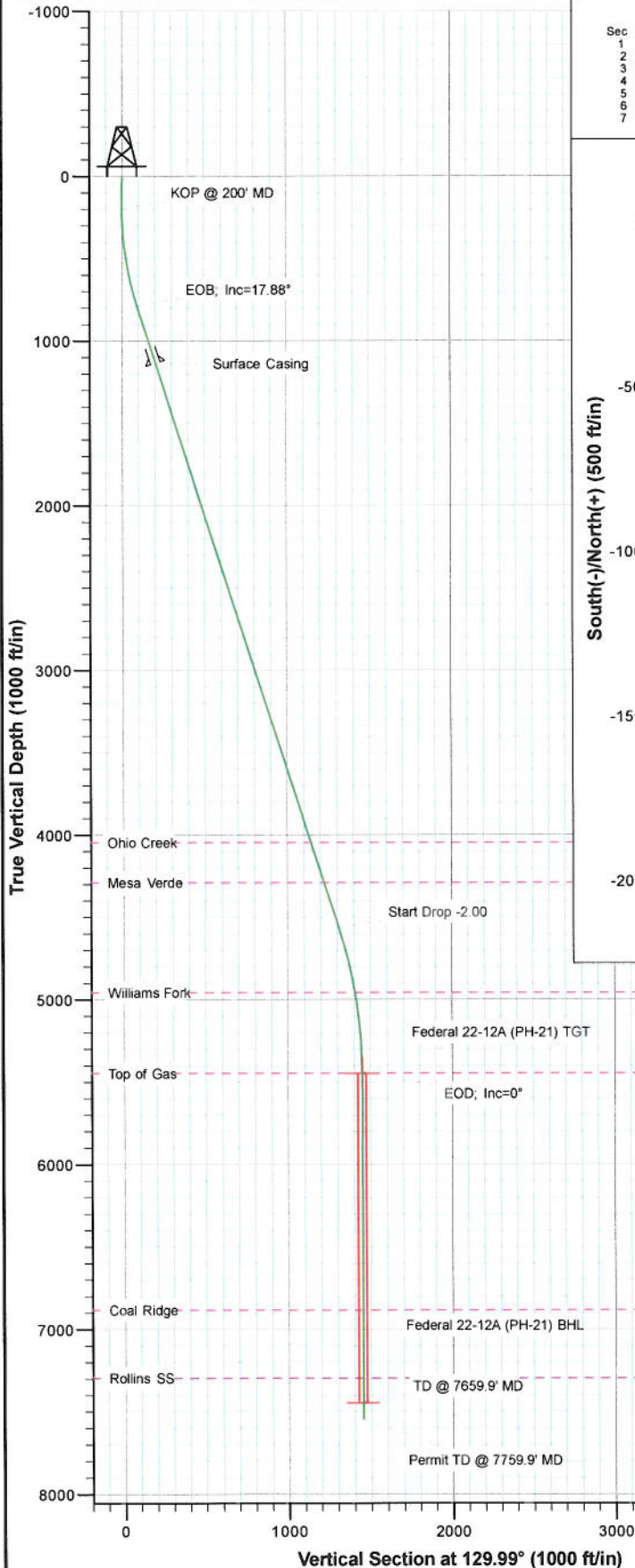
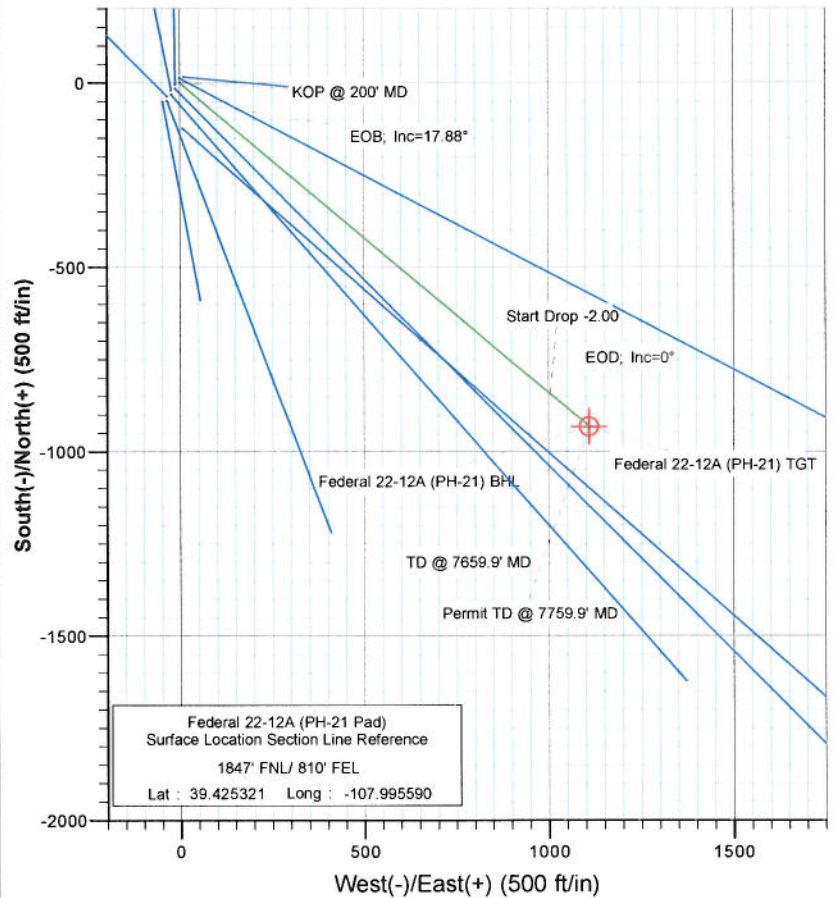




