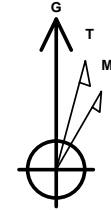




Company: B.P.  
Project: La Plata County, CO NAD83  
Site: Horther Pad  
Well: Horther 31-03-03  
Wellbore: Lateral 1  
Design: Plan #2

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)

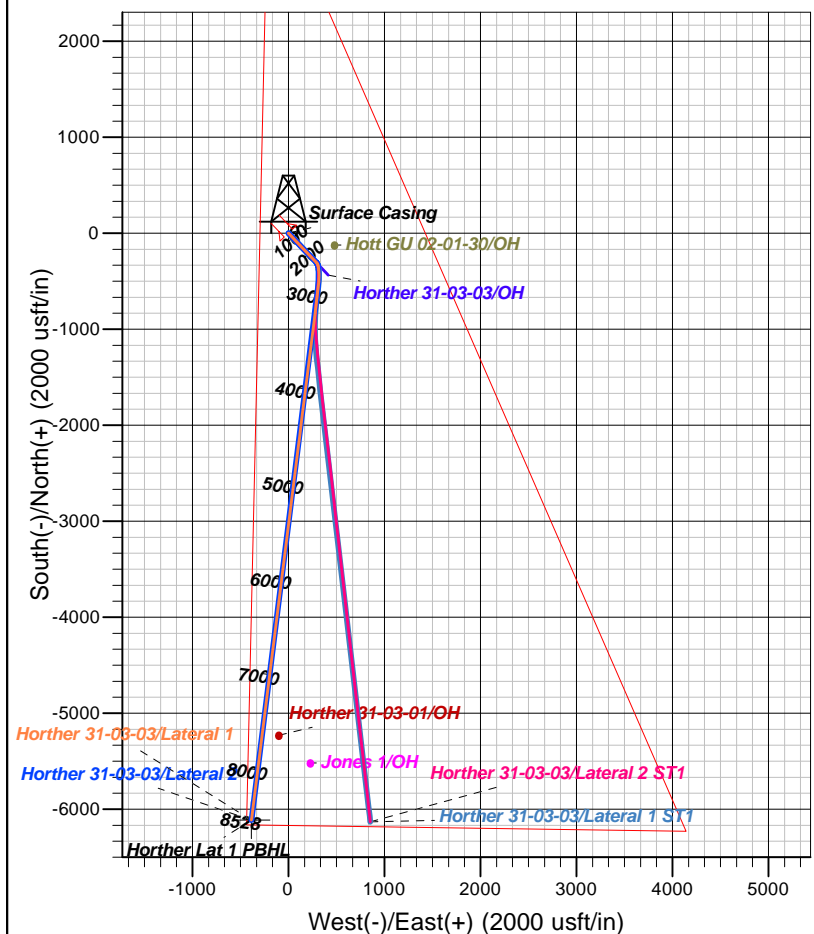
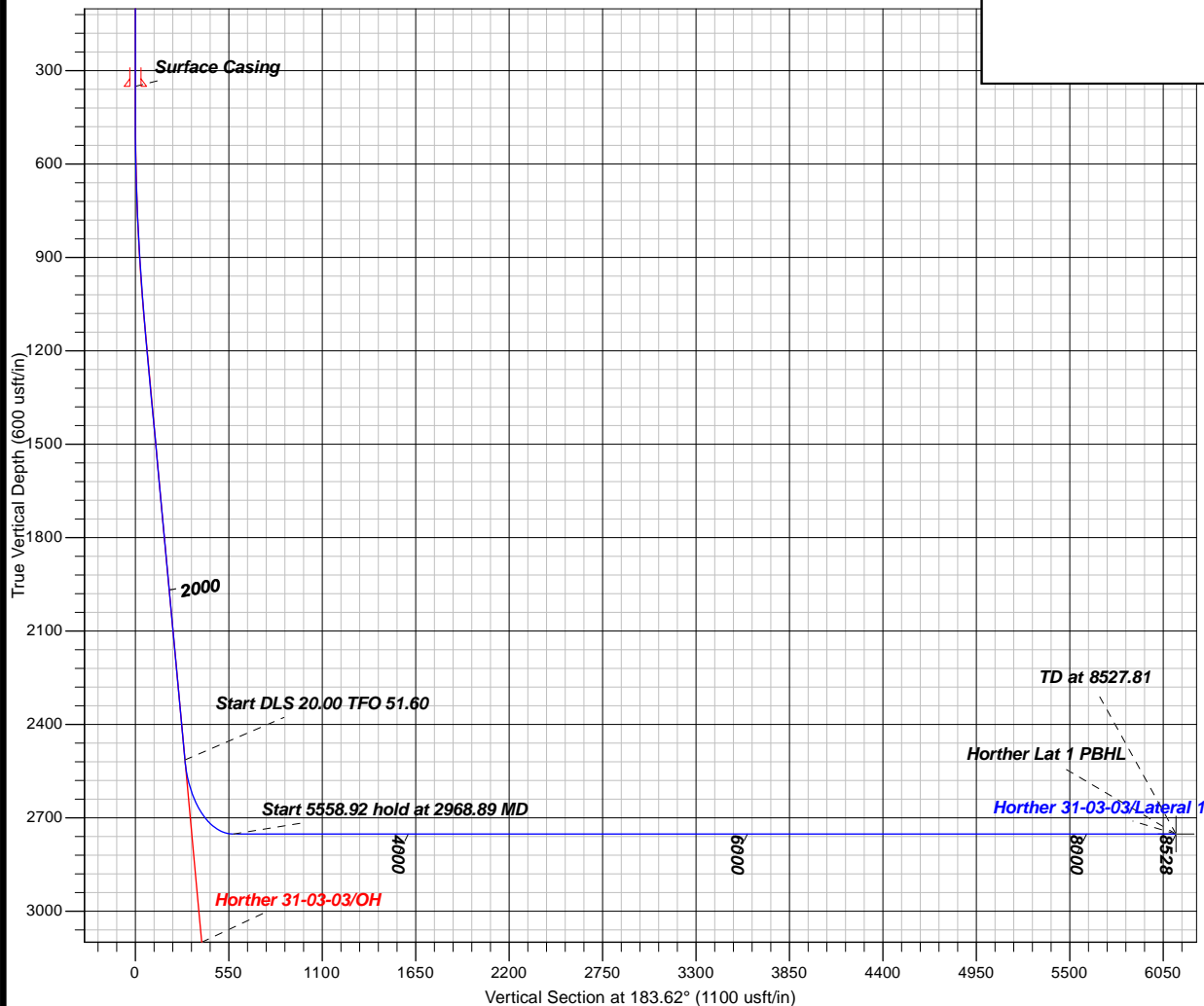
Created By: Janie Collins Date: 12:55, September 25 2015

