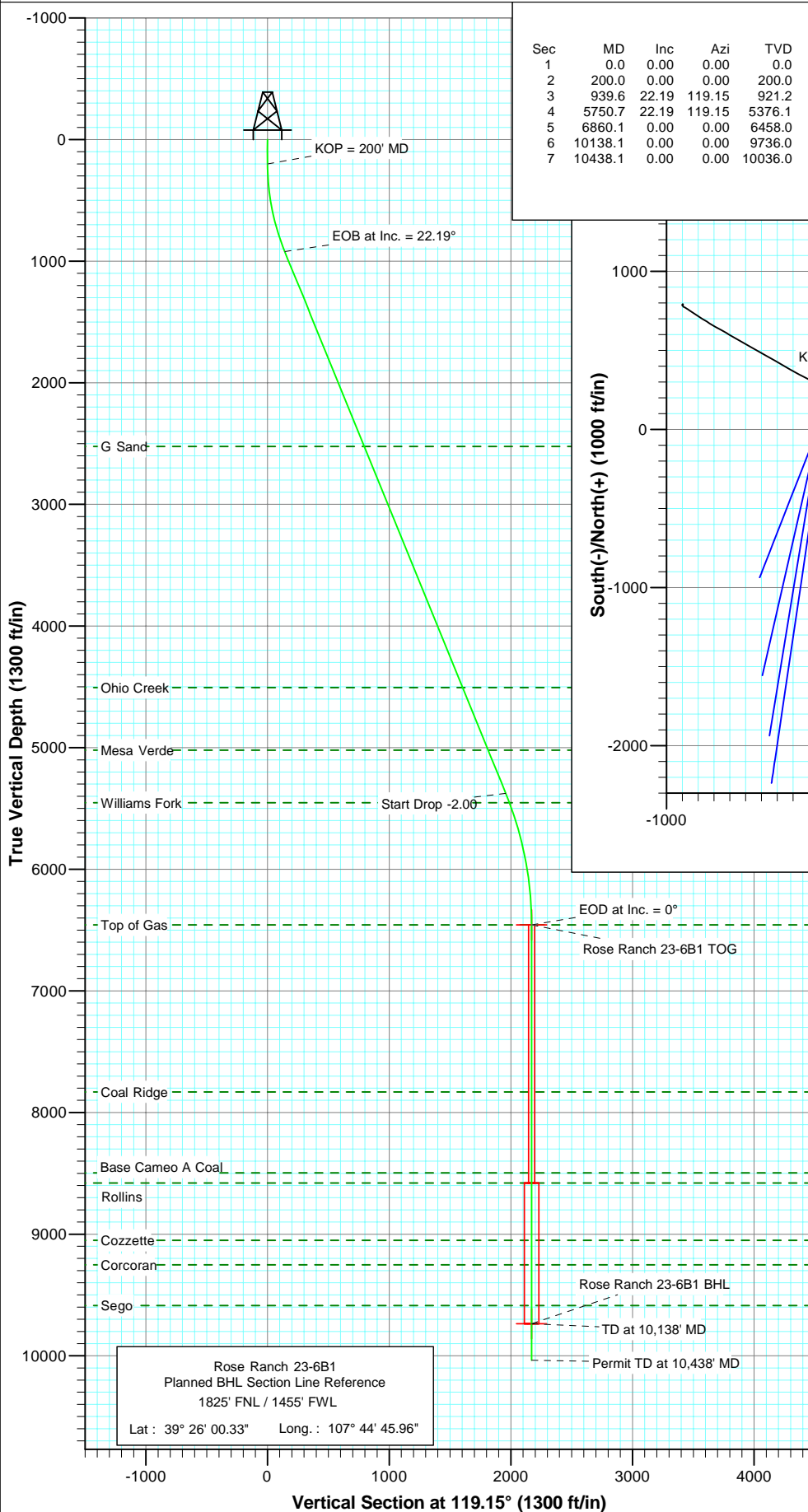
