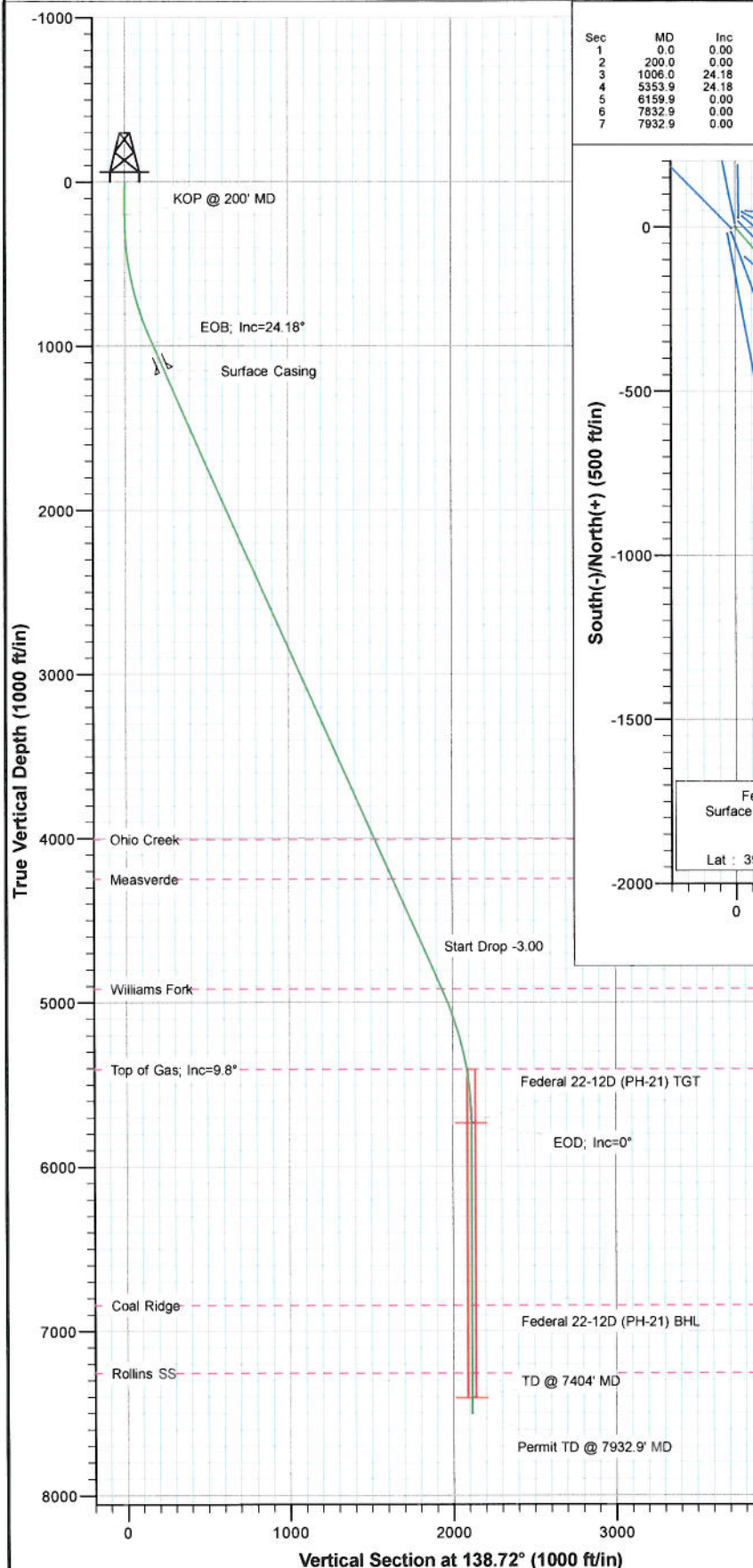
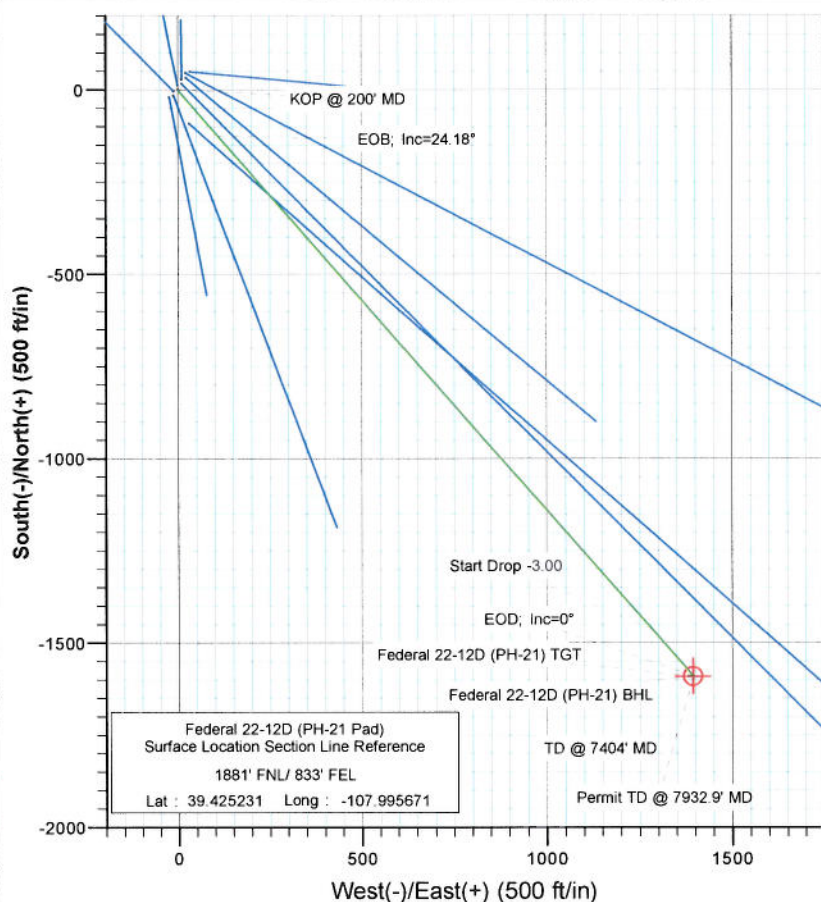




