



Company: B.P.
Project: La Plata County, CO NAD83
Site: Rhodes Pad
Well: Rhodes 1



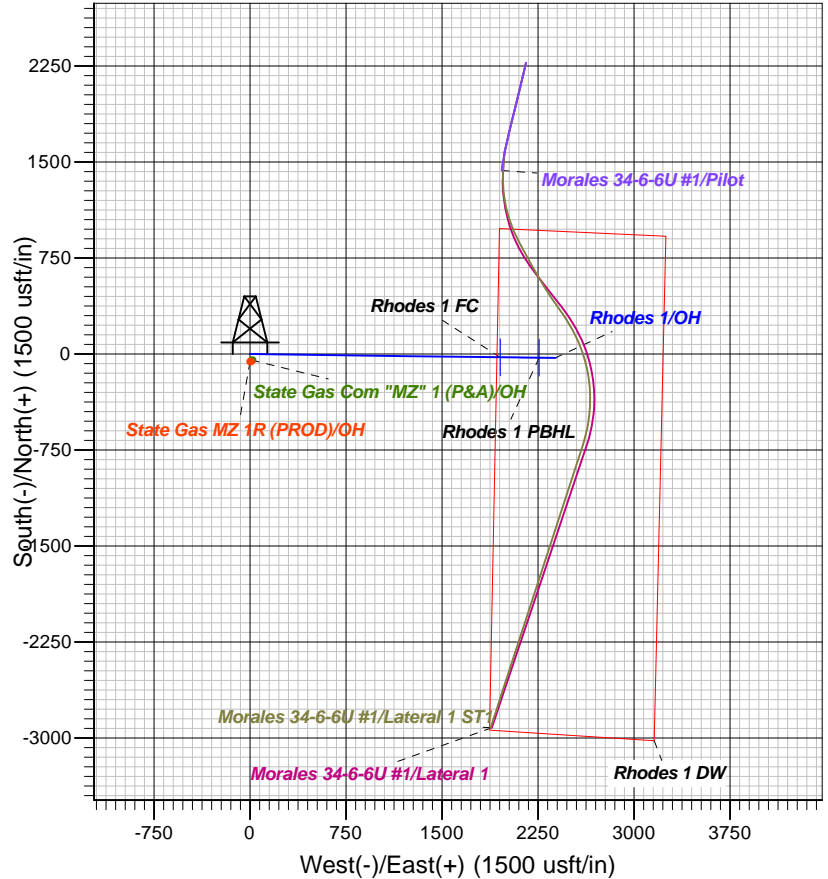
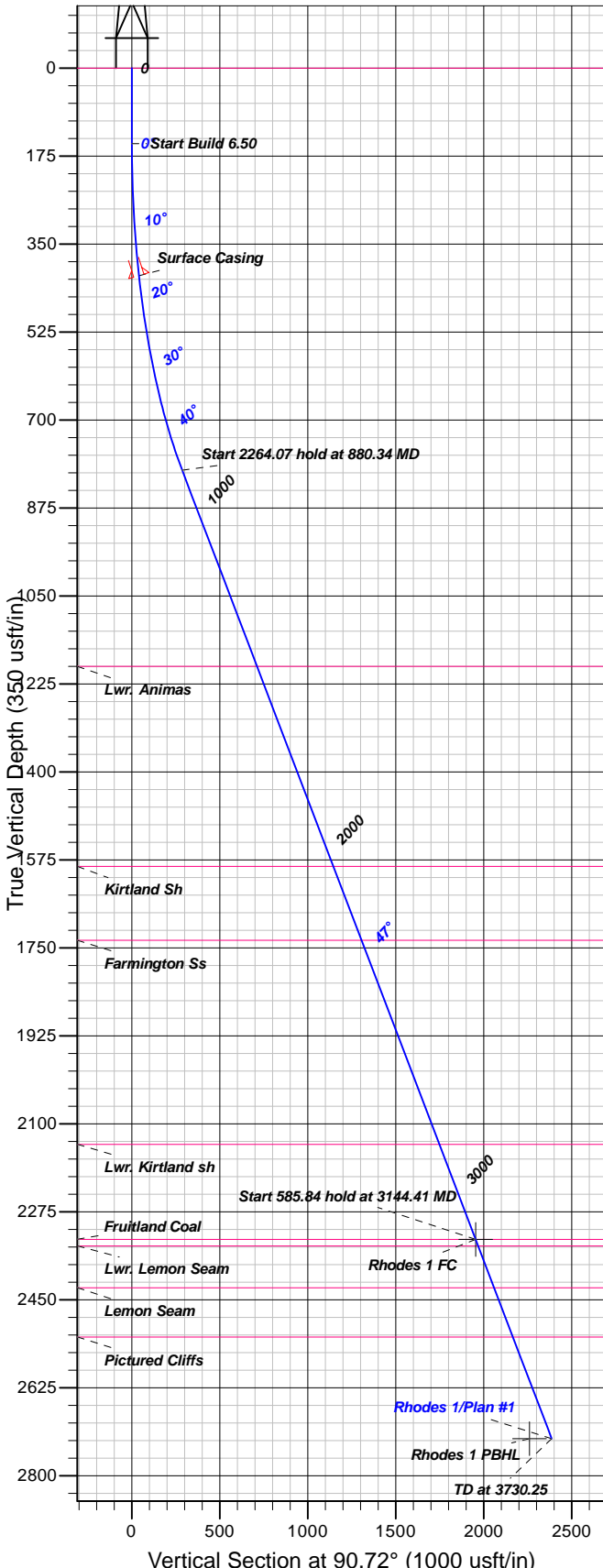
Well Details: Rhodes 1