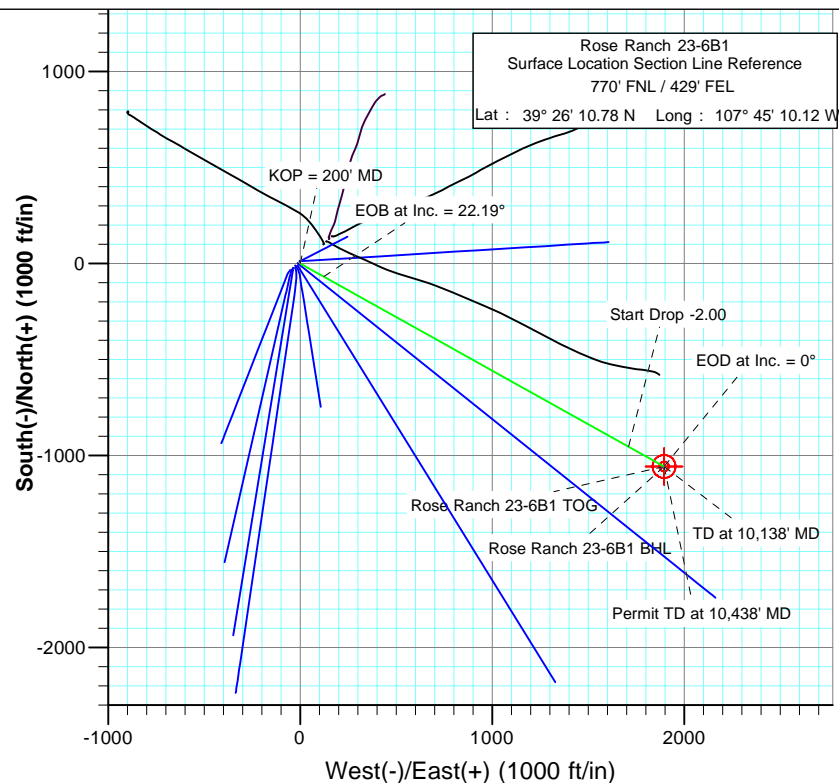




