

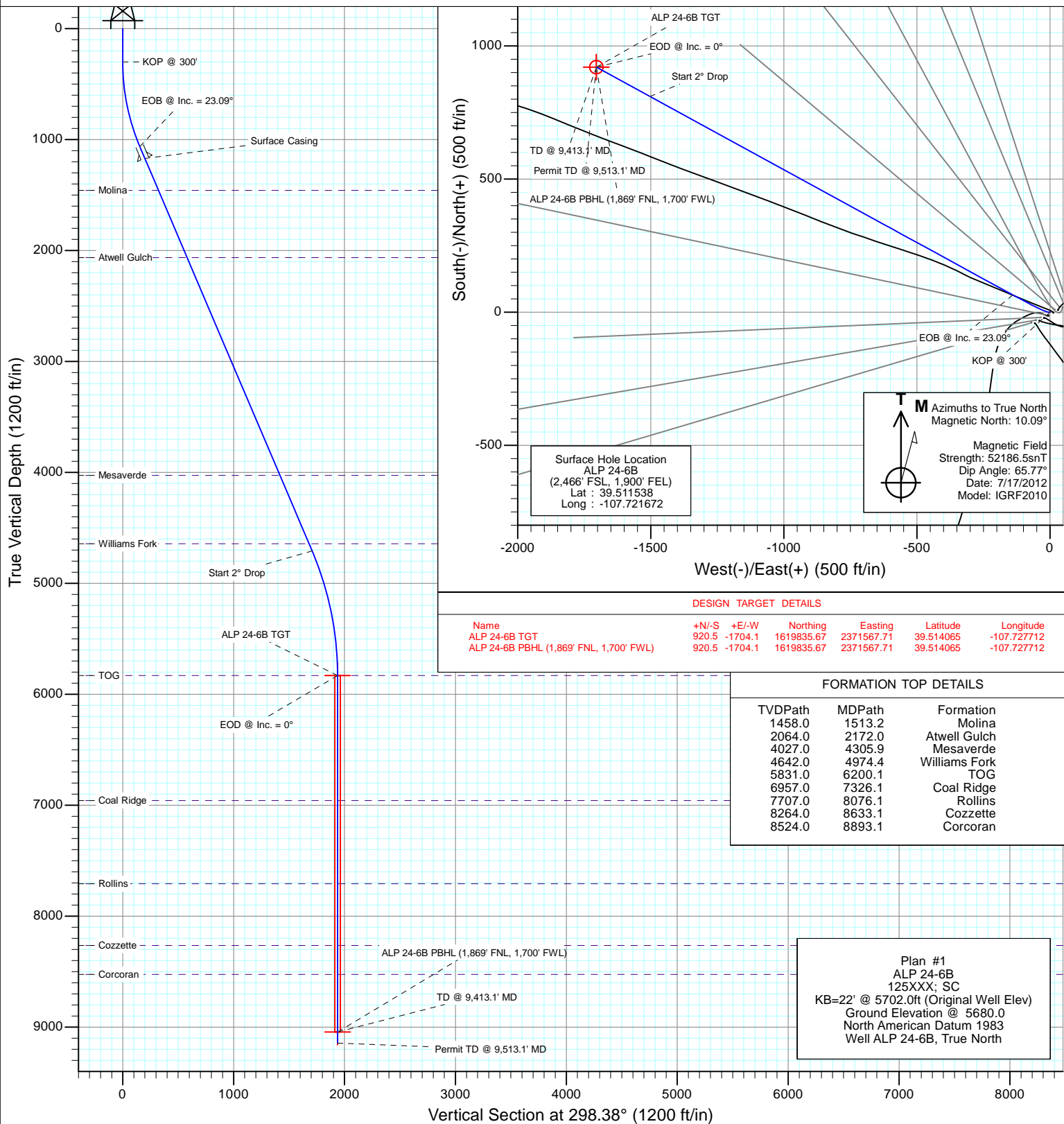


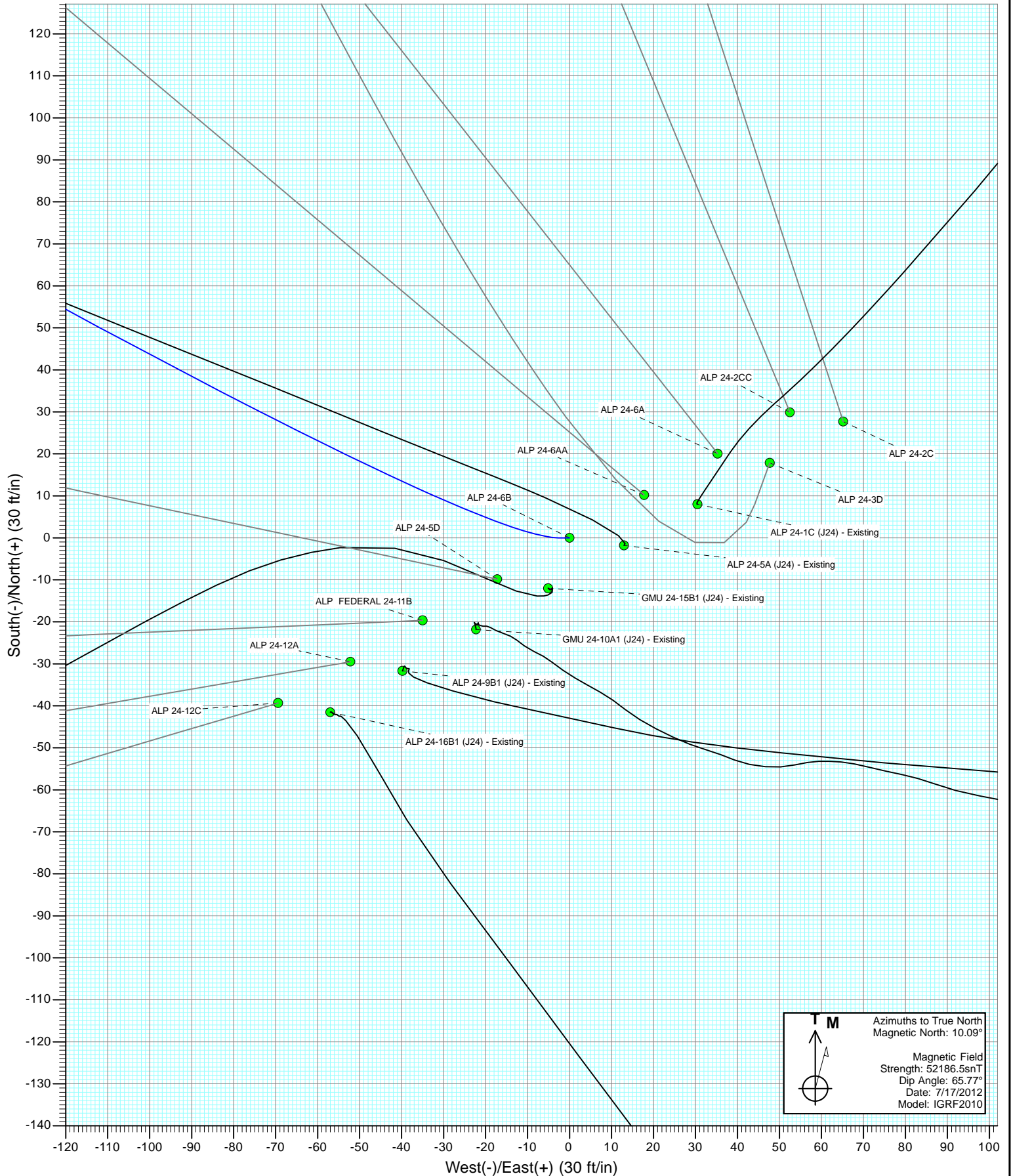
Project: Mamm Creek
Site: J24 Pad
Well: ALP 24-6B
Wellbore: OH
Design: Plan #1

