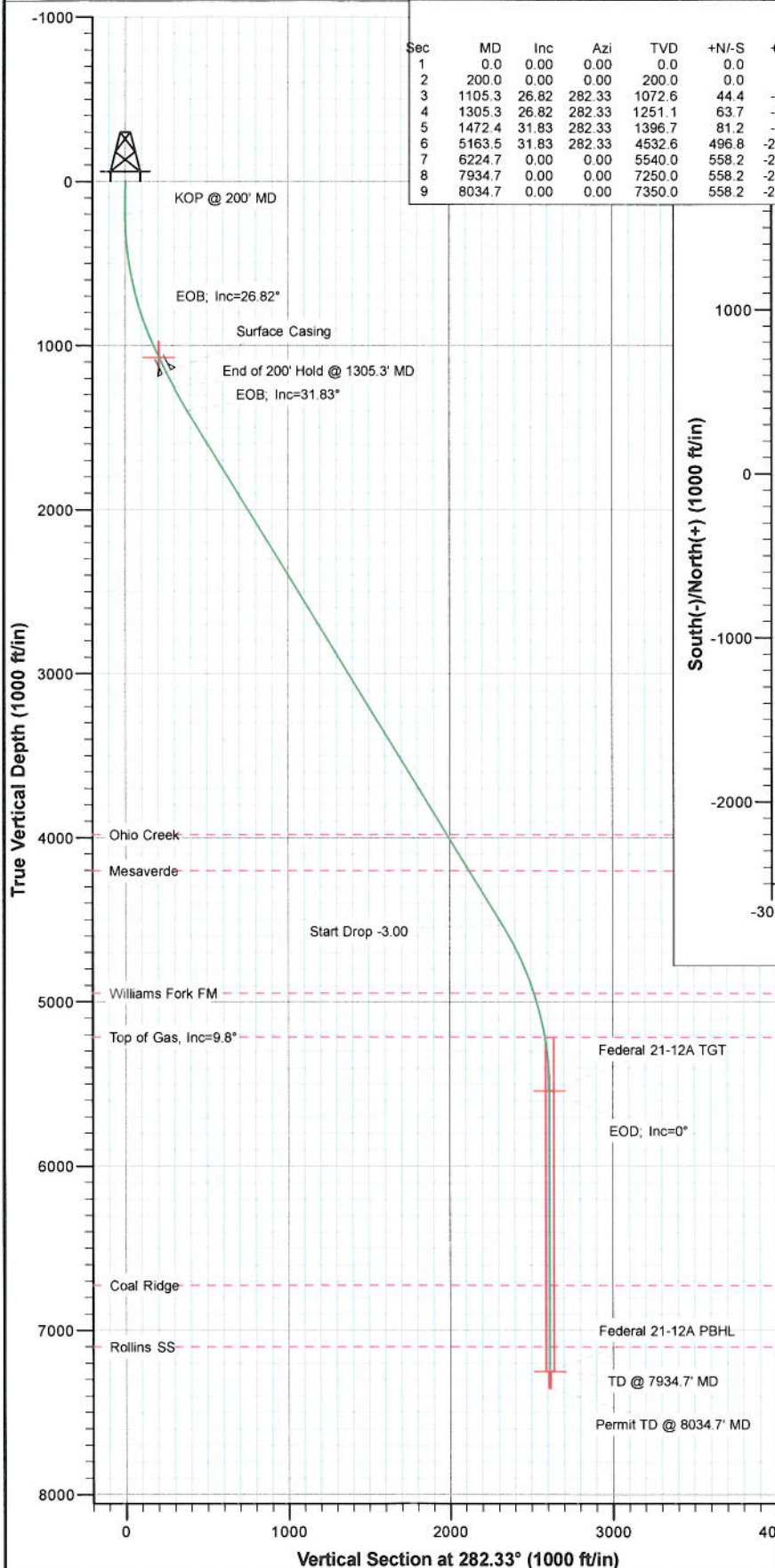


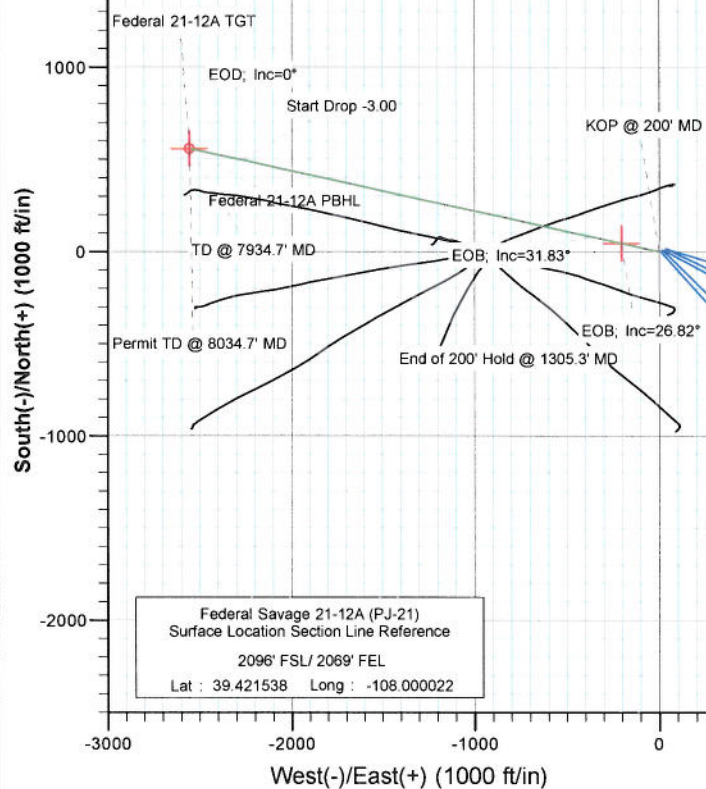


Project: S. Piceance (Parachute)  
 Site: NWSE S21-T7S-R95W (PJ-21)  
 Well: Federal Savage 21-12A (PJ-21)  
 Wellbore: DD  
 Plan: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	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	1105.3	26.82	282.33	1072.6	44.4	-203.3	2.96	282.33	208.1	Interp @ 1072.6 (Federal Savage 21-12A (PJ-21) DD
4	1305.3	26.82	282.33	1251.1	63.7	-291.4	0.00	0.00	298.3	
5	1472.4	31.83	282.33	1396.7	81.2	-371.3	3.00	0.00	380.1	
6	5163.5	31.83	282.33	4532.6	496.8	-2273.4	0.00	0.00	2327.0	
7	6224.7	0.00	0.00	5540.0	558.2	-2554.0	3.00	180.00	2614.3	Federal 21-12A TGT
8	7934.7	0.00	0.00	7250.0	558.2	-2554.0	0.00	0.00	2614.3	Federal 21-12A PBHL
9	8034.7	0.00	0.00	7350.0	558.2	-2554.0	0.00	0.00	2614.3	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3981.0	4514.2	Ohio Creek
4202.0	4774.4	Mesaverde
4947.0	5621.7	Williams Fork FM
5215.0	5898.1	Top of Gas, Inc=9.8°
6725.0	7409.7	Coal Ridge
7100.0	7784.7	Rollins SS



Azimuths to True North  
 Magnetic North: 10.40°

Magnetic Field  
 Strength: 52246.9nT  
 Dip Angle: 65.69°  
 Date: 1/19/2011  
 Model: IGRF2010

Plan #1