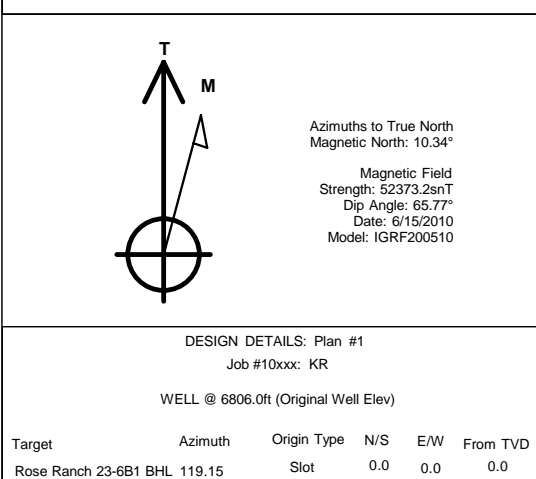
Project: Mamm Creek  
Site: A22W Pad (S22-T7S-R93W)  
Well: Rose Ranch 23-6B1  
Wellbore: DD  
Plan: Plan #1



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	939.6	22.19	119.15	921.2	-68.9	123.5	3.00	119.15	141.4	
4	5750.7	22.19	119.15	5376.1	-954.0	1710.3	0.00	0.00	1958.3	Rose Ranch 23-6B1 TOG
5	6860.1	0.00	0.00	6458.0	-1057.3	1895.5	2.00	180.00	2170.5	Rose Ranch 23-6B1 BHL
6	10138.1	0.00	0.00	9736.0	-1057.3	1895.5	0.00	0.00	2170.5	
7	10438.1	0.00	0.00	10036.0	-1057.3	1895.5	0.00	0.00	2170.5	

