

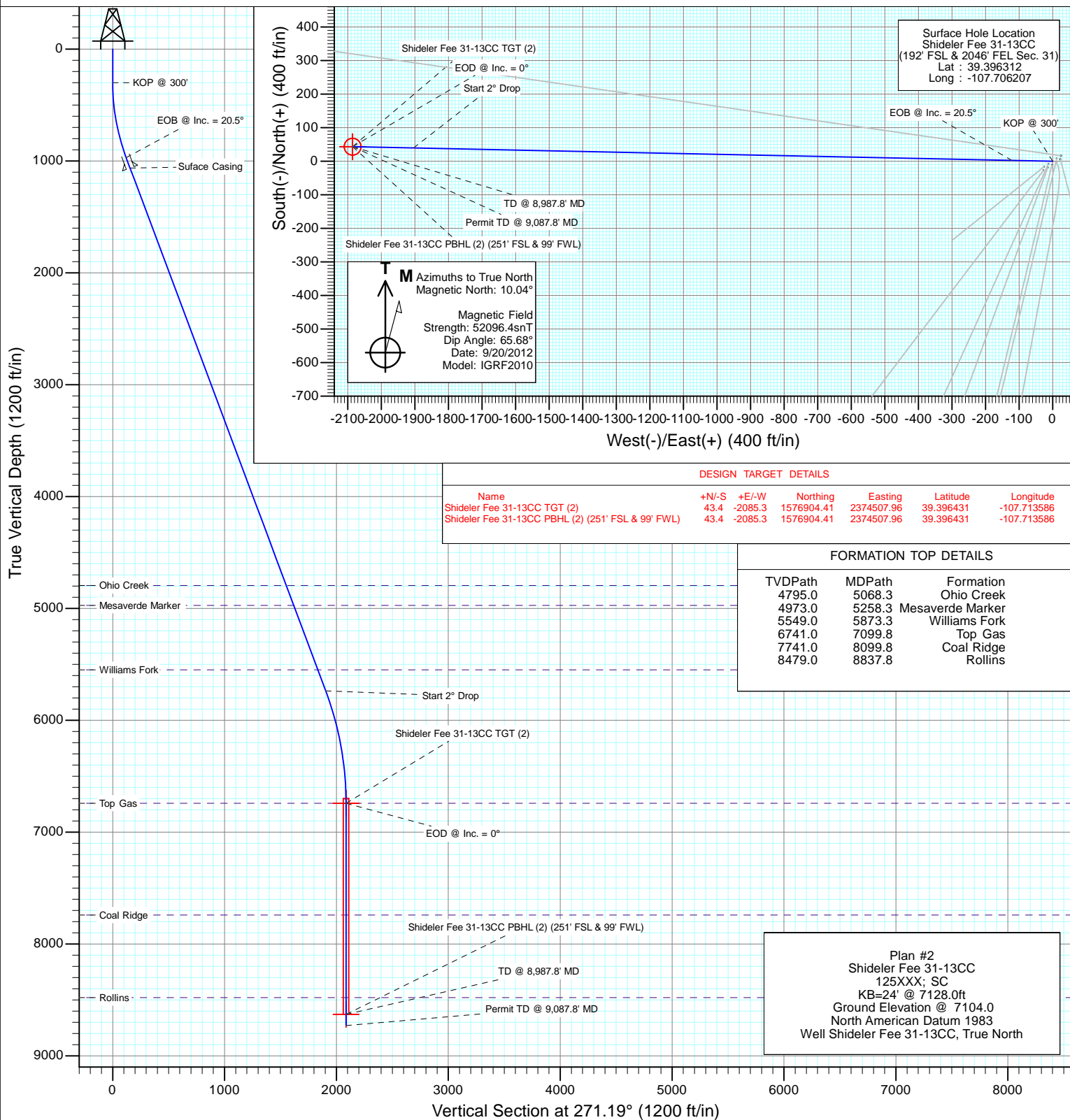


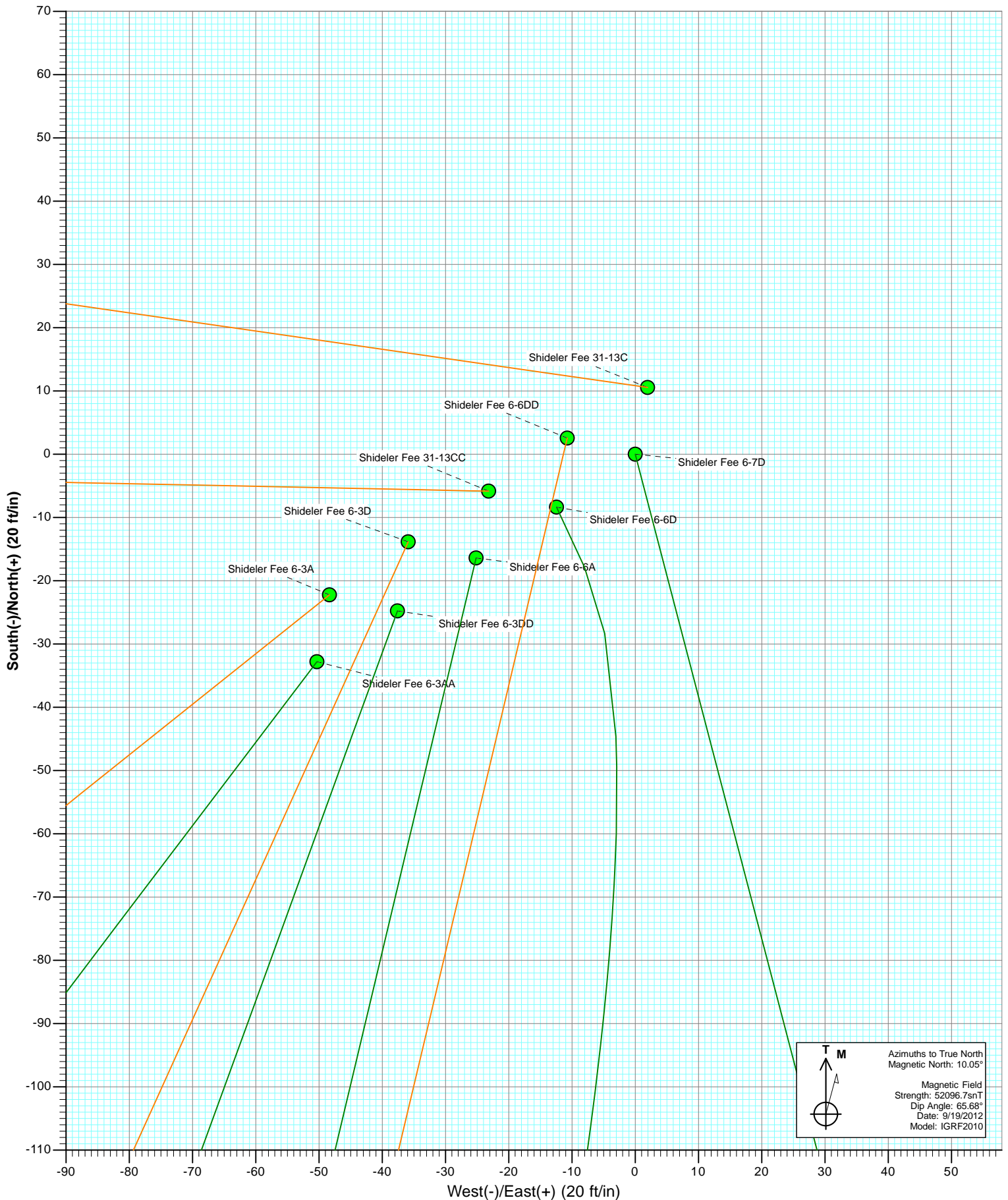
Project: Mamm Creek
Site: O31E Pad
Well: Shideler Fee 31-13CC
Wellbore: OH
Design: Plan #2

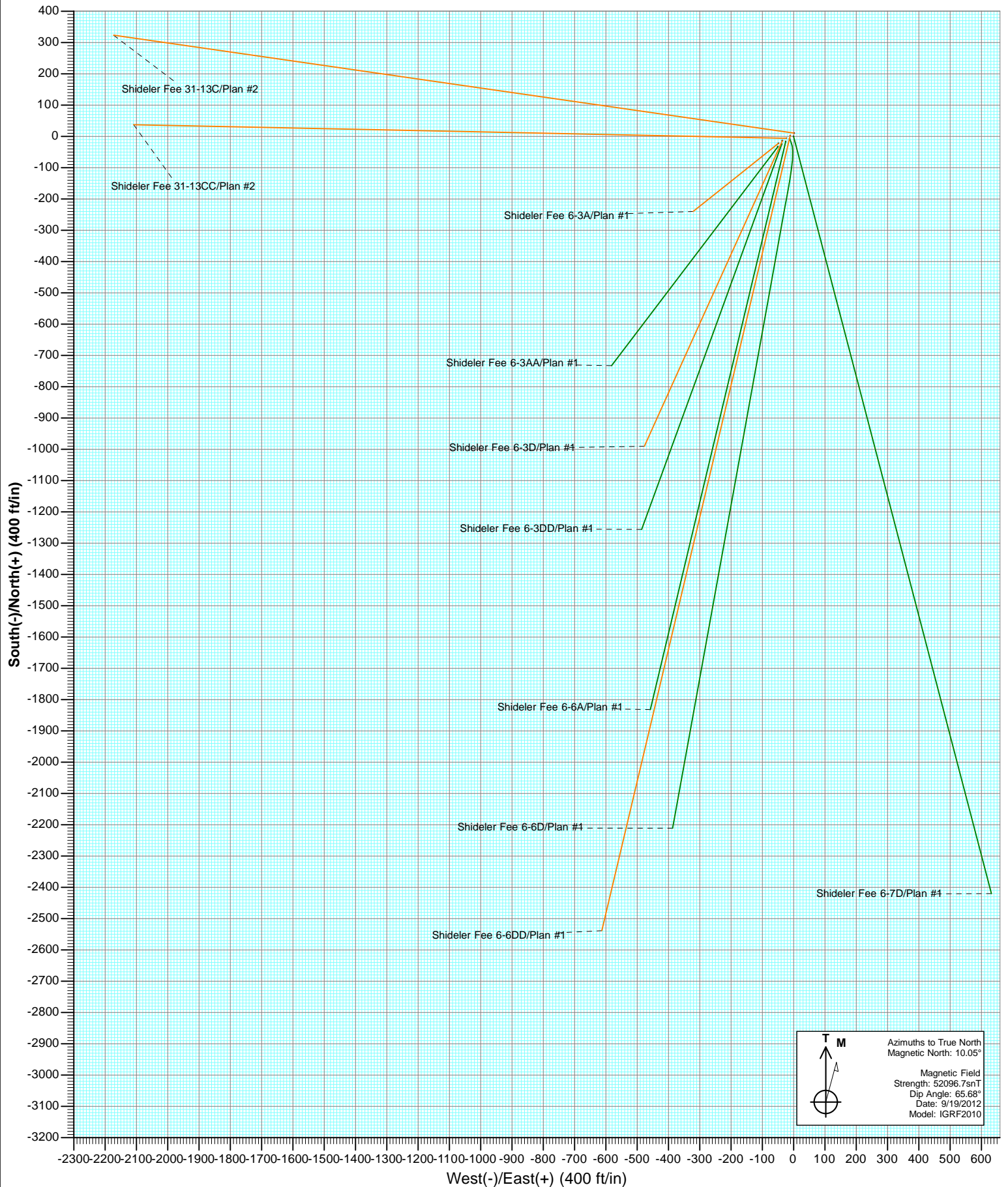


SECTION DETAILS

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	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	983.5	20.50	271.19	969.0	2.5	-121.0	3.00	271.19	121.0	
4	6074.6	20.50	271.19	5737.5	39.7	-1903.9	0.00	0.00	1904.3	
5	7099.8	0.00	0.00	6741.0	43.4	-2085.3	2.00	180.00	2085.8	Shideler Fee 31-13CC TGT (2)
6	8987.8	0.00	0.00	8629.0	43.4	-2085.3	0.00	0.00	2085.8	Shideler Fee 31-13CC PBHL (2) (251' FSL & 99' FWL)
7	9087.8	0.00	0.00	8729.0	43.4	-2085.3	0.00	0.00	2085.8	







Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-13CC
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=24' @ 7128.0ft
Project:	Mamm Creek	MD Reference:	KB=24' @ 7128.0ft
Site:	O31E Pad	North Reference:	True
Well:	Shideler Fee 31-13CC	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 31-13CC					
Well Position	+N/-S	0.0 ft	Northing:	1,576,810.34 ft	Latitude:	39.396312
	+E/-W	0.0 ft	Easting:	2,376,591.59 ft	Longitude:	-107.706207
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,104.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/4/2012	10.10	65.69	52,143

Design	Plan #2			
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	271.19

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	
