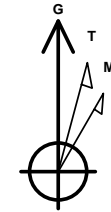




Company: B.P.
Project: La Plata County, CO NAD83
Site: Horther Pad
Well: Horther 31-03-03
Wellbore: Lateral 1 ST1
Design: Plan #2

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: 10.59°

Magnetic Field
Strength: 50320.2snT
Dip Angle: 63.65°
Date: 6/24/2015
Model: HDGM

WELL DETAILS: Horther 31-03-03

GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1154134.88	2402640.03	37.0719898	-107.5475538

Plan: Plan #2 (Horther 31-03-03/Lateral 1 ST1)

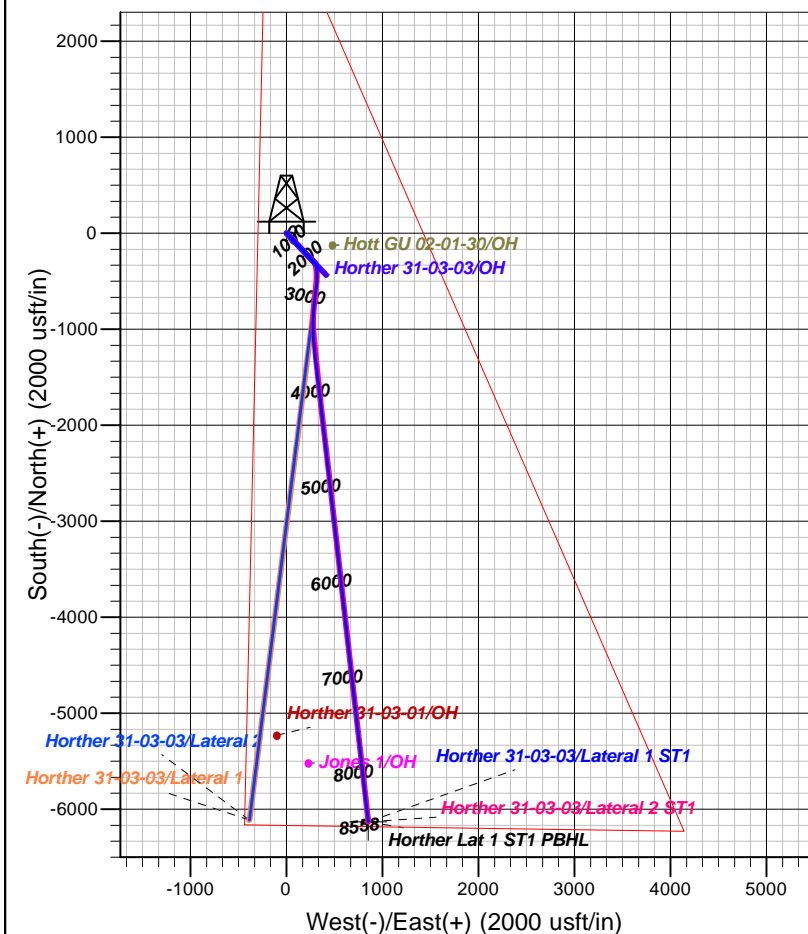
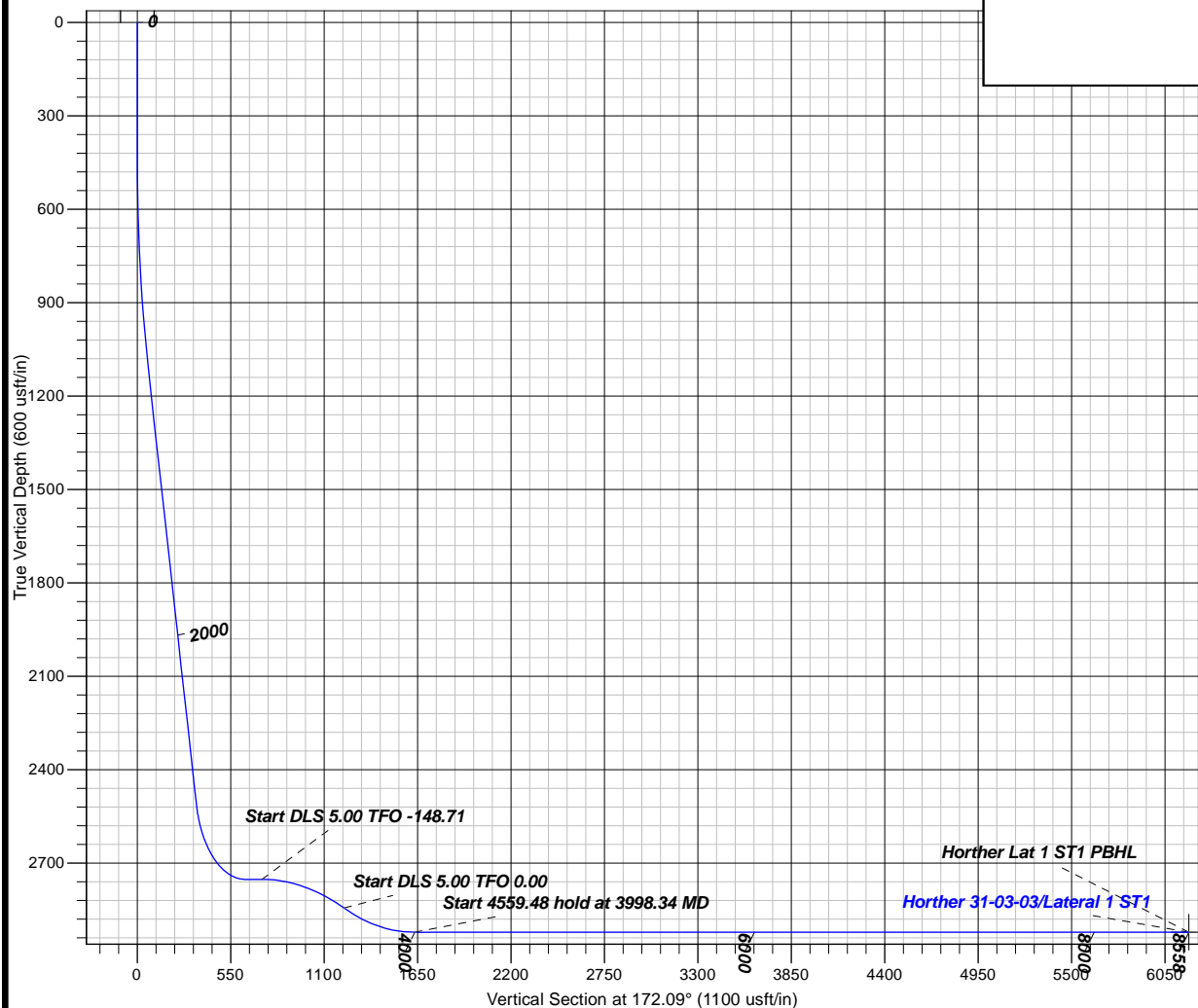
Created By: Janie Collins Date: 13:13, September 25 2015