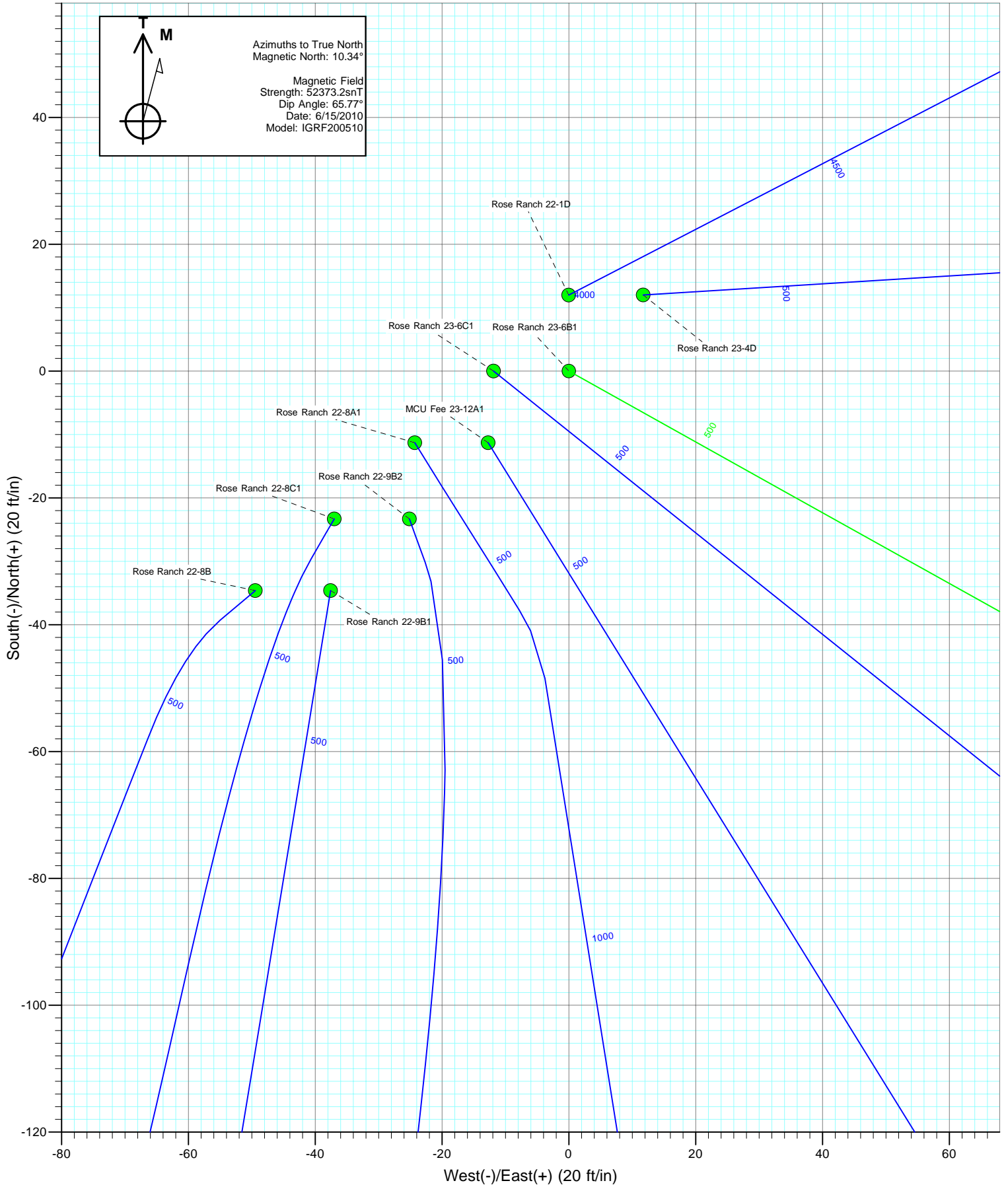


FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2523.0	2669.4	G Sand
4506.0	4811.0	Ohio Creek
5021.0	5367.2	Mesa Verde
5453.0	5833.3	Williams Fork
6458.0	6860.1	Top of Gas
7830.0	8232.1	Coal Ridge
8496.0	8898.1	Base Cameo A Coal
8579.0	8981.1	Rollins
9051.0	9453.1	Cozzette
9252.0	9654.1	Corcoran
9586.0	9988.1	Sego