Project: S. Piceance (Parachute)
 Site: SENE S21-T7S-R95W (PH-21 Pad)
 Well: Federal 22-12A (PH-21 Pad)
 Wellbore: DD
 Plan: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSed	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	796.1	17.88	129.99	786.4	-59.3	70.7	3.00	129.99	92.3	
4	4767.8	17.88	129.99	4568.3	-843.1	1005.0	0.00	0.00	1311.8	
5	5661.9	0.00	0.00	5446.0	-932.0	1111.1	2.00	180.00	1450.2	Federal 22-12A (PH-21) TGT
6	7659.9	0.00	0.00	7444.0	-932.0	1111.1	0.00	0.00	1450.2	Federal 22-12A (PH-21) BHL
7	7759.9	0.00	0.00	7544.0	-932.0	1111.1	0.00	0.00	1450.2	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4045.0	4220.0	Ohio Creek
4288.0	4475.4	Mesa Verde
4956.0	5169.5	Williams Fork
5446.0	5661.9	Top of Gas
6882.0	7097.9	Coal Ridge
7294.0	7509.9	Rollins SS



Azimuths to True North
 Magnetic North: 10.39°

Magnetic Field
 Strength: 52248.1nT
 Dip Angle: 65.69°
 Date: 1/24/2011
 Model: IGRF2010

Plan #1 Federal 22-12A (PH-21 Pad) 115XXX; BH				
KBE @ 6342.0ft (Original Well Elev) North American Datum 1983 Well Federal 22-12A (PH-21 Pad), True North				
Target	Name	TVD	Azimuth	Origin Type N/S
Federal 22-12A (PH-21) BHL	Federal 22-12A (PH-21) TGT	5446.0	-932.0	1111.1
Federal 22-12A (PH-21) BHL	Federal 22-12A (PH-21) BHL	7444.0	-932.0	1111.1

Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: S. Piceance (Parachute)
Site: SENE S21-T7S-R95W (PH-21 Pad)
Well: Federal 22-12A (PH-21 Pad)
Wellbore: DD
Design: Plan #1

Local Co-ordinate Reference: Well Federal 22-12A (PH-21 Pad)
TVD Reference: KBE @ 6342.0ft (Original Well Elev)
MD Reference: KBE @ 6342.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	S. Piceance (Parachute), Garfield County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	SENE S21-T7S-R95W (PH-21 Pad)		
Site Position:		Northing:	1,589,456.28 ft
From:	Lat/Long	Easting:	2,295,105.61 ft
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in
		Latitude:	39.425231
		Longitude:	-107.995671
		Grid Convergence:	-1.57 °

