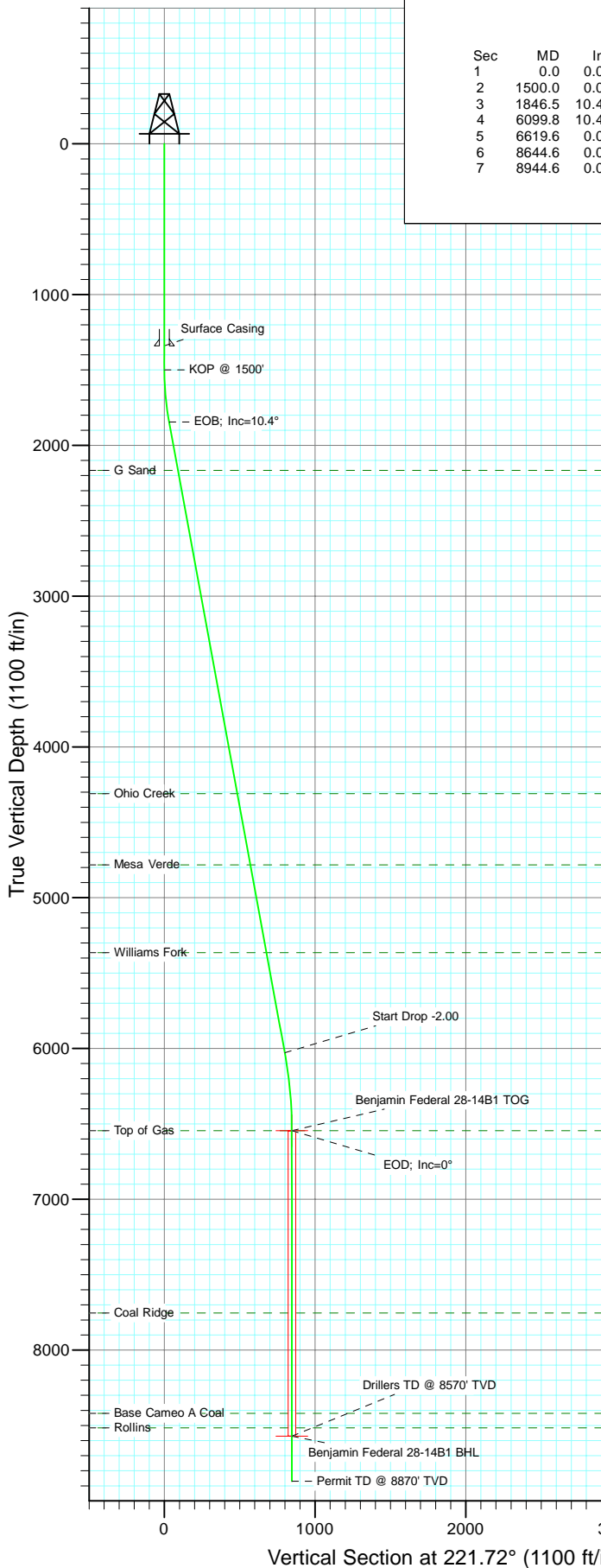


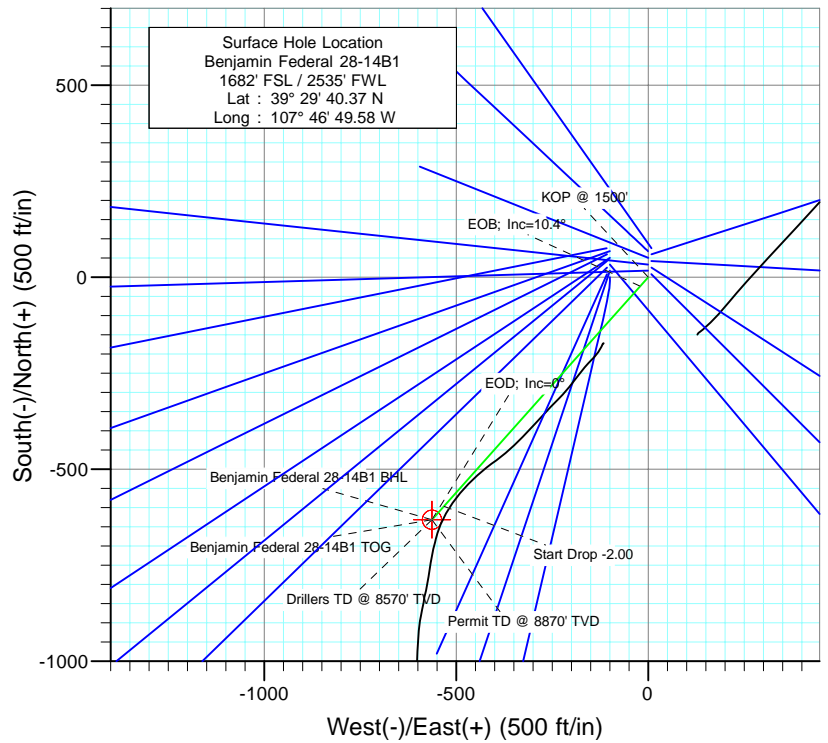


Project: Mamm Creek
Site: K28NW Pad
Well: Benjamin Federal 28-14B1
Wellbore: DD
Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1846.5	10.40	221.72	1844.6	-23.4	-20.9	3.00	221.72	31.3	
4	6099.8	10.40	221.72	6028.1	-596.2	-531.6	0.00	0.00	798.8	
5	6619.6	0.00	0.00	6545.0	-631.3	-562.9	2.00	180.00	845.8	Benjamin Federal 28-14B1 TOG
6	8644.6	0.00	0.00	8570.0	-631.3	-562.9	0.00	0.00	845.8	Benjamin Federal 28-14B1 BHL
7	8944.6	0.00	0.00	8870.0	-631.3	-562.9	0.00	0.00	845.8	



FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
2166.0	2173.3	G Sand
4310.0	4353.0	Ohio Creek
4782.0	4832.9	Mesa Verde
5364.0	5424.6	Williams Fork
6545.0	6619.6	Top of Gas
7754.0	7828.6	Coal Ridge
8420.0	8494.6	Base Cameo A Coal
8515.0	8589.6	Rollins



Azimuths to True North
Magnetic North: 10.36°

Magnetic Field
Strength: 52406.0snT
Dip Angle: 65.82°
Date: 6/23/2010
Model: IGRF200510

Plan #1
Benjamin Federal 28-14B1
BHL = (1060 FSL - 1950 FWL) Job#10xxx: KR

WELL @ 5965.0ft (Original Well Elev)
North American Datum 1983
Well Benjamin Federal 28-14B1, True North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From	TVD
Target	Benjamin Federal 28-14B1 BHL	221.72	Slot		0.0	0.0		0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude			
Benjamin Federal 28-14B1 BHL	8570.0	-631.3	-562.939° 29' 34.13 N	107° 46' 56.76 W				

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-14B1
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-14B1	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	Mamm Creek		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		K28NW Pad			
Site Position:		Northing:	1,613,160.16 ft	Latitude:	39.494711
From:	Lat/Long	Easting:	2,356,412.22 ft	Longitude:	-107.780819
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.44 °

Well	Benjamin Federal 28-14B1					
Well Position	+N/-S	0.0 ft	Northing:	1,613,097.78 ft	Latitude:	39.494547
	+E/-W	0.0 ft	Easting:	2,356,518.09 ft	Longitude:	-107.780439
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,943.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/23/2010	10.36	65.82	52,406