Project: S. Piceance (Parachute)  
 Site: SENE S21-T7S-R95W (PH-21 Pad)  
 Well: Federal 22-12D (PH-21 Pad)  
 Wellbore: DD  
 Plan: Plan #1



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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1006.0	24.18	138.72	982.3	-125.9	110.6	3.00	138.72	167.6	
4	5353.9	24.18	138.72	4948.7	-1464.3	1285.6	0.00	0.00	1948.5	
5	6159.9	0.00	0.00	5731.0	-1590.2	1396.1	3.00	180.00	2116.1	Federal 22-12D (PH-21) TGT
6	7832.9	0.00	0.00	7404.0	-1590.2	1396.1	0.00	0.00	2116.1	Federal 22-12D (PH-21) BHL
7	7932.9	0.00	0.00	7504.0	-1590.2	1396.1	0.00	0.00	2116.1	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4005.0	4319.4	Ohio Creek
4248.0	4585.8	Measverde
4916.0	5318.1	Williams Fork
5406.0	5833.3	Top of Gas, Inc=9.8°
6842.0	7270.9	Coal Ridge
7254.0	7682.9	Rollins SS



Azimuths to True North  
 Magnetic North: 10.39°  
 Magnetic Field  
 Strength: 52248.0nT  
 Dip Angle: 65.69°  
 Date: 1/24/2011  
 Model: IGRF2010

Plan #1 Federal 22-12D (PH-21 Pad) 115XXX, BH					
WELL @ 6342.0ft (Original Well Elev) North American Datum 1983 Well Federal 22-12D (PH-21 Pad), True North					
Target	Azimuth	Origin Type	N/S		
Federal 22-12D (PH-21) BHL	138.72	Slot	0.0		
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Federal 22-12D (PH-21) TGT	5731.0	-1590.2	1396.1	39.420865	-107.990729
Federal 22-12D (PH-21) BHL	7404.0	-1590.2	1396.1	39.420865	-107.990729

