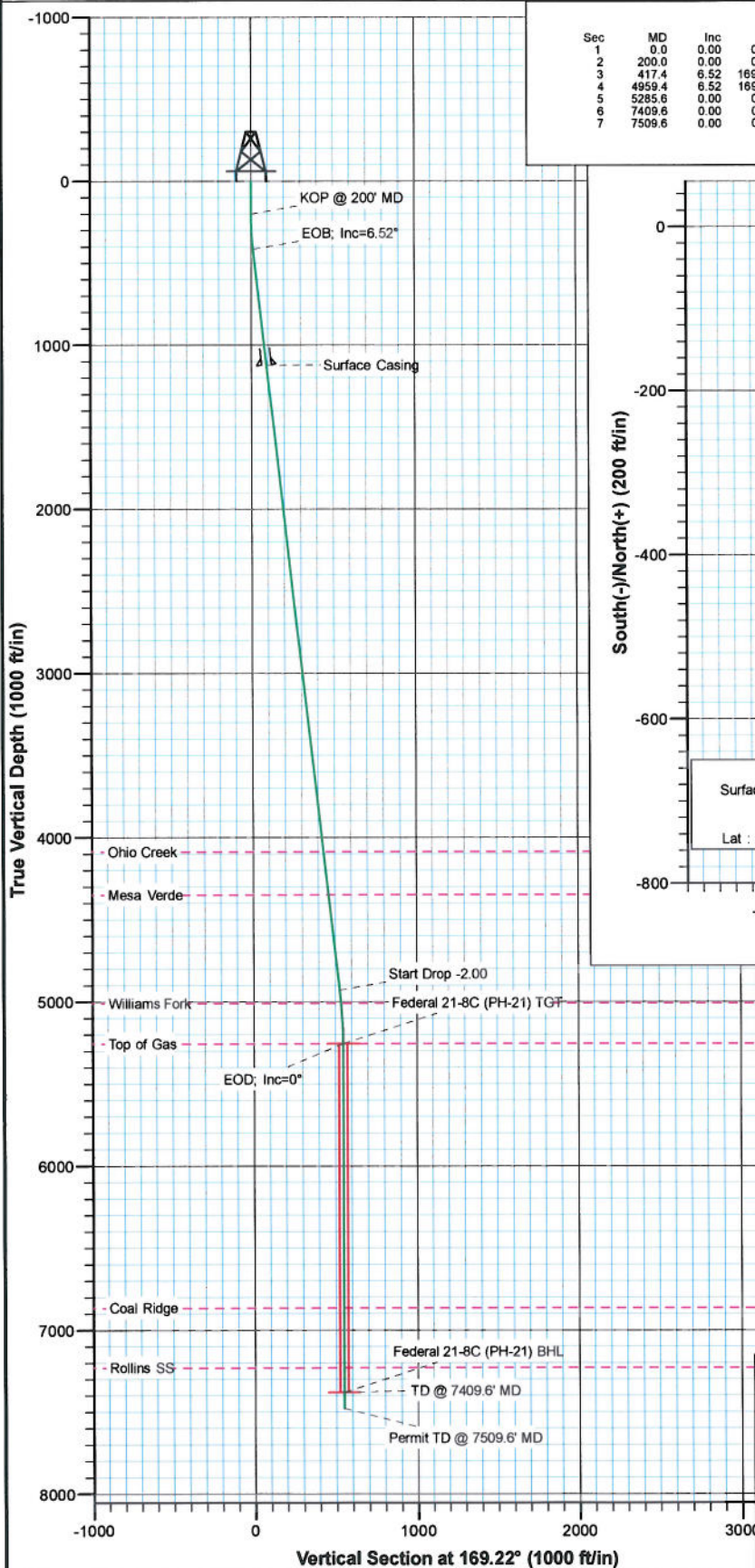


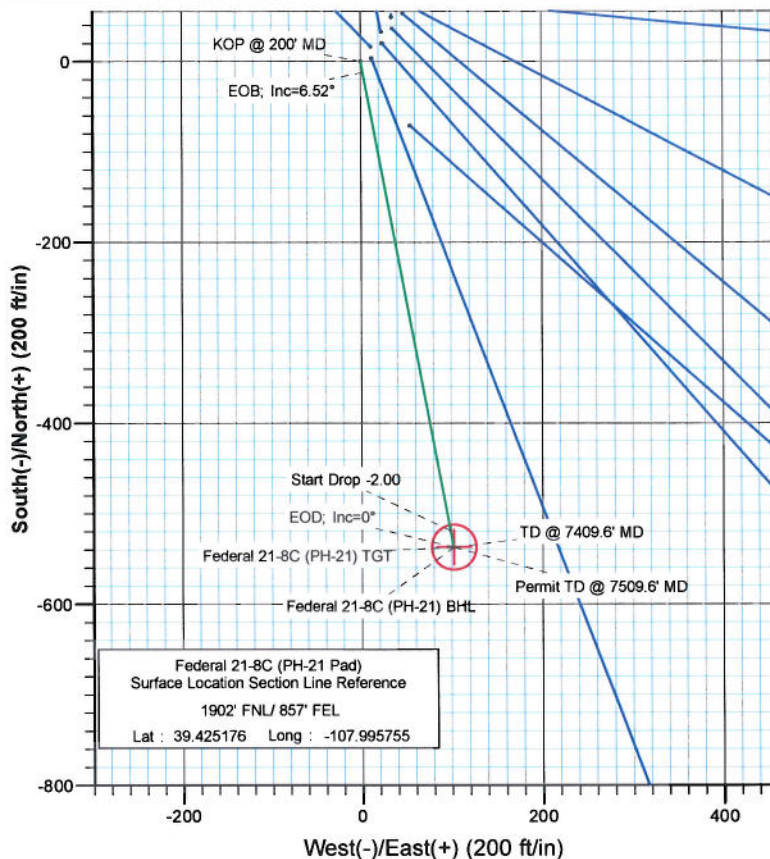


Project: S. Piceance (Parachute)
 Site: SENE S21-T7S-R95W (PH-21 Pad)
 Well: Federal 21-8C (PH-21 Pad)
 Wellbore: DD
 Plan: Plan #1



SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
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	417.4	6.52	169.22	417.0	-12.1	2.3	3.00	169.22	12.4
4	4959.4	6.52	169.22	4929.6	-519.0	98.8	0.00	0.00	528.3
5	5285.6	0.00	0.00	5255.0	-537.2	102.3	2.00	180.00	546.9
6	7409.6	0.00	0.00	7379.0	-537.2	102.3	0.00	0.00	546.9
7	7509.6	0.00	0.00	7479.0	-537.2	102.3	0.00	0.00	546.9

Federal 21-8C (PH-21) TGT
 Federal 21-8C (PH-21) BHL



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4087.0	4111.4	Ohio Creek
4348.0	4374.1	Mesa Verde
5009.0	5039.3	Williams Fork
5285.6	5285.6	Top of Gas
6864.0	6894.6	Coal Ridge
7229.0	7259.6	Rollins SS



Azimuths to True North
 Magnetic North: 10.39°

Magnetic Field
 Strength: 52248.0nT
 Dip Angle: 65.89°
 Date: 1/24/2011
 Model: IGRF2010

Plan #1
 Federal 21-8C (PH-21 Pad)
 115XXX; BH

KBE @ 6342.0ft (Original Well Elev)
 North American Datum 1983
 Well Federal 21-8C (PH-21 Pad), True North

Target	Azimuth	Origin Type	N/S		
Federal 21-8C (PH-21) BHL	169.22	Slot	0.0		
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Federal 21-8C (PH-21) TGT	5255.0	-537.2	102.3	39.423701	-107.995393
Federal 21-8C (PH-21) BHL	7379.0	-537.2	102.3	39.423701	-107.995393

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Federal 21-8C (PH-21 Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6342.0ft (Original Well Elev)
Project:	S. Piceance (Parachute)	MD Reference:	KBE @ 6342.0ft (Original Well Elev)
Site:	SENE S21-T7S-R95W (PH-21 Pad)	North Reference:	True
Well:	Federal 21-8C (PH-21 Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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	Latitude: 39.425231
From:	Lat/Long	Easting:	2,295,105.61 ft	Longitude: -107.995671
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.57 °

