



**B.P.**

**La Plata County, CO NAD83  
SEC 27-T33N-R7W  
Parry E 2**

**Original Hole**

**Plan: Plan #2**

## **Standard Planning Report**

**18 February, 2015**



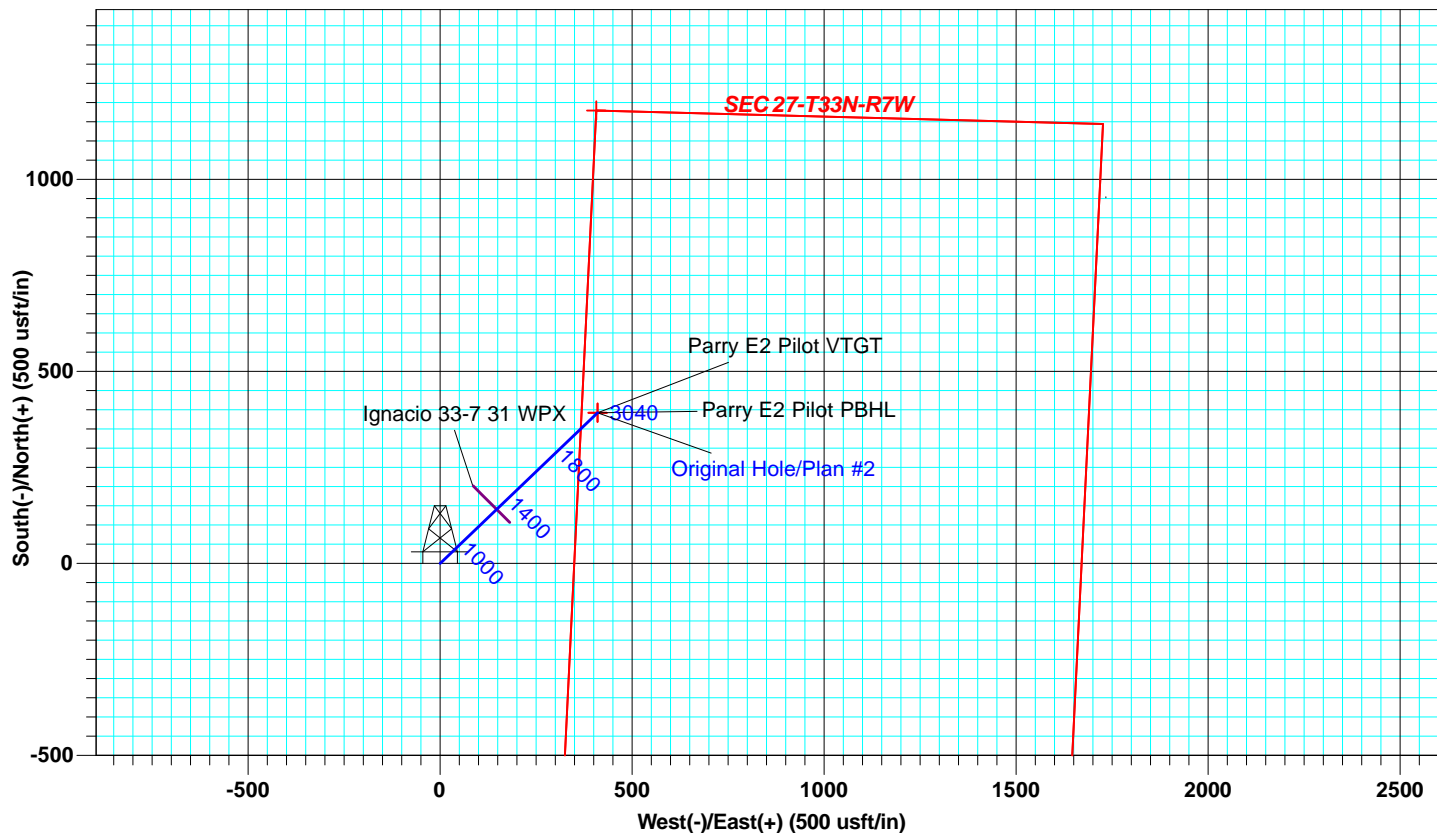
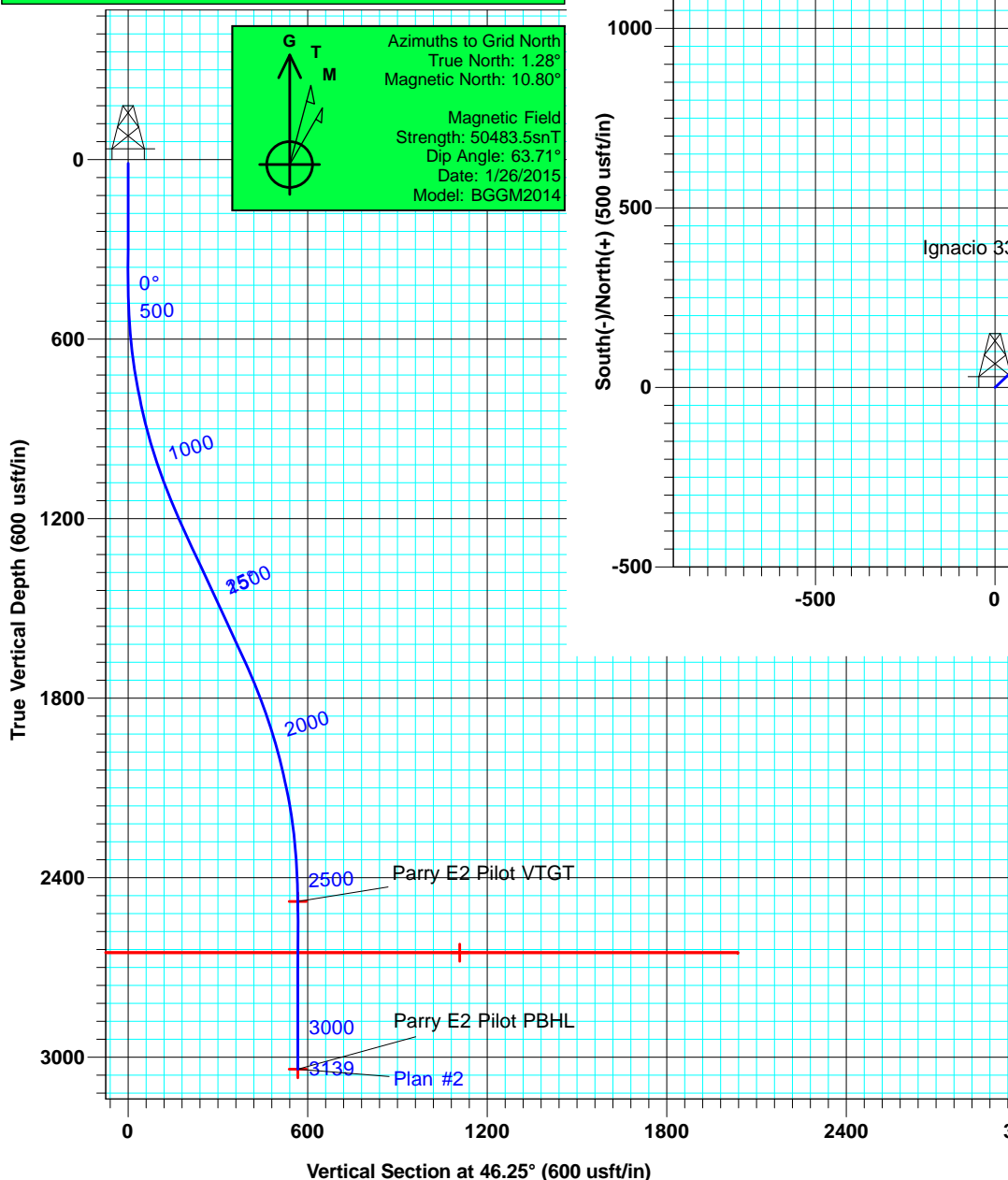
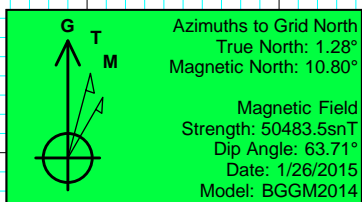


