



Company: B.P.
Project: La Plata County, CO NAD83
Site: Tiffany Pad 4
Well: Tiffany 4-2
Wellbore: Lateral 1
Design: Plan #3

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



Plan: Plan #3 (Tiffany 4-2/Lateral 1)

Created By: Janie Collins Date: 11:23, March 22 2017

WELL DETAILS: Tiffany 4-2

GL 6460' & RKB 11' @ 6471.00usft (Aztec 507) 6460.00				
Northing	Easting	Latitude	Longitude	Slot
1159751.08	2402837.05	37.0874222	-107.5473006	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3171.31	65.00	262.81	2905.18	-71.94	-570.24	0.00	0.00	574.76	
3514.79	91.30	240.00	2976.00	-180.54	-882.77	10.00	-43.39	898.42	
3714.79	91.30	240.00	2971.46	-280.51	-1055.93	0.00	0.00	1082.73	
4152.17	91.30	205.00	2961.22	-597.91	-1346.77	8.00	-89.59	1410.99	
5025.10	91.18	274.85	2939.56	-1008.61	-2056.06	8.00	89.22	2166.07	
8590.46	91.18	274.85	2866.00	-707.03	-5607.87	0.00	0.00	5652.26	Tiff 4-2 Lat 1 PBHL



Azimuths to Grid North
True North: 1.26°
Magnetic North: 10.44°

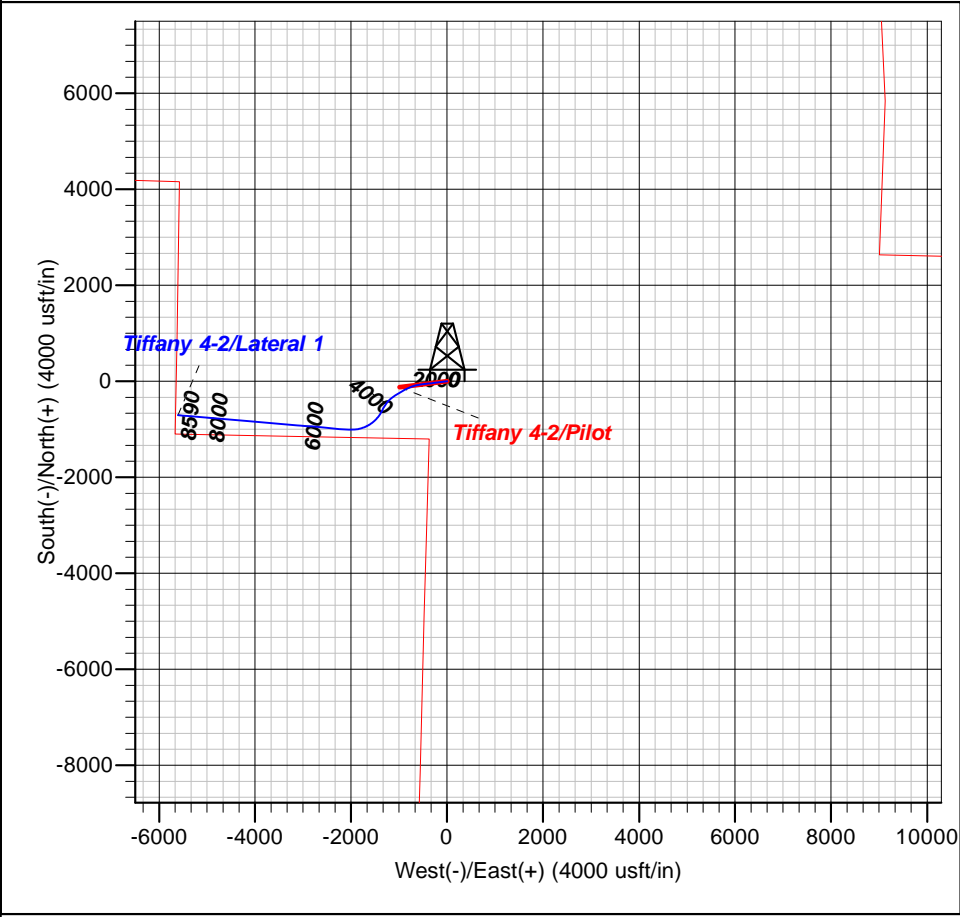
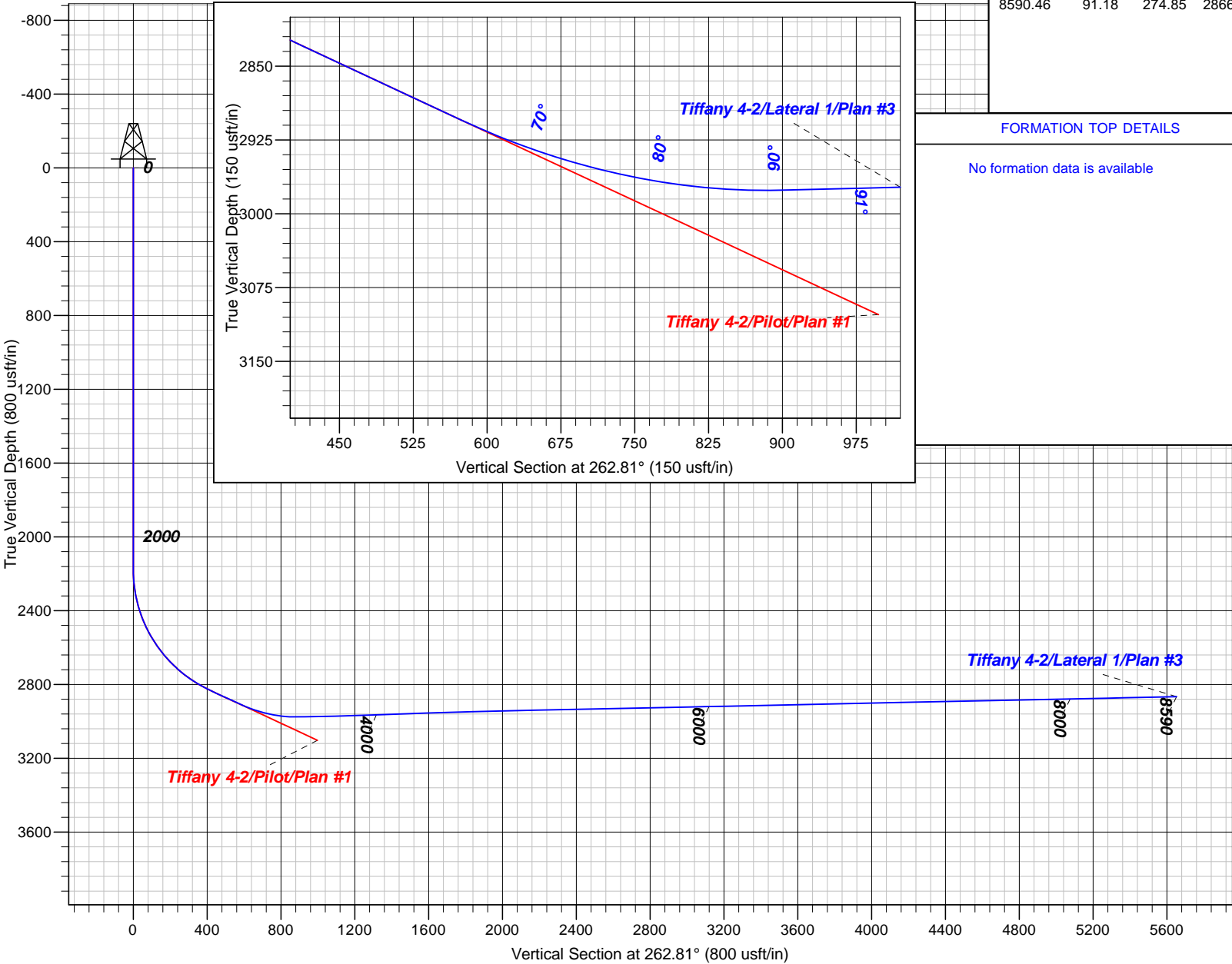
Magnetic Field
Strength: 50146.7snT
Dip Angle: 63.65°
Date: 3/6/2017
Model: HDGM

FORMATION TOP DETAILS

No formation data is available

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Tiff 4-2 Lat 1 PBHL	2866.00	-707.03	-5607.87	1159044.05	2397229.18	37.0851418	-107.5664666





B.P.

