

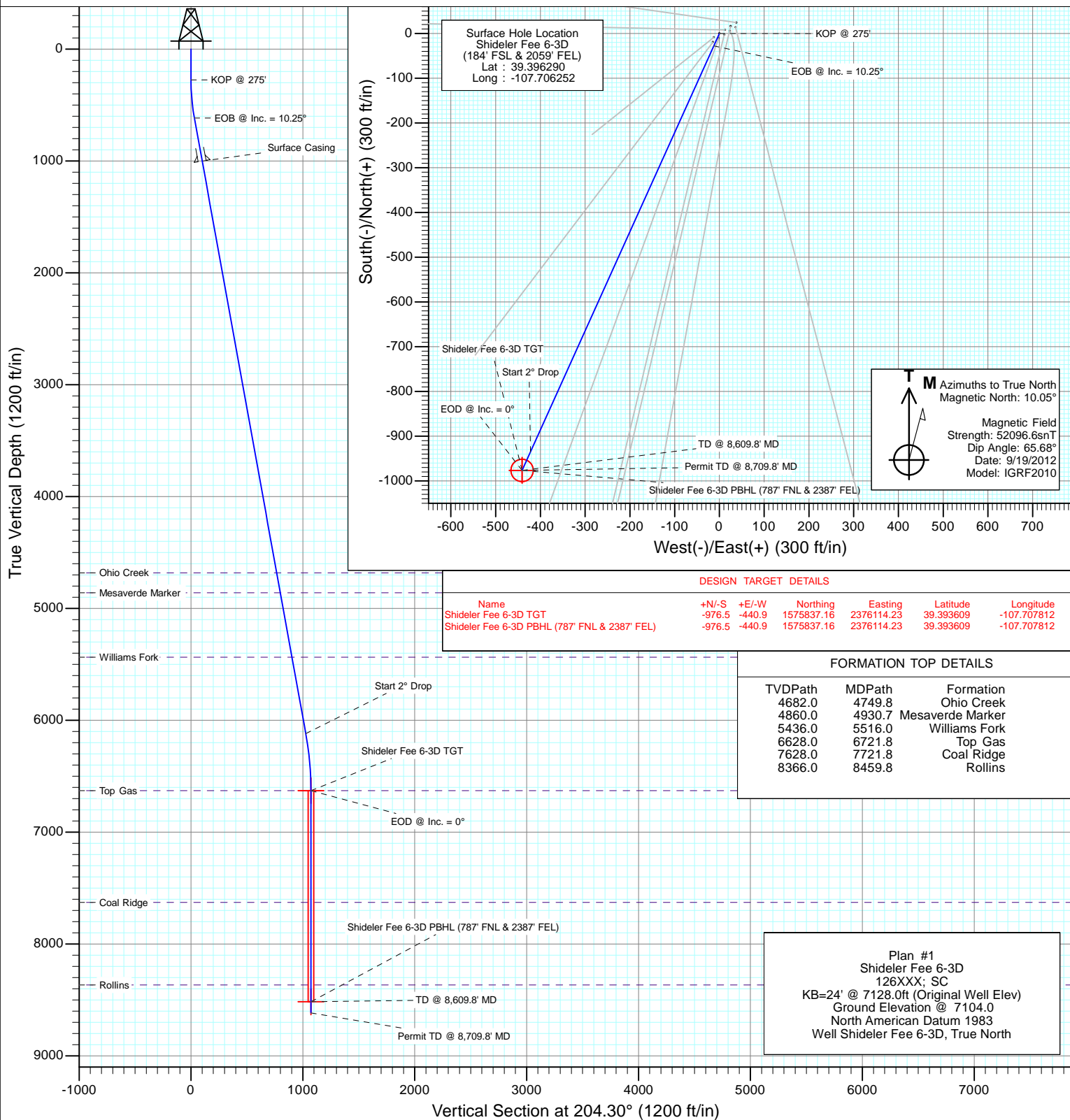


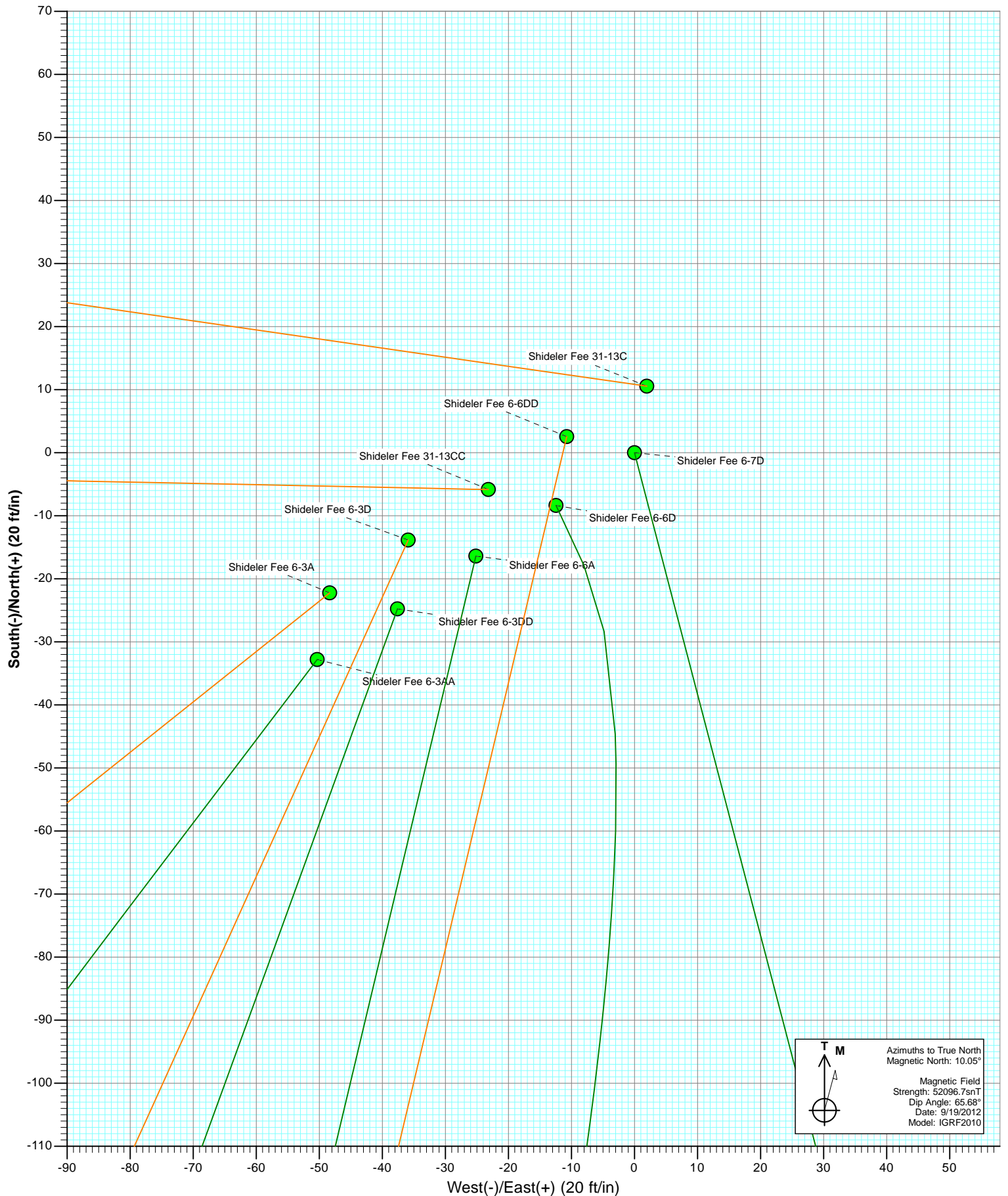
Project: Mamm Creek
Site: O31E Pad
Well: Shideler Fee 6-3D
Wellbore: DD
Design: Plan #1

