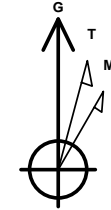




Company: B.P.
Project: La Plata County, CO NAD83
Site: Tiffany Pad
Well: Tiffany 1-4
Wellbore: Lateral 2
Design: Plan #1

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



Azimuths to Grid North
True North: 1.26°
Magnetic North: 10.56°

Magnetic Field
Strength: 50285.2snT
Dip Angle: 63.67°
Date: 12/7/2015
Model: HDGM

WELL DETAILS: Tiffany 1-4

GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1164991.41	2400363.16	37.1016614	-107.5561747

D

Plan: Plan #1 (Tiffany 1-4/Lateral 2)

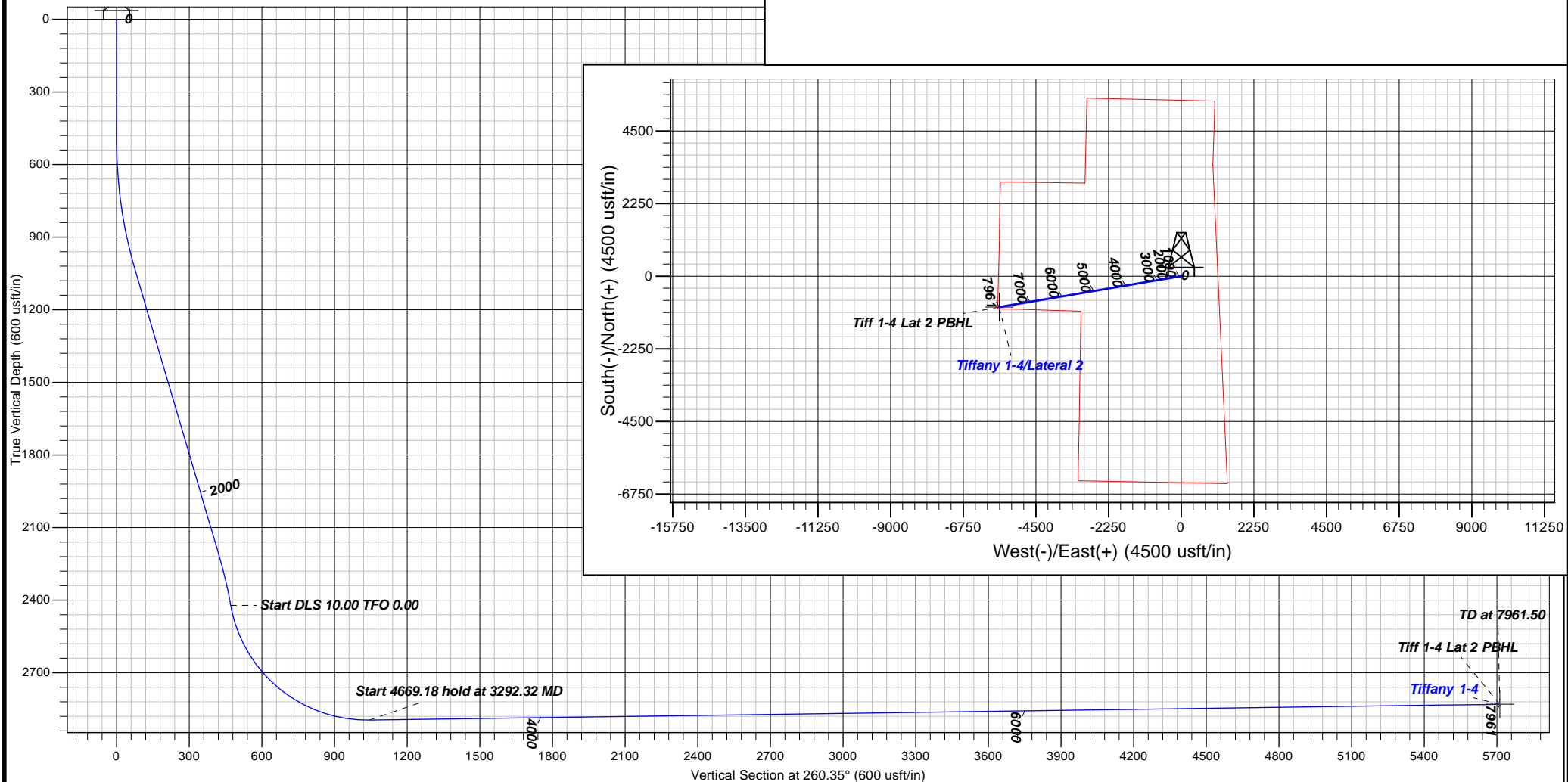
Created By: Janie Collins Date: 16:14, December 21 2015

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Tiff 1-4 Lat 2 PBHL	2830.00	-957.71	-5631.30	1164033.70	2394731.86	37.0986898	-107.5754053

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
2484.05	9.97	260.35	2421.31	-78.99	-464.48	0.00	0.00	471.15		
3292.32	90.80	260.35	2895.01	-174.94	-1028.66	10.00	0.00	1043.43		
7961.50	90.80	260.35	2830.00	-957.71	-5631.30	0.00	0.00	5712.16	Tiff 1-4 Lat 2 PBHL	





B.P.