Well	Federal 22-12A (PH-21 Pad)		
Well Position	+N/-S	0.0 ft	Northing: 1,589,488.41 ft
	+E/-W	0.0 ft	Easting: 2,295,129.38 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	39.425321
		Longitude:	-107.995590
		Ground Level:	6,320.0 ft

Wellbore	DD		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	1/24/2011	10.39
		Dip Angle (°)	65.69
		Field Strength (nT)	52,248

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)
	0.0	0.0	0.0
		Direction (°)	129.99

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
796.1	17.88	129.99	786.4	-59.3	70.7	3.00	3.00	0.00	129.99	
4,767.8	17.88	129.99	4,566.3	-843.1	1,005.0	0.00	0.00	0.00	0.00	
5,661.9	0.00	0.00	5,446.0	-932.0	1,111.1	2.00	-2.00	0.00	180.00	Federal 22-12A (PH-2
7,659.9	0.00	0.00	7,444.0	-932.0	1,111.1	0.00	0.00	0.00	0.00	Federal 22-12A (PH-2
7,759.9	0.00	0.00	7,544.0	-932.0	1,111.1	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: S. Piceance (Parachute)
 Site: SENE S21-T7S-R95W (PH-21 Pad)
 Well: Federal 22-12A (PH-21 Pad)
 Wellbore: DD
 Design: Plan #1