Federal Savage 21-12A (PJ-21)  
 WELL @ 6323 Off (Original Well Elev)  
 North American Datum 1983  
 Well Federal Savage 21-12A (PJ-21), True North

Target	Azimuth	Origin Type	N/S
Federal 21-12A PBHL	282.33	Slot	0.0
Name			
Federal 21-12A TGT	5540.0	558.2	-2554.0
Federal 21-12A PBHL	7250.0	558.2	-2554.0
Latitude Longitude			
Federal 21-12A TGT	5540.0	558.2	-2554.0
Federal 21-12A PBHL	7250.0	558.2	-2554.0

# Cathedral Energy Services

## Planning Report

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

Local Co-ordinate Reference: Well Federal Savage 21-12A (PJ-21)  
TVD Reference: WELL @ 6323.0ft (Original Well Elev)  
MD Reference: WELL @ 6323.0ft (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** NWSE S21-T7S-R95W (PJ-21)

**Site Position:** Northing: 1,588,155.39 ft Latitude: 39.421569  
**From:** Lat/Long Easting: 2,293,889.70 ft Longitude: -107.999847  
**Position Uncertainty:** 0.0 ft Slot Radius: 13.200 in Grid Convergence: -1.58 °

**Well** Federal Savage 21-12A (PJ-21)

**Well Position** +N/-S 0.0 ft Northing: 1,588,145.44 ft Latitude: 39.421538  
+E/-W 0.0 ft Easting: 2,293,839.97 ft Longitude: -108.000022  
**Position Uncertainty** 0.0 ft Wellhead Elevation: ft Ground Level: 6,301.0 ft