La Plata County, CO NAD83

Tiffany Pad

Tiffany 1-4 - Slot D

Lateral 2

Plan: Plan #1

Standard Planning Report

21 December, 2015





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 1-4 - Slot D
Company:	B.P.	TVD Reference:	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
Site:	Tiffany Pad	North Reference:	Grid
Well:	Tiffany 1-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 2		
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			
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 1-4 - Slot D					
Well Position	+N/-S	-127.50 usft	Northing:	1,164,991.41 usft	Latitude:	37.1016614
	+E/-W	0.00 usft	Easting:	2,400,363.16 usft	Longitude:	-107.5561747
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,479.14 usft

Wellbore	Lateral 2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/7/2015	9.30	63.67	50,285

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	2,484.05
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	260.35	

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
2,484.05	9.97	260.35	2,421.31	-78.99	-464.48	0.00	0.00	0.00	0.00	
3,292.32	90.80	260.35	2,895.01	-174.94	-1,028.66	10.00	10.00	0.00	0.00	
7,961.50	90.80	260.35	2,830.00	-957.71	-5,631.30	0.00	0.00	0.00	0.00	Tiff 1-4 Lat 2 PBHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 1-4 - Slot D
Company:	B.P.	TVD Reference:	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
Site:	Tiffany Pad	North Reference:	Grid
Well:	Tiffany 1-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 2		
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)
2,484.05	9.97	260.35	2,421.31	-78.99	-464.48	471.15	0.00	0.00	0.00
2,500.00	11.57	260.35	2,436.98	-79.49	-467.42	474.13	10.00	10.00	0.00
2,600.00	21.57	260.35	2,532.71	-84.27	-495.49	502.61	10.00	10.00	0.00
2,700.00	31.57	260.35	2,622.04	-91.76	-539.53	547.27	10.00	10.00	0.00
2,800.00	41.57	260.35	2,702.25	-101.73	-598.18	606.77	10.00	10.00	0.00
2,900.00	51.57	260.35	2,770.92	-113.89	-669.68	679.30	10.00	10.00	0.00
3,000.00	61.57	260.35	2,825.94	-127.87	-751.85	762.64	10.00	10.00	0.00
3,100.00	71.57	260.35	2,865.66	-143.23	-842.18	854.28	10.00	10.00	0.00
3,200.00	81.57	260.35	2,888.87	-159.52	-937.95	951.42	10.00	10.00	0.00
3,292.32	90.80	260.35	2,895.01	-174.94	-1,028.66	1,043.43	10.00	10.00	0.00
3,300.00	90.80	260.35	2,894.90	-176.23	-1,036.23	1,051.11	0.00	0.00	0.00
3,400.00	90.80	260.35	2,893.51	-193.00	-1,134.81	1,151.10	0.00	0.00	0.00
3,500.00	90.80	260.35	2,892.12	-209.76	-1,233.38	1,251.09	0.00	0.00	0.00
3,600.00	90.80	260.35	2,890.72	-226.52	-1,331.96	1,351.08	0.00	0.00	0.00
3,700.00	90.80	260.35	2,889.33	-243.29	-1,430.53	1,451.07	0.00	0.00	0.00
3,800.00	90.80	260.35	2,887.94	-260.05	-1,529.11	1,551.06	0.00	0.00	0.00
3,900.00	90.80	260.35	2,886.55	-276.82	-1,627.68	1,651.05	0.00	0.00	0.00
4,000.00	90.80	260.35	2,885.15	-293.58	-1,726.26	1,751.04	0.00	0.00	0.00
4,100.00	90.80	260.35	2,883.76	-310.35	-1,824.83	1,851.04	0.00	0.00	0.00
4,200.00	90.80	260.35	2,882.37	-327.11	-1,923.41	1,951.03	0.00	0.00	0.00
4,300.00	90.80	260.35	2,880.98	-343.88	-2,021.98	2,051.02	0.00	0.00	0.00
4,400.00	90.80	260.35	2,879.59	-360.64	-2,120.56	2,151.01	0.00	0.00	0.00
4,500.00	90.80	260.35	2,878.19	-377.41	-2,219.13	2,251.00	0.00	0.00	0.00
4,600.00	90.80	260.35	2,876.80	-394.17	-2,317.71	2,350.99	0.00	0.00	0.00
4,700.00	90.80	260.35	2,875.41	-410.93	-2,416.28	2,450.98	0.00	0.00	0.00
4,800.00	90.80	260.35	2,874.02	-427.70	-2,514.86	2,550.97	0.00	0.00	0.00
4,900.00	90.80	260.35	2,872.62	-444.46	-2,613.43	2,650.96	0.00	0.00	0.00
5,000.00	90.80	260.35	2,871.23	-461.23	-2,712.01	2,750.95	0.00	0.00	0.00
5,100.00	90.80	260.35	2,869.84	-477.99	-2,810.58	2,850.94	0.00	0.00	0.00
5,200.00	90.80	260.35	2,868.45	-494.76	-2,909.16	2,950.93	0.00	0.00	0.00
5,300.00	90.80	260.35	2,867.05	-511.52	-3,007.73	3,050.92	0.00	0.00	0.00
5,400.00	90.80	260.35	2,865.66	-528.29	-3,106.31	3,150.91	0.00	0.00	0.00
5,500.00	90.80	260.35	2,864.27	-545.05	-3,204.88	3,250.90	0.00	0.00	0.00
5,600.00	90.80	260.35	2,862.88	-561.82	-3,303.46	3,350.89	0.00	0.00	0.00
5,700.00	90.80	260.35	2,861.49	-578.58	-3,402.03	3,450.88	0.00	0.00	0.00
5,800.00	90.80	260.35	2,860.09	-595.34	-3,500.61	3,550.87	0.00	0.00	0.00
5,900.00	90.80	260.35	2,858.70	-612.11	-3,599.18	3,650.86	0.00	0.00	0.00
6,000.00	90.80	260.35	2,857.31	-628.87	-3,697.76	3,750.85	0.00	0.00	0.00
6,100.00	90.80	260.35	2,855.92	-645.64	-3,796.33	3,850.84	0.00	0.00	0.00
6,200.00	90.80	260.35	2,854.52	-662.40	-3,894.91	3,950.83	0.00	0.00	0.00
6,300.00	90.80	260.35	2,853.13	-679.17	-3,993.48	4,050.82	0.00	0.00	0.00
6,400.00	90.80	260.35	2,851.74	-695.93	-4,092.06	4,150.81	0.00	0.00	0.00
6,500.00	90.80	260.35	2,850.35	-712.70	-4,190.63	4,250.80	0.00	0.00	0.00
6,600.00	90.80	260.35	2,848.96	-729.46	-4,289.21	4,350.79	0.00	0.00	0.00
6,700.00	90.80	260.35	2,847.56	-746.23	-4,387.78	4,450.78	0.00	0.00	0.00
6,800.00	90.80	260.35	2,846.17	-762.99	-4,486.36	4,550.77	0.00	0.00	0.00
6,900.00	90.80	260.35	2,844.78	-779.75	-4,584.93	4,650.76	0.00	0.00	0.00
7,000.00	90.80	260.35	2,843.39	-796.52	-4,683.51	4,750.75	0.00	0.00	0.00
7,100.00	90.80	260.35	2,841.99	-813.28	-4,782.08	4,850.74	0.00	0.00	0.00
7,200.00	90.80	260.35	2,840.60	-830.05	-4,880.65	4,950.73	0.00	0.00	0.00
7,300.00	90.80	260.35	2,839.21	-846.81	-4,979.23	5,050.72	0.00	0.00	0.00
7,400.00	90.80	260.35	2,837.82	-863.58	-5,077.80	5,150.72	0.00	0.00	0.00