GL 6927.15' & RKB 11' @ 6938.15usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1203654.31	2404205.25	37.2080509	-107.5459075	

Azimuths to Grid North
True North: 1.25°
Magnetic North: 10.62°

Magnetic Field
Strength: 50328.5snT
Dip Angle: 63.73°
Date: 3/15/2016
Model: HDGM



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
0.00	0.00	Animas
1190.00	1457.90	Lwr. Animas
1588.00	2046.70	Kirtland Sh
1735.00	2264.17	Farmington Ss
2141.00	2864.81	Lwr. Kirtland sh
2330.00	3144.41	Fruitland Coal
2343.00	3163.64	Lwr. Lemon Seam
2426.00	3286.43	Lemon Seam
2524.00	3431.42	Pictured Cliffs

Plan: Plan #1

10:48, March 16 2016
Created By: Janie Collins

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

CASING DETAILS

TVD	MD	Name	Size
413.00	417.07	Surface Casing	8.62

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	
3	880.34	47.47	90.72	799.60	-3.59	285.62	6.50	90.72	285.64	
4	3144.41	47.47	90.72	2330.00	-24.55	1953.99	0.00	0.00	1954.14	Rhodes 1 FC
5	3730.25	47.47	90.72	2726.00	-29.97	2385.69	0.00	0.00	2385.88	Rhodes 1 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Rhodes 1 FC	2330.00	-24.55	1953.99	1203629.76	2406159.24	37.2081009	-107.5391980	Point
- plan hits target center								
Rhodes 1 PBHL	2726.00	-28.39	2259.66	1203625.92	2406464.91	37.2081086	-107.5381484	Point
- plan misses target center by 85.20usft at 3637.37usft MD (2663.21 TVD, -29.11 N, 2317.24 E)								



B.P.

La Plata County, CO NAD83

Rhodes Pad

Rhodes 1

OH

Plan: Plan #1

Standard Planning Report

16 March, 2016





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Rhodes 1
Company:	B.P.	TVD Reference:	GL 6927.15' & RKB 11' @ 6938.15usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6927.15' & RKB 11' @ 6938.15usft (Aztec 507)
Site:	Rhodes Pad	North Reference:	Grid
Well:	Rhodes 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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		Rhodes Pad			
Site Position:		Northing:	1,203,654.31 usft	Latitude:	37.2080509
From:	Map	Easting:	2,404,205.25 usft	Longitude:	-107.5459075
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.25 °