983.5	20.50	271.19	969.0	2.5	-121.0	3.00	3.00	0.00	271.19	
6,074.6	20.50	271.19	5,737.5	39.7	-1,903.9	0.00	0.00	0.00	0.00	
7,099.8	0.00	0.00	6,741.0	43.4	-2,085.3	2.00	-2.00	0.00	180.00	Shideler Fee 31-13CC
8,987.8	0.00	0.00	8,629.0	43.4	-2,085.3	0.00	0.00	0.00	0.00	Shideler Fee 31-13CC
9,087.8	0.00	0.00	8,729.0	43.4	-2,085.3	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-13CC
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=24' @ 7128.0ft
Project:	Mamm Creek	MD Reference:	KB=24' @ 7128.0ft
Site:	O31E Pad	North Reference:	True
Well:	Shideler Fee 31-13CC	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	271.19	400.0	0.1	-2.6	2.6	3.00	3.00	
500.0	6.00	271.19	499.6	0.2	-10.5	10.5	3.00	3.00	
600.0	9.00	271.19	598.8	0.5	-23.5	23.5	3.00	3.00	
700.0	12.00	271.19	697.1	0.9	-41.7	41.7	3.00	3.00	
800.0	15.00	271.19	794.3	1.4	-65.1	65.1	3.00	3.00	
900.0	18.00	271.19	890.2	1.9	-93.5	93.5	3.00	3.00	
983.5	20.50	271.19	969.0	2.5	-121.0	121.0	3.00	3.00	EOB @ Inc. = 20.5°
1,000.0	20.50	271.19	984.5	2.6	-126.8	126.8	0.00	0.00	
1,083.5	20.50	271.19	1,062.7	3.3	-156.0	156.0	0.00	0.00	Surface Casing
1,100.0	20.50	271.19	1,078.1	3.4	-161.8	161.8	0.00	0.00	
1,200.0	20.50	271.19	1,171.8	4.1	-196.8	196.8	0.00	0.00	
1,300.0	20.50	271.19	1,265.5	4.8	-231.8	231.9	0.00	0.00	
1,400.0	20.50	271.19	1,359.1	5.6	-266.8	266.9	0.00	0.00	
1,500.0	20.50	271.19	1,452.8	6.3	-301.9	301.9	0.00	0.00	