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	221.72

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,846.5	10.40	221.72	1,844.6	-23.4	-20.9	3.00	3.00	0.00	221.72	
6,099.8	10.40	221.72	6,028.1	-596.2	-531.6	0.00	0.00	0.00	0.00	
6,619.6	0.00	0.00	6,545.0	-631.3	-562.9	2.00	-2.00	0.00	180.00	Benjamin Federal 28-
8,644.6	0.00	0.00	8,570.0	-631.3	-562.9	0.00	0.00	0.00	0.00	Benjamin Federal 28-
8,944.6	0.00	0.00	8,870.0	-631.3	-562.9	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-14B1
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-14B1	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,340.0	0.00	0.00	1,340.0	0.0	0.0	0.0	0.00	0.00	Surface Casing
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1500'
1,600.0	3.00	221.72	1,600.0	-2.0	-1.7	2.6	3.00	3.00	
1,700.0	6.00	221.72	1,699.6	-7.8	-7.0	10.5	3.00	3.00	
1,800.0	9.00	221.72	1,798.8	-17.6	-15.6	23.5	3.00	3.00	
1,846.5	10.40	221.72	1,844.6	-23.4	-20.9	31.3	3.00	3.00	EOB; Inc=10.4°
1,900.0	10.40	221.72	1,897.2	-30.6	-27.3	41.0	0.00	0.00	
2,000.0	10.40	221.72	1,995.6	-44.1	-39.3	59.0	0.00	0.00	
2,100.0	10.40	221.72	2,093.9	-57.5	-51.3	77.1	0.00	0.00	
2,173.3	10.40	221.72	2,166.0	-67.4	-60.1	90.3	0.00	0.00	G Sand
2,200.0	10.40	221.72	2,192.3	-71.0	-63.3	95.1	0.00	0.00	
2,300.0	10.40	221.72	2,290.7	-84.5	-75.3	113.2	0.00	0.00	
2,400.0	10.40	221.72	2,389.0	-97.9	-87.3	131.2	0.00	0.00	
2,500.0	10.40	221.72	2,487.4	-111.4	-99.3	149.3	0.00	0.00	
2,600.0	10.40	221.72	2,585.7	-124.9	-111.3	167.3	0.00	0.00	
2,700.0	10.40	221.72	2,684.1	-138.3	-123.3	185.3	0.00	0.00	
2,800.0	10.40	221.72	2,782.5	-151.8	-135.4	203.4	0.00	0.00	
2,900.0	10.40	221.72	2,880.8	-165.3	-147.4	221.4	0.00	0.00	
3,000.0	10.40	221.72	2,979.2	-178.8	-159.4	239.5	0.00	0.00	
3,100.0	10.40	221.72	3,077.5	-192.2	-171.4	257.5	0.00	0.00	
3,200.0	10.40	221.72	3,175.9	-205.7	-183.4	275.6	0.00	0.00	
3,300.0	10.40	221.72	3,274.2	-219.2	-195.4	293.6	0.00	0.00	
3,400.0	10.40	221.72	3,372.6	-232.6	-207.4	311.7	0.00	0.00	
3,500.0	10.40	221.72	3,471.0	-246.1	-219.4	329.7	0.00	0.00	
3,600.0	10.40	221.72	3,569.3	-259.6	-231.4	347.7	0.00	0.00	
3,700.0	10.40	221.72	3,667.7	-273.0	-243.4	365.8	0.00	0.00	
3,800.0	10.40	221.72	3,766.0	-286.5	-255.4	383.8	0.00	0.00	
3,900.0	10.40	221.72	3,864.4	-300.0	-267.4	401.9	0.00	0.00	
4,000.0	10.40	221.72	3,962.8	-313.4	-279.4	419.9	0.00	0.00	
4,100.0	10.40	221.72	4,061.1	-326.9	-291.4	438.0	0.00	0.00	
4,200.0	10.40	221.72	4,159.5	-340.4	-303.5	456.0	0.00	0.00	
4,300.0	10.40	221.72	4,257.8	-353.8	-315.5	474.0	0.00	0.00	
4,353.0	10.40	221.72	4,310.0	-361.0	-321.8	483.6	0.00	0.00	Ohio Creek
4,400.0	10.40	221.72	4,356.2	-367.3	-327.5	492.1	0.00	0.00	
4,500.0	10.40	221.72	4,454.6	-380.8	-339.5	510.1	0.00	0.00	
4,600.0	10.40	221.72	4,552.9	-394.2	-351.5	528.2	0.00	0.00	
4,700.0	10.40	221.72	4,651.3	-407.7	-363.5	546.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-14B1
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-14B1	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,800.0	10.40	221.72	4,749.6	-421.2	-375.5	564.3	0.00	0.00	