Well	Federal 21-8C (PH-21 Pad)			
Well Position	+N/-S	0.0 ft	Northing:	1,589,436.89 ft
	+E/-W	0.0 ft	Easting:	2,295,081.34 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level: 6,320.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/24/2011	10.39	65.69	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)	Direction (°)
	0.0	0.0	0.0	169.22

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	
417.4	6.52	169.22	417.0	-12.1	2.3	3.00	3.00	0.00	169.22	
4,959.4	6.52	169.22	4,929.6	-519.0	98.8	0.00	0.00	0.00	0.00	
5,285.6	0.00	0.00	5,255.0	-537.2	102.3	2.00	-2.00	0.00	180.00	Federal 21-8C (PH-21)
7,409.6	0.00	0.00	7,379.0	-537.2	102.3	0.00	0.00	0.00	0.00	Federal 21-8C (PH-21)
7,509.6	0.00	0.00	7,479.0	-537.2	102.3	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 Federal 21-8C (PH-21 Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6342.0ft (Original Well Elev)
Project:	S. Piceance (Parachute)	MD Reference:	KBE @ 6342.0ft (Original Well Elev)
Site:	SENE S21-T7S-R95W (PH-21 Pad)	North Reference:	True
Well:	Federal 21-8C (PH-21 Pad)	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	KOP @ 200' MD
300.0	3.00	169.22	300.0	-2.6	0.5	2.6	3.00	3.00	
400.0	6.00	169.22	399.6	-10.3	2.0	10.5	3.00	3.00	
417.4	6.52	169.22	417.0	-12.1	2.3	12.4	3.00	3.00	EOB; Inc=6.52°
500.0	6.52	169.22	499.0	-21.4	4.1	21.7	0.00	0.00	
600.0	6.52	169.22	598.3	-32.5	6.2	33.1	0.00	0.00	
700.0	6.52	169.22	697.7	-43.7	8.3	44.5	0.00	0.00	
800.0	6.52	169.22	797.1	-54.8	10.4	55.8	0.00	0.00	
900.0	6.52	169.22	896.4	-66.0	12.6	67.2	0.00	0.00	
1,000.0	6.52	169.22	995.8	-77.2	14.7	78.5	0.00	0.00	
1,100.0	6.52	169.22	1,095.1	-88.3	16.8	89.9	0.00	0.00	
1,126.3	6.52	169.22	1,121.3	-91.3	17.4	92.9	0.00	0.00	Surface Casing
1,200.0	6.52	169.22	1,194.5	-99.5	18.9	101.3	0.00	0.00	
1,300.0	6.52	169.22	1,293.8	-110.6	21.1	112.6	0.00	0.00	
1,400.0	6.52	169.22	1,393.2	-121.8	23.2	124.0	0.00	0.00	
1,500.0	6.52	169.22	1,492.5	-133.0	25.3	135.3	0.00	0.00	
1,600.0	6.52	169.22	1,591.9	-144.1	27.4	146.7	0.00	0.00	
1,700.0	6.52	169.22	1,691.2	-155.3	29.6	158.1	0.00	0.00	
1,800.0	6.52	169.22	1,790.6	-166.4	31.7	169.4	0.00	0.00	
1,900.0	6.52	169.22	1,889.9	-177.6	33.8	180.8	0.00	0.00	
2,000.0	6.52	169.22	1,989.3	-188.8	35.9	192.1	0.00	0.00	
2,100.0	6.52	169.22	2,088.6	-199.9	38.1	203.5	0.00	0.00	
2,200.0	6.52	169.22	2,188.0	-211.1	40.2	214.9	0.00	0.00	
2,300.0	6.52	169.22	2,287.3	-222.2	42.3	226.2	0.00	0.00	
2,400.0	6.52	169.22	2,386.7	-233.4	44.4	237.6	0.00	0.00	
2,500.0	6.52	169.22	2,486.0	-244.6	46.6	248.9	0.00	0.00	
2,600.0	6.52	169.22	2,585.4	-255.7	48.7	260.3	0.00	0.00	
2,700.0	6.52	169.22	2,684.8	-266.9	50.8	271.7	0.00	0.00	
2,800.0	6.52	169.22	2,784.1	-278.0	52.9	283.0	0.00	0.00	
2,900.0	6.52	169.22	2,883.5	-289.2	55.0	294.4	0.00	0.00	
3,000.0	6.52	169.22	2,982.8	-300.4	57.2	305.7	0.00	0.00	
3,100.0	6.52	169.22	3,082.2	-311.5	59.3	317.1	0.00	0.00	
3,200.0	6.52	169.22	3,181.5	-322.7	61.4	328.5	0.00	0.00	
3,300.0	6.52	169.22	3,280.9	-333.8	63.5	339.8	0.00	0.00	
3,400.0	6.52	169.22	3,380.2	-345.0	65.7	351.2	0.00	0.00	
3,500.0	6.52	169.22	3,479.6	-356.1	67.8	362.5	0.00	0.00	
3,600.0	6.52	169.22	3,578.9	-367.3	69.9	373.9	0.00	0.00	
3,700.0	6.52	169.22	3,678.3	-378.5	72.0	385.3	0.00	0.00	
3,800.0	6.52	169.22	3,777.6	-389.6	74.2	396.6	0.00	0.00	
3,900.0	6.52	169.22	3,877.0	-400.8	76.3	408.0	0.00	0.00	
4,000.0	6.52	169.22	3,976.3	-411.9	78.4	419.3	0.00	0.00	
4,100.0	6.52	169.22	4,075.7	-423.1	80.5	430.7	0.00	0.00	
4,111.4	6.52	169.22	4,087.0	-424.4	80.8	432.0	0.00	0.00	Ohio Creek
4,200.0	6.52	169.22	4,175.0	-434.3	82.7	442.1	0.00	0.00	
4,300.0	6.52	169.22	4,274.4	-445.4	84.8	453.4	0.00	0.00	
4,374.1	6.52	169.22	4,348.0	-453.7	86.4	461.8	0.00	0.00	Mesa Verde
4,400.0	6.52	169.22	4,373.7	-456.6	86.9	464.8	0.00	0.00	
4,500.0	6.52	169.22	4,473.1	-467.7	89.0	476.1	0.00	0.00	
4,600.0	6.52	169.22	4,572.5	-478.9	91.2	487.5	0.00	0.00	
4,700.0	6.52	169.22	4,671.8	-490.1	93.3	498.9	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 21-8C (PH-21 Pad)
Wellbore: DD
Design: Plan #1