Project: La Plata County, CO NAD83  
Site: SEC 27-T33N-R7W  
Well: Parry E 2  
Wellbore: Original Hole  
Design: Plan #2



ALL AZIMUTHS MUST BE CORRECTED TO GRID NORTH

To convert Magnetic North to Grid, Add 10.80°  
To convert True North to Grid, Add 1.29°



DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Parry E2 Pilot VTGT	2480.00	392.25	409.78 37° 4'	41.948 N	107° 35' 38.088 W
SEC 27-T33N-R7W	2651.00	1179.22	406.11 37° 4'	49.726 N	107° 35' 38.351 W
Parry E2 Pilot PBHL	3040.00	392.25	409.78 37° 4'	41.948 N	107° 35' 38.088 W

WELL DETAILS Parry E 2					
GL 6639' & RKB 13' @ 6652.00usft					
Ground Level: 6639.00					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1156346.41	2388759.04	37° 4' 37.980 N	107° 35' 43.035 W

**SITE DETAILS: SEC 27-T33N-R7W**  
Site Centre Northing: 1156346.41  
Easting: 2388759.04  
Positional Uncertainty: 1.50  
Convergence: -1.29  
Local North: Grid

**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



# Planning Report



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Parry E 2
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6639' & RKB 13' @ 6652.00usft
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6639' & RKB 13' @ 6652.00usft
<b>Site:</b>	SEC 27-T33N-R7W	<b>North Reference:</b>	Grid
<b>Well:</b>	Parry E 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<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		Using Well Reference Point
<b>Map Zone:</b>	Colorado Southern Zone		

Site		SEC 27-T33N-R7W				
Site Position:		Northing:	1,156,346.41 usft	Latitude:	37° 4' 37.980 N	
From:	Lat/Long	Easting:	2,388,759.04 usft	Longitude:	107° 35' 43.035 W	
Position Uncertainty:		1.50 usft	Slot Radius:	6-1/8 "	Grid Convergence:	-1.29 °

Well	Parry E 2					
Well Position	+N-S	0.00 usft	Northing:	1,156,346.41 usft	Latitude:	37° 4' 37.980 N
	+E-W	0.00 usft	Easting:	2,388,759.04 usft	Longitude:	107° 35' 43.035 W
Position Uncertainty		1.50 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,639.00 usft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2014	1/26/2015	9.52	63.71	50,484

<b>Design</b>	Plan #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	13.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Direction (°)</b>
	13.00	0.00	0.00	46.25

<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
13.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	
413.00	0.00	0.00	413.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,240.40	24.82	46.25	1,214.76	122.01	127.46	3.00	3.00	0.00	46.25	
1,751.05	24.82	46.25	1,678.24	270.24	282.32	0.00	0.00	0.00	0.00	
2,578.46	0.00	0.00	2,480.00	392.25	409.78	3.00	-3.00	0.00	180.00	Parry E2 Pilot VTG
3,138.46	0.00	0.00	3,040.00	392.25	409.78	0.00	0.00	0.00	0.00	Parry E2 Pilot PBHI



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Parry E 2
<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6639' & RKB 13' @ 6652.00usft
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6639' & RKB 13' @ 6652.00usft
<b>Site:</b>	SEC 27-T33N-R7W	<b>North Reference:</b>	Grid
<b>Well:</b>	Parry E 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<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)
13.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
413.00	0.00	0.00	413.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	2.61	46.25	499.97	1.37	1.43	1.98	3.00	3.00	0.00
600.00	5.61	46.25	599.70	6.33	6.61	9.15	3.00	3.00	0.00
700.00	8.61	46.25	698.92	14.88	15.55	21.52	3.00	3.00	0.00
800.00	11.61	46.25	797.36	27.02	28.23	39.08	3.00	3.00	0.00
900.00	14.61	46.25	894.74	42.70	44.61	61.75	3.00	3.00	0.00
1,000.00	17.61	46.25	990.80	61.89	64.65	89.50	3.00	3.00	0.00
1,100.00	20.61	46.25	1,085.28	84.52	88.30	122.23	3.00	3.00	0.00
1,200.00	23.61	46.25	1,177.92	110.55	115.49	159.87	3.00	3.00	0.00
1,240.40	24.82	46.25	1,214.76	122.01	127.46	176.44	3.00	3.00	0.00
1,300.00	24.82	46.25	1,268.85	139.31	145.53	201.46	0.00	0.00	0.00
1,400.00	24.82	46.25	1,359.62	168.34	175.86	243.44	0.00	0.00	0.00
1,500.00	24.82	46.25	1,450.38	197.36	206.19	285.42	0.00	0.00	0.00
1,581.11	24.82	46.25	1,524.00	220.91	230.78	319.47	0.00	0.00	0.00
<b>Lwr Animas</b>									
1,600.00	24.82	46.25	1,541.14	226.39	236.51	327.40	0.00	0.00	0.00
1,700.00	24.82	46.25	1,631.90	255.42	266.84	369.38	0.00	0.00	0.00
1,751.05	24.82	46.25	1,678.24	270.24	282.32	390.81	0.00	0.00	0.00
1,800.00	23.35	46.25	1,722.92	284.05	296.75	410.79	3.00	-3.00	0.00
1,900.00	20.35	46.25	1,815.72	309.79	323.64	448.01	3.00	-3.00	0.00
2,000.00	17.35	46.25	1,910.35	332.13	346.98	480.32	3.00	-3.00	0.00
2,019.51	16.77	46.25	1,929.00	336.09	351.11	486.04	3.00	-3.00	0.00
<b>Kirtland Shale</b>									
2,100.00	14.35	46.25	2,006.53	351.02	366.71	507.64	3.00	-3.00	0.00
2,189.77	11.66	46.25	2,094.00	364.99	381.31	527.84	3.00	-3.00	0.00
<b>Farmington SS</b>									
2,200.00	11.35	46.25	2,104.02	366.40	382.78	529.88	3.00	-3.00	0.00
2,300.00	8.35	46.25	2,202.53	378.24	395.14	546.99	3.00	-3.00	0.00
2,400.00	5.35	46.25	2,301.80	386.49	403.76	558.92	3.00	-3.00	0.00
2,500.00	2.35	46.25	2,401.57	391.13	408.62	565.64	3.00	-3.00	0.00
2,530.45	1.44	46.25	2,432.00	391.83	409.34	566.65	3.00	-3.00	0.00
<b>Lwr Kirtland Shale</b>									
2,578.46	0.00	0.00	2,480.00	392.25	409.78	567.25	3.00	-3.00	0.00
<b>Parry E2 Pilot VTGT</b>									
2,600.00	0.00	0.00	2,501.54	392.25	409.78	567.25	0.00	0.00	0.00
2,700.00	0.00	0.00	2,601.54	392.25	409.78	567.25	0.00	0.00	0.00
2,749.45	0.00	0.00	2,650.99	392.25	409.78	567.25	0.00	0.00	0.00
<b>Fruitland Coal</b>									
2,749.46	0.00	0.00	2,651.00	392.25	409.78	567.25	0.00	0.00	0.00
<b>SEC 27-T33N-R7W</b>									
2,782.45	0.00	0.00	2,683.99	392.25	409.78	567.25	0.00	0.00	0.00
<b>Lemon</b>									
2,800.00	0.00	0.00	2,701.54	392.25	409.78	567.25	0.00	0.00	0.00
2,871.45	0.00	0.00	2,772.99	392.25	409.78	567.25	0.00	0.00	0.00
<b>Lwr Lemon</b>									
2,898.45	0.00	0.00	2,799.99	392.25	409.78	567.25	0.00	0.00	0.00
<b>Ignacio</b>									
2,900.00	0.00	0.00	2,801.54	392.25	409.78	567.25	0.00	0.00	0.00