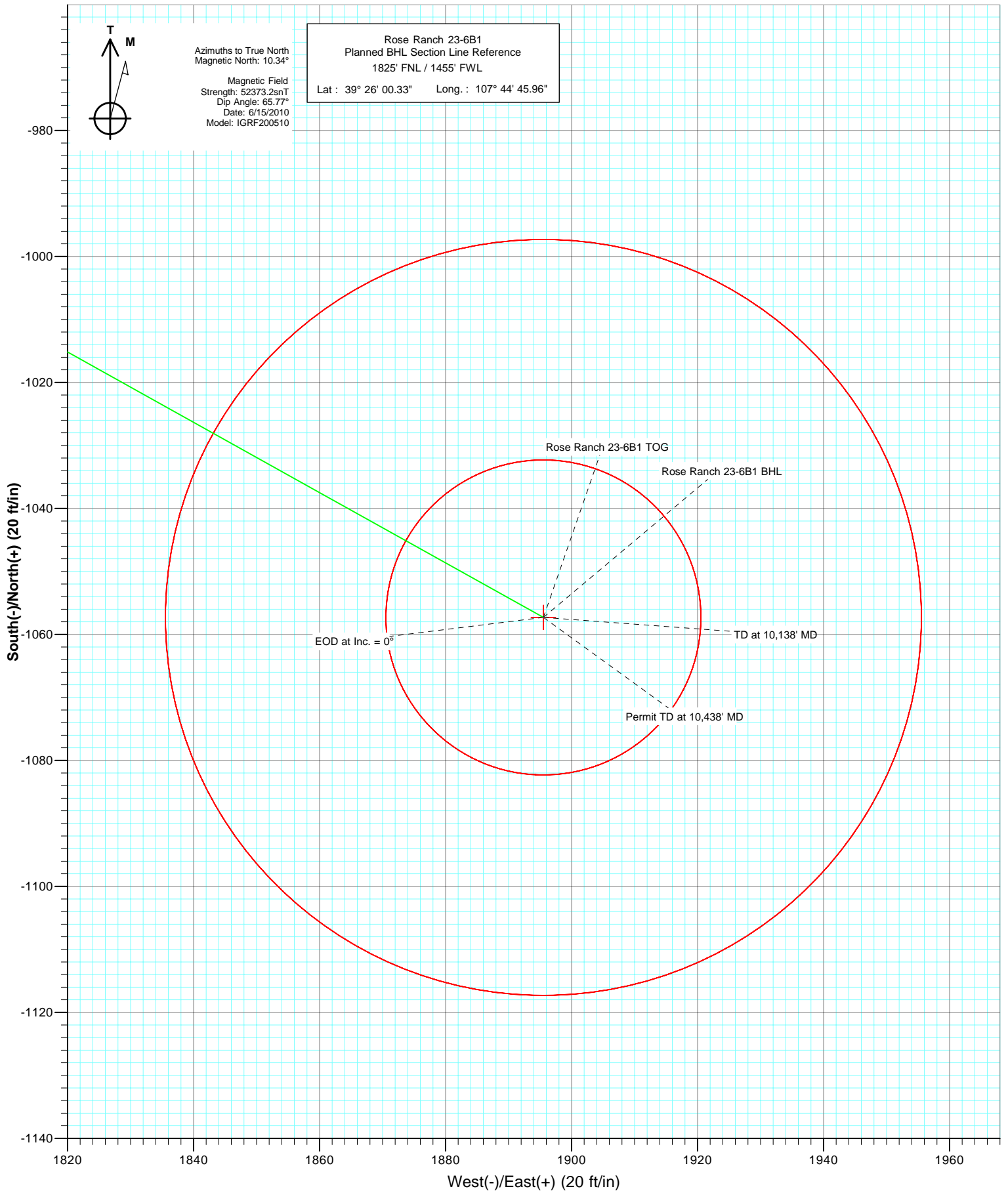


Project: Mamm Creek  
Site: A22W Pad (S22-T7S-R93W)  
Well: Rose Ranch 23-6B1  
Wellbore: DD  
Design: Plan #1





Project: Mamm Creek  
Site: A22W Pad (S22-T7S-R93W)  
Well: Rose Ranch 23-6B1  
Wellbore: DD  
Plan: Plan #1



# Cathedral Energy Services

## Planning Report

**Database:** EDM 5000.1 US Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** Mamm Creek  
**Site:** A22W Pad (S22-T7S-R93W)  
**Well:** Rose Ranch 23-6B1  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Rose Ranch 23-6B1  
**TVD Reference:** WELL @ 6806.0ft (Original Well Elev)  
**MD Reference:** WELL @ 6806.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

**Project** Mamm Creek

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

**Site** A22W Pad (S22-T7S-R93W)

**Site Position:** Northing: 1,591,715.91 ft Latitude: 39° 26' 10.90 N  
**From:** Lat/Long Easting: 2,363,798.79 ft Longitude: 107° 45' 9.97 W  
**Position Uncertainty:** 0.0 ft Slot Radius: 13.200 in Grid Convergence: -1.42 °

**Well** Rose Ranch 23-6B1

**Well Position** +N/-S 0.0 ft Northing: 1,591,704.18 ft Latitude: 39° 26' 10.78 N  
 +E/-W 0.0 ft Easting: 2,363,786.63 ft Longitude: 107° 45' 10.12 W  
**Position Uncertainty** 0.0 ft Wellhead Elevation: ft Ground Level: 6,784.0 ft

