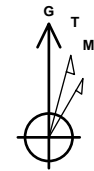




Company: B.P.  
Project: La Plata County, CO NAD83  
Site: Harper Pad  
Well: Harper 01-18 2  
Wellbore: Lateral 2  
Design: Plan #3

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



Azimuths to Grid North  
True North: 1.25°  
Magnetic North: 10.45°

Magnetic Field  
Strength: 50109.5snT  
Dip Angle: 63.65°  
Date: 1/19/2018  
Model: HDGM

WELL DETAILS: Harper 01-18 2

GL 6919' & RKB 11' @ 6930.00usft (Aztec 507)  
+N/-S +E/-W Northing Easting Latitude Longitude  
0.00 0.00 1196059.56 2404386.66 37.1872087 -107.5447140

Plan: Plan #3 (Harper 01-18 2/Lateral 2)

Created By: Janie Collins Date: 14:18, January 29 2018

DESIGN TARGET DETAILS

Name TVD +N/-S +E/-W Northing Easting  
Harper Lat 2 BHL 2700.00 265.35 2818.85 1196324.91 2407205.51

SECTION DETAILS

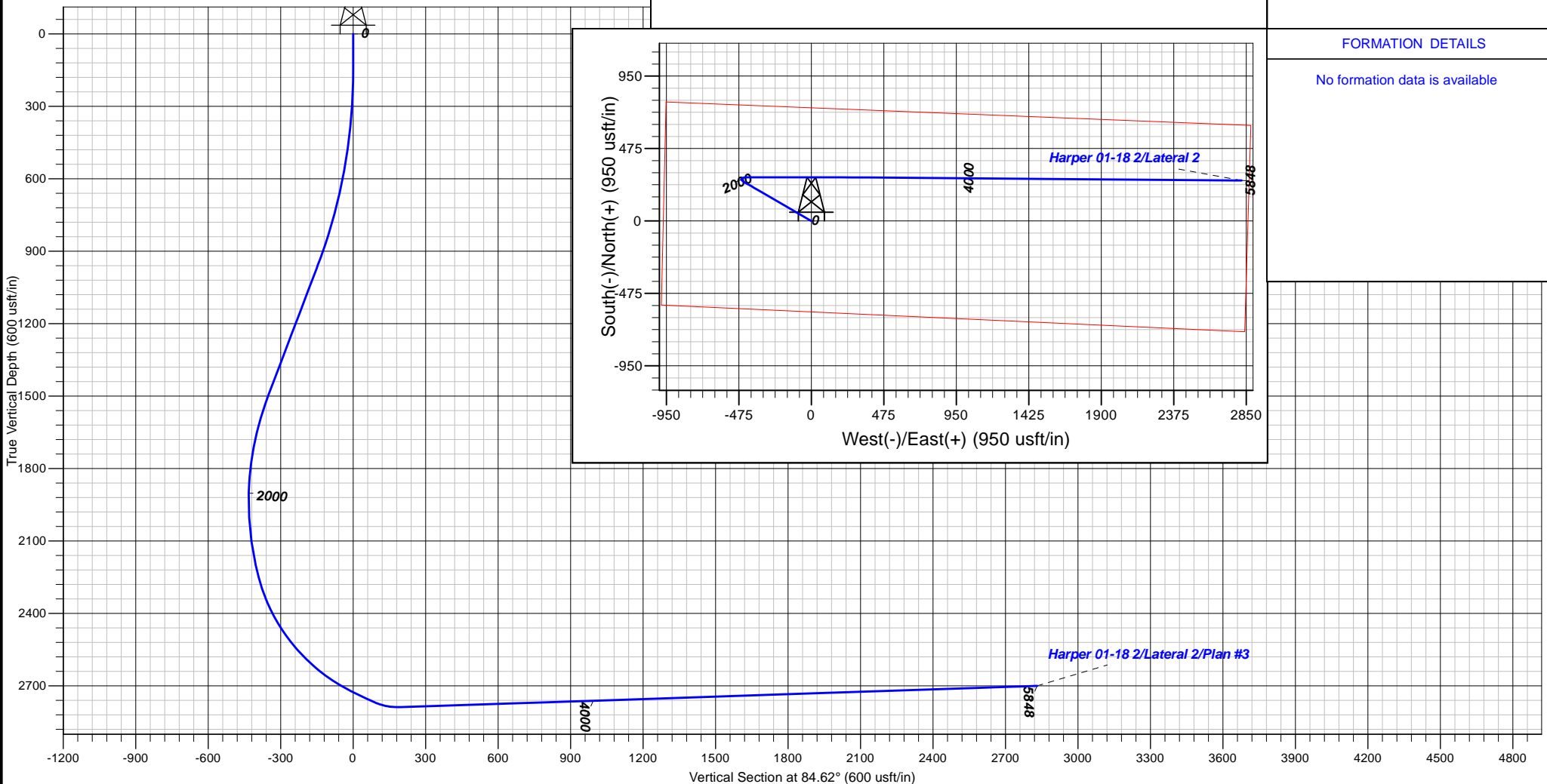
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3083.22	65.00	90.00	2766.52	286.59	59.02	0.00	0.00	85.62	
3183.22	90.00	90.00	2788.00	286.59	155.87	25.00	0.00	182.05	
3222.45	91.91	90.46	2787.34	286.43	195.09	5.00	13.57	221.08	
5847.74	91.91	90.46	2700.00	265.35	2818.85	0.00	0.00	2831.31	Harper Lat 2 BHL

