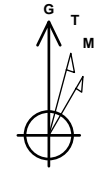




Company: B.P.
Project: La Plata County, CO NAD83
Site: Quiver Pad
Well: Quiver 33-07-09 4
Wellbore: Lateral 1
Design: Plan #1

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: 1.30°
Magnetic North: 10.39°

Magnetic Field
Strength: 50019.0snT
Dip Angle: 63.60°
Date: 4/12/2018
Model: HDGM

WELL DETAILS: Quiver 33-07-09 4

Plan: Plan #1 (Quiver 33-07-09 4/Lateral 1)

Created By: Janie Collins Date: 11:57, April 13 2018

GL 6457.04' & RKB 11' @ 6468.04usft (Aztec 507)
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 1169262.39 2380602.07 37.1121739 -107.6242461

DESIGN TARGET DETAILS

Name TVD +N/-S +E/-W Northing Easting
Quiver 4 Lat 1 BHL 2684.00 4188.95 2309.77 1173451.34 2382911.84

SECTION DETAILS

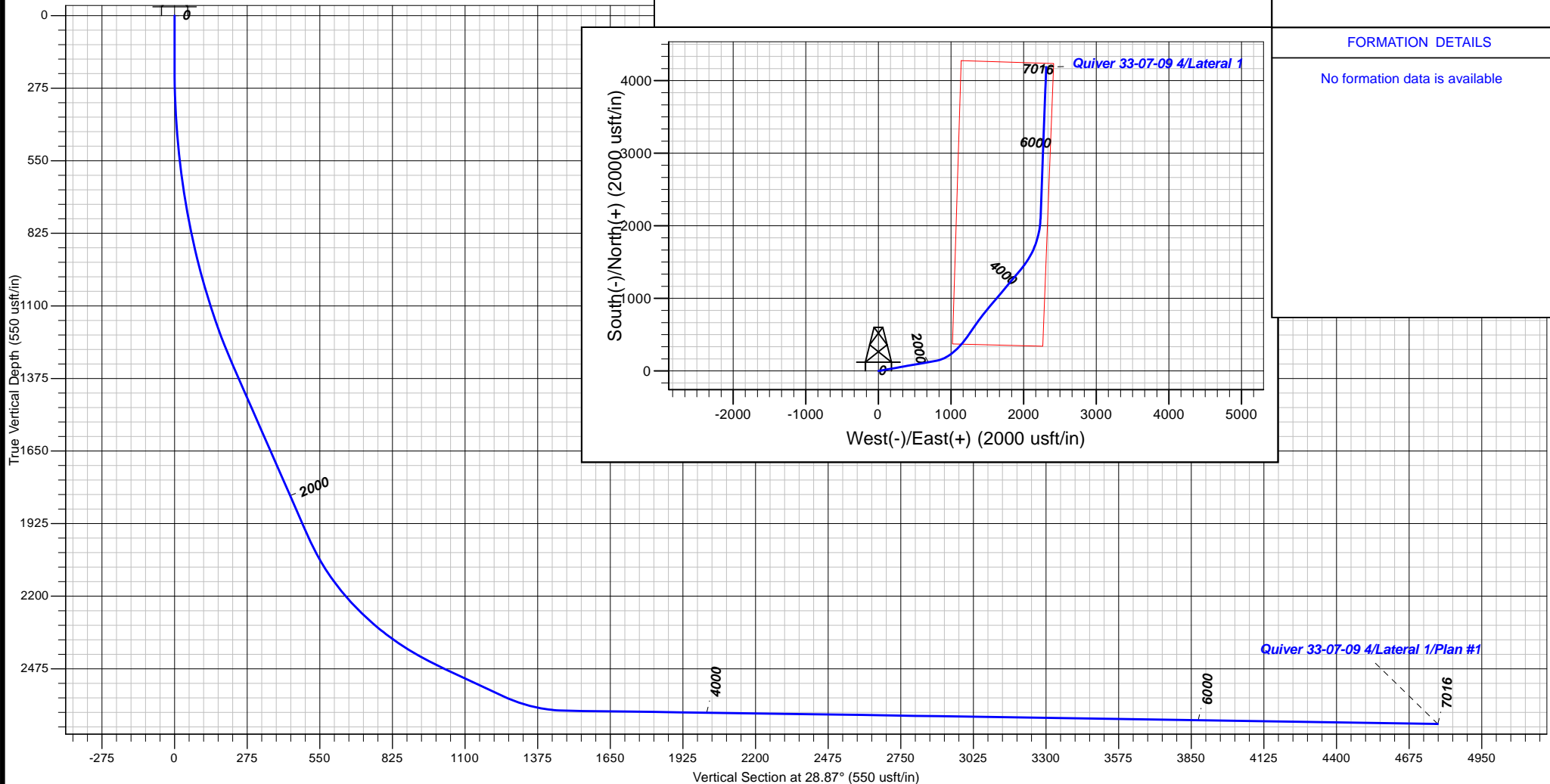
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
3208.34	65.00	35.00	2579.28	670.14	1362.04	0.00	0.00	1244.51	
3455.02	89.19	40.00	2634.00	859.11	1507.68	10.00	12.05	1480.31	
4165.02	89.19	40.00	2644.03	1402.94	1964.02	0.00	0.00	2176.90	
4921.96	89.21	2.15	2655.02	2096.41	2231.25	5.00	-90.25	2913.20	
7016.17	89.21	2.15	2684.00	4188.95	2309.77	0.00	0.00	4783.55	Quiver 4 Lat 1 BHL