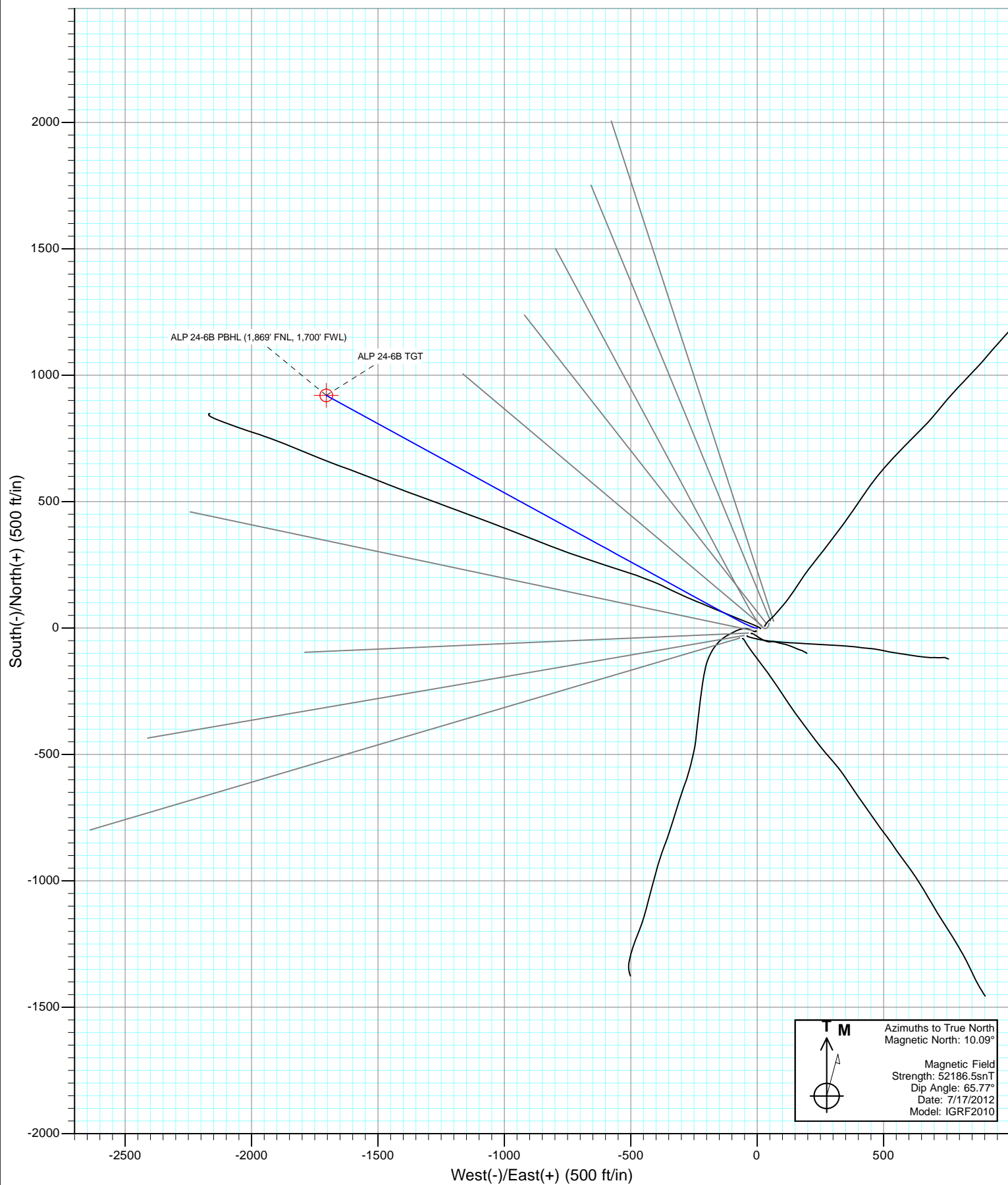


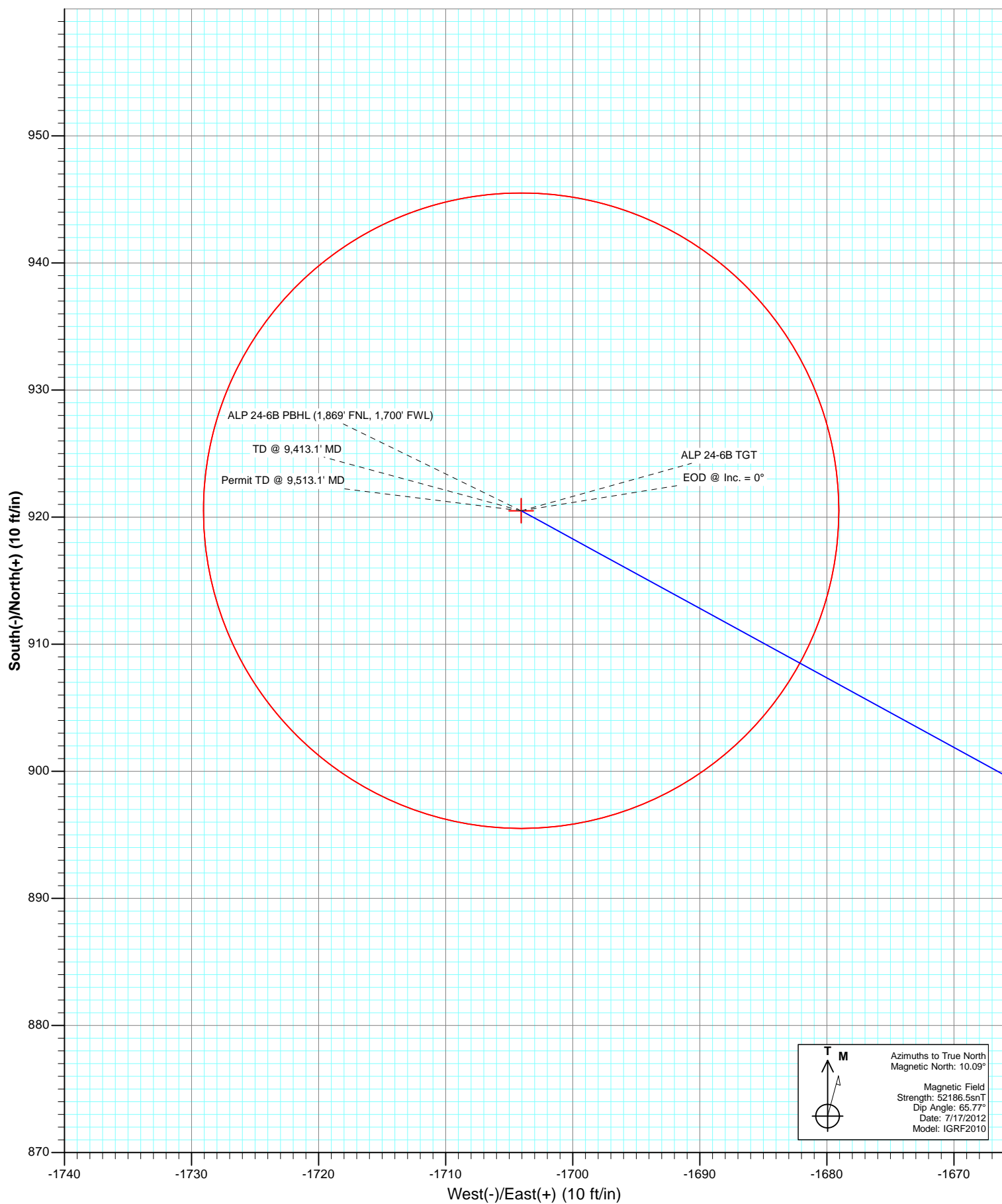
SECTION DETAILS

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	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	400.0	3.00	270.00	400.0	0.0	-2.6	3.00	270.00	2.3	
4	1083.4	23.09	298.67	1062.6	65.0	-139.5	3.00	32.49	153.6	
5	5045.8	23.09	298.67	4707.7	810.4	-1502.8	0.00	0.00	1707.4	
6	6200.1	0.00	0.00	5831.0	920.5	-1704.1	2.00	180.00	1936.8	ALP 24-6B TGT
7	9413.1	0.00	0.00	9044.0	920.5	-1704.1	0.00	0.00	1936.8	ALP 24-6B PBHL (1,869' FNL, 1,700' FWL)
8	9513.1	0.00	0.00	9144.0	920.5	-1704.1	0.00	0.00	1936.8	









Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well ALP 24-6B
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Site:	J24 Pad	North Reference:	True
Well:	ALP 24-6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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		J24 Pad			
Site Position:		Northing:	1,618,899.86 ft	Latitude:	39.511614
From:	Lat/Long	Easting:	2,373,314.58 ft	Longitude:	-107.721441
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.40 °

Well	ALP 24-6B					
Well Position	+N/-S	0.0 ft	Northing:	1,618,873.76 ft	Latitude:	39.511538
	+E/-W	0.0 ft	Easting:	2,373,248.75 ft	Longitude:	-107.721672
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,680.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/17/2012	10.09	65.77	52,186