**Wellbore** DD

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/15/2010	10.34	65.77	52,373

**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	119.15

**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	
939.6	22.19	119.15	921.2	-68.9	123.5	3.00	3.00	0.00	119.15	
5,750.7	22.19	119.15	5,376.1	-954.0	1,710.3	0.00	0.00	0.00	0.00	
6,860.1	0.00	0.00	6,458.0	-1,057.3	1,895.5	2.00	-2.00	0.00	180.00	Rose Ranch 23-6B1 1
10,138.1	0.00	0.00	9,736.0	-1,057.3	1,895.5	0.00	0.00	0.00	0.00	Rose Ranch 23-6B1 E
10,438.1	0.00	0.00	10,036.0	-1,057.3	1,895.5	0.00	0.00	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Rose Ranch 23-6B1
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 6806.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	WELL @ 6806.0ft (Original Well Elev)
<b>Site:</b>	A22W Pad (S22-T7S-R93W)	<b>North Reference:</b>	True
<b>Well:</b>	Rose Ranch 23-6B1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	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	119.15	300.0	-1.3	2.3	2.6	3.00	3.00	
400.0	6.00	119.15	399.6	-5.1	9.1	10.5	3.00	3.00	
500.0	9.00	119.15	498.8	-11.5	20.5	23.5	3.00	3.00	
600.0	12.00	119.15	597.1	-20.3	36.4	41.7	3.00	3.00	
700.0	15.00	119.15	694.3	-31.7	56.8	65.1	3.00	3.00	
800.0	18.00	119.15	790.2	-45.5	81.6	93.5	3.00	3.00	
900.0	21.00	119.15	884.4	-61.8	110.8	126.9	3.00	3.00	
939.6	22.19	119.15	921.2	-68.9	123.5	141.4	3.00	3.00	EOB at Inc. = 22.19°
1,000.0	22.19	119.15	977.2	-80.0	143.4	164.2	0.00	0.00	
1,100.0	22.19	119.15	1,069.8	-98.4	176.4	202.0	0.00	0.00	
1,200.0	22.19	119.15	1,162.4	-116.8	209.4	239.8	0.00	0.00	
1,300.0	22.19	119.15	1,255.0	-135.2	242.4	277.5	0.00	0.00	
1,400.0	22.19	119.15	1,347.6	-153.6	275.4	315.3	0.00	0.00	
1,500.0	22.19	119.15	1,440.2	-172.0	308.3	353.1	0.00	0.00	
1,565.0	22.19	119.15	1,500.3	-183.9	329.8	377.6	0.00	0.00	Surface Casing
1,600.0	22.19	119.15	1,532.7	-190.4	341.3	390.8	0.00	0.00	
1,700.0	22.19	119.15	1,625.3	-208.8	374.3	428.6	0.00	0.00	
1,800.0	22.19	119.15	1,717.9	-227.2	407.3	466.4	0.00	0.00	
1,900.0	22.19	119.15	1,810.5	-245.6	440.3	504.1	0.00	0.00	
2,000.0	22.19	119.15	1,903.1	-264.0	473.2	541.9	0.00	0.00	
2,100.0	22.19	119.15	1,995.7	-282.4	506.2	579.6	0.00	0.00	
2,200.0	22.19	119.15	2,088.3	-300.8	539.2	617.4	0.00	0.00	
2,300.0	22.19	119.15	2,180.9	-319.2	572.2	655.2	0.00	0.00	
2,400.0	22.19	119.15	2,273.5	-337.5	605.2	692.9	0.00	0.00	
2,500.0	22.19	119.15	2,366.1	-355.9	638.1	730.7	0.00	0.00	
2,600.0	22.19	119.15	2,458.7	-374.3	671.1	768.5	0.00	0.00	
2,669.4	22.19	119.15	2,523.0	-387.1	694.0	794.7	0.00	0.00	G Sand
2,700.0	22.19	119.15	2,551.3	-392.7	704.1	806.2	0.00	0.00	
2,800.0	22.19	119.15	2,643.9	-411.1	737.1	844.0	0.00	0.00	
2,900.0	22.19	119.15	2,736.5	-429.5	770.1	881.8	0.00	0.00	
3,000.0	22.19	119.15	2,829.1	-447.9	803.1	919.5	0.00	0.00	
3,100.0	22.19	119.15	2,921.7	-466.3	836.0	957.3	0.00	0.00	
3,200.0	22.19	119.15	3,014.3	-484.7	869.0	995.1	0.00	0.00	
3,300.0	22.19	119.15	3,106.9	-503.1	902.0	1,032.8	0.00	0.00	
3,400.0	22.19	119.15	3,199.5	-521.5	935.0	1,070.6	0.00	0.00	
3,500.0	22.19	119.15	3,292.1	-539.9	968.0	1,108.3	0.00	0.00	
3,600.0	22.19	119.15	3,384.7	-558.3	1,000.9	1,146.1	0.00	0.00	
3,700.0	22.19	119.15	3,477.2	-576.7	1,033.9	1,183.9	0.00	0.00	
3,800.0	22.19	119.15	3,569.8	-595.1	1,066.9	1,221.6	0.00	0.00	
3,900.0	22.19	119.15	3,662.4	-613.5	1,099.9	1,259.4	0.00	0.00	
4,000.0	22.19	119.15	3,755.0	-631.9	1,132.9	1,297.2	0.00	0.00	