# 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 22-12D (PH-21 Pad)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Federal 22-12D (PH-21 Pad)  
**TVD Reference:** WELL @ 6342.0ft (Original Well Elev)  
**MD Reference:** WELL @ 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  
**Geo Datum:** North American Datum 1983  
**Map Zone:** Colorado Central Zone  
**System Datum:** Mean Sea Level

**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 22-12D (PH-21 Pad)

**Well Position** +N/-S 0.0 ft Northing: 1,589,456.27 ft Latitude: 39.425231  
 +E/-W 0.0 ft Easting: 2,295,105.61 ft Longitude: -107.995671  
**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	138.72

### 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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,006.0	24.18	138.72	982.3	-125.9	110.6	3.00	3.00	0.00	138.72	
5,353.9	24.18	138.72	4,948.7	-1,464.3	1,285.6	0.00	0.00	0.00	0.00	
6,159.9	0.00	0.00	5,731.0	-1,590.2	1,396.1	3.00	-3.00	0.00	180.00	Federal 22-12D (PH-2)
7,832.9	0.00	0.00	7,404.0	-1,590.2	1,396.1	0.00	0.00	0.00	0.00	Federal 22-12D (PH-2)
7,932.9	0.00	0.00	7,504.0	-1,590.2	1,396.1	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 22-12D (PH-21 Pad)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Federal 22-12D (PH-21 Pad)  
**TVD Reference:** WELL @ 6342.0ft (Original Well Elev)  
**MD Reference:** WELL @ 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	138.72	300.0	-2.0	1.7	2.6	3.00	3.00	
400.0	6.00	138.72	399.6	-7.9	6.9	10.5	3.00	3.00	
500.0	9.00	138.72	498.8	-17.7	15.5	23.5	3.00	3.00	
600.0	12.00	138.72	597.1	-31.4	27.5	41.7	3.00	3.00	
700.0	15.00	138.72	694.3	-48.9	42.9	65.1	3.00	3.00	
800.0	18.00	138.72	790.2	-70.2	61.7	93.5	3.00	3.00	
900.0	21.00	138.72	884.4	-95.3	83.7	126.9	3.00	3.00	
1,000.0	24.00	138.72	976.8	-124.1	108.9	165.1	3.00	3.00	
1,006.0	24.18	138.72	982.3	-125.9	110.6	167.6	3.00	3.00	EOB; Inc=24.18°
1,100.0	24.18	138.72	1,068.0	-154.9	136.0	206.1	0.00	0.00	
1,190.0	24.18	138.72	1,150.1	-182.6	160.3	242.9	0.00	0.00	Surface Casing
1,200.0	24.18	138.72	1,159.3	-185.6	163.0	247.0	0.00	0.00	
1,300.0	24.18	138.72	1,250.5	-216.4	190.0	288.0	0.00	0.00	
1,400.0	24.18	138.72	1,341.7	-247.2	217.0	329.0	0.00	0.00	
1,500.0	24.18	138.72	1,432.9	-278.0	244.1	369.9	0.00	0.00	
1,600.0	24.18	138.72	1,524.2	-308.8	271.1	410.9	0.00	0.00	
1,700.0	24.18	138.72	1,615.4	-339.5	298.1	451.8	0.00	0.00	
1,800.0	24.18	138.72	1,706.6	-370.3	325.1	492.8	0.00	0.00	
1,900.0	24.18	138.72	1,797.8	-401.1	352.2	533.8	0.00	0.00	
2,000.0	24.18	138.72	1,889.1	-431.9	379.2	574.7	0.00	0.00	
2,100.0	24.18	138.72	1,980.3	-462.7	406.2	615.7	0.00	0.00	
2,200.0	24.18	138.72	2,071.5	-493.5	433.2	656.6	0.00	0.00	
2,300.0	24.18	138.72	2,162.7	-524.2	460.3	697.6	0.00	0.00	
2,400.0	24.18	138.72	2,254.0	-555.0	487.3	738.6	0.00	0.00	
2,500.0	24.18	138.72	2,345.2	-585.8	514.3	779.5	0.00	0.00	
2,600.0	24.18	138.72	2,436.4	-616.6	541.3	820.5	0.00	0.00	
2,700.0	24.18	138.72	2,527.7	-647.4	568.4	861.5	0.00	0.00	
2,800.0	24.18	138.72	2,618.9	-678.1	595.4	902.4	0.00	0.00	
2,900.0	24.18	138.72	2,710.1	-708.9	622.4	943.4	0.00	0.00	
3,000.0	24.18	138.72	2,801.3	-739.7	649.4	984.3	0.00	0.00	
3,100.0	24.18	138.72	2,892.6	-770.5	676.5	1,025.3	0.00	0.00	
3,200.0	24.18	138.72	2,983.8	-801.3	703.5	1,066.3	0.00	0.00	
3,300.0	24.18	138.72	3,075.0	-832.0	730.5	1,107.2	0.00	0.00	
3,400.0	24.18	138.72	3,166.2	-862.8	757.5	1,148.2	0.00	0.00	
3,500.0	24.18	138.72	3,257.5	-893.6	784.6	1,189.1	0.00	0.00	
3,600.0	24.18	138.72	3,348.7	-924.4	811.6	1,230.1	0.00	0.00	
3,700.0	24.18	138.72	3,439.9	-955.2	838.6	1,271.1	0.00	0.00	
3,800.0	24.18	138.72	3,531.1	-986.0	865.6	1,312.0	0.00	0.00	
3,900.0	24.18	138.72	3,622.4	-1,016.7	892.7	1,353.0	0.00	0.00	
4,000.0	24.18	138.72	3,713.6	-1,047.5	919.7	1,394.0	0.00	0.00	