CASING DETAILS

No casing data is available

FORMATION DETAILS

No formation data is available





**B.P.**

**La Plata County, CO NAD83**

**Harper Pad**

**Harper 01-18 2**

**Lateral 2**

**Plan: Plan #3**

## **Standard Planning Report**

**29 January, 2018**





<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Harper 01-18 2
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6919' & RKB 11' @ 6930.00usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6919' & RKB 11' @ 6930.00usft (Aztec 507)
<b>Site:</b>	Harper Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Harper 01-18 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral 2		
<b>Design:</b>	Plan #3		

<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		Harper Pad			
Site Position:		Northing:	1,196,059.56 usft	Latitude:	37.1872086
From:	Map	Easting:	2,404,386.66 usft	Longitude:	-107.5447140
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.25 °

Well	Harper 01-18 2					
Well Position	+N/-S	0.00 usft	Northing:	1,196,059.56 usft	Latitude:	37.1872086
	+E/-W	0.00 usft	Easting:	2,404,386.66 usft	Longitude:	-107.5447140
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,919.00 usft

<b>Wellbore</b>	Lateral 2				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	1/19/2018	9.20	63.65	50,110

<b>Design</b>	Plan #3				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN		<b>Tie On Depth:</b>	3,083.22
<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	84.62	

<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
3,083.22	65.00	90.00	2,766.52	286.59	59.02	0.00	0.00	0.00	0.00	
3,183.22	90.00	90.00	2,788.00	286.59	155.87	25.00	25.00	0.00	0.00	
3,222.45	91.91	90.46	2,787.34	286.43	195.09	5.00	4.86	1.17	13.57	
5,847.74	91.91	90.46	2,700.00	265.35	2,818.85	0.00	0.00	0.00	0.00	Harper Lat 2 BHL



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Harper 01-18 2
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6919' & RKB 11' @ 6930.00usft (Aztec 507)
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6919' & RKB 11' @ 6930.00usft (Aztec 507)
<b>Site:</b>	Harper Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Harper 01-18 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral 2		
<b>Design:</b>	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)
3,083.22	65.00	90.00	2,766.52	286.59	59.02	85.62	0.00	0.00	0.00
3,100.00	69.20	90.00	2,773.05	286.59	74.47	101.00	25.00	25.00	0.00
3,183.22	90.00	90.00	2,788.00	286.59	155.87	182.05	25.00	25.00	0.00
3,200.00	90.82	90.20	2,787.88	286.56	172.65	198.75	5.00	4.86	1.17
3,222.45	91.91	90.46	2,787.34	286.43	195.09	221.08	5.00	4.86	1.17
3,300.00	91.91	90.46	2,784.76	285.81	272.60	298.19	0.00	0.00	0.00
3,400.00	91.91	90.46	2,781.44	285.01	372.54	397.61	0.00	0.00	0.00
3,500.00	91.91	90.46	2,778.11	284.20	472.48	497.04	0.00	0.00	0.00
3,600.00	91.91	90.46	2,774.78	283.40	572.42	596.47	0.00	0.00	0.00
3,700.00	91.91	90.46	2,771.46	282.60	672.37	695.89	0.00	0.00	0.00
3,800.00	91.91	90.46	2,768.13	281.79	772.31	795.32	0.00	0.00	0.00
3,900.00	91.91	90.46	2,764.80	280.99	872.25	894.74	0.00	0.00	0.00
4,000.00	91.91	90.46	2,761.47	280.19	972.19	994.17	0.00	0.00	0.00
4,100.00	91.91	90.46	2,758.15	279.38	1,072.13	1,093.60	0.00	0.00	0.00
4,200.00	91.91	90.46	2,754.82	278.58	1,172.07	1,193.02	0.00	0.00	0.00
4,300.00	91.91	90.46	2,751.49	277.78	1,272.01	1,292.45	0.00	0.00	0.00
4,400.00	91.91	90.46	2,748.17	276.98	1,371.96	1,391.88	0.00	0.00	0.00
4,500.00	91.91	90.46	2,744.84	276.17	1,471.90	1,491.30	0.00	0.00	0.00
4,600.00	91.91	90.46	2,741.51	275.37	1,571.84	1,590.73	0.00	0.00	0.00
4,700.00	91.91	90.46	2,738.19	274.57	1,671.78	1,690.15	0.00	0.00	0.00
4,800.00	91.91	90.46	2,734.86	273.76	1,771.72	1,789.58	0.00	0.00	0.00
4,900.00	91.91	90.46	2,731.53	272.96	1,871.66	1,889.01	0.00	0.00	0.00
5,000.00	91.91	90.46	2,728.20	272.16	1,971.60	1,988.43	0.00	0.00	0.00
5,100.00	91.91	90.46	2,724.88	271.35	2,071.55	2,087.86	0.00	0.00	0.00
5,200.00	91.91	90.46	2,721.55	270.55	2,171.49	2,187.29	0.00	0.00	0.00
5,300.00	91.91	90.46	2,718.22	269.75	2,271.43	2,286.71	0.00	0.00	0.00
5,400.00	91.91	90.46	2,714.90	268.95	2,371.37	2,386.14	0.00	0.00	0.00
5,500.00	91.91	90.46	2,711.57	268.14	2,471.31	2,485.56	0.00	0.00	0.00
5,600.00	91.91	90.46	2,708.24	267.34	2,571.25	2,584.99	0.00	0.00	0.00
5,700.00	91.91	90.46	2,704.92	266.54	2,671.19	2,684.42	0.00	0.00	0.00
5,800.00	91.91	90.46	2,701.59	265.73	2,771.14	2,783.84	0.00	0.00	0.00
5,847.74	91.91	90.46	2,700.00	265.35	2,818.85	2,831.31	0.00	0.00	0.00
Harper Lat 2 BHL									

## 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
Harper Lat 2 BHL - plan hits target center - Point	0.00	0.00	2,700.00	265.35	2,818.85	1,196,324.91	2,407,205.51	37.1881063	-107.5350599