Local Co-ordinate Reference: Well Federal 22-12A (PH-21 Pad)
 TVD Reference: KBE @ 6342.0ft (Original Well Elev)
 MD Reference: KBE @ 6342.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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	KOP @ 200' MD
300.0	3.00	129.99	300.0	-1.7	2.0	2.6	3.00	3.00	
400.0	6.00	129.99	399.6	-6.7	8.0	10.5	3.00	3.00	
500.0	9.00	129.99	498.8	-15.1	18.0	23.5	3.00	3.00	
600.0	12.00	129.99	597.1	-26.8	32.0	41.7	3.00	3.00	
700.0	15.00	129.99	694.3	-41.8	49.9	65.1	3.00	3.00	
796.1	17.88	129.99	786.4	-59.3	70.7	92.3	3.00	3.00	EOB; Inc=17.88°
800.0	17.88	129.99	790.2	-60.1	71.6	93.5	0.00	0.00	
900.0	17.88	129.99	885.3	-79.8	95.1	124.2	0.00	0.00	
1,000.0	17.88	129.99	980.5	-99.5	118.7	154.9	0.00	0.00	
1,100.0	17.88	129.99	1,075.7	-119.3	142.2	185.6	0.00	0.00	
1,164.0	17.88	129.99	1,136.6	-131.9	157.2	205.2	0.00	0.00	Surface Casing
1,200.0	17.88	129.99	1,170.9	-139.0	165.7	216.3	0.00	0.00	
1,300.0	17.88	129.99	1,266.0	-158.7	189.2	247.0	0.00	0.00	
1,400.0	17.88	129.99	1,361.2	-178.5	212.8	277.7	0.00	0.00	
1,500.0	17.88	129.99	1,456.4	-198.2	236.3	308.4	0.00	0.00	
1,600.0	17.88	129.99	1,551.5	-217.9	259.8	339.1	0.00	0.00	
1,700.0	17.88	129.99	1,646.7	-237.7	283.3	369.8	0.00	0.00	
1,800.0	17.88	129.99	1,741.9	-257.4	306.9	400.5	0.00	0.00	
1,900.0	17.88	129.99	1,837.0	-277.1	330.4	431.2	0.00	0.00	
2,000.0	17.88	129.99	1,932.2	-296.9	353.9	461.9	0.00	0.00	
2,100.0	17.88	129.99	2,027.4	-316.6	377.4	492.6	0.00	0.00	
2,200.0	17.88	129.99	2,122.5	-336.4	401.0	523.4	0.00	0.00	
2,300.0	17.88	129.99	2,217.7	-356.1	424.5	554.1	0.00	0.00	
2,400.0	17.88	129.99	2,312.9	-375.8	448.0	584.8	0.00	0.00	
2,500.0	17.88	129.99	2,408.1	-395.6	471.5	615.5	0.00	0.00	
2,600.0	17.88	129.99	2,503.2	-415.3	495.1	646.2	0.00	0.00	
2,700.0	17.88	129.99	2,598.4	-435.0	518.6	676.9	0.00	0.00	
2,800.0	17.88	129.99	2,693.6	-454.8	542.1	707.6	0.00	0.00	
2,900.0	17.88	129.99	2,788.7	-474.5	565.6	738.3	0.00	0.00	
3,000.0	17.88	129.99	2,883.9	-494.2	589.1	769.0	0.00	0.00	
3,100.0	17.88	129.99	2,979.1	-514.0	612.7	799.7	0.00	0.00	
3,200.0	17.88	129.99	3,074.2	-533.7	636.2	830.4	0.00	0.00	
3,300.0	17.88	129.99	3,169.4	-553.4	659.7	861.1	0.00	0.00	
3,400.0	17.88	129.99	3,264.6	-573.2	683.2	891.8	0.00	0.00	
3,500.0	17.88	129.99	3,359.7	-592.9	706.8	922.5	0.00	0.00	
3,600.0	17.88	129.99	3,454.9	-612.6	730.3	953.2	0.00	0.00	
3,700.0	17.88	129.99	3,550.1	-632.4	753.8	983.9	0.00	0.00	
3,800.0	17.88	129.99	3,645.3	-652.1	777.3	1,014.6	0.00	0.00	
3,900.0	17.88	129.99	3,740.4	-671.8	800.9	1,045.3	0.00	0.00	
4,000.0	17.88	129.99	3,835.6	-691.6	824.4	1,076.1	0.00	0.00	
4,100.0	17.88	129.99	3,930.8	-711.3	847.9	1,106.8	0.00	0.00	
4,200.0	17.88	129.99	4,025.9	-731.0	871.4	1,137.5	0.00	0.00	
4,220.0	17.88	129.99	4,045.0	-735.0	876.2	1,143.6	0.00	0.00	Ohio Creek
4,300.0	17.88	129.99	4,121.1	-750.8	895.0	1,168.2	0.00	0.00	
4,400.0	17.88	129.99	4,216.3	-770.5	918.5	1,198.9	0.00	0.00	
4,475.4	17.88	129.99	4,288.0	-785.4	936.2	1,222.0	0.00	0.00	Mesa Verde
4,500.0	17.88	129.99	4,311.4	-790.2	942.0	1,229.6	0.00	0.00	
4,600.0	17.88	129.99	4,406.6	-810.0	965.5	1,260.3	0.00	0.00	
4,700.0	17.88	129.99	4,501.8	-829.7	989.1	1,291.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: S. Piceance (Parachute)
Site: SENE S21-T7S-R95W (PH-21 Pad)
Well: Federal 22-12A (PH-21 Pad)
Wellbore: DD
Design: Plan #1