4,100.0	24.18	138.72	3,804.8	-1,078.3	946.7	1,434.9	0.00	0.00	
4,200.0	24.18	138.72	3,896.0	-1,109.1	973.7	1,475.9	0.00	0.00	
4,300.0	24.18	138.72	3,987.3	-1,139.9	1,000.8	1,516.8	0.00	0.00	
4,319.4	24.18	138.72	4,005.0	-1,145.8	1,006.0	1,524.8	0.00	0.00	Ohio Creek
4,400.0	24.18	138.72	4,078.5	-1,170.6	1,027.8	1,557.8	0.00	0.00	
4,500.0	24.18	138.72	4,169.7	-1,201.4	1,054.8	1,598.8	0.00	0.00	
4,585.8	24.18	138.72	4,248.0	-1,227.8	1,078.0	1,633.9	0.00	0.00	Measverde
4,600.0	24.18	138.72	4,260.9	-1,232.2	1,081.8	1,639.7	0.00	0.00	
4,700.0	24.18	138.72	4,352.2	-1,263.0	1,108.9	1,680.7	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 22-12D (PH-21 Pad)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Federal 22-12D (PH-21 Pad)  
**TVD Reference:** WELL @ 6342.0ft (Original Well Elev)  
**MD Reference:** WELL @ 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	24.18	138.72	4,443.4	-1,293.8	1,135.9	1,721.6	0.00	0.00	
4,900.0	24.18	138.72	4,534.6	-1,324.6	1,162.9	1,762.6	0.00	0.00	
5,000.0	24.18	138.72	4,625.8	-1,355.3	1,189.9	1,803.6	0.00	0.00	
5,100.0	24.18	138.72	4,717.1	-1,386.1	1,217.0	1,844.5	0.00	0.00	
5,200.0	24.18	138.72	4,808.3	-1,416.9	1,244.0	1,885.5	0.00	0.00	
5,300.0	24.18	138.72	4,899.5	-1,447.7	1,271.0	1,926.5	0.00	0.00	
5,318.1	24.18	138.72	4,916.0	-1,453.2	1,275.9	1,933.9	0.00	0.00	Williams Fork
5,353.9	24.18	138.72	4,948.7	-1,464.3	1,285.6	1,948.5	0.00	0.00	Start Drop -3.00
5,400.0	22.80	138.72	4,991.0	-1,478.1	1,297.7	1,966.9	3.00	-3.00	
5,500.0	19.80	138.72	5,084.1	-1,505.4	1,321.7	2,003.2	3.00	-3.00	
5,600.0	16.80	138.72	5,179.1	-1,529.0	1,342.4	2,034.6	3.00	-3.00	
5,700.0	13.80	138.72	5,275.5	-1,548.8	1,359.8	2,061.0	3.00	-3.00	
5,800.0	10.80	138.72	5,373.2	-1,564.8	1,373.8	2,082.3	3.00	-3.00	
5,833.3	9.80	138.72	5,406.0	-1,569.3	1,377.7	2,088.2	3.00	-3.00	Top of Gas; Inc=9.8°
5,900.0	7.80	138.72	5,471.9	-1,576.9	1,384.5	2,098.4	3.00	-3.00	
6,000.0	4.80	138.72	5,571.3	-1,585.2	1,391.7	2,109.4	3.00	-3.00	
6,100.0	1.80	138.72	5,671.1	-1,589.5	1,395.5	2,115.2	3.00	-3.00	
6,159.9	0.00	0.00	5,731.0	-1,590.2	1,396.1	2,116.1	3.00	-3.00	EOD; Inc=0° - Federal 22-12D (PH-21) TGT
6,200.0	0.00	0.00	5,771.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
6,300.0	0.00	0.00	5,871.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
6,400.0	0.00	0.00	5,971.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
6,500.0	0.00	0.00	6,071.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
6,600.0	0.00	0.00	6,171.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
6,700.0	0.00	0.00	6,271.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
6,800.0	0.00	0.00	6,371.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
6,900.0	0.00	0.00	6,471.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,000.0	0.00	0.00	6,571.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,100.0	0.00	0.00	6,671.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,200.0	0.00	0.00	6,771.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,270.9	0.00	0.00	6,842.0	-1,590.2	1,396.1	2,116.1	0.00	0.00	Coal Ridge
7,300.0	0.00	0.00	6,871.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,400.0	0.00	0.00	6,971.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,500.0	0.00	0.00	7,071.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,600.0	0.00	0.00	7,171.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,682.9	0.00	0.00	7,254.0	-1,590.2	1,396.1	2,116.1	0.00	0.00	Rollins SS
7,700.0	0.00	0.00	7,271.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,800.0	0.00	0.00	7,371.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,832.9	0.00	0.00	7,404.0	-1,590.2	1,396.1	2,116.1	0.00	0.00	TD @ 7404' MD - Federal 22-12D (PH-21) BHL
7,900.0	0.00	0.00	7,471.1	-1,590.2	1,396.1	2,116.1	0.00	0.00	
7,932.9	0.00	0.00	7,504.0	-1,590.2	1,396.1	2,116.1	0.00	0.00	Permit TD @ 7932.9' MD