4,100.0	22.19	119.15	3,847.6	-650.3	1,165.8	1,334.9	0.00	0.00	
4,200.0	22.19	119.15	3,940.2	-668.7	1,198.8	1,372.7	0.00	0.00	
4,300.0	22.19	119.15	4,032.8	-687.1	1,231.8	1,410.5	0.00	0.00	
4,400.0	22.19	119.15	4,125.4	-705.5	1,264.8	1,448.2	0.00	0.00	
4,500.0	22.19	119.15	4,218.0	-723.9	1,297.8	1,486.0	0.00	0.00	
4,600.0	22.19	119.15	4,310.6	-742.3	1,330.7	1,523.8	0.00	0.00	
4,700.0	22.19	119.15	4,403.2	-760.7	1,363.7	1,561.5	0.00	0.00	
4,800.0	22.19	119.15	4,495.8	-779.1	1,396.7	1,599.3	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Rose Ranch 23-6B1
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 6806.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	WELL @ 6806.0ft (Original Well Elev)
<b>Site:</b>	A22W Pad (S22-T7S-R93W)	<b>North Reference:</b>	True
<b>Well:</b>	Rose Ranch 23-6B1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	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
4,811.0	22.19	119.15	4,506.0	-781.1	1,400.3	1,603.5	0.00	0.00	Ohio Creek
4,900.0	22.19	119.15	4,588.4	-797.5	1,429.7	1,637.1	0.00	0.00	
5,000.0	22.19	119.15	4,681.0	-815.8	1,462.7	1,674.8	0.00	0.00	
5,100.0	22.19	119.15	4,773.6	-834.2	1,495.7	1,712.6	0.00	0.00	
5,200.0	22.19	119.15	4,866.2	-852.6	1,528.6	1,750.3	0.00	0.00	
5,300.0	22.19	119.15	4,958.8	-871.0	1,561.6	1,788.1	0.00	0.00	
5,367.2	22.19	119.15	5,021.0	-883.4	1,583.8	1,813.5	0.00	0.00	Mesa Verde
5,400.0	22.19	119.15	5,051.4	-889.4	1,594.6	1,825.9	0.00	0.00	
5,500.0	22.19	119.15	5,144.0	-907.8	1,627.6	1,863.6	0.00	0.00	
5,600.0	22.19	119.15	5,236.6	-926.2	1,660.6	1,901.4	0.00	0.00	
5,700.0	22.19	119.15	5,329.1	-944.6	1,693.5	1,939.2	0.00	0.00	
5,750.7	22.19	119.15	5,376.1	-954.0	1,710.3	1,958.3	0.00	0.00	
5,800.0	21.20	119.15	5,421.9	-962.8	1,726.2	1,976.5	2.00	-2.00	
5,833.3	20.54	119.15	5,453.0	-968.6	1,736.5	1,988.4	2.00	-2.00	
5,900.0	19.20	119.15	5,515.7	-979.6	1,756.3	2,011.1	2.00	-2.00	
6,000.0	17.20	119.15	5,610.7	-994.9	1,783.6	2,042.3	2.00	-2.00	
6,100.0	15.20	119.15	5,706.8	-1,008.5	1,808.0	2,070.2	2.00	-2.00	
6,200.0	13.20	119.15	5,803.7	-1,020.4	1,829.4	2,094.7	2.00	-2.00	
6,300.0	11.20	119.15	5,901.4	-1,030.7	1,847.9	2,115.9	2.00	-2.00	
6,400.0	9.20	119.15	5,999.8	-1,039.3	1,863.3	2,133.6	2.00	-2.00	
6,500.0	7.20	119.15	6,098.8	-1,046.3	1,875.8	2,147.9	2.00	-2.00	
6,600.0	5.20	119.15	6,198.2	-1,051.5	1,885.2	2,158.7	2.00	-2.00	
6,700.0	3.20	119.15	6,298.0	-1,055.1	1,891.6	2,166.0	2.00	-2.00	
6,800.0	1.20	119.15	6,397.9	-1,057.0	1,895.0	2,169.8	2.00	-2.00	
6,860.1	0.00	0.00	6,458.0	-1,057.3	1,895.5	2,170.5	2.00	-2.00	EOD at Inc. = 0° - Top of Gas - Rose Ranch 23-
6,900.0	0.00	0.00	6,497.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,000.0	0.00	0.00	6,597.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,100.0	0.00	0.00	6,697.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,200.0	0.00	0.00	6,797.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,300.0	0.00	0.00	6,897.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,400.0	0.00	0.00	6,997.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,500.0	0.00	0.00	7,097.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,600.0	0.00	0.00	7,197.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,700.0	0.00	0.00	7,297.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,800.0	0.00	0.00	7,397.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