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 1-4 - Slot D
Company:	B.P.	TVD Reference:	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6479.14' & RKB 11' @ 6490.14usft (Aztec 507)
Site:	Tiffany Pad	North Reference:	Grid
Well:	Tiffany 1-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 2		
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)
7,500.00	90.80	260.35	2,836.43	-880.34	-5,176.38	5,250.71	0.00	0.00	0.00
7,600.00	90.80	260.35	2,835.03	-897.11	-5,274.95	5,350.70	0.00	0.00	0.00
7,700.00	90.80	260.35	2,833.64	-913.87	-5,373.53	5,450.69	0.00	0.00	0.00
7,800.00	90.80	260.35	2,832.25	-930.64	-5,472.10	5,550.68	0.00	0.00	0.00
7,900.00	90.80	260.35	2,830.86	-947.40	-5,570.68	5,650.67	0.00	0.00	0.00
7,961.50	90.80	260.35	2,830.00	-957.71	-5,631.30	5,712.16	0.00	0.00	0.00
Tiff 1-4 Lat 2 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
Tiff 1-4 Lat 2 PBHL - plan hits target center - Point	0.00	360.00	2,830.00	-957.71	-5,631.30	1,164,033.70	2,394,731.86	37.0986898	-107.5754053

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
7,961.50	2,830.00	4 1/2" Casing	4.50	6.13