CASING DETAILS

No casing data is available

FORMATION DETAILS

No formation data is available





B.P.

La Plata County, CO NAD83

Quiver Pad

Quiver 33-07-09 4

Lateral 1

Plan: Plan #1

Standard Planning Report

13 April, 2018





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Quiver 33-07-09 4
Company:	B.P.	TVD Reference:	GL 6457.04' & RKB 11' @ 6468.04usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6457.04' & RKB 11' @ 6468.04usft (Aztec 507)
Site:	Quiver Pad	North Reference:	Grid
Well:	Quiver 33-07-09 4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
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		Quiver Pad			
Site Position:		Northing:	1,169,262.39 usft	Latitude:	37.1121739
From:	Map	Easting:	2,380,602.07 usft	Longitude:	-107.6242461
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.30 °

Well	Quiver 33-07-09 4					
Well Position	+N/-S	0.00 usft	Northing:	1,169,262.39 usft	Latitude:	37.1121739
	+E/-W	0.00 usft	Easting:	2,380,602.07 usft	Longitude:	-107.6242461
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,457.04 usft

Wellbore	Lateral 1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/12/2018	9.08	63.60	50,019

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	3,208.34
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	28.87	

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
3,208.34	65.00	35.00	2,579.28	670.14	1,362.04	0.00	0.00	0.00	0.00	
3,455.02	89.19	40.00	2,634.00	859.11	1,507.68	10.00	9.81	2.03	12.05	
4,165.02	89.19	40.00	2,644.03	1,402.94	1,964.02	0.00	0.00	0.00	0.00	
4,921.96	89.21	2.15	2,655.02	2,096.41	2,231.25	5.00	0.00	-5.00	-90.25	
7,016.17	89.21	2.15	2,684.00	4,188.95	2,309.77	0.00	0.00	0.00	0.00	Quiver 4 Lat 1 BHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Quiver 33-07-09 4
Company:	B.P.	TVD Reference:	GL 6457.04' & RKB 11' @ 6468.04usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6457.04' & RKB 11' @ 6468.04usft (Aztec 507)
Site:	Quiver Pad	North Reference:	Grid
Well:	Quiver 33-07-09 4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
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)
3,208.34	65.00	35.00	2,579.28	670.14	1,362.04	1,244.51	0.00	0.00	0.00
3,300.00	73.98	36.98	2,611.37	739.50	1,412.47	1,329.60	10.00	9.79	2.16
3,400.00	83.79	38.95	2,630.63	816.74	1,472.78	1,426.36	10.00	9.81	1.97
3,455.02	89.19	40.00	2,634.00	859.11	1,507.68	1,480.31	10.00	9.82	1.90
3,500.00	89.19	40.00	2,634.63	893.56	1,536.60	1,524.45	0.00	0.00	0.00
3,600.00	89.19	40.00	2,636.04	970.16	1,600.87	1,622.56	0.00	0.00	0.00
3,700.00	89.19	40.00	2,637.46	1,046.76	1,665.14	1,720.67	0.00	0.00	0.00
3,800.00	89.19	40.00	2,638.87	1,123.35	1,729.41	1,818.78	0.00	0.00	0.00
3,900.00	89.19	40.00	2,640.29	1,199.95	1,793.69	1,916.89	0.00	0.00	0.00
4,000.00	89.19	40.00	2,641.70	1,276.55	1,857.96	2,015.00	0.00	0.00	0.00