# 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 22-12D (PH-21 Pad)  
**Wellbore:** DD  
**Design:** Plan #1

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

### 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 22-12D (PH-21) - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,404.0	-1,590.2	1,396.1	1,587,828.33	2,296,457.53	39.420865	-107.990729
Federal 22-12D (PH-21) - plan hits target center - Circle (radius 25.0)	0.00	0.00	5,731.0	-1,590.2	1,396.1	1,587,828.33	2,296,457.53	39.420865	-107.990729

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,190.0	1,150.1	Surface Casing	0.000	0.000

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,319.4	4,005.0	Ohio Creek		0.00	
4,585.8	4,248.0	Measverde		0.00	
5,318.1	4,916.0	Williams Fork		0.00	
5,833.3	5,406.0	Top of Gas, Inc=9.8°		0.00	
7,270.9	6,842.0	Coal Ridge		0.00	
7,682.9	7,254.0	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
1,006.0	982.3	-125.9	110.6	EOB; Inc=24.18°
5,353.9	4,948.7	-1,464.3	1,285.6	Start Drop -3.00
6,159.9	5,731.0	-1,590.2	1,396.1	EOD; Inc=0°
7,832.9	7,404.0	-1,590.2	1,396.1	TD @ 7404' MD
7,932.9	7,504.0	-1,590.2	1,396.1	Permit TD @ 7932.9' MD