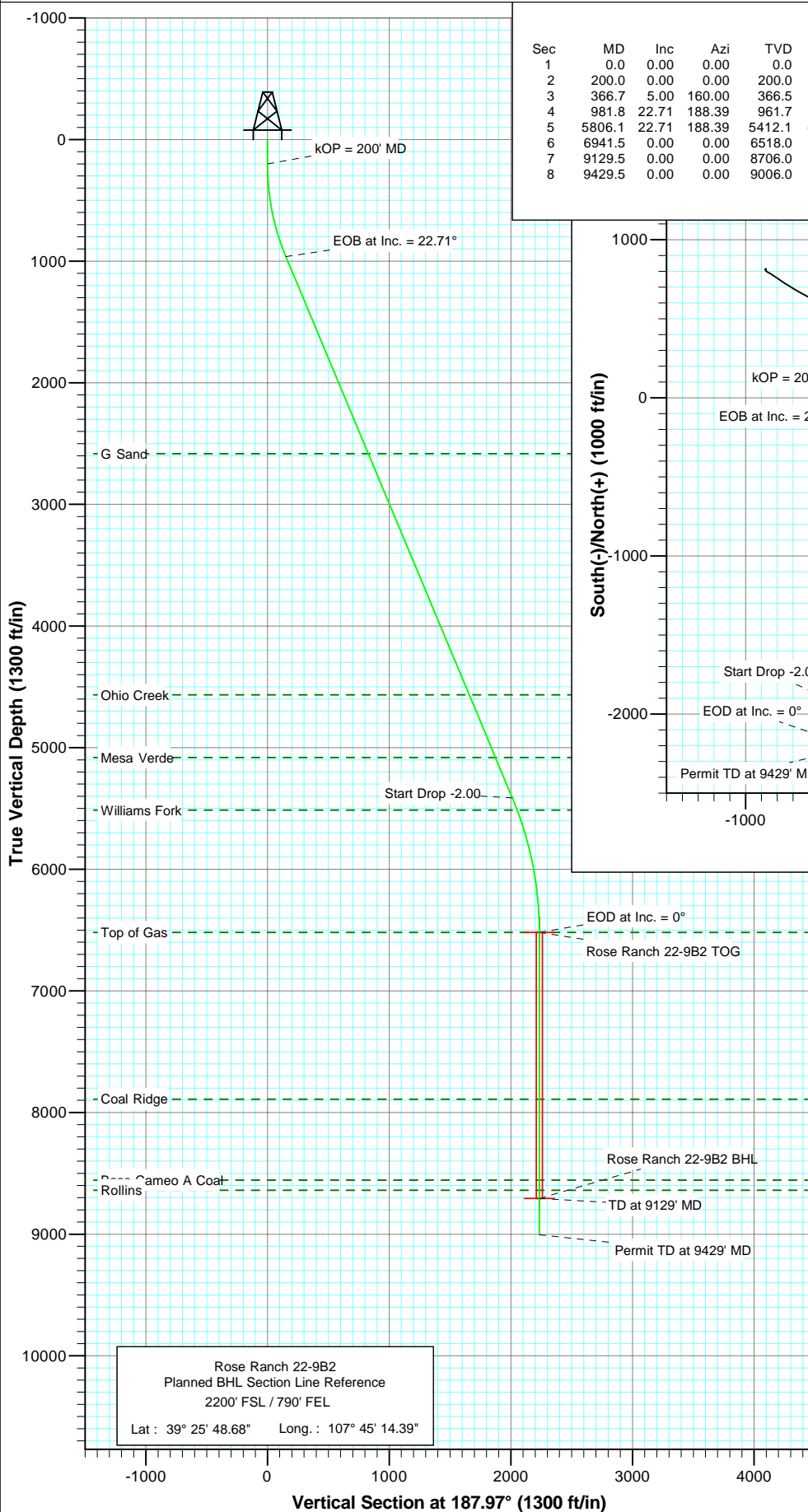
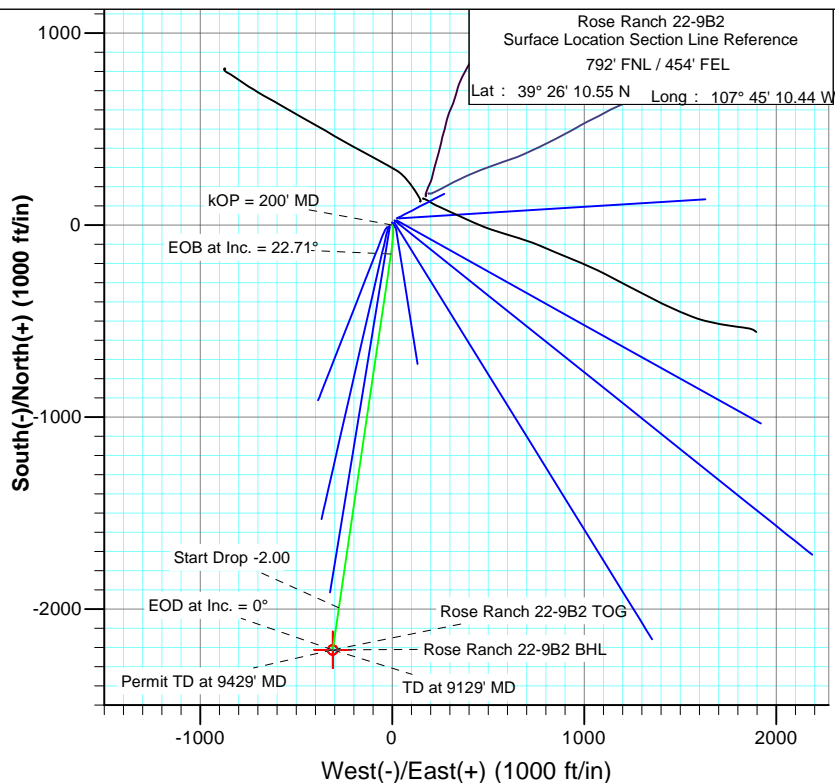