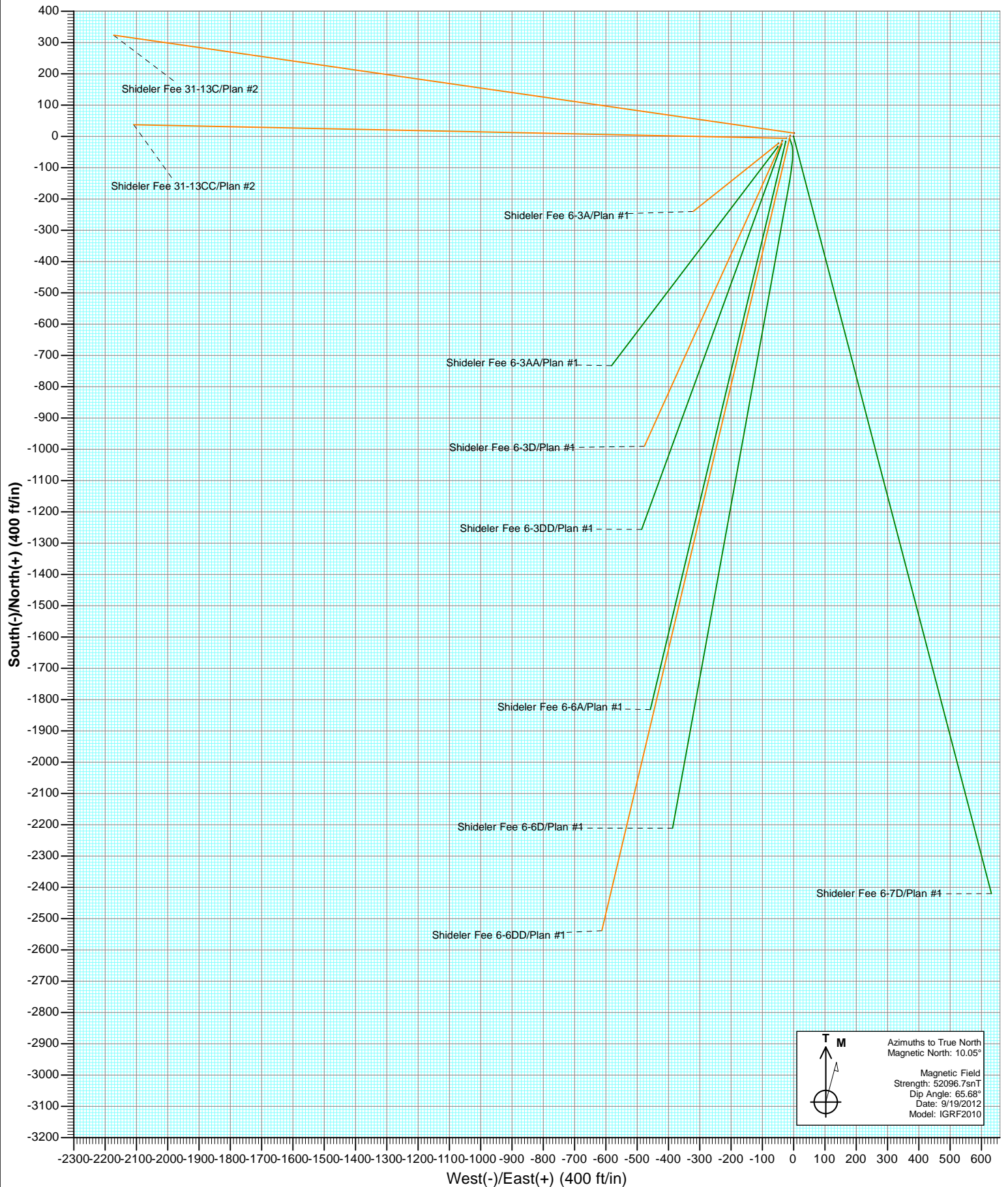


SECTION DETAILS

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	275.0	0.00	0.00	275.0	0.0	0.0	0.00	0.00	0.0	
3	616.7	10.25	204.30	614.9	-27.8	-12.5	3.00	204.30	30.5	
4	6209.3	10.25	204.30	6118.2	-934.8	-422.1	0.00	0.00	1025.7	
5	6721.8	0.00	0.00	6628.0	-976.5	-440.9	2.00	180.00	1071.4	Shideler Fee 6-3D TGT
6	8609.8	0.00	0.00	8516.0	-976.5	-440.9	0.00	0.00	1071.4	Shideler Fee 6-3D PBHL (787° FNL & 2387° FEL)
7	8709.8	0.00	0.00	8616.0	-976.5	-440.9	0.00	0.00	1071.4	







Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 6-3D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=24' @ 7128.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=24' @ 7128.0ft (Original Well Elev)
Site:	O31E Pad	North Reference:	True
Well:	Shideler Fee 6-3D	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		O31E Pad			
Site Position:		Northing:	1,577,012.73 ft	Latitude:	39.396873
From:	Lat/Long	Easting:	2,376,675.10 ft	Longitude:	-107.705929
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.39 °