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Horther Lat 1 PBHL	2752.00	-6112.96	-386.22	1148021.92	2402253.81	37.0551821	-107.5484178

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target	Annotation
2562.87	13.99	136.40	2513.73	-310.70	295.87	0.00	0.00	291.43		
2968.89	90.00	187.16	2752.00	-597.33	306.21	20.00	51.60	576.84		
8527.81	90.00	187.16	2752.00	-6112.96	-386.22	0.00	0.00	6125.15	Horther Lat 1 PBHL	





**B.P.**

**La Plata County, CO NAD83**

**Horther Pad**

**Horther 31-03-03**

**Lateral 1**

**Plan: Plan #2**

## **Standard Planning Report**

**25 September, 2015**





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

<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		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

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

<b>Design</b>	Plan #2				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN		<b>Tie On Depth:</b>	2,562.87
<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	183.62	

<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
2,562.87	13.99	136.40	2,513.73	-310.70	295.87	0.00	0.00	0.00	0.00	
2,968.89	90.00	187.16	2,752.00	-597.33	306.21	20.00	18.72	12.50	51.60	
8,527.81	90.00	187.16	2,752.00	-6,112.96	-386.22	0.00	0.00	0.00	0.00	Horther Lat 1 PBHL



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Horther 31-03-03
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
<b>Site:</b>	Horther Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Horther 31-03-03	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral 1		
<b>Design:</b>	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)
2,562.87	13.99	136.40	2,513.73	-310.70	295.87	291.43	0.00	0.00	0.00
2,600.00	19.47	154.09	2,549.30	-319.53	301.67	299.88	20.00	14.77	47.64
2,700.00	37.62	172.66	2,636.93	-365.26	312.97	344.80	20.00	18.14	18.57
2,800.00	56.91	179.93	2,704.52	-438.16	316.96	417.30	20.00	19.30	7.28
2,900.00	76.48	184.50	2,743.91	-529.45	313.16	508.65	20.00	19.56	4.56
2,968.89	90.00	187.16	2,752.00	-597.33	306.21	576.84	20.00	19.63	3.86
3,000.00	90.00	187.16	2,752.00	-628.21	302.34	607.89	0.00	0.00	0.00
3,100.00	90.00	187.16	2,752.00	-727.43	289.88	707.70	0.00	0.00	0.00
3,200.00	90.00	187.16	2,752.00	-826.65	277.42	807.51	0.00	0.00	0.00
3,300.00	90.00	187.16	2,752.00	-925.87	264.97	907.32	0.00	0.00	0.00
3,400.00	90.00	187.16	2,752.00	-1,025.09	252.51	1,007.13	0.00	0.00	0.00
3,500.00	90.00	187.16	2,752.00	-1,124.31	240.06	1,106.94	0.00	0.00	0.00
3,600.00	90.00	187.16	2,752.00	-1,223.53	227.60	1,206.75	0.00	0.00	0.00
3,700.00	90.00	187.16	2,752.00	-1,322.75	215.14	1,306.56	0.00	0.00	0.00
3,800.00	90.00	187.16	2,752.00	-1,421.97	202.69	1,406.36	0.00	0.00	0.00