**Wellbore** DD

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/19/2011	10.40	65.69	52,247

**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	282.33

**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	
1,105.3	26.82	282.33	1,072.6	44.4	-203.3	2.96	2.96	-8.58	282.33	Interp @ 1072.6 (Fed-
1,305.3	26.82	282.33	1,251.1	63.7	-291.4	0.00	0.00	0.00	0.00	
1,472.4	31.83	282.33	1,396.7	81.2	-371.3	3.00	3.00	0.00	0.00	
5,163.5	31.83	282.33	4,532.6	496.8	-2,273.4	0.00	0.00	0.00	0.00	
6,224.7	0.00	0.00	5,540.0	558.2	-2,554.0	3.00	-3.00	0.00	180.00	Federal 21-12A TGT
7,934.7	0.00	0.00	7,250.0	558.2	-2,554.0	0.00	0.00	0.00	0.00	Federal 21-12A PBHL
8,034.7	0.00	0.00	7,350.0	558.2	-2,554.0	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: NWSE S21-T7S-R95W (PJ-21)  
Well: Federal Savage 21-12A (PJ-21)  
Wellbore: DD  
Design: Plan #1

Local Co-ordinate Reference: Well Federal Savage 21-12A (PJ-21)  
TVD Reference: WELL @ 6323.0ft (Original Well Elev)  
MD Reference: WELL @ 6323.0ft (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	2.96	282.33	300.0	0.6	-2.5	2.6	2.96	2.96	
400.0	5.93	282.33	399.6	2.2	-10.1	10.3	2.96	2.96	
500.0	8.89	282.33	498.8	5.0	-22.7	23.2	2.96	2.96	
600.0	11.85	282.33	597.2	8.8	-40.3	41.2	2.96	2.96	
700.0	14.81	282.33	694.4	13.7	-62.8	64.3	2.96	2.96	
800.0	17.78	282.33	790.4	19.7	-90.2	92.3	2.96	2.96	
900.0	20.74	282.33	884.8	26.8	-122.4	125.3	2.96	2.96	
1,000.0	23.70	282.33	977.4	34.8	-159.4	163.1	2.96	2.96	
1,100.0	26.66	282.33	1,067.9	43.9	-200.9	205.7	2.96	2.96	
1,105.3	26.82	282.33	1,072.6	44.4	-203.3	208.1	2.96	2.96	EOB; Inc=26.82° - Interp @ 1072.6 (Federal Sa
1,200.0	26.82	282.33	1,157.1	53.5	-245.0	250.8	0.00	0.00	
1,205.0	26.82	282.33	1,161.6	54.0	-247.2	253.0	0.00	0.00	Surface Casing
1,300.0	26.82	282.33	1,246.3	63.2	-289.1	295.9	0.00	0.00	
1,305.3	26.82	282.33	1,251.1	63.7	-291.4	298.3	0.00	0.00	End of 200' Hold @ 1305.3' MD
1,400.0	29.66	282.33	1,334.5	73.3	-335.2	343.1	3.00	3.00	
1,472.4	31.83	282.33	1,396.7	81.2	-371.3	380.1	3.00	3.00	EOB; Inc=31.83°
1,500.0	31.83	282.33	1,420.2	84.3	-385.6	394.7	0.00	0.00	
1,600.0	31.83	282.33	1,505.1	95.5	-437.1	447.4	0.00	0.00	
1,700.0	31.83	282.33	1,590.1	106.8	-488.6	500.2	0.00	0.00	
1,800.0	31.83	282.33	1,675.0	118.0	-540.2	552.9	0.00	0.00	
1,900.0	31.83	282.33	1,760.0	129.3	-591.7	605.7	0.00	0.00	
2,000.0	31.83	282.33	1,845.0	140.6	-643.2	658.4	0.00	0.00	
2,100.0	31.83	282.33	1,929.9	151.8	-694.8	711.2	0.00	0.00	
2,200.0	31.83	282.33	2,014.9	163.1	-746.3	763.9	0.00	0.00	
2,300.0	31.83	282.33	2,099.8	174.4	-797.8	816.6	0.00	0.00	
2,400.0	31.83	282.33	2,184.8	185.6	-849.3	869.4	0.00	0.00	
2,500.0	31.83	282.33	2,269.7	196.9	-900.9	922.1	0.00	0.00	
2,600.0	31.83	282.33	2,354.7	208.1	-952.4	974.9	0.00	0.00	
2,700.0	31.83	282.33	2,439.7	219.4	-1,003.9	1,027.6	0.00	0.00	
2,800.0	31.83	282.33	2,524.6	230.7	-1,055.5	1,080.4	0.00	0.00	
2,900.0	31.83	282.33	2,609.6	241.9	-1,107.0	1,133.1	0.00	0.00	
3,000.0	31.83	282.33	2,694.5	253.2	-1,158.5	1,185.9	0.00	0.00	