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	298.38

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	3.00	270.00	400.0	0.0	-2.6	3.00	3.00	0.00	270.00	
1,083.4	23.09	298.67	1,062.6	65.0	-139.5	3.00	2.94	4.20	32.49	
5,045.8	23.09	298.67	4,707.7	810.4	-1,502.8	0.00	0.00	0.00	0.00	
6,200.1	0.00	0.00	5,831.0	920.5	-1,704.1	2.00	-2.00	0.00	180.00	ALP 24-6B TGT
9,413.1	0.00	0.00	9,044.0	920.5	-1,704.1	0.00	0.00	0.00	0.00	ALP 24-6B PBHL (1,8
9,513.1	0.00	0.00	9,144.0	920.5	-1,704.1	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

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Project:	Mamm Creek	MD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Site:	J24 Pad	North Reference:	True
Well:	ALP 24-6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	KOP @ 300'
400.0	3.00	270.00	400.0	0.0	-2.6	2.3	3.00	3.00	
500.0	5.76	286.27	499.7	1.4	-10.1	9.5	3.00	2.76	
600.0	8.68	291.84	598.9	5.6	-21.9	21.9	3.00	2.92	
700.0	11.64	294.61	697.3	12.6	-38.1	39.5	3.00	2.96	
800.0	14.62	296.26	794.6	22.4	-58.6	62.2	3.00	2.98	
900.0	17.60	297.37	890.7	35.0	-83.3	89.9	3.00	2.98	
1,000.0	20.59	298.16	985.2	50.2	-112.2	122.6	3.00	2.99	
1,083.4	23.09	298.67	1,062.6	65.0	-139.5	153.6	3.00	2.99	EOB @ Inc. = 23.09°
1,100.0	23.09	298.67	1,077.9	68.1	-145.2	160.1	0.00	0.00	
1,200.0	23.09	298.67	1,169.9	86.9	-179.6	199.4	0.00	0.00	Surface Casing
1,300.0	23.09	298.67	1,261.9	105.7	-214.0	238.6	0.00	0.00	
1,400.0	23.09	298.67	1,353.9	124.5	-248.4	277.8	0.00	0.00	
1,500.0	23.09	298.67	1,445.8	143.4	-282.9	317.0	0.00	0.00	
1,513.2	23.09	298.67	1,458.0	145.8	-287.4	322.2	0.00	0.00	Molina
1,600.0	23.09	298.67	1,537.8	162.2	-317.3	356.2	0.00	0.00	
1,700.0	23.09	298.67	1,629.8	181.0	-351.7	395.4	0.00	0.00	
1,800.0	23.09	298.67	1,721.8	199.8	-386.1	434.6	0.00	0.00	
1,900.0	23.09	298.67	1,813.8	218.6	-420.5	473.8	0.00	0.00	
2,000.0	23.09	298.67	1,905.8	237.4	-454.9	513.1	0.00	0.00	
2,100.0	23.09	298.67	1,997.8	256.2	-489.3	552.3	0.00	0.00	
2,172.0	23.09	298.67	2,064.0	269.8	-514.0	580.5	0.00	0.00	Atwell Gulch
2,200.0	23.09	298.67	2,089.8	275.0	-523.7	591.5	0.00	0.00	
2,300.0	23.09	298.67	2,181.8	293.9	-558.1	630.7	0.00	0.00	
2,400.0	23.09	298.67	2,273.8	312.7	-592.5	669.9	0.00	0.00	
2,500.0	23.09	298.67	2,365.8	331.5	-626.9	709.1	0.00	0.00	
2,600.0	23.09	298.67	2,457.7	350.3	-661.3	748.3	0.00	0.00	
2,700.0	23.09	298.67	2,549.7	369.1	-695.7	787.5	0.00	0.00	
2,800.0	23.09	298.67	2,641.7	387.9	-730.1	826.7	0.00	0.00	
2,900.0	23.09	298.67	2,733.7	406.7	-764.5	866.0	0.00	0.00	
3,000.0	23.09	298.67	2,825.7	425.6	-798.9	905.2	0.00	0.00	
3,100.0	23.09	298.67	2,917.7	444.4	-833.3	944.4	0.00	0.00	
3,200.0	23.09	298.67	3,009.7	463.2	-867.7	983.6	0.00	0.00	
3,300.0	23.09	298.67	3,101.7	482.0	-902.1	1,022.8	0.00	0.00	
3,400.0	23.09	298.67	3,193.7	500.8	-936.5	1,062.0	0.00	0.00	
3,500.0	23.09	298.67	3,285.7	519.6	-970.9	1,101.2	0.00	0.00	
3,600.0	23.09	298.67	3,377.7	538.4	-1,005.3	1,140.4	0.00	0.00	
3,700.0	23.09	298.67	3,469.7	557.2	-1,039.7	1,179.7	0.00	0.00	
3,800.0	23.09	298.67	3,561.6	576.1	-1,074.2	1,218.9	0.00	0.00	
3,900.0	23.09	298.67	3,653.6	594.9	-1,108.6	1,258.1	0.00	0.00	
4,000.0	23.09	298.67	3,745.6	613.7	-1,143.0	1,297.3	0.00	0.00	
4,100.0	23.09	298.67	3,837.6	632.5	-1,177.4	1,336.5	0.00	0.00	
4,200.0	23.09	298.67	3,929.6	651.3	-1,211.8	1,375.7	0.00	0.00	
4,300.0	23.09	298.67	4,021.6	670.1	-1,246.2	1,414.9	0.00	0.00	
4,305.9	23.09	298.67	4,027.0	671.2	-1,248.2	1,417.2	0.00	0.00	Mesaverde
4,400.0	23.09	298.67	4,113.6	688.9	-1,280.6	1,454.1	0.00	0.00	
4,500.0	23.09	298.67	4,205.6	707.8	-1,315.0	1,493.3	0.00	0.00	
4,600.0	23.09	298.67	4,297.6	726.6	-1,349.4	1,532.6	0.00	0.00	
4,700.0	23.09	298.67	4,389.6	745.4	-1,383.8	1,571.8	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Site:	J24 Pad	North Reference:	True