3,900.00	90.00	187.16	2,752.00	-1,521.20	190.23	1,506.17	0.00	0.00	0.00
4,000.00	90.00	187.16	2,752.00	-1,620.42	177.77	1,605.98	0.00	0.00	0.00
4,100.00	90.00	187.16	2,752.00	-1,719.64	165.32	1,705.79	0.00	0.00	0.00
4,200.00	90.00	187.16	2,752.00	-1,818.86	152.86	1,805.60	0.00	0.00	0.00
4,300.00	90.00	187.16	2,752.00	-1,918.08	140.41	1,905.41	0.00	0.00	0.00
4,400.00	90.00	187.16	2,752.00	-2,017.30	127.95	2,005.22	0.00	0.00	0.00
4,500.00	90.00	187.16	2,752.00	-2,116.52	115.49	2,105.03	0.00	0.00	0.00
4,600.00	90.00	187.16	2,752.00	-2,215.74	103.04	2,204.84	0.00	0.00	0.00
4,700.00	90.00	187.16	2,752.00	-2,314.97	90.58	2,304.65	0.00	0.00	0.00
4,800.00	90.00	187.16	2,752.00	-2,414.19	78.12	2,404.46	0.00	0.00	0.00
4,900.00	90.00	187.16	2,752.00	-2,513.41	65.67	2,504.27	0.00	0.00	0.00
5,000.00	90.00	187.16	2,752.00	-2,612.63	53.21	2,604.07	0.00	0.00	0.00
5,100.00	90.00	187.16	2,752.00	-2,711.85	40.76	2,703.88	0.00	0.00	0.00
5,200.00	90.00	187.16	2,752.00	-2,811.07	28.30	2,803.69	0.00	0.00	0.00
5,300.00	90.00	187.16	2,752.00	-2,910.29	15.84	2,903.50	0.00	0.00	0.00
5,400.00	90.00	187.16	2,752.00	-3,009.51	3.39	3,003.31	0.00	0.00	0.00
5,500.00	90.00	187.16	2,752.00	-3,108.73	-9.07	3,103.12	0.00	0.00	0.00
5,600.00	90.00	187.16	2,752.00	-3,207.96	-21.53	3,202.93	0.00	0.00	0.00
5,700.00	90.00	187.16	2,752.00	-3,307.18	-33.98	3,302.74	0.00	0.00	0.00
5,800.00	90.00	187.16	2,752.00	-3,406.40	-46.44	3,402.55	0.00	0.00	0.00
5,900.00	90.00	187.16	2,752.00	-3,505.62	-58.89	3,502.36	0.00	0.00	0.00
6,000.00	90.00	187.16	2,752.00	-3,604.84	-71.35	3,602.17	0.00	0.00	0.00
6,100.00	90.00	187.16	2,752.00	-3,704.06	-83.81	3,701.98	0.00	0.00	0.00
6,200.00	90.00	187.16	2,752.00	-3,803.28	-96.26	3,801.78	0.00	0.00	0.00
6,300.00	90.00	187.16	2,752.00	-3,902.50	-108.72	3,901.59	0.00	0.00	0.00
6,400.00	90.00	187.16	2,752.00	-4,001.73	-121.18	4,001.40	0.00	0.00	0.00
6,500.00	90.00	187.16	2,752.00	-4,100.95	-133.63	4,101.21	0.00	0.00	0.00
6,600.00	90.00	187.16	2,752.00	-4,200.17	-146.09	4,201.02	0.00	0.00	0.00
6,700.00	90.00	187.16	2,752.00	-4,299.39	-158.54	4,300.83	0.00	0.00	0.00
6,800.00	90.00	187.16	2,752.00	-4,398.61	-171.00	4,400.64	0.00	0.00	0.00
6,900.00	90.00	187.16	2,752.00	-4,497.83	-183.46	4,500.45	0.00	0.00	0.00
7,000.00	90.00	187.16	2,752.00	-4,597.05	-195.91	4,600.26	0.00	0.00	0.00
7,100.00	90.00	187.16	2,752.00	-4,696.27	-208.37	4,700.07	0.00	0.00	0.00
7,200.00	90.00	187.16	2,752.00	-4,795.49	-220.83	4,799.88	0.00	0.00	0.00
7,300.00	90.00	187.16	2,752.00	-4,894.72	-233.28	4,899.69	0.00	0.00	0.00
7,400.00	90.00	187.16	2,752.00	-4,993.94	-245.74	4,999.49	0.00	0.00	0.00
7,500.00	90.00	187.16	2,752.00	-5,093.16	-258.19	5,099.30	0.00	0.00	0.00