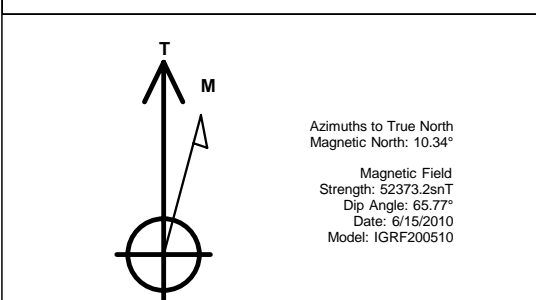
Project: Mamm Creek
Site: A22W Pad (S22-T7S-R93W)
Well: Rose Ranch 22-9B2
Wellbore: DD
Plan: Plan #1



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	366.7	5.00	160.00	366.5	-6.8	2.5	3.00	160.00	6.4	
4	981.8	22.71	188.39	961.7	-150.7	-5.7	3.00	35.44	150.1	
5	5806.1	22.71	188.39	5412.1	-1993.1	-277.5	0.00	0.00	2012.3	
6	6941.5	0.00	0.00	6518.0	-2212.8	-309.9	2.00	180.00	2234.4	Rose Ranch 22-9B2 TOG
7	9129.5	0.00	0.00	8706.0	-2212.8	-309.9	0.00	0.00	2234.4	Rose Ranch 22-9B2 BHL
8	9429.5	0.00	0.00	9006.0	-2212.8	-309.9	0.00	0.00	2234.4	