1,600.0	20.50	271.19	1,546.4	7.0	-336.9	336.9	0.00	0.00	
1,700.0	20.50	271.19	1,640.1	7.7	-371.9	372.0	0.00	0.00	
1,800.0	20.50	271.19	1,733.8	8.5	-406.9	407.0	0.00	0.00	
1,900.0	20.50	271.19	1,827.4	9.2	-441.9	442.0	0.00	0.00	
2,000.0	20.50	271.19	1,921.1	9.9	-477.0	477.1	0.00	0.00	
2,100.0	20.50	271.19	2,014.8	10.7	-512.0	512.1	0.00	0.00	
2,200.0	20.50	271.19	2,108.4	11.4	-547.0	547.1	0.00	0.00	
2,300.0	20.50	271.19	2,202.1	12.1	-582.0	582.1	0.00	0.00	
2,400.0	20.50	271.19	2,295.8	12.9	-617.0	617.2	0.00	0.00	
2,500.0	20.50	271.19	2,389.4	13.6	-652.1	652.2	0.00	0.00	
2,600.0	20.50	271.19	2,483.1	14.3	-687.1	687.2	0.00	0.00	
2,700.0	20.50	271.19	2,576.8	15.0	-722.1	722.2	0.00	0.00	
2,800.0	20.50	271.19	2,670.4	15.8	-757.1	757.3	0.00	0.00	
2,900.0	20.50	271.19	2,764.1	16.5	-792.1	792.3	0.00	0.00	
3,000.0	20.50	271.19	2,857.8	17.2	-827.2	827.3	0.00	0.00	
3,100.0	20.50	271.19	2,951.4	18.0	-862.2	862.4	0.00	0.00	
3,200.0	20.50	271.19	3,045.1	18.7	-897.2	897.4	0.00	0.00	
3,300.0	20.50	271.19	3,138.7	19.4	-932.2	932.4	0.00	0.00	
3,400.0	20.50	271.19	3,232.4	20.2	-967.2	967.4	0.00	0.00	
3,500.0	20.50	271.19	3,326.1	20.9	-1,002.2	1,002.5	0.00	0.00	
3,600.0	20.50	271.19	3,419.7	21.6	-1,037.3	1,037.5	0.00	0.00	
3,700.0	20.50	271.19	3,513.4	22.3	-1,072.3	1,072.5	0.00	0.00	
3,800.0	20.50	271.19	3,607.1	23.1	-1,107.3	1,107.5	0.00	0.00	
3,900.0	20.50	271.19	3,700.7	23.8	-1,142.3	1,142.6	0.00	0.00	