Well	Shideler Fee 6-3D					
Well Position	+N/-S	0.0 ft	Northing:	1,576,802.65 ft	Latitude:	39.396290
	+E/-W	0.0 ft	Easting:	2,376,578.69 ft	Longitude:	-107.706252
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,104.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/19/2012	10.05	65.68	52,097

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	204.30

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	
275.0	0.00	0.00	275.0	0.0	0.0	0.00	0.00	0.00	0.00	
616.7	10.25	204.30	614.9	-27.8	-12.5	3.00	3.00	0.00	204.30	
6,209.3	10.25	204.30	6,118.2	-934.8	-422.1	0.00	0.00	0.00	0.00	
6,721.8	0.00	0.00	6,628.0	-976.5	-440.9	2.00	-2.00	0.00	180.00	Shideler Fee 6-3D TC
8,609.8	0.00	0.00	8,516.0	-976.5	-440.9	0.00	0.00	0.00	0.00	Shideler Fee 6-3D PB
8,709.8	0.00	0.00	8,616.0	-976.5	-440.9	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=24' @ 7128.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=24' @ 7128.0ft (Original Well Elev)
Site:	O31E Pad	North Reference:	True
Well:	Shideler Fee 6-3D	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	
275.0	0.00	0.00	275.0	0.0	0.0	0.0	0.00	0.00	KOP @ 275'
300.0	0.75	204.30	300.0	-0.1	-0.1	0.2	3.00	3.00	
400.0	3.75	204.30	399.9	-3.7	-1.7	4.1	3.00	3.00	
500.0	6.75	204.30	499.5	-12.1	-5.4	13.2	3.00	3.00	
600.0	9.75	204.30	598.4	-25.1	-11.4	27.6	3.00	3.00	
616.7	10.25	204.30	614.9	-27.8	-12.5	30.5	3.00	3.00	EOB @ Inc. = 10.25°
700.0	10.25	204.30	696.9	-41.3	-18.6	45.3	0.00	0.00	
800.0	10.25	204.30	795.3	-57.5	-26.0	63.1	0.00	0.00	
900.0	10.25	204.30	893.7	-73.7	-33.3	80.9	0.00	0.00	
1,000.0	10.25	204.30	992.1	-90.0	-40.6	98.7	0.00	0.00	
1,008.1	10.25	204.30	1,000.0	-91.3	-41.2	100.1	0.00	0.00	Surface Casing
1,100.0	10.25	204.30	1,090.5	-106.2	-47.9	116.5	0.00	0.00	
1,200.0	10.25	204.30	1,188.9	-122.4	-55.3	134.3	0.00	0.00	
1,300.0	10.25	204.30	1,287.3	-138.6	-62.6	152.1	0.00	0.00	
1,400.0	10.25	204.30	1,385.7	-154.8	-69.9	169.9	0.00	0.00	
1,500.0	10.25	204.30	1,484.1	-171.0	-77.2	187.7	0.00	0.00	