4,832.9	10.40	221.72	4,782.0	-425.6	-379.4	570.2	0.00	0.00	Mesa Verde
4,900.0	10.40	221.72	4,848.0	-434.6	-387.5	582.3	0.00	0.00	
5,000.0	10.40	221.72	4,946.3	-448.1	-399.5	600.3	0.00	0.00	
5,100.0	10.40	221.72	5,044.7	-461.6	-411.5	618.4	0.00	0.00	
5,200.0	10.40	221.72	5,143.1	-475.1	-423.5	636.4	0.00	0.00	
5,300.0	10.40	221.72	5,241.4	-488.5	-435.5	654.5	0.00	0.00	
5,400.0	10.40	221.72	5,339.8	-502.0	-447.5	672.5	0.00	0.00	
5,424.6	10.40	221.72	5,364.0	-505.3	-450.5	677.0	0.00	0.00	Williams Fork
5,500.0	10.40	221.72	5,438.1	-515.5	-459.5	690.6	0.00	0.00	
5,600.0	10.40	221.72	5,536.5	-528.9	-471.6	708.6	0.00	0.00	
5,700.0	10.40	221.72	5,634.9	-542.4	-483.6	726.7	0.00	0.00	
5,800.0	10.40	221.72	5,733.2	-555.9	-495.6	744.7	0.00	0.00	
5,900.0	10.40	221.72	5,831.6	-569.3	-507.6	762.7	0.00	0.00	
6,000.0	10.40	221.72	5,929.9	-582.8	-519.6	780.8	0.00	0.00	
6,099.8	10.40	221.72	6,028.1	-596.2	-531.6	798.8	0.00	0.00	Start Drop -2.00
6,100.0	10.40	221.72	6,028.3	-596.3	-531.6	798.8	0.00	0.00	
6,200.0	8.39	221.72	6,126.9	-608.4	-542.5	815.1	2.00	-2.00	
6,300.0	6.39	221.72	6,226.1	-618.0	-551.0	828.0	2.00	-2.00	
6,400.0	4.39	221.72	6,325.7	-625.1	-557.3	837.4	2.00	-2.00	
6,500.0	2.39	221.72	6,425.5	-629.5	-561.2	843.3	2.00	-2.00	
6,600.0	0.39	221.72	6,525.4	-631.3	-562.8	845.7	2.00	-2.00	
6,619.6	0.00	0.00	6,545.0	-631.3	-562.9	845.8	2.00	-2.00	EOD; Inc=0° - Top of Gas - Benjamin Federal 2
6,700.0	0.00	0.00	6,625.4	-631.3	-562.9	845.8	0.00	0.00	
6,800.0	0.00	0.00	6,725.4	-631.3	-562.9	845.8	0.00	0.00	
6,900.0	0.00	0.00	6,825.4	-631.3	-562.9	845.8	0.00	0.00	
7,000.0	0.00	0.00	6,925.4	-631.3	-562.9	845.8	0.00	0.00	
7,100.0	0.00	0.00	7,025.4	-631.3	-562.9	845.8	0.00	0.00	
7,200.0	0.00	0.00	7,125.4	-631.3	-562.9	845.8	0.00	0.00	
7,300.0	0.00	0.00	7,225.4	-631.3	-562.9	845.8	0.00	0.00	
7,400.0	0.00	0.00	7,325.4	-631.3	-562.9	845.8	0.00	0.00	
7,500.0	0.00	0.00	7,425.4	-631.3	-562.9	845.8	0.00	0.00	
7,600.0	0.00	0.00	7,525.4	-631.3	-562.9	845.8	0.00	0.00	
7,700.0	0.00	0.00	7,625.4	-631.3	-562.9	845.8	0.00	0.00	
7,800.0	0.00	0.00	7,725.4	-631.3	-562.9	845.8	0.00	0.00	
7,828.6	0.00	0.00	7,754.0	-631.3	-562.9	845.8	0.00	0.00	Coal Ridge
7,900.0	0.00	0.00	7,825.4	-631.3	-562.9	845.8	0.00	0.00	
8,000.0	0.00	0.00	7,925.4	-631.3	-562.9	845.8	0.00	0.00	
8,100.0	0.00	0.00	8,025.4	-631.3	-562.9	845.8	0.00	0.00	
8,200.0	0.00	0.00	8,125.4	-631.3	-562.9	845.8	0.00	0.00	
8,300.0	0.00	0.00	8,225.4	-631.3	-562.9	845.8	0.00	0.00	
8,400.0	0.00	0.00	8,325.4	-631.3	-562.9	845.8	0.00	0.00	
8,494.6	0.00	0.00	8,420.0	-631.3	-562.9	845.8	0.00	0.00	Base Cameo A Coal
8,500.0	0.00	0.00	8,425.4	-631.3	-562.9	845.8	0.00	0.00	
8,589.6	0.00	0.00	8,515.0	-631.3	-562.9	845.8	0.00	0.00	Rollins
8,600.0	0.00	0.00	8,525.4	-631.3	-562.9	845.8	0.00	0.00	
8,644.6	0.00	0.00	8,570.0	-631.3	-562.9	845.8	0.00	0.00	Drillers TD @ 8570' TVD - Benjamin Federal 28
8,700.0	0.00	0.00	8,625.4	-631.3	-562.9	845.8	0.00	0.00	
8,800.0	0.00	0.00	8,725.4	-631.3	-562.9	845.8	0.00	0.00	
8,900.0	0.00	0.00	8,825.4	-631.3	-562.9	845.8	0.00	0.00	
8,944.6	0.00	0.00	8,870.0	-631.3	-562.9	845.8	0.00	0.00	Permit TD @ 8870' TVD