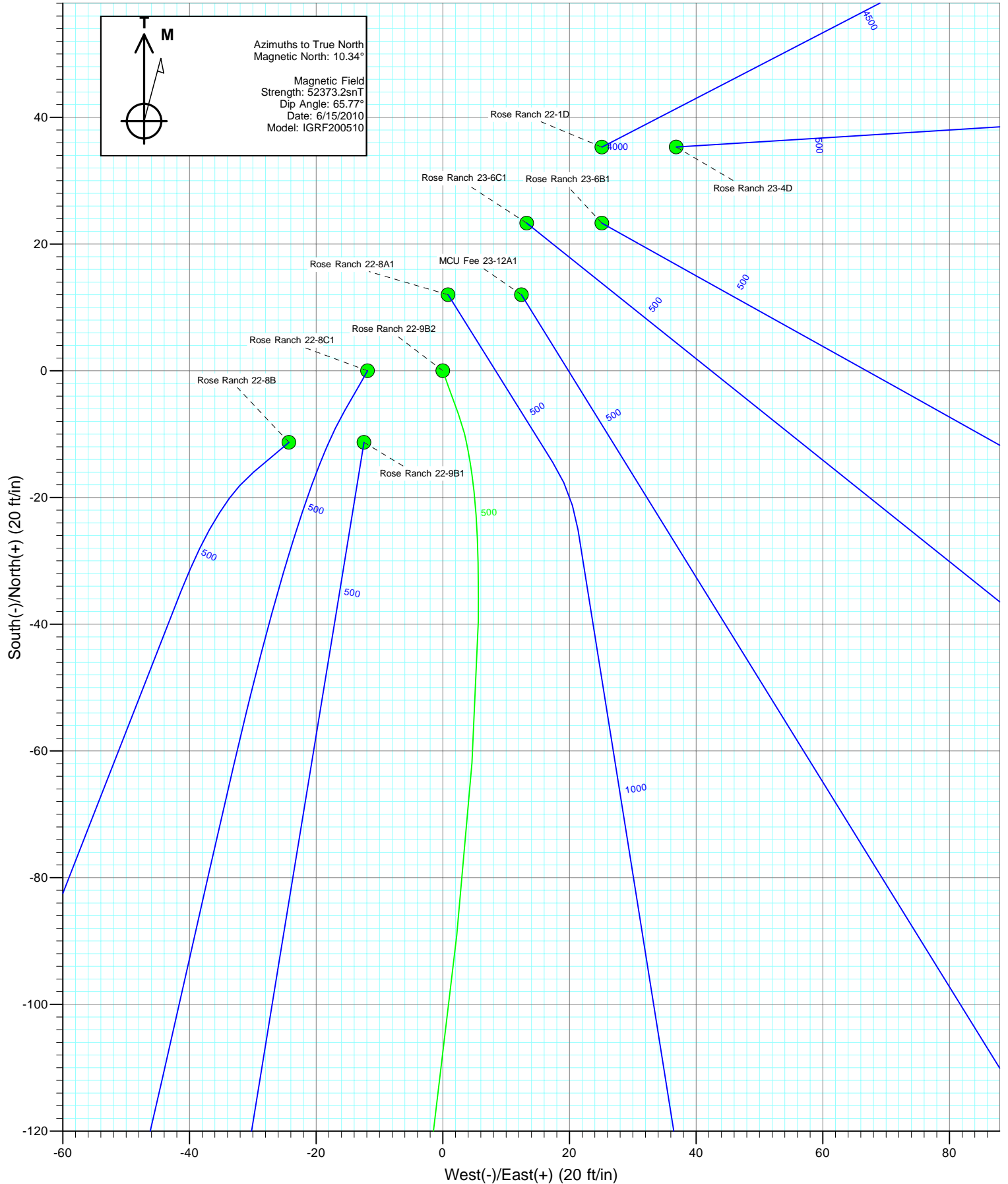
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2583.0	2739.3	G Sand
4566.0	4888.9	Ohio Creek
5081.0	5447.2	Mesa Verde
5513.0	5914.6	Williams Fork
6518.0	6941.5	Top of Gas
7890.0	8313.5	Coal Ridge
8556.0	8979.5	Base Cameo A Coal
8639.0	9062.5	Rollins



DESIGN DETAILS: Plan #1					
Job #10xxx: KR					
WELL @ 6806.0ft (Original Well Elev)					
Target	Azimuth	Origin Type	N/S	E/W	From TVD
Rose Ranch 22-9B2 BHL	187.97	Slot	0.0	0.0	0.0