1,600.0	10.25	204.30	1,582.5	-187.3	-84.5	205.5	0.00	0.00	
1,700.0	10.25	204.30	1,680.9	-203.5	-91.9	223.3	0.00	0.00	
1,800.0	10.25	204.30	1,779.3	-219.7	-99.2	241.1	0.00	0.00	
1,900.0	10.25	204.30	1,877.7	-235.9	-106.5	258.8	0.00	0.00	
2,000.0	10.25	204.30	1,976.1	-252.1	-113.8	276.6	0.00	0.00	
2,100.0	10.25	204.30	2,074.5	-268.4	-121.2	294.4	0.00	0.00	
2,200.0	10.25	204.30	2,172.9	-284.6	-128.5	312.2	0.00	0.00	
2,300.0	10.25	204.30	2,271.3	-300.8	-135.8	330.0	0.00	0.00	
2,400.0	10.25	204.30	2,369.7	-317.0	-143.1	347.8	0.00	0.00	
2,500.0	10.25	204.30	2,468.1	-333.2	-150.4	365.6	0.00	0.00	
2,600.0	10.25	204.30	2,566.5	-349.4	-157.8	383.4	0.00	0.00	
2,700.0	10.25	204.30	2,664.9	-365.7	-165.1	401.2	0.00	0.00	
2,800.0	10.25	204.30	2,763.3	-381.9	-172.4	419.0	0.00	0.00	
2,900.0	10.25	204.30	2,861.7	-398.1	-179.7	436.8	0.00	0.00	
3,000.0	10.25	204.30	2,960.1	-414.3	-187.1	454.6	0.00	0.00	
3,100.0	10.25	204.30	3,058.5	-430.5	-194.4	472.4	0.00	0.00	
3,200.0	10.25	204.30	3,157.0	-446.8	-201.7	490.2	0.00	0.00	
3,300.0	10.25	204.30	3,255.4	-463.0	-209.0	508.0	0.00	0.00	
3,400.0	10.25	204.30	3,353.8	-479.2	-216.4	525.8	0.00	0.00	
3,500.0	10.25	204.30	3,452.2	-495.4	-223.7	543.6	0.00	0.00	
3,600.0	10.25	204.30	3,550.6	-511.6	-231.0	561.4	0.00	0.00	
3,700.0	10.25	204.30	3,649.0	-527.8	-238.3	579.2	0.00	0.00	
3,800.0	10.25	204.30	3,747.4	-544.1	-245.6	596.9	0.00	0.00	
3,900.0	10.25	204.30	3,845.8	-560.3	-253.0	614.7	0.00	0.00	
4,000.0	10.25	204.30	3,944.2	-576.5	-260.3	632.5	0.00	0.00	
4,100.0	10.25	204.30	4,042.6	-592.7	-267.6	650.3	0.00	0.00	
4,200.0	10.25	204.30	4,141.0	-608.9	-274.9	668.1	0.00	0.00	
4,300.0	10.25	204.30	4,239.4	-625.2	-282.3	685.9	0.00	0.00	
4,400.0	10.25	204.30	4,337.8	-641.4	-289.6	703.7	0.00	0.00	
4,500.0	10.25	204.30	4,436.2	-657.6	-296.9	721.5	0.00	0.00	
4,600.0	10.25	204.30	4,534.6	-673.8	-304.2	739.3	0.00	0.00	
4,700.0	10.25	204.30	4,633.0	-690.0	-311.5	757.1	0.00	0.00	
4,749.8	10.25	204.30	4,682.0	-698.1	-315.2	766.0	0.00	0.00	Ohio Creek