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<b>Company:</b>	B.P.	<b>TVD Reference:</b>	GL 6639' & RKB 13' @ 6652.00usft
<b>Project:</b>	La Plata County, CO NAD83	<b>MD Reference:</b>	GL 6639' & RKB 13' @ 6652.00usft
<b>Site:</b>	SEC 27-T33N-R7W	<b>North Reference:</b>	Grid
<b>Well:</b>	Parry E 2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<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)
2,938.45	0.00	0.00	2,839.99	392.25	409.78	567.25	0.00	0.00	0.00
<b>Pictured Cliffs</b>									
3,000.00	0.00	0.00	2,901.54	392.25	409.78	567.25	0.00	0.00	0.00
3,100.00	0.00	0.00	3,001.54	392.25	409.78	567.25	0.00	0.00	0.00
3,138.46	0.00	0.00	3,040.00	392.25	409.78	567.25	0.00	0.00	0.00
<b>Parry E2 Pilot PBHL</b>									

## Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Parry E2 Pilot VTGT	0.00	1.29	2,480.00	392.25	409.78	1,156,738.65	2,389,168.82	37° 4' 41.948 N	107° 35' 38.088 W
- plan hits target center									
- Point									
SEC 27-T33N-R7W	0.00	360.00	2,651.00	1,179.22	406.11	1,157,525.63	2,389,165.15	37° 4' 49.726 N	107° 35' 38.351 W
- plan misses target center by 786.98usft at 2749.46usft MD (2651.00 TVD, 392.25 N, 409.78 E)									
- Polygon									
Point 1			2,651.00	0.00	0.00	1,157,525.63	2,389,165.15		
Point 2			2,651.00	-35.12	1,319.54	1,157,490.51	2,390,484.69		
Point 3			2,651.00	-3,869.02	1,133.08	1,153,656.61	2,390,298.23		
Point 4			2,651.00	-3,876.57	-186.89	1,153,649.06	2,388,978.26		
Parry E2 Pilot PBHL	0.00	1.29	3,040.00	392.25	409.78	1,156,738.65	2,389,168.82	37° 4' 41.948 N	107° 35' 38.088 W
- plan hits target center									
- Point									

## Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,581.11	1,524.00	Lwr Animas		0.00	
2,019.51	1,929.00	Kirtland Shale		0.00	
2,189.77	2,094.00	Farmington SS		0.00	
2,530.45	2,432.00	Lwr Kirtland Shale		0.00	
2,749.45	2,650.99	Fruitland Coal		0.00	
2,782.45	2,683.99	Lemon		0.00	
2,871.45	2,772.99	Lwr Lemon		0.00	
2,898.45	2,799.99	Ignacio		0.00	
2,938.45	2,839.99	Pictured Cliffs		0.00	