Well	Rhodes 1					
Well Position	+N/-S	0.00 usft	Northing:	1,203,654.31 usft	Latitude:	37.2080509
	+E/-W	0.00 usft	Easting:	2,404,205.25 usft	Longitude:	-107.5459075
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,927.15 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/15/2016	9.37	63.73	50,329

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	90.72

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
880.34	47.47	90.72	799.60	-3.59	285.62	6.50	6.50	0.00	90.72	
3,144.41	47.47	90.72	2,330.00	-24.55	1,953.99	0.00	0.00	0.00	0.00	Rhodes 1 FC
3,730.25	47.47	90.72	2,726.00	-29.97	2,385.69	0.00	0.00	0.00	0.00	Rhodes 1 PBHL



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Site:	Rhodes Pad	North Reference:	Grid
Well:	Rhodes 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Animas									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	3.25	90.72	199.97	-0.02	1.42	1.42	6.50	6.50	0.00
300.00	9.75	90.72	299.28	-0.16	12.73	12.73	6.50	6.50	0.00
400.00	16.25	90.72	396.66	-0.44	35.21	35.21	6.50	6.50	0.00
417.07	17.36	90.72	413.00	-0.50	40.15	40.15	6.50	6.50	0.00
Surface Casing									
500.00	22.75	90.72	490.88	-0.86	68.57	68.58	6.50	6.50	0.00
600.00	29.25	90.72	580.71	-1.41	112.38	112.39	6.50	6.50	0.00
700.00	35.75	90.72	665.00	-2.09	166.08	166.09	6.50	6.50	0.00
800.00	42.25	90.72	742.67	-2.88	228.97	228.99	6.50	6.50	0.00
880.34	47.47	90.72	799.60	-3.59	285.62	285.64	6.50	6.50	0.00
900.00	47.47	90.72	812.89	-3.77	300.11	300.13	0.00	0.00	0.00
1,000.00	47.47	90.72	880.48	-4.70	373.80	373.83	0.00	0.00	0.00
1,100.00	47.47	90.72	948.08	-5.62	447.48	447.52	0.00	0.00	0.00
1,200.00	47.47	90.72	1,015.67	-6.55	521.17	521.21	0.00	0.00	0.00
1,300.00	47.47	90.72	1,083.27	-7.47	594.86	594.91	0.00	0.00	0.00
1,400.00	47.47	90.72	1,150.86	-8.40	668.55	668.60	0.00	0.00	0.00
1,457.90	47.47	90.72	1,190.00	-8.94	711.22	711.27	0.00	0.00	0.00
Lwr. Animas									
1,500.00	47.47	90.72	1,218.46	-9.33	742.24	742.30	0.00	0.00	0.00
1,600.00	47.47	90.72	1,286.05	-10.25	815.93	815.99	0.00	0.00	0.00
1,700.00	47.47	90.72	1,353.65	-11.18	889.62	889.69	0.00	0.00	0.00
1,800.00	47.47	90.72	1,421.24	-12.10	963.31	963.38	0.00	0.00	0.00
1,900.00	47.47	90.72	1,488.84	-13.03	1,037.00	1,037.08	0.00	0.00	0.00
2,000.00	47.47	90.72	1,556.43	-13.95	1,110.69	1,110.77	0.00	0.00	0.00
2,046.70	47.47	90.72	1,588.00	-14.39	1,145.10	1,145.19	0.00	0.00	0.00
Kirtland Sh									
2,100.00	47.47	90.72	1,624.03	-14.88	1,184.37	1,184.47	0.00	0.00	0.00
2,200.00	47.47	90.72	1,691.62	-15.81	1,258.06	1,258.16	0.00	0.00	0.00
2,264.17	47.47	90.72	1,735.00	-16.40	1,305.35	1,305.45	0.00	0.00	0.00
Farmington Ss									
2,300.00	47.47	90.72	1,759.22	-16.73	1,331.75	1,331.86	0.00	0.00	0.00
2,400.00	47.47	90.72	1,826.81	-17.66	1,405.44	1,405.55	0.00	0.00	0.00
2,500.00	47.47	90.72	1,894.41	-18.58	1,479.13	1,479.25	0.00	0.00	0.00
2,600.00	47.47	90.72	1,962.00	-19.51	1,552.82	1,552.94	0.00	0.00	0.00
2,700.00	47.47	90.72	2,029.60	-20.44	1,626.51	1,626.64	0.00	0.00	0.00
2,800.00	47.47	90.72	2,097.19	-21.36	1,700.20	1,700.33	0.00	0.00	0.00
2,864.81	47.47	90.72	2,141.00	-21.96	1,747.95	1,748.09	0.00	0.00	0.00
Lwr. Kirtland sh									
2,900.00	47.47	90.72	2,164.79	-22.29	1,773.89	1,774.03	0.00	0.00	0.00
3,000.00	47.47	90.72	2,232.38	-23.21	1,847.57	1,847.72	0.00	0.00	0.00
3,100.00	47.47	90.72	2,299.98	-24.14	1,921.26	1,921.41	0.00	0.00	0.00
3,144.41	47.47	90.72	2,330.00	-24.55	1,953.99	1,954.14	0.00	0.00	0.00
Fruitland Coal - Rhodes 1 FC									
3,163.64	47.47	90.72	2,343.00	-24.73	1,968.16	1,968.32	0.00	0.00	0.00
Lwr. Lemon Seam									
3,200.00	47.47	90.72	2,367.57	-25.06	1,994.95	1,995.11	0.00	0.00	0.00
3,286.43	47.47	90.72	2,426.00	-25.86	2,058.64	2,058.81	0.00	0.00	0.00