Well:	ALP 24-6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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	23.09	298.67	4,481.6	764.2	-1,418.2	1,611.0	0.00	0.00	
4,900.0	23.09	298.67	4,573.5	783.0	-1,452.6	1,650.2	0.00	0.00	
4,974.4	23.09	298.67	4,642.0	797.0	-1,478.2	1,679.4	0.00	0.00	Williams Fork
5,000.0	23.09	298.67	4,665.5	801.8	-1,487.0	1,689.4	0.00	0.00	
5,045.8	23.09	298.67	4,707.7	810.4	-1,502.8	1,707.4	0.00	0.00	Start 2° Drop
5,100.0	22.00	298.67	4,757.7	820.4	-1,521.0	1,728.1	2.00	-2.00	
5,200.0	20.00	298.67	4,851.1	837.6	-1,552.4	1,764.0	2.00	-2.00	
5,300.0	18.00	298.67	4,945.6	853.2	-1,581.0	1,796.5	2.00	-2.00	
5,400.0	16.00	298.67	5,041.2	867.3	-1,606.7	1,825.8	2.00	-2.00	
5,500.0	14.00	298.67	5,137.8	879.7	-1,629.4	1,851.7	2.00	-2.00	
5,600.0	12.00	298.67	5,235.3	890.5	-1,649.1	1,874.2	2.00	-2.00	
5,700.0	10.00	298.67	5,333.4	899.6	-1,665.9	1,893.2	2.00	-2.00	
5,800.0	8.00	298.67	5,432.2	907.1	-1,679.6	1,908.9	2.00	-2.00	
5,900.0	6.00	298.67	5,531.4	913.0	-1,690.3	1,921.1	2.00	-2.00	
6,000.0	4.00	298.67	5,631.1	917.2	-1,697.9	1,929.8	2.00	-2.00	
6,100.0	2.00	298.67	5,730.9	919.7	-1,702.5	1,935.0	2.00	-2.00	
6,200.1	0.00	0.00	5,831.0	920.5	-1,704.1	1,936.8	2.00	-2.00	EOD @ Inc. = 0° - TOG
6,300.0	0.00	0.00	5,930.9	920.5	-1,704.1	1,936.8	0.00	0.00	
6,400.0	0.00	0.00	6,030.9	920.5	-1,704.1	1,936.8	0.00	0.00	
6,500.0	0.00	0.00	6,130.9	920.5	-1,704.1	1,936.8	0.00	0.00	
6,600.0	0.00	0.00	6,230.9	920.5	-1,704.1	1,936.8	0.00	0.00	
6,700.0	0.00	0.00	6,330.9	920.5	-1,704.1	1,936.8	0.00	0.00	
6,800.0	0.00	0.00	6,430.9	920.5	-1,704.1	1,936.8	0.00	0.00	
6,900.0	0.00	0.00	6,530.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,000.0	0.00	0.00	6,630.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,100.0	0.00	0.00	6,730.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,200.0	0.00	0.00	6,830.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,300.0	0.00	0.00	6,930.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,326.1	0.00	0.00	6,957.0	920.5	-1,704.1	1,936.8	0.00	0.00	Coal Ridge
7,400.0	0.00	0.00	7,030.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,500.0	0.00	0.00	7,130.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,600.0	0.00	0.00	7,230.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,700.0	0.00	0.00	7,330.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,800.0	0.00	0.00	7,430.9	920.5	-1,704.1	1,936.8	0.00	0.00	
7,900.0	0.00	0.00	7,530.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,000.0	0.00	0.00	7,630.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,076.1	0.00	0.00	7,707.0	920.5	-1,704.1	1,936.8	0.00	0.00	Rollins
8,100.0	0.00	0.00	7,730.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,200.0	0.00	0.00	7,830.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,300.0	0.00	0.00	7,930.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,400.0	0.00	0.00	8,030.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,500.0	0.00	0.00	8,130.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,600.0	0.00	0.00	8,230.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,633.1	0.00	0.00	8,264.0	920.5	-1,704.1	1,936.8	0.00	0.00	Cozzette
8,700.0	0.00	0.00	8,330.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,800.0	0.00	0.00	8,430.9	920.5	-1,704.1	1,936.8	0.00	0.00	
8,893.1	0.00	0.00	8,524.0	920.5	-1,704.1	1,936.8	0.00	0.00	Corcoran
8,900.0	0.00	0.00	8,530.9	920.5	-1,704.1	1,936.8	0.00	0.00	
9,000.0	0.00	0.00	8,630.9	920.5	-1,704.1	1,936.8	0.00	0.00	
9,100.0	0.00	0.00	8,730.9	920.5	-1,704.1	1,936.8	0.00	0.00	
9,200.0	0.00	0.00	8,830.9	920.5	-1,704.1	1,936.8	0.00	0.00	
9,300.0	0.00	0.00	8,930.9	920.5	-1,704.1	1,936.8	0.00	0.00	