Local Co-ordinate Reference: Well Federal 21-8C (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
4,800.0	6.52	169.22	4,771.2	-501.2	95.4	510.2	0.00	0.00	
4,900.0	6.52	169.22	4,870.5	-512.4	97.5	521.6	0.00	0.00	
4,959.4	6.52	169.22	4,929.6	-519.0	98.8	528.3	0.00	0.00	Start Drop -2.00
5,000.0	5.71	169.22	4,969.9	-523.3	99.6	532.7	2.00	-2.00	
5,039.3	4.93	169.22	5,009.0	-526.8	100.3	536.3	2.00	-2.00	Williams Fork
5,100.0	3.71	169.22	5,069.6	-531.3	101.1	540.9	2.00	-2.00	
5,200.0	1.71	169.22	5,169.4	-536.0	102.0	545.6	2.00	-2.00	
5,285.6	0.00	0.00	5,255.0	-537.2	102.3	546.9	2.00	-2.00	EOD; Inc=0° - Top of Gas - Federal 21-8C (PH-
5,300.0	0.00	0.00	5,269.4	-537.2	102.3	546.9	0.00	0.00	
5,400.0	0.00	0.00	5,369.4	-537.2	102.3	546.9	0.00	0.00	
5,500.0	0.00	0.00	5,469.4	-537.2	102.3	546.9	0.00	0.00	
5,600.0	0.00	0.00	5,569.4	-537.2	102.3	546.9	0.00	0.00	
5,700.0	0.00	0.00	5,669.4	-537.2	102.3	546.9	0.00	0.00	
5,800.0	0.00	0.00	5,769.4	-537.2	102.3	546.9	0.00	0.00	
5,900.0	0.00	0.00	5,869.4	-537.2	102.3	546.9	0.00	0.00	
6,000.0	0.00	0.00	5,969.4	-537.2	102.3	546.9	0.00	0.00	
6,100.0	0.00	0.00	6,069.4	-537.2	102.3	546.9	0.00	0.00	
6,200.0	0.00	0.00	6,169.4	-537.2	102.3	546.9	0.00	0.00	
6,300.0	0.00	0.00	6,269.4	-537.2	102.3	546.9	0.00	0.00	
6,400.0	0.00	0.00	6,369.4	-537.2	102.3	546.9	0.00	0.00	
6,500.0	0.00	0.00	6,469.4	-537.2	102.3	546.9	0.00	0.00	
6,600.0	0.00	0.00	6,569.4	-537.2	102.3	546.9	0.00	0.00	
6,700.0	0.00	0.00	6,669.4	-537.2	102.3	546.9	0.00	0.00	
6,800.0	0.00	0.00	6,769.4	-537.2	102.3	546.9	0.00	0.00	
6,894.6	0.00	0.00	6,864.0	-537.2	102.3	546.9	0.00	0.00	Coal Ridge
6,900.0	0.00	0.00	6,869.4	-537.2	102.3	546.9	0.00	0.00	
7,000.0	0.00	0.00	6,969.4	-537.2	102.3	546.9	0.00	0.00	
7,100.0	0.00	0.00	7,069.4	-537.2	102.3	546.9	0.00	0.00	
7,200.0	0.00	0.00	7,169.4	-537.2	102.3	546.9	0.00	0.00	
7,259.6	0.00	0.00	7,229.0	-537.2	102.3	546.9	0.00	0.00	Rollins SS
7,300.0	0.00	0.00	7,269.4	-537.2	102.3	546.9	0.00	0.00	
7,400.0	0.00	0.00	7,369.4	-537.2	102.3	546.9	0.00	0.00	
7,409.6	0.00	0.00	7,379.0	-537.2	102.3	546.9	0.00	0.00	TD @ 7409.6' MD - Federal 21-8C (PH-21) BHL
7,500.0	0.00	0.00	7,469.4	-537.2	102.3	546.9	0.00	0.00	
7,509.6	0.00	0.00	7,479.0	-537.2	102.3	546.9	0.00	0.00	Permit TD @ 7509.6' MD