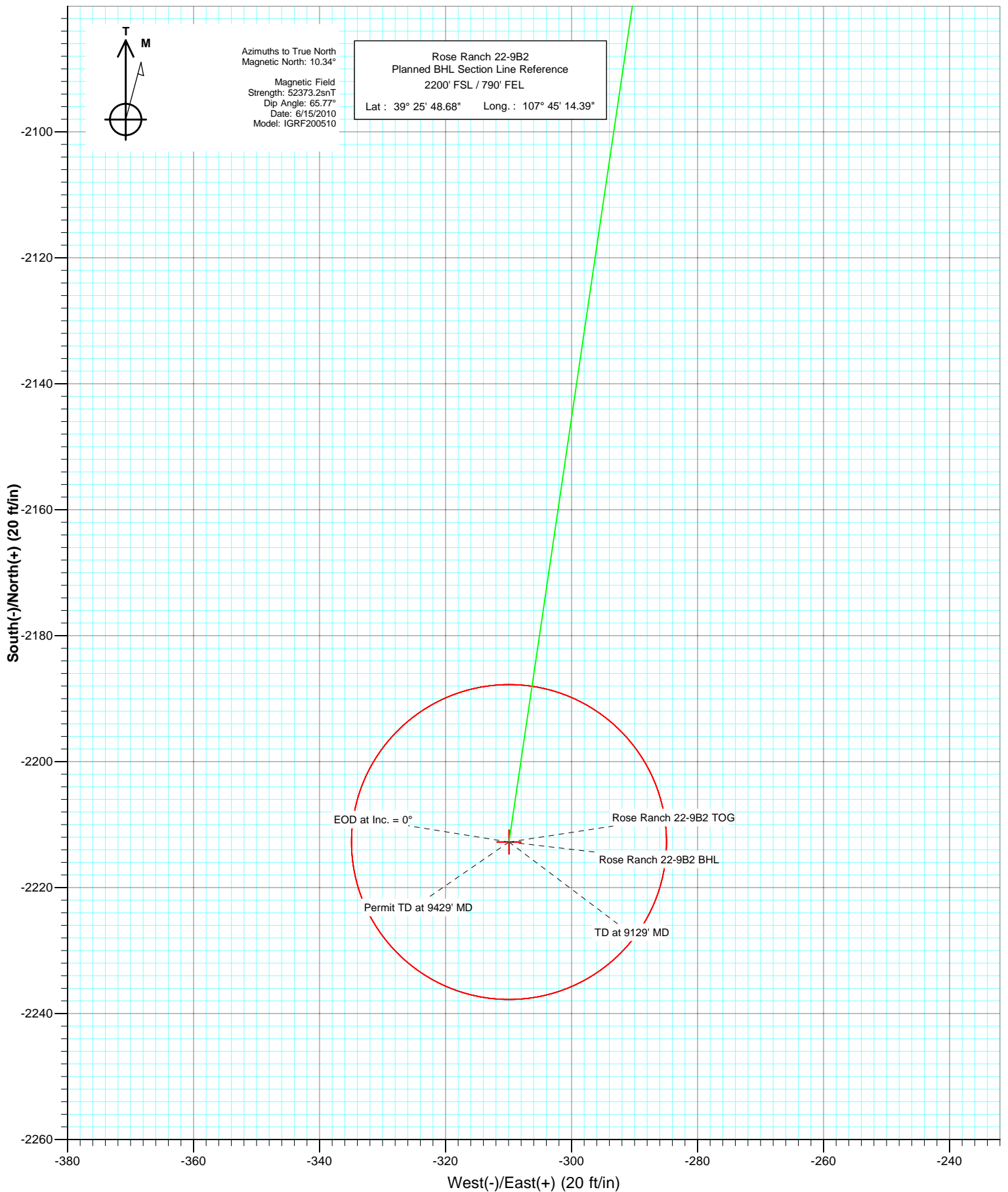


Project: Mamm Creek
Site: A22W Pad (S22-T7S-R93W)
Well: Rose Ranch 22-9B2
Wellbore: DD
Design: Plan #1





Project: Mamm Creek
Site: A22W Pad (S22-T7S-R93W)
Well: Rose Ranch 22-9B2
Wellbore: DD
Plan: Plan #1



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Rose Ranch 22-9B2
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6806.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 6806.0ft (Original Well Elev)
Site:	A22W Pad (S22-T7S-R93W)	North Reference:	True
Well:	Rose Ranch 22-9B2	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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

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 22-9B2					
Well Position	+N/-S	0.0 ft	Northing:	1,591,681.50 ft	Latitude:	39° 26' 10.55 N
	+E/-W	0.0 ft	Easting:	2,363,760.93 ft	Longitude:	107° 45' 10.44 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	187.97