La Plata County, CO NAD83

Tiffany Pad 4

Tiffany 4-2

Lateral 1

Plan: Plan #3

Standard Planning Report

22 March, 2017





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 4-2
Company:	B.P.	TVD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Site:	Tiffany Pad 4	North Reference:	Grid
Well:	Tiffany 4-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #3		

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 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 4-2					
Well Position	+N/-S	-42.49 usft	Northing:	1,159,751.08 usft	Latitude:	37.0874221
	+E/-W	-1.11 usft	Easting:	2,402,837.05 usft	Longitude:	-107.5473006
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,460.00 usft

Wellbore	Lateral 1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/6/2017	9.18	63.65	50,147

Design	Plan #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	3,171.31
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	262.81

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
3,171.31	65.00	262.81	2,905.18	-71.94	-570.24	0.00	0.00	0.00	0.00	
3,514.79	91.30	240.00	2,976.00	-180.54	-882.77	10.00	7.66	-6.64	-43.39	
3,714.79	91.30	240.00	2,971.46	-280.51	-1,055.93	0.00	0.00	0.00	0.00	
4,152.17	91.30	205.00	2,961.22	-597.91	-1,346.77	8.00	0.00	-8.00	-89.59	
5,025.10	91.18	274.85	2,939.56	-1,008.61	-2,056.06	8.00	-0.01	8.00	89.22	
8,590.46	91.18	274.85	2,866.00	-707.03	-5,607.87	0.00	0.00	0.00	0.00	Tiff 4-2 Lat 1 PBHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 4-2
Company:	B.P.	TVD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Site:	Tiffany Pad 4	North Reference:	Grid
Well:	Tiffany 4-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #3		

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)
3,171.31	65.00	262.81	2,905.18	-71.94	-570.24	574.76	0.00	0.00	0.00
3,200.00	67.10	260.67	2,916.83	-75.71	-596.18	600.97	10.00	7.32	-7.46
3,300.00	74.61	253.68	2,949.63	-96.77	-688.13	694.83	10.00	7.51	-6.99
3,400.00	82.33	247.18	2,969.62	-129.62	-780.31	790.39	10.00	7.72	-6.50
3,500.00	90.14	240.92	2,976.19	-173.25	-869.91	884.75	10.00	7.81	-6.26
3,514.79	91.30	240.00	2,976.00	-180.54	-882.77	898.42	10.00	7.83	-6.23
3,600.00	91.30	240.00	2,974.07	-223.13	-956.55	976.95	0.00	0.00	0.00
3,700.00	91.30	240.00	2,971.80	-273.12	-1,043.13	1,069.10	0.00	0.00	0.00
3,714.79	91.30	240.00	2,971.46	-280.51	-1,055.93	1,082.73	0.00	0.00	0.00
3,800.00	91.34	233.18	2,969.50	-327.39	-1,127.00	1,159.11	8.00	0.05	-8.00
3,900.00	91.36	225.18	2,967.14	-392.69	-1,202.60	1,242.27	8.00	0.02	-8.00
4,000.00	91.36	217.18	2,964.76	-467.87	-1,268.37	1,316.93	8.00	0.00	-8.00
4,100.00	91.33	209.17	2,962.42	-551.48	-1,323.03	1,381.62	8.00	-0.03	-8.00
4,152.17	91.30	205.00	2,961.22	-597.91	-1,346.77	1,410.99	8.00	-0.05	-8.00
4,200.00	91.35	208.83	2,960.11	-640.54	-1,368.41	1,437.79	8.00	0.10	8.00
4,300.00	91.43	216.83	2,957.68	-724.47	-1,422.56	1,502.01	8.00	0.08	8.00
4,400.00	91.49	224.83	2,955.13	-800.05	-1,487.87	1,576.26	8.00	0.06	8.00
4,500.00	91.51	232.83	2,952.50	-865.80	-1,563.06	1,659.09	8.00	0.03	8.00
4,600.00	91.51	240.84	2,949.86	-920.44	-1,646.68	1,748.88	8.00	0.00	8.00
4,700.00	91.48	248.84	2,947.25	-962.91	-1,737.08	1,843.89	8.00	-0.03	8.00
4,800.00	91.42	256.84	2,944.71	-992.38	-1,832.52	1,942.27	8.00	-0.06	8.00
4,900.00	91.33	264.84	2,942.31	-1,008.28	-1,931.14	2,042.10	8.00	-0.09	8.00
5,000.00	91.21	272.84	2,940.09	-1,010.29	-2,031.01	2,141.44	8.00	-0.11	8.00
5,025.10	91.18	274.85	2,939.56	-1,008.61	-2,056.06	2,166.07	8.00	-0.13	8.00
5,100.00	91.18	274.85	2,938.02	-1,002.27	-2,130.67	2,239.30	0.00	0.00	0.00
5,200.00	91.18	274.85	2,935.95	-993.81	-2,230.29	2,337.08	0.00	0.00	0.00
5,300.00	91.18	274.85	2,933.89	-985.36	-2,329.91	2,434.86	0.00	0.00	0.00
5,400.00	91.18	274.85	2,931.83	-976.90	-2,429.53	2,532.64	0.00	0.00	0.00
5,500.00	91.18	274.85	2,929.76	-968.44	-2,529.15	2,630.42	0.00	0.00	0.00
5,600.00	91.18	274.85	2,927.70	-959.98	-2,628.77	2,728.20	0.00	0.00	0.00
5,700.00	91.18	274.85	2,925.64	-951.52	-2,728.39	2,825.98	0.00	0.00	0.00
5,800.00	91.18	274.85	2,923.57	-943.06	-2,828.01	2,923.76	0.00	0.00	0.00
5,900.00	91.18	274.85	2,921.51	-934.60	-2,927.63	3,021.54	0.00	0.00	0.00
6,000.00	91.18	274.85	2,919.45	-926.15	-3,027.25	3,119.32	0.00	0.00	0.00
6,100.00	91.18	274.85	2,917.38	-917.69	-3,126.87	3,217.10	0.00	0.00	0.00
6,200.00	91.18	274.85	2,915.32	-909.23	-3,226.49	3,314.88	0.00	0.00	0.00
6,300.00	91.18	274.85	2,913.26	-900.77	-3,326.11	3,412.66	0.00	0.00	0.00
6,400.00	91.18	274.85	2,911.19	-892.31	-3,425.73	3,510.44	0.00	0.00	0.00
6,500.00	91.18	274.85	2,909.13	-883.85	-3,525.35	3,608.22	0.00	0.00	0.00
6,600.00	91.18	274.85	2,907.07	-875.39	-3,624.97	3,706.00	0.00	0.00	0.00
6,700.00	91.18	274.85	2,905.00	-866.94	-3,724.59	3,803.78	0.00	0.00	0.00
6,800.00	91.18	274.85	2,902.94	-858.48	-3,824.21	3,901.56	0.00	0.00	0.00
6,900.00	91.18	274.85	2,900.88	-850.02	-3,923.83	3,999.34	0.00	0.00	0.00
7,000.00	91.18	274.85	2,898.82	-841.56	-4,023.45	4,097.12	0.00	0.00	0.00
7,100.00	91.18	274.85	2,896.75	-833.10	-4,123.07	4,194.90	0.00	0.00	0.00
7,200.00	91.18	274.85	2,894.69	-824.64	-4,222.69	4,292.68	0.00	0.00	0.00
7,300.00	91.18	274.85	2,892.63	-816.18	-4,322.31	4,390.46	0.00	0.00	0.00
7,400.00	91.18	274.85	2,890.56	-807.73	-4,421.93	4,488.24	0.00	0.00	0.00
7,500.00	91.18	274.85	2,888.50	-799.27	-4,521.55	4,586.02	0.00	0.00	0.00
7,600.00	91.18	274.85	2,886.44	-790.81	-4,621.17	4,683.80	0.00	0.00	0.00
7,700.00	91.18	274.85	2,884.37	-782.35	-4,720.79	4,781.58	0.00	0.00	0.00
7,800.00	91.18	274.85	2,882.31	-773.89	-4,820.41	4,879.36	0.00	0.00	0.00