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Federal 21-8C (PH-21) 1 - plan hits target center - Circle (radius 25.0)	0.00	0.00	5,255.0	-537.2	102.3	1,588,897.05	2,295,168.80	39.423701	-107.995393
Federal 21-8C (PH-21) 1 - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,379.0	-537.2	102.3	1,588,897.05	2,295,168.80	39.423701	-107.995393

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Federal 21-8C (PH-21 Pad)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6342.0ft (Original Well Elev)
Project:	S. Piceance (Parachute)	MD Reference:	KBE @ 6342.0ft (Original Well Elev)
Site:	SENE S21-T7S-R95W (PH-21 Pad)	North Reference:	True
Well:	Federal 21-8C (PH-21 Pad)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,126.3	1,121.3	Surface Casing	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,111.4	4,087.0	Ohio Creek		0.00	
4,374.1	4,348.0	Mesa Verde		0.00	
5,039.3	5,009.0	Williams Fork		0.00	
5,285.6	5,255.0	Top of Gas		0.00	
6,894.6	6,864.0	Coal Ridge		0.00	
7,259.6	7,229.0	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
417.4	417.0	-12.1	2.3	EOB; Inc=6.52°
4,959.4	4,929.6	-519.0	98.8	Start Drop -2.00
5,285.6	5,255.0	-537.2	102.3	EOD; Inc=0°
7,409.6	7,379.0	-537.2	102.3	TD @ 7409.6' MD
7,509.6	7,479.0	-537.2	102.3	Permit TD @ 7509.6' MD