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	
366.7	5.00	160.00	366.5	-6.8	2.5	3.00	3.00	0.00	160.00	
981.8	22.71	188.39	961.7	-150.7	-5.7	3.00	2.88	4.62	35.44	
5,806.1	22.71	188.39	5,412.1	-1,993.1	-277.5	0.00	0.00	0.00	0.00	
6,941.5	0.00	0.00	6,518.0	-2,212.8	-309.9	2.00	-2.00	0.00	180.00	Rose Ranch 22-9B2 1
9,129.5	0.00	0.00	8,706.0	-2,212.8	-309.9	0.00	0.00	0.00	0.00	Rose Ranch 22-9B2 1
9,429.5	0.00	0.00	9,006.0	-2,212.8	-309.9	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 Rose Ranch 22-9B2
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6806.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 6806.0ft (Original Well Elev)
Site:	A22W Pad (S22-T7S-R93W)	North Reference:	True
Well:	Rose Ranch 22-9B2	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	160.00	300.0	-2.5	0.9	2.3	3.00	3.00	
366.7	5.00	160.00	366.5	-6.8	2.5	6.4	3.00	3.00	
400.0	5.84	165.70	399.6	-9.8	3.4	9.3	3.00	2.53	
500.0	8.58	175.74	498.8	-22.2	5.2	21.3	3.00	2.73	
600.0	11.45	180.86	597.3	-39.6	5.6	38.4	3.00	2.87	
700.0	14.37	183.94	694.8	-61.9	4.6	60.6	3.00	2.92	
800.0	17.31	186.00	791.0	-89.1	2.2	87.9	3.00	2.95	
900.0	20.28	187.46	885.6	-121.0	-1.6	120.1	3.00	2.96	
981.8	22.71	188.39	961.7	-150.7	-5.7	150.1	3.00	2.97	EOB at Inc. = 22.71°
1,000.0	22.71	188.39	978.5	-157.7	-6.8	157.1	0.00	0.00	
1,100.0	22.71	188.39	1,070.8	-195.9	-12.4	195.7	0.00	0.00	
1,200.0	22.71	188.39	1,163.0	-234.0	-18.0	234.3	0.00	0.00	
1,300.0	22.71	188.39	1,255.3	-272.2	-23.7	272.9	0.00	0.00	
1,400.0	22.71	188.39	1,347.5	-310.4	-29.3	311.5	0.00	0.00	
1,414.0	22.71	188.39	1,360.4	-315.8	-30.1	316.9	0.00	0.00	Surface Casing
1,500.0	22.71	188.39	1,439.8	-348.6	-34.9	350.1	0.00	0.00	
1,600.0	22.71	188.39	1,532.0	-386.8	-40.6	388.7	0.00	0.00	
1,700.0	22.71	188.39	1,624.3	-425.0	-46.2	427.3	0.00	0.00	
1,800.0	22.71	188.39	1,716.5	-463.2	-51.8	465.9	0.00	0.00	
1,900.0	22.71	188.39	1,808.8	-501.4	-57.5	504.5	0.00	0.00	
2,000.0	22.71	188.39	1,901.0	-539.6	-63.1	543.1	0.00	0.00	
2,100.0	22.71	188.39	1,993.3	-577.7	-68.7	581.7	0.00	0.00	
2,200.0	22.71	188.39	2,085.5	-615.9	-74.4	620.3	0.00	0.00	
2,300.0	22.71	188.39	2,177.8	-654.1	-80.0	658.9	0.00	0.00	
2,400.0	22.71	188.39	2,270.0	-692.3	-85.6	697.5	0.00	0.00	
2,500.0	22.71	188.39	2,362.3	-730.5	-91.3	736.1	0.00	0.00	
2,600.0	22.71	188.39	2,454.5	-768.7	-96.9	774.7	0.00	0.00	
2,700.0	22.71	188.39	2,546.8	-806.9	-102.5	813.3	0.00	0.00	
2,739.3	22.71	188.39	2,583.0	-821.9	-104.8	828.5	0.00	0.00	G Sand
2,800.0	22.71	188.39	2,639.0	-845.1	-108.2	851.9	0.00	0.00	
2,900.0	22.71	188.39	2,731.3	-883.3	-113.8	890.5	0.00	0.00	
3,000.0	22.71	188.39	2,823.5	-921.4	-119.4	929.1	0.00	0.00	
3,100.0	22.71	188.39	2,915.8	-959.6	-125.1	967.7	0.00	0.00	
3,200.0	22.71	188.39	3,008.0	-997.8	-130.7	1,006.3	0.00	0.00	
3,300.0	22.71	188.39	3,100.2	-1,036.0	-136.3	1,044.9	0.00	0.00	
3,400.0	22.71	188.39	3,192.5	-1,074.2	-142.0	1,083.5	0.00	0.00	
3,500.0	22.71	188.39	3,284.7	-1,112.4	-147.6	1,122.1	0.00	0.00	
3,600.0	22.71	188.39	3,377.0	-1,150.6	-153.2	1,160.7	0.00	0.00	
3,700.0	22.71	188.39	3,469.2	-1,188.8	-158.9	1,199.3	0.00	0.00	
3,800.0	22.71	188.39	3,561.5	-1,227.0	-164.5	1,237.9	0.00	0.00	
3,900.0	22.71	188.39	3,653.7	-1,265.1	-170.1	1,276.5	0.00	0.00	
4,000.0	22.71	188.39	3,746.0	-1,303.3	-175.8	1,315.1	0.00	0.00	
4,100.0	22.71	188.39	3,838.2	-1,341.5	-181.4	1,353.7	0.00	0.00	
4,200.0	22.71	188.39	3,930.5	-1,379.7	-187.0	1,392.3	0.00	0.00	
4,300.0	22.71	188.39	4,022.7	-1,417.9	-192.7	1,430.9	0.00	0.00	
4,400.0	22.71	188.39	4,115.0	-1,456.1	-198.3	1,469.5	0.00	0.00	
4,500.0	22.71	188.39	4,207.2	-1,494.3	-203.9	1,508.1	0.00	0.00	
4,600.0	22.71	188.39	4,299.5	-1,532.5	-209.6	1,546.7	0.00	0.00	
4,700.0	22.71	188.39	4,391.7	-1,570.7	-215.2	1,585.3	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Rose Ranch 22-9B2
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6806.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 6806.0ft (Original Well Elev)
Site:	A22W Pad (S22-T7S-R93W)	North Reference:	True
Well:	Rose Ranch 22-9B2	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
4,800.0	22.71	188.39	4,484.0	-1,608.8	-220.8	1,623.9	0.00	0.00	
4,888.9	22.71	188.39	4,566.0	-1,642.8	-225.8	1,658.2	0.00	0.00	Ohio Creek
4,900.0	22.71	188.39	4,576.2	-1,647.0	-226.5	1,662.5	0.00	0.00	