3,100.0	31.83	282.33	2,779.5	264.4	-1,210.0	1,238.6	0.00	0.00	
3,200.0	31.83	282.33	2,864.5	275.7	-1,261.6	1,291.4	0.00	0.00	
3,300.0	31.83	282.33	2,949.4	287.0	-1,313.1	1,344.1	0.00	0.00	
3,400.0	31.83	282.33	3,034.4	298.2	-1,364.6	1,396.8	0.00	0.00	
3,500.0	31.83	282.33	3,119.3	309.5	-1,416.2	1,449.6	0.00	0.00	
3,600.0	31.83	282.33	3,204.3	320.7	-1,467.7	1,502.3	0.00	0.00	
3,700.0	31.83	282.33	3,289.2	332.0	-1,519.2	1,555.1	0.00	0.00	
3,800.0	31.83	282.33	3,374.2	343.3	-1,570.8	1,607.8	0.00	0.00	
3,900.0	31.83	282.33	3,459.2	354.5	-1,622.3	1,660.6	0.00	0.00	
4,000.0	31.83	282.33	3,544.1	365.8	-1,673.8	1,713.3	0.00	0.00	
4,100.0	31.83	282.33	3,629.1	377.1	-1,725.3	1,766.1	0.00	0.00	
4,200.0	31.83	282.33	3,714.0	388.3	-1,776.9	1,818.8	0.00	0.00	
4,300.0	31.83	282.33	3,799.0	399.6	-1,828.4	1,871.6	0.00	0.00	
4,400.0	31.83	282.33	3,884.0	410.8	-1,879.9	1,924.3	0.00	0.00	
4,500.0	31.83	282.33	3,968.9	422.1	-1,931.5	1,977.0	0.00	0.00	
4,514.2	31.83	282.33	3,981.0	423.7	-1,938.8	1,984.5	0.00	0.00	Ohio Creek
4,600.0	31.83	282.33	4,053.9	433.4	-1,983.0	2,029.8	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:** NWSE S21-T7S-R95W (PJ-21)  
**Well:** Federal Savage 21-12A (PJ-21)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Federal Savage 21-12A (PJ-21)  
**TVD Reference:** WELL @ 6323.0ft (Original Well Elev)  
**MD Reference:** WELL @ 6323.0ft (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
4,700.0	31.83	282.33	4,138.8	444.6	-2,034.5	2,082.5	0.00	0.00	
4,774.4	31.83	282.33	4,202.0	453.0	-2,072.8	2,121.8	0.00	0.00	Mesaverde
4,800.0	31.83	282.33	4,223.8	455.9	-2,086.0	2,135.3	0.00	0.00	
4,900.0	31.83	282.33	4,308.7	467.1	-2,137.6	2,188.0	0.00	0.00	
5,000.0	31.83	282.33	4,393.7	478.4	-2,189.1	2,240.8	0.00	0.00	
5,100.0	31.83	282.33	4,478.7	489.7	-2,240.6	2,293.5	0.00	0.00	
5,163.5	31.83	282.33	4,532.6	496.8	-2,273.4	2,327.0	0.00	0.00	Start Drop -3.00
5,200.0	30.74	282.33	4,563.8	500.9	-2,291.9	2,346.0	3.00	-3.00	
5,300.0	27.74	282.33	4,651.0	511.3	-2,339.6	2,394.8	3.00	-3.00	
5,400.0	24.74	282.33	4,740.7	520.7	-2,382.8	2,439.0	3.00	-3.00	
5,500.0	21.74	282.33	4,832.6	529.2	-2,421.3	2,478.5	3.00	-3.00	
5,600.0	18.74	282.33	4,926.4	536.5	-2,455.1	2,513.1	3.00	-3.00	
5,621.7	18.09	282.33	4,947.0	538.0	-2,461.8	2,519.9	3.00	-3.00	Williams Fork FM
5,700.0	15.74	282.33	5,021.9	542.9	-2,484.1	2,542.7	3.00	-3.00	
5,800.0	12.74	282.33	5,118.8	548.1	-2,508.1	2,567.3	3.00	-3.00	
5,898.1	9.80	282.33	5,215.0	552.2	-2,526.8	2,586.4	3.00	-3.00	Top of Gas, Inc=9.8°
5,900.0	9.74	282.33	5,216.9	552.3	-2,527.1	2,586.8	3.00	-3.00	
6,000.0	6.74	282.33	5,315.9	555.3	-2,541.1	2,601.1	3.00	-3.00	
6,100.0	3.74	282.33	5,415.4	557.3	-2,550.1	2,610.2	3.00	-3.00	
6,200.0	0.74	282.33	5,515.3	558.1	-2,553.9	2,614.1	3.00	-3.00	
6,224.7	0.00	0.00	5,540.0	558.2	-2,554.0	2,614.3	3.00	-3.00	EOD; Inc=0° - Federal 21-12A TGT
6,300.0	0.00	0.00	5,615.3	558.2	-2,554.0	2,614.3	0.00	0.00	
6,400.0	0.00	0.00	5,715.3	558.2	-2,554.0	2,614.3	0.00	0.00	