Local Co-ordinate Reference: Well Federal 22-12A (PH-21 Pad)
TVD Reference: KBE @ 6342.0ft (Original Well Elev)
MD Reference: KBE @ 6342.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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
4,767.8	17.88	129.99	4,566.3	-843.1	1,005.0	1,311.8	0.00	0.00	Start Drop -2.00
4,800.0	17.24	129.99	4,597.0	-849.3	1,012.5	1,321.5	2.00	-2.00	
4,900.0	15.24	129.99	4,693.0	-867.3	1,033.9	1,349.5	2.00	-2.00	
5,000.0	13.24	129.99	4,789.9	-883.1	1,052.7	1,374.1	2.00	-2.00	
5,100.0	11.24	129.99	4,887.7	-896.7	1,069.0	1,395.3	2.00	-2.00	
5,169.5	9.85	129.99	4,956.0	-904.9	1,078.7	1,408.0	2.00	-2.00	Williams Fork
5,200.0	9.24	129.99	4,986.1	-908.2	1,082.6	1,413.1	2.00	-2.00	
5,300.0	7.24	129.99	5,085.0	-917.4	1,093.6	1,427.4	2.00	-2.00	
5,400.0	5.24	129.99	5,184.4	-924.3	1,101.9	1,438.3	2.00	-2.00	
5,500.0	3.24	129.99	5,284.1	-929.1	1,107.5	1,445.6	2.00	-2.00	
5,600.0	1.24	129.99	5,384.1	-931.6	1,110.5	1,449.5	2.00	-2.00	
5,661.9	0.00	0.00	5,446.0	-932.0	1,111.1	1,450.2	2.00	-2.00	EOD; Inc=0° - Top of Gas - Federal 22-12A (PH-21)
5,700.0	0.00	0.00	5,484.1	-932.0	1,111.1	1,450.2	0.00	0.00	
5,800.0	0.00	0.00	5,584.1	-932.0	1,111.1	1,450.2	0.00	0.00	
5,900.0	0.00	0.00	5,684.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,000.0	0.00	0.00	5,784.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,100.0	0.00	0.00	5,884.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,200.0	0.00	0.00	5,984.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,300.0	0.00	0.00	6,084.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,400.0	0.00	0.00	6,184.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,500.0	0.00	0.00	6,284.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,600.0	0.00	0.00	6,384.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,700.0	0.00	0.00	6,484.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,800.0	0.00	0.00	6,584.1	-932.0	1,111.1	1,450.2	0.00	0.00	
6,900.0	0.00	0.00	6,684.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,000.0	0.00	0.00	6,784.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,097.9	0.00	0.00	6,882.0	-932.0	1,111.1	1,450.2	0.00	0.00	Coal Ridge
7,100.0	0.00	0.00	6,884.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,200.0	0.00	0.00	6,984.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,300.0	0.00	0.00	7,084.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,400.0	0.00	0.00	7,184.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,500.0	0.00	0.00	7,284.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,509.9	0.00	0.00	7,294.0	-932.0	1,111.1	1,450.2	0.00	0.00	Rollins SS
7,600.0	0.00	0.00	7,384.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,659.9	0.00	0.00	7,444.0	-932.0	1,111.1	1,450.2	0.00	0.00	TD @ 7659.9' MD - Federal 22-12A (PH-21) BH
7,700.0	0.00	0.00	7,484.1	-932.0	1,111.1	1,450.2	0.00	0.00	
7,759.9	0.00	0.00	7,544.0	-932.0	1,111.1	1,450.2	0.00	0.00	Permit TD @ 7759.9' MD

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									
Federal 22-12A (PH-21)	0.00	0.00	5,446.0	-932.0	1,111.1	1,588,526.20	2,296,214.41	39.422762	-107.991657
- plan hits target center									
- Circle (radius 25.0)									
Federal 22-12A (PH-21)	0.00	0.00	7,444.0	-932.0	1,111.1	1,588,526.20	2,296,214.41	39.422762	-107.991657
- plan hits target center									
- Circle (radius 25.0)									

Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: S. Piceance (Parachute)
Site: SENE S21-T7S-R95W (PH-21 Pad)
Well: Federal 22-12A (PH-21 Pad)
Wellbore: DD
Design: Plan #1

Local Co-ordinate Reference: Well Federal 22-12A (PH-21 Pad)
TVD Reference: KBE @ 6342.0ft (Original Well Elev)
MD Reference: KBE @ 6342.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,164.0	1,136.6	Surface Casing	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,220.0	4,045.0	Ohio Creek		0.00	
4,475.4	4,288.0	Mesa Verde		0.00	
5,169.5	4,956.0	Williams Fork		0.00	
5,661.9	5,446.0	Top of Gas		0.00	
7,097.9	6,882.0	Coal Ridge		0.00	
7,509.9	7,294.0	Rollins SS		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200' MD
796.1	786.4	-59.3	70.7	EOB; Inc=17.88°
4,767.8	4,566.3	-843.1	1,005.0	Start Drop -2.00
5,661.9	5,446.0	-932.0	1,111.1	EOD; Inc=0°
7,659.9	7,444.0	-932.0	1,111.1	TD @ 7659.9' MD
7,759.9	7,544.0	-932.0	1,111.1	Permit TD @ 7759.9' MD