5,000.0	22.71	188.39	4,668.5	-1,685.2	-232.1	1,701.1	0.00	0.00	
5,100.0	22.71	188.39	4,760.7	-1,723.4	-237.7	1,739.7	0.00	0.00	
5,200.0	22.71	188.39	4,853.0	-1,761.6	-243.4	1,778.3	0.00	0.00	
5,300.0	22.71	188.39	4,945.2	-1,799.8	-249.0	1,816.9	0.00	0.00	
5,400.0	22.71	188.39	5,037.5	-1,838.0	-254.6	1,855.5	0.00	0.00	
5,447.2	22.71	188.39	5,081.0	-1,856.0	-257.3	1,873.7	0.00	0.00	Mesa Verde
5,500.0	22.71	188.39	5,129.7	-1,876.2	-260.3	1,894.1	0.00	0.00	
5,600.0	22.71	188.39	5,222.0	-1,914.4	-265.9	1,932.7	0.00	0.00	
5,700.0	22.71	188.39	5,314.2	-1,952.5	-271.5	1,971.3	0.00	0.00	
5,800.0	22.71	188.39	5,406.5	-1,990.7	-277.2	2,009.9	0.00	0.00	
5,806.1	22.71	188.39	5,412.1	-1,993.1	-277.5	2,012.3	0.00	0.00	Start Drop -2.00
5,900.0	20.83	188.39	5,499.3	-2,027.5	-282.6	2,047.1	2.00	-2.00	
5,914.6	20.54	188.39	5,513.0	-2,032.6	-283.4	2,052.3	2.00	-2.00	Williams Fork
6,000.0	18.83	188.39	5,593.4	-2,061.1	-287.6	2,081.0	2.00	-2.00	
6,100.0	16.83	188.39	5,688.6	-2,091.4	-292.0	2,111.7	2.00	-2.00	
6,200.0	14.83	188.39	5,784.8	-2,118.3	-296.0	2,138.9	2.00	-2.00	
6,300.0	12.83	188.39	5,881.9	-2,142.0	-299.5	2,162.8	2.00	-2.00	
6,400.0	10.83	188.39	5,979.7	-2,162.3	-302.5	2,183.3	2.00	-2.00	
6,500.0	8.83	188.39	6,078.3	-2,179.2	-305.0	2,200.4	2.00	-2.00	
6,600.0	6.83	188.39	6,177.3	-2,192.6	-307.0	2,214.0	2.00	-2.00	
6,700.0	4.83	188.39	6,276.8	-2,202.7	-308.4	2,224.2	2.00	-2.00	
6,800.0	2.83	188.39	6,376.6	-2,209.3	-309.4	2,230.9	2.00	-2.00	
6,900.0	0.83	188.39	6,476.5	-2,212.5	-309.9	2,234.0	2.00	-2.00	
6,941.5	0.00	0.00	6,518.0	-2,212.8	-309.9	2,234.4	2.00	-2.00	EOD at Inc. = 0° - Top of Gas - Rose Ranch 22
7,000.0	0.00	0.00	6,576.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,100.0	0.00	0.00	6,676.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,200.0	0.00	0.00	6,776.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,300.0	0.00	0.00	6,876.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,400.0	0.00	0.00	6,976.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,500.0	0.00	0.00	7,076.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,600.0	0.00	0.00	7,176.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,700.0	0.00	0.00	7,276.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,800.0	0.00	0.00	7,376.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
7,900.0	0.00	0.00	7,476.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,000.0	0.00	0.00	7,576.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,100.0	0.00	0.00	7,676.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,200.0	0.00	0.00	7,776.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,300.0	0.00	0.00	7,876.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,313.5	0.00	0.00	7,890.0	-2,212.8	-309.9	2,234.4	0.00	0.00	Coal Ridge
8,400.0	0.00	0.00	7,976.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,500.0	0.00	0.00	8,076.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,600.0	0.00	0.00	8,176.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,700.0	0.00	0.00	8,276.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,800.0	0.00	0.00	8,376.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,900.0	0.00	0.00	8,476.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
8,979.5	0.00	0.00	8,556.0	-2,212.8	-309.9	2,234.4	0.00	0.00	Base Cameo A Coal
9,000.0	0.00	0.00	8,576.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
9,062.5	0.00	0.00	8,639.0	-2,212.8	-309.9	2,234.4	0.00	0.00	Rollins
9,100.0	0.00	0.00	8,676.5	-2,212.8	-309.9	2,234.4	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Rose Ranch 22-9B2
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6806.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 6806.0ft (Original Well Elev)
Site:	A22W Pad (S22-T7S-R93W)	North Reference:	True
Well:	Rose Ranch 22-9B2	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
9,129.5	0.00	0.00	8,706.0	-2,212.8	-309.9	2,234.4	0.00	0.00	TD at 9129' MD - Rose Ranch 22-9B2 BHL
9,200.0	0.00	0.00	8,776.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
9,300.0	0.00	0.00	8,876.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
9,400.0	0.00	0.00	8,976.5	-2,212.8	-309.9	2,234.4	0.00	0.00	
9,429.5	0.00	0.00	9,006.0	-2,212.8	-309.9	2,234.4	0.00	0.00	