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Tiffany 4-2
Company:	B.P.	TVD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6460' & RKB 11' @ 6471.00usft (Aztec 507)
Site:	Tiffany Pad 4	North Reference:	Grid
Well:	Tiffany 4-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #3		

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)
7,900.00	91.18	274.85	2,880.25	-765.43	-4,920.03	4,977.14	0.00	0.00	0.00
8,000.00	91.18	274.85	2,878.18	-756.97	-5,019.65	5,074.92	0.00	0.00	0.00
8,100.00	91.18	274.85	2,876.12	-748.52	-5,119.27	5,172.70	0.00	0.00	0.00
8,200.00	91.18	274.85	2,874.06	-740.06	-5,218.89	5,270.48	0.00	0.00	0.00
8,300.00	91.18	274.85	2,871.99	-731.60	-5,318.51	5,368.26	0.00	0.00	0.00
8,400.00	91.18	274.85	2,869.93	-723.14	-5,418.14	5,466.04	0.00	0.00	0.00
8,500.00	91.18	274.85	2,867.87	-714.68	-5,517.76	5,563.82	0.00	0.00	0.00
8,590.46	91.18	274.85	2,866.00	-707.03	-5,607.87	5,652.26	0.00	0.00	0.00

Tiff 4-2 Lat 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
Tiff 4-2 Lat 1 PBHL - plan hits target center - Point	0.00	360.00	2,866.00	-707.03	-5,607.87	1,159,044.05	2,397,229.18	37.0851417	-107.5664666