7,900.0	0.00	0.00	7,497.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,000.0	0.00	0.00	7,597.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,100.0	0.00	0.00	7,697.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,200.0	0.00	0.00	7,797.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,232.1	0.00	0.00	7,830.0	-1,057.3	1,895.5	2,170.5	0.00	0.00	Coal Ridge
8,300.0	0.00	0.00	7,897.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,400.0	0.00	0.00	7,997.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,500.0	0.00	0.00	8,097.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,600.0	0.00	0.00	8,197.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,700.0	0.00	0.00	8,297.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,800.0	0.00	0.00	8,397.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,898.1	0.00	0.00	8,496.0	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,900.0	0.00	0.00	8,497.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
8,981.1	0.00	0.00	8,579.0	-1,057.3	1,895.5	2,170.5	0.00	0.00	Rollins
9,000.0	0.00	0.00	8,597.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,100.0	0.00	0.00	8,697.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,200.0	0.00	0.00	8,797.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Rose Ranch 23-6B1
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 6806.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	WELL @ 6806.0ft (Original Well Elev)
<b>Site:</b>	A22W Pad (S22-T7S-R93W)	<b>North Reference:</b>	True
<b>Well:</b>	Rose Ranch 23-6B1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	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
9,300.0	0.00	0.00	8,897.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,400.0	0.00	0.00	8,997.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,453.1	0.00	0.00	9,051.0	-1,057.3	1,895.5	2,170.5	0.00	0.00	Cozzette
9,500.0	0.00	0.00	9,097.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,600.0	0.00	0.00	9,197.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,654.1	0.00	0.00	9,252.0	-1,057.3	1,895.5	2,170.5	0.00	0.00	Corcoran
9,700.0	0.00	0.00	9,297.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,800.0	0.00	0.00	9,397.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,900.0	0.00	0.00	9,497.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
9,988.1	0.00	0.00	9,586.0	-1,057.3	1,895.5	2,170.5	0.00	0.00	Sego
10,000.0	0.00	0.00	9,597.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
10,100.0	0.00	0.00	9,697.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
10,138.1	0.00	0.00	9,736.0	-1,057.3	1,895.5	2,170.5	0.00	0.00	TD at 10,138' MD - Rose Ranch 23-6B1 BHL
10,200.0	0.00	0.00	9,797.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
10,300.0	0.00	0.00	9,897.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
10,400.0	0.00	0.00	9,997.9	-1,057.3	1,895.5	2,170.5	0.00	0.00	
10,438.1	0.00	0.00	10,036.0	-1,057.3	1,895.5	2,170.5	0.00	0.00	Permit TD at 10,438' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Rose Ranch 23-6B1 TO: - plan hits target center - Circle (radius 25.0)	0.00	0.00	6,458.0	-1,057.3	1,895.5	1,590,600.21	2,365,655.37	39° 26' 0.33 N	107° 44' 45.96 W
Rose Ranch 23-6B1 BHL: - plan hits target center - Circle (radius 60.0)	0.00	0.00	9,736.0	-1,057.3	1,895.5	1,590,600.21	2,365,655.37	39° 26' 0.33 N	107° 44' 45.96 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,565.0	1,500.3	Surface Casing			