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Horther Lat 1 ST1 PBHL	2922.00	-6131.18	851.73	1148003.70	2403491.76	37.0552065	-107.5441755

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target	Annotation
3072.35	90.00	187.16	2752.00	-699.99	293.32	0.00	0.00	733.69		
3573.75	68.77	173.50	2844.26	-1188.75	288.47	5.00	-148.71	1217.14		
3998.34	90.00	173.50	2922.02	-1601.03	335.45	5.00	0.00	1631.95		
8557.82	90.00	173.50	2922.00	-6131.18	851.73	0.00	0.00	6190.06	Horther Lat 1 ST1 PBHL	





B.P.

La Plata County, CO NAD83

Horther Pad

Horther 31-03-03

Lateral 1 ST1

Plan: Plan #2

Standard Planning Report

25 September, 2015





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Horther 31-03-03
Company:	B.P.	TVD Reference:	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
Site:	Horther Pad	North Reference:	Grid
Well:	Horther 31-03-03	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 ST1		
Design:	Plan #2		

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		Horther Pad			
Site Position:		Northing:	1,153,982.32 usft	Latitude:	37.0715979
From:	Map	Easting:	2,403,089.22 usft	Longitude:	-107.5460032
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.25 °

Well	Horther 31-03-03					
Well Position	+N/-S	152.56 usft	Northing:	1,154,134.88 usft	Latitude:	37.0719898
	+E/-W	-449.19 usft	Easting:	2,402,640.03 usft	Longitude:	-107.5475538
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,464.67 usft