4,000.0	20.50	271.19	3,794.4	24.5	-1,177.3	1,177.6	0.00	0.00	
4,100.0	20.50	271.19	3,888.1	25.3	-1,212.4	1,212.6	0.00	0.00	
4,200.0	20.50	271.19	3,981.7	26.0	-1,247.4	1,247.7	0.00	0.00	
4,300.0	20.50	271.19	4,075.4	26.7	-1,282.4	1,282.7	0.00	0.00	
4,400.0	20.50	271.19	4,169.1	27.4	-1,317.4	1,317.7	0.00	0.00	
4,500.0	20.50	271.19	4,262.7	28.2	-1,352.4	1,352.7	0.00	0.00	
4,600.0	20.50	271.19	4,356.4	28.9	-1,387.5	1,387.8	0.00	0.00	
4,700.0	20.50	271.19	4,450.1	29.6	-1,422.5	1,422.8	0.00	0.00	
4,800.0	20.50	271.19	4,543.7	30.4	-1,457.5	1,457.8	0.00	0.00	
4,900.0	20.50	271.19	4,637.4	31.1	-1,492.5	1,492.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-13CC
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=24' @ 7128.0ft
Project:	Mamm Creek	MD Reference:	KB=24' @ 7128.0ft
Site:	O31E Pad	North Reference:	True
Well:	Shideler Fee 31-13CC	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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
5,000.0	20.50	271.19	4,731.0	31.8	-1,527.5	1,527.9	0.00	0.00	
5,068.3	20.50	271.19	4,795.0	32.3	-1,551.5	1,551.8	0.00	0.00	Ohio Creek
5,100.0	20.50	271.19	4,824.7	32.6	-1,562.6	1,562.9	0.00	0.00	
5,200.0	20.50	271.19	4,918.4	33.3	-1,597.6	1,597.9	0.00	0.00	
5,258.3	20.50	271.19	4,973.0	33.7	-1,618.0	1,618.4	0.00	0.00	Mesaverde Marker
5,300.0	20.50	271.19	5,012.0	34.0	-1,632.6	1,633.0	0.00	0.00	
5,400.0	20.50	271.19	5,105.7	34.7	-1,667.6	1,668.0	0.00	0.00	
5,500.0	20.50	271.19	5,199.4	35.5	-1,702.6	1,703.0	0.00	0.00	