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Site:	Rhodes Pad	North Reference:	Grid
Well:	Rhodes 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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)
Lemon Seam									
3,300.00	47.47	90.72	2,435.17	-25.99	2,068.64	2,068.80	0.00	0.00	0.00
3,400.00	47.47	90.72	2,502.76	-26.92	2,142.33	2,142.50	0.00	0.00	0.00
3,431.42	47.47	90.72	2,524.00	-27.21	2,165.48	2,165.65	0.00	0.00	0.00
Pictured Cliffs									
3,500.00	47.47	90.72	2,570.36	-27.84	2,216.02	2,216.19	0.00	0.00	0.00
3,600.00	47.47	90.72	2,637.95	-28.77	2,289.71	2,289.89	0.00	0.00	0.00
3,637.37	47.47	90.72	2,663.21	-29.11	2,317.24	2,317.43	0.00	0.00	0.00
Rhodes 1 PBHL									
3,700.00	47.47	90.72	2,705.55	-29.69	2,363.40	2,363.58	0.00	0.00	0.00
3,730.25	47.47	90.72	2,726.00	-29.97	2,385.69	2,385.88	0.00	0.00	0.00

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
Rhodes 1 FC - plan hits target center - Point	0.00	360.00	2,330.00	-24.55	1,953.99	1,203,629.76	2,406,159.24	37.2081008	-107.5391980
Rhodes 1 PBHL - plan misses target center by 85.20usft at 3637.37usft MD (2663.21 TVD, -29.11 N, 2317.24 E) - Point	0.00	0.00	2,726.00	-28.39	2,259.66	1,203,625.92	2,406,464.91	37.2081086	-107.5381484

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
417.07	413.00	Surface Casing	8.62	9.87

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
0.00	29.85	Animas		0.00	0.00
1,457.90	1,219.85	Lwr. Animas		0.00	0.00
2,046.70	1,617.85	Kirtland Sh		0.00	0.00
2,264.17	1,764.85	Farmington Ss		0.00	0.00
2,864.81	2,170.85	Lwr. Kirtland sh		0.00	0.00
3,144.41	2,359.85	Fruitland Coal		0.00	0.00
3,163.64	2,372.85	Lwr. Lemon Seam		0.00	0.00
3,286.43	2,455.85	Lemon Seam		0.00	0.00
3,431.42	2,553.85	Pictured Cliffs		0.00	0.00