Wellbore	Lateral 1 ST1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/24/2015	9.33	63.65	50,320

Design	Plan #2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	3,072.35	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	172.09	

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
3,072.35	90.00	187.16	2,752.00	-699.99	293.32	0.00	0.00	0.00	0.00	
3,573.75	68.77	173.50	2,844.26	-1,188.75	288.47	5.00	-4.23	-2.72	-148.71	
3,998.34	90.00	173.50	2,922.02	-1,601.03	335.45	5.00	5.00	0.00	0.00	
8,557.82	90.00	173.50	2,922.00	-6,131.18	851.73	0.00	0.00	0.00	0.00	Horther Lat 1 ST1 PB



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Horther 31-03-03
Company:	B.P.	TVD Reference:	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
Site:	Horther Pad	North Reference:	Grid
Well:	Horther 31-03-03	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 ST1		
Design:	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)
3,072.35	90.00	187.16	2,752.00	-699.99	293.32	733.69	0.00	0.00	0.00
3,100.00	88.82	186.44	2,752.29	-727.45	290.05	760.44	5.00	-4.27	-2.60
3,200.00	84.55	183.83	2,758.07	-826.85	281.12	857.66	5.00	-4.27	-2.61
3,300.00	80.29	181.19	2,771.26	-925.84	276.77	955.12	5.00	-4.26	-2.64
3,400.00	76.05	178.47	2,791.76	-1,023.69	277.04	1,052.07	5.00	-4.24	-2.71
3,500.00	71.85	175.66	2,819.41	-1,119.63	281.93	1,147.78	5.00	-4.21	-2.81
3,573.75	68.77	173.50	2,844.26	-1,188.75	288.47	1,217.14	5.00	-4.17	-2.93
3,600.00	70.08	173.50	2,853.48	-1,213.16	291.26	1,241.70	5.00	5.00	0.00
3,700.00	75.08	173.50	2,883.41	-1,307.94	302.05	1,337.06	5.00	5.00	0.00
3,800.00	80.08	173.50	2,904.90	-1,404.94	313.11	1,434.66	5.00	5.00	0.00
3,900.00	85.08	173.50	2,917.81	-1,503.43	324.33	1,533.76	5.00	5.00	0.00
3,998.34	90.00	173.50	2,922.02	-1,601.03	335.45	1,631.95	5.00	5.00	0.00
4,000.00	90.00	173.50	2,922.02	-1,602.67	335.64	1,633.61	0.00	0.00	0.00
4,100.00	90.00	173.50	2,922.02	-1,702.03	346.96	1,733.58	0.00	0.00	0.00
4,200.00	90.00	173.50	2,922.02	-1,801.38	358.29	1,833.55	0.00	0.00	0.00
4,300.00	90.00	173.50	2,922.02	-1,900.74	369.61	1,933.52	0.00	0.00	0.00
4,400.00	90.00	173.50	2,922.02	-2,000.10	380.93	2,033.49	0.00	0.00	0.00
4,500.00	90.00	173.50	2,922.02	-2,099.45	392.26	2,133.46	0.00	0.00	0.00
4,600.00	90.00	173.50	2,922.02	-2,198.81	403.58	2,233.43	0.00	0.00	0.00
4,700.00	90.00	173.50	2,922.02	-2,298.17	414.90	2,333.40	0.00	0.00	0.00
4,800.00	90.00	173.50	2,922.02	-2,397.53	426.23	2,433.37	0.00	0.00	0.00
4,900.00	90.00	173.50	2,922.02	-2,496.88	437.55	2,533.34	0.00	0.00	0.00
5,000.00	90.00	173.50	2,922.02	-2,596.24	448.87	2,633.31	0.00	0.00	0.00
5,100.00	90.00	173.50	2,922.02	-2,695.60	460.19	2,733.28	0.00	0.00	0.00
5,200.00	90.00	173.50	2,922.02	-2,794.95	471.52	2,833.25	0.00	0.00	0.00
5,300.00	90.00	173.50	2,922.02	-2,894.31	482.84	2,933.22	0.00	0.00	0.00
5,400.00	90.00	173.50	2,922.02	-2,993.67	494.16	3,033.19	0.00	0.00	0.00
5,500.00	90.00	173.50	2,922.02	-3,093.02	505.49	3,133.16	0.00	0.00	0.00
5,600.00	90.00	173.50	2,922.02	-3,192.38	516.81	3,233.13	0.00	0.00	0.00
5,700.00	90.00	173.50	2,922.01	-3,291.74	528.13	3,333.10	0.00	0.00	0.00
5,800.00	90.00	173.50	2,922.01	-3,391.09	539.46	3,433.07	0.00	0.00	0.00
5,900.00	90.00	173.50	2,922.01	-3,490.45	550.78	3,533.04	0.00	0.00	0.00
6,000.00	90.00	173.50	2,922.01	-3,589.81	562.10	3,633.01	0.00	0.00	0.00
6,100.00	90.00	173.50	2,922.01	-3,689.16	573.43	3,732.98	0.00	0.00	0.00
6,200.00	90.00	173.50	2,922.01	-3,788.52	584.75	3,832.95	0.00	0.00	0.00
6,300.00	90.00	173.50	2,922.01	-3,887.88	596.07	3,932.92	0.00	0.00	0.00
6,400.00	90.00	173.50	2,922.01	-3,987.23	607.40	4,032.89	0.00	0.00	0.00
6,500.00	90.00	173.50	2,922.01	-4,086.59	618.72	4,132.86	0.00	0.00	0.00
6,600.00	90.00	173.50	2,922.01	-4,185.95	630.04	4,232.82	0.00	0.00	0.00
6,700.00	90.00	173.50	2,922.01	-4,285.31	641.37	4,332.79	0.00	0.00	0.00
6,800.00	90.00	173.50	2,922.01	-4,384.66	652.69	4,432.76	0.00	0.00	0.00
6,900.00	90.00	173.50	2,922.01	-4,484.02	664.01	4,532.73	0.00	0.00	0.00
7,000.00	90.00	173.50	2,922.01	-4,583.38	675.34	4,632.70	0.00	0.00	0.00
7,100.00	90.00	173.50	2,922.01	-4,682.73	686.66	4,732.67	0.00	0.00	0.00
7,200.00	90.00	173.50	2,922.01	-4,782.09	697.98	4,832.64	0.00	0.00	0.00
7,300.00	90.00	173.50	2,922.01	-4,881.45	709.30	4,932.61	0.00	0.00	0.00
7,400.00	90.00	173.50	2,922.01	-4,980.80	720.63	5,032.58	0.00	0.00	0.00
7,500.00	90.00	173.50	2,922.01	-5,080.16	731.95	5,132.55	0.00	0.00	0.00
7,600.00	90.00	173.50	2,922.00	-5,179.52	743.27	5,232.52	0.00	0.00	0.00
7,700.00	90.00	173.50	2,922.00	-5,278.87	754.60	5,332.49	0.00	0.00	0.00
7,800.00	90.00	173.50	2,922.00	-5,378.23	765.92	5,432.46	0.00	0.00	0.00
7,900.00	90.00	173.50	2,922.00	-5,477.59	777.24	5,532.43	0.00	0.00	0.00