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-14B1
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-14B1	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Benjamin Federal 28-14/ - plan hits target center - Point	0.00	0.00	6,545.0	-631.3	-562.9	1,612,480.77	2,355,939.56	39.492814	-107.782433
Benjamin Federal 28-14/ - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,570.0	-631.3	-562.9	1,612,480.77	2,355,939.56	39.492814	-107.782433

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,340.0	1,340.0	Surface Casing		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,173.3	2,166.0	G Sand				
4,353.0	4,310.0	Ohio Creek				
4,832.9	4,782.0	Mesa Verde				
5,424.6	5,364.0	Williams Fork				
6,619.6	6,545.0	Top of Gas				
7,828.6	7,754.0	Coal Ridge				
8,494.6	8,420.0	Base Cameo A Coal				
8,589.6	8,515.0	Rollins				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.0	1,500.0	0.0	0.0	KOP @ 1500'
1,846.5	1,844.6	-23.4	-20.9	EOB; Inc=10.4°
6,099.8	6,028.1	-596.2	-531.6	Start Drop -2.00
6,619.6	6,545.0	-631.3	-562.9	EOD; Inc=0°
8,644.6	8,570.0	-631.3	-562.9	Drillers TD @ 8570' TVD
8,944.6	8,870.0	-631.3	-562.9	Permit TD @ 8870' TVD