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot		
<b>Design:</b>	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)
2,997.91	12.01	117.02	2,952.00	-207.82	407.53	457.46	0.00	0.00	0.00
<b>Pictured Cliffs Ss</b>									
3,000.00	12.01	117.02	2,954.05	-208.02	407.92	457.90	0.00	0.00	0.00
3,100.00	12.01	117.02	3,051.86	-217.47	426.45	478.70	0.00	0.00	0.00
3,200.00	12.01	117.02	3,149.67	-226.92	444.99	499.51	0.00	0.00	0.00
3,202.38	12.01	117.02	3,152.00	-227.15	445.43	500.01	0.00	0.00	0.00
<b>7" Casing - Tiff 1-3 PBHL</b>									

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 1-3 PBHL	0.00	0.00	3,152.00	-227.15	445.43	1,164,806.76	2,400,808.59	37.1011813	-107.5546339
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
350.00	350.00	Surface Casing	9.62	12.25	
3,202.38	3,152.00	7" Casing	7.00	8.75	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
11.00	11.00	Animas		0.00	0.00
1,671.89	1,655.00	Lwr. Animas		0.00	0.00
2,014.39	1,990.00	Kirtland Sh		0.00	0.00
2,216.82	2,188.00	Farmington Ss		0.00	0.00
2,597.14	2,560.00	Lwr. Kirtland Sh		0.00	0.00
2,803.66	2,762.00	Fruitland Coal		0.00	0.00
2,835.35	2,793.00	Lemon Seam		0.00	0.00
2,921.23	2,877.00	Lwr. Lemon Seam		0.00	0.00
2,965.19	2,920.00	Ignacio Seam		0.00	0.00
2,997.91	2,952.00	Pictured Cliffs Ss		0.00	0.00