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Site:	J24 Pad	North Reference:	True
Well:	ALP 24-6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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
9,400.0	0.00	0.00	9,030.9	920.5	-1,704.1	1,936.8	0.00	0.00	
9,413.1	0.00	0.00	9,044.0	920.5	-1,704.1	1,936.8	0.00	0.00	TD @ 9,413.1' MD
9,500.0	0.00	0.00	9,130.9	920.5	-1,704.1	1,936.8	0.00	0.00	
9,513.1	0.00	0.00	9,144.0	920.5	-1,704.1	1,936.8	0.00	0.00	Permit TD @ 9,513.1' MD

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									
ALP 24-6B TGT	0.00	0.00	5,831.0	920.5	-1,704.1	1,619,835.67	2,371,567.71	39.514065	-107.727712
- plan hits target center									
- Point									
ALP 24-6B PBHL (1,869	0.00	0.00	9,044.0	920.5	-1,704.1	1,619,835.67	2,371,567.71	39.514065	-107.727712
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,200.0	1,169.9	Surface Casing			

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,513.2	1,458.0	Molina				
2,172.0	2,064.0	Atwell Gulch				
4,305.9	4,027.0	Mesaverde				
4,974.4	4,642.0	Williams Fork				
6,200.1	5,831.0	TOG				
7,326.1	6,957.0	Coal Ridge				
8,076.1	7,707.0	Rollins				
8,633.1	8,264.0	Cozzette				
8,893.1	8,524.0	Corcoran				

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well ALP 24-6B
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=22' @ 5702.0ft (Original Well Elev)
Site:	J24 Pad	North Reference:	True
Well:	ALP 24-6B	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
300.0	300.0	0.0	0.0	KOP @ 300'
1,083.4	1,062.6	65.0	-139.5	EOB @ Inc. = 23.09°
5,045.8	4,707.7	810.4	-1,502.8	Start 2° Drop
6,200.1	5,831.0	920.5	-1,704.1	EOD @ Inc. = 0°
9,413.1	9,044.0	920.5	-1,704.1	TD @ 9,413.1' MD
9,513.1	9,144.0	920.5	-1,704.1	Permit TD @ 9,513.1' MD