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Horther 31-03-03
Company:	B.P.	TVD Reference:	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
Site:	Horther Pad	North Reference:	Grid
Well:	Horther 31-03-03	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 ST1		
Design:	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)
8,000.00	90.00	173.50	2,922.00	-5,576.94	788.57	5,632.40	0.00	0.00	0.00
8,100.00	90.00	173.50	2,922.00	-5,676.30	799.89	5,732.37	0.00	0.00	0.00
8,200.00	90.00	173.50	2,922.00	-5,775.66	811.21	5,832.34	0.00	0.00	0.00
8,300.00	90.00	173.50	2,922.00	-5,875.02	822.54	5,932.31	0.00	0.00	0.00
8,400.00	90.00	173.50	2,922.00	-5,974.37	833.86	6,032.28	0.00	0.00	0.00
8,500.00	90.00	173.50	2,922.00	-6,073.73	845.18	6,132.25	0.00	0.00	0.00
8,557.82	90.00	173.50	2,922.00	-6,131.18	851.73	6,190.06	0.00	0.00	0.00
Horther Lat 1 ST1 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
Horther Lat 1 ST1 PBHL - plan hits target center - Point	0.00	0.00	2,922.00	-6,131.18	851.73	1,148,003.70	2,403,491.76	37.0552065	-107.5441755

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
350.00	350.00	Surface Casing	9.63	12.25