4,100.00	89.19	40.00	2,643.11	1,353.14	1,922.23	2,113.11	0.00	0.00	0.00
4,165.02	89.19	40.00	2,644.03	1,402.94	1,964.02	2,176.90	0.00	0.00	0.00
4,200.00	89.18	38.25	2,644.53	1,430.08	1,986.09	2,211.32	5.00	-0.02	-5.00
4,300.00	89.17	33.25	2,645.97	1,511.20	2,044.49	2,310.55	5.00	-0.02	-5.00
4,400.00	89.16	28.25	2,647.44	1,597.11	2,095.60	2,410.46	5.00	-0.01	-5.00
4,500.00	89.15	23.25	2,648.91	1,687.14	2,139.02	2,510.27	5.00	0.00	-5.00
4,600.00	89.16	18.25	2,650.39	1,780.61	2,174.44	2,609.22	5.00	0.00	-5.00
4,700.00	89.16	13.25	2,651.86	1,876.82	2,201.57	2,706.57	5.00	0.01	-5.00
4,800.00	89.18	8.25	2,653.30	1,975.02	2,220.21	2,801.57	5.00	0.02	-5.00
4,900.00	89.20	3.25	2,654.72	2,074.48	2,230.22	2,893.49	5.00	0.02	-5.00
4,921.96	89.21	2.15	2,655.02	2,096.41	2,231.25	2,913.20	5.00	0.03	-5.00
5,000.00	89.21	2.15	2,656.10	2,174.39	2,234.18	2,982.90	0.00	0.00	0.00
5,100.00	89.21	2.15	2,657.49	2,274.31	2,237.93	3,072.21	0.00	0.00	0.00
5,200.00	89.21	2.15	2,658.87	2,374.23	2,241.67	3,161.52	0.00	0.00	0.00
5,300.00	89.21	2.15	2,660.25	2,474.15	2,245.42	3,250.83	0.00	0.00	0.00
5,400.00	89.21	2.15	2,661.64	2,574.07	2,249.17	3,340.14	0.00	0.00	0.00
5,500.00	89.21	2.15	2,663.02	2,673.99	2,252.92	3,429.45	0.00	0.00	0.00
5,600.00	89.21	2.15	2,664.40	2,773.91	2,256.67	3,518.76	0.00	0.00	0.00
5,700.00	89.21	2.15	2,665.79	2,873.83	2,260.42	3,608.07	0.00	0.00	0.00
5,800.00	89.21	2.15	2,667.17	2,973.75	2,264.17	3,697.38	0.00	0.00	0.00
5,900.00	89.21	2.15	2,668.56	3,073.67	2,267.92	3,786.69	0.00	0.00	0.00
6,000.00	89.21	2.15	2,669.94	3,173.59	2,271.67	3,876.00	0.00	0.00	0.00
6,100.00	89.21	2.15	2,671.32	3,273.51	2,275.42	3,965.31	0.00	0.00	0.00
6,200.00	89.21	2.15	2,672.71	3,373.43	2,279.17	4,054.62	0.00	0.00	0.00
6,300.00	89.21	2.15	2,674.09	3,473.35	2,282.92	4,143.93	0.00	0.00	0.00
6,400.00	89.21	2.15	2,675.47	3,573.27	2,286.67	4,233.24	0.00	0.00	0.00
6,500.00	89.21	2.15	2,676.86	3,673.19	2,290.42	4,322.55	0.00	0.00	0.00
6,600.00	89.21	2.15	2,678.24	3,773.11	2,294.17	4,411.86	0.00	0.00	0.00
6,700.00	89.21	2.15	2,679.63	3,873.03	2,297.92	4,501.17	0.00	0.00	0.00
6,800.00	89.21	2.15	2,681.01	3,972.95	2,301.66	4,590.48	0.00	0.00	0.00
6,900.00	89.21	2.15	2,682.39	4,072.87	2,305.41	4,679.79	0.00	0.00	0.00
7,000.00	89.21	2.15	2,683.78	4,172.79	2,309.16	4,769.10	0.00	0.00	0.00
7,016.17	89.21	2.15	2,684.00	4,188.95	2,309.77	4,783.55	0.00	0.00	0.00
Quiver 4 Lat 1 BHL									



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Quiver 33-07-09 4
Company:	B.P.	TVD Reference:	GL 6457.04' & RKB 11' @ 6468.04usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6457.04' & RKB 11' @ 6468.04usft (Aztec 507)
Site:	Quiver Pad	North Reference:	Grid
Well:	Quiver 33-07-09 4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Quiver 4 Lat 1 BHL	0.00	360.00	2,684.00	4,188.95	2,309.77	1,173,451.34	2,382,911.84	37.1238194	-107.6166529
- plan hits target center									
- Point									