6,500.0	0.00	0.00	5,815.3	558.2	-2,554.0	2,614.3	0.00	0.00	
6,600.0	0.00	0.00	5,915.3	558.2	-2,554.0	2,614.3	0.00	0.00	
6,700.0	0.00	0.00	6,015.3	558.2	-2,554.0	2,614.3	0.00	0.00	
6,800.0	0.00	0.00	6,115.3	558.2	-2,554.0	2,614.3	0.00	0.00	
6,900.0	0.00	0.00	6,215.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,000.0	0.00	0.00	6,315.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,100.0	0.00	0.00	6,415.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,200.0	0.00	0.00	6,515.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,300.0	0.00	0.00	6,615.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,400.0	0.00	0.00	6,715.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,409.7	0.00	0.00	6,725.0	558.2	-2,554.0	2,614.3	0.00	0.00	Coal Ridge
7,500.0	0.00	0.00	6,815.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,600.0	0.00	0.00	6,915.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,700.0	0.00	0.00	7,015.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,784.7	0.00	0.00	7,100.0	558.2	-2,554.0	2,614.3	0.00	0.00	Rollins SS
7,800.0	0.00	0.00	7,115.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,900.0	0.00	0.00	7,215.3	558.2	-2,554.0	2,614.3	0.00	0.00	
7,934.7	0.00	0.00	7,250.0	558.2	-2,554.0	2,614.3	0.00	0.00	TD @ 7934.7' MD - Federal 21-12A PBHL
8,000.0	0.00	0.00	7,315.3	558.2	-2,554.0	2,614.3	0.00	0.00	
8,034.7	0.00	0.00	7,350.0	558.2	-2,554.0	2,614.3	0.00	0.00	Permit TD @ 8034.7' 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:** NWSE S21-T7S-R95W (PJ-21)  
**Well:** Federal Savage 21-12A (PJ-21)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Federal Savage 21-12A (PJ-21)  
**TVD Reference:** WELL @ 6323.0ft (Original Well Elev)  
**MD Reference:** WELL @ 6323.0ft (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 21-12A TGT - plan hits target center - Circle (radius 25.0)	0.00	0.00	5,540.0	558.2	-2,554.0	1,588,773.66	2,291,302.27	39.423070	-108.009063
Interp @ 1072.6 (Federal) - plan hits target center - Point	0.00	0.00	1,072.6	44.4	-203.3	1,588,195.44	2,293,638.00	39.421660	-108.000742
Federal 21-12A PBHL - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,250.0	558.2	-2,554.0	1,588,773.66	2,291,302.27	39.423070	-108.009063

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,205.0	1,161.6	Surface Casing	0.000	0.000

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,514.2	3,981.0	Ohio Creek		0.00	
4,774.4	4,202.0	Mesaverde		0.00	
5,621.7	4,947.0	Williams Fork FM		0.00	
5,898.1	5,215.0	Top of Gas, Inc=9.8°		0.00	
7,409.7	6,725.0	Coal Ridge		0.00	
7,784.7	7,100.0	Rollins SS		0.00	

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP @ 200' MD
1,105.3	1,072.6	44.4	-203.3	EOB; Inc=26.82°
1,305.3	1,251.1	63.7	-291.4	End of 200' Hold @ 1305.3' MD
1,472.4	1,396.7	81.2	-371.3	EOB; Inc=31.83°
5,163.5	4,532.6	496.8	-2,273.4	Start Drop -3.00
6,224.7	5,540.0	558.2	-2,554.0	EOD; Inc=0°
7,934.7	7,250.0	558.2	-2,554.0	TD @ 7934.7' MD
8,034.7	7,350.0	558.2	-2,554.0	Permit TD @ 8034.7' MD