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 6-3D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=24' @ 7128.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=24' @ 7128.0ft (Original Well Elev)
Site:	O31E Pad	North Reference:	True
Well:	Shideler Fee 6-3D	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	10.25	204.30	4,731.4	-706.3	-318.9	774.9	0.00	0.00	
4,900.0	10.25	204.30	4,829.8	-722.5	-326.2	792.7	0.00	0.00	
4,930.7	10.25	204.30	4,860.0	-727.4	-328.4	798.1	0.00	0.00	Mesaverde Marker
5,000.0	10.25	204.30	4,928.2	-738.7	-333.5	810.5	0.00	0.00	
5,100.0	10.25	204.30	5,026.6	-754.9	-340.8	828.3	0.00	0.00	
5,200.0	10.25	204.30	5,125.0	-771.1	-348.2	846.1	0.00	0.00	
5,300.0	10.25	204.30	5,223.4	-787.3	-355.5	863.9	0.00	0.00	
5,400.0	10.25	204.30	5,321.8	-803.6	-362.8	881.7	0.00	0.00	
5,500.0	10.25	204.30	5,420.2	-819.8	-370.1	899.5	0.00	0.00	
5,516.0	10.25	204.30	5,436.0	-822.4	-371.3	902.3	0.00	0.00	Williams Fork
5,600.0	10.25	204.30	5,518.6	-836.0	-377.4	917.3	0.00	0.00	
5,700.0	10.25	204.30	5,617.0	-852.2	-384.8	935.1	0.00	0.00	
5,800.0	10.25	204.30	5,715.5	-868.4	-392.1	952.8	0.00	0.00	
5,900.0	10.25	204.30	5,813.9	-884.7	-399.4	970.6	0.00	0.00	
6,000.0	10.25	204.30	5,912.3	-900.9	-406.7	988.4	0.00	0.00	
6,100.0	10.25	204.30	6,010.7	-917.1	-414.1	1,006.2	0.00	0.00	
6,209.3	10.25	204.30	6,118.2	-934.8	-422.1	1,025.7	0.00	0.00	Start 2° Drop
6,300.0	8.44	204.30	6,207.7	-948.2	-428.1	1,040.4	2.00	-2.00	
6,400.0	6.44	204.30	6,306.9	-960.0	-433.4	1,053.3	2.00	-2.00	
6,500.0	4.44	204.30	6,406.4	-968.7	-437.3	1,062.8	2.00	-2.00	
6,600.0	2.44	204.30	6,506.2	-974.1	-439.8	1,068.8	2.00	-2.00	
6,700.0	0.44	204.30	6,606.2	-976.4	-440.8	1,071.3	2.00	-2.00	
6,721.8	0.00	0.00	6,628.0	-976.5	-440.9	1,071.4	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,800.0	0.00	0.00	6,706.2	-976.5	-440.9	1,071.4	0.00	0.00	
6,900.0	0.00	0.00	6,806.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,000.0	0.00	0.00	6,906.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,100.0	0.00	0.00	7,006.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,200.0	0.00	0.00	7,106.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,300.0	0.00	0.00	7,206.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,400.0	0.00	0.00	7,306.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,500.0	0.00	0.00	7,406.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,600.0	0.00	0.00	7,506.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,700.0	0.00	0.00	7,606.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,721.8	0.00	0.00	7,628.0	-976.5	-440.9	1,071.4	0.00	0.00	Coal Ridge
7,800.0	0.00	0.00	7,706.2	-976.5	-440.9	1,071.4	0.00	0.00	
7,900.0	0.00	0.00	7,806.2	-976.5	-440.9	1,071.4	0.00	0.00	
8,000.0	0.00	0.00	7,906.2	-976.5	-440.9	1,071.4	0.00	0.00	
8,100.0	0.00	0.00	8,006.2	-976.5	-440.9	1,071.4	0.00	0.00	
8,200.0	0.00	0.00	8,106.2	-976.5	-440.9	1,071.4	0.00	0.00	
8,300.0	0.00	0.00	8,206.2	-976.5	-440.9	1,071.4	0.00	0.00	
8,400.0	0.00	0.00	8,306.2	-976.5	-440.9	1,071.4	0.00	0.00	
8,459.8	0.00	0.00	8,366.0	-976.5	-440.9	1,071.4	0.00	0.00	Rollins
8,500.0	0.00	0.00	8,406.2	-976.5	-440.9	1,071.4	0.00	0.00	
8,609.8	0.00	0.00	8,516.0	-976.5	-440.9	1,071.4	0.00	0.00	TD @ 8,609.8' MD
8,709.8	0.00	0.00	8,616.0	-976.5	-440.9	1,071.4	0.00	0.00	Permit TD @ 8,709.8' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 6-3D
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=24' @ 7128.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KB=24' @ 7128.0ft (Original Well Elev)
Site:	O31E Pad	North Reference:	True
Well:	Shideler Fee 6-3D	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Shideler Fee 6-3D TGT	0.00	0.00	6,628.0	-976.5	-440.9	1,575,837.16	2,376,114.23	39.393609	-107.707812
- plan hits target center									
- Point									
Shideler Fee 6-3D PBHL	0.00	0.00	8,516.0	-976.5	-440.9	1,575,837.16	2,376,114.23	39.393609	-107.707812
- plan hits target center									
- Circle (radius 25.0)									

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(in)	(in)
1,008.1	1,000.0	Surface Casing		

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,749.8	4,682.0	Ohio Creek			
4,930.7	4,860.0	Mesaverde Marker			
5,516.0	5,436.0	Williams Fork			
6,721.8	6,628.0	Top Gas			
7,721.8	7,628.0	Coal Ridge			
8,459.8	8,366.0	Rollins			

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
275.0	275.0	0.0	0.0	KOP @ 275'
616.7	614.9	-27.8	-12.5	EOB @ Inc. = 10.25°
6,209.3	6,118.2	-934.8	-422.1	Start 2° Drop
6,721.8	6,628.0	-976.5	-440.9	EOD @ Inc. = 0°
8,609.8	8,516.0	-976.5	-440.9	TD @ 8,609.8' MD
8,709.8	8,616.0	-976.5	-440.9	Permit TD @ 8,709.8' MD