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									
Rose Ranch 22-9B2 BHL	0.00	0.00	8,706.0	-2,212.8	-309.9	1,589,477.11	2,363,396.23	39° 25' 48.68 N	107° 45' 14.39 W
- plan hits target center									
- Circle (radius 25.0)									
Rose Ranch 22-9B2 TO	0.00	0.00	6,518.0	-2,212.8	-309.9	1,589,477.11	2,363,396.23	39° 25' 48.68 N	107° 45' 14.39 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,414.0	1,360.4	Surface Casing			

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,739.3	2,583.0	G Sand			
4,888.9	4,566.0	Ohio Creek			
5,447.2	5,081.0	Mesa Verde			
5,914.6	5,513.0	Williams Fork			
6,941.5	6,518.0	Top of Gas			
8,313.5	7,890.0	Coal Ridge			
8,979.5	8,556.0	Base Cameo A Coal			
9,062.5	8,639.0	Rollins			

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	
981.8	961.7	-6.8	2.5	EOB at Inc. = 22.71°	
5,806.1	5,412.1	-150.7	-5.7	Start Drop -2.00	
6,941.5	6,518.0	-1,993.1	-277.5	EOD at Inc. = 0°	
9,129.5	8,706.0	-2,212.8	-309.9	TD at 9129' MD	
9,429.5	9,006.0	-2,212.8	-309.9	Permit TD at 9429' MD	