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Horther 31-03-03
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6464.67' & RKB 11' @ 6475.67usft (Aztec 507)
<b>Site:</b>	Horther Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Horther 31-03-03	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral 1		
<b>Design:</b>	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)
7,600.00	90.00	187.16	2,752.00	-5,192.38	-270.65	5,199.11	0.00	0.00	0.00
7,700.00	90.00	187.16	2,752.00	-5,291.60	-283.11	5,298.92	0.00	0.00	0.00
7,800.00	90.00	187.16	2,752.00	-5,390.82	-295.56	5,398.73	0.00	0.00	0.00
7,900.00	90.00	187.16	2,752.00	-5,490.04	-308.02	5,498.54	0.00	0.00	0.00
8,000.00	90.00	187.16	2,752.00	-5,589.26	-320.48	5,598.35	0.00	0.00	0.00
8,100.00	90.00	187.16	2,752.00	-5,688.49	-332.93	5,698.16	0.00	0.00	0.00
8,200.00	90.00	187.16	2,752.00	-5,787.71	-345.39	5,797.97	0.00	0.00	0.00
8,300.00	90.00	187.16	2,752.00	-5,886.93	-357.84	5,897.78	0.00	0.00	0.00
8,400.00	90.00	187.16	2,752.00	-5,986.15	-370.30	5,997.59	0.00	0.00	0.00
8,500.00	90.00	187.16	2,752.00	-6,085.37	-382.76	6,097.40	0.00	0.00	0.00
8,527.81	90.00	187.16	2,752.00	-6,112.96	-386.22	6,125.15	0.00	0.00	0.00
Horther 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
Horther Lat 1 PBHL - plan hits target center - Point	0.00	360.00	2,752.00	-6,112.96	-386.22	1,148,021.92	2,402,253.81	37.0551820	-107.5484178

## 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