5,600.0	20.50	271.19	5,293.0	36.2	-1,737.7	1,738.0	0.00	0.00	
5,700.0	20.50	271.19	5,386.7	36.9	-1,772.7	1,773.1	0.00	0.00	
5,800.0	20.50	271.19	5,480.4	37.7	-1,807.7	1,808.1	0.00	0.00	
5,873.3	20.50	271.19	5,549.0	38.2	-1,833.4	1,833.8	0.00	0.00	Williams Fork
5,900.0	20.50	271.19	5,574.0	38.4	-1,842.7	1,843.1	0.00	0.00	
6,000.0	20.50	271.19	5,667.7	39.1	-1,877.7	1,878.1	0.00	0.00	
6,074.6	20.50	271.19	5,737.5	39.7	-1,903.9	1,904.3	0.00	0.00	Start 2° Drop
6,100.0	20.00	271.19	5,761.4	39.8	-1,912.7	1,913.1	2.00	-2.00	
6,200.0	18.00	271.19	5,855.9	40.5	-1,945.2	1,945.6	2.00	-2.00	
6,300.0	16.00	271.19	5,951.6	41.1	-1,974.4	1,974.8	2.00	-2.00	
6,400.0	14.00	271.19	6,048.2	41.7	-2,000.3	2,000.7	2.00	-2.00	
6,500.0	12.00	271.19	6,145.6	42.1	-2,022.8	2,023.2	2.00	-2.00	
6,600.0	10.00	271.19	6,243.8	42.5	-2,041.8	2,042.3	2.00	-2.00	
6,700.0	8.00	271.19	6,342.5	42.9	-2,057.5	2,057.9	2.00	-2.00	
6,800.0	6.00	271.19	6,441.8	43.1	-2,069.6	2,070.1	2.00	-2.00	
6,900.0	4.00	271.19	6,541.4	43.3	-2,078.3	2,078.8	2.00	-2.00	
7,000.0	2.00	271.19	6,641.2	43.4	-2,083.6	2,084.0	2.00	-2.00	
7,099.8	0.00	0.00	6,741.0	43.4	-2,085.3	2,085.8	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
7,200.0	0.00	0.00	6,841.2	43.4	-2,085.3	2,085.8	0.00	0.00	
7,300.0	0.00	0.00	6,941.2	43.4	-2,085.3	2,085.8	0.00	0.00	
7,400.0	0.00	0.00	7,041.2	43.4	-2,085.3	2,085.8	0.00	0.00	
7,500.0	0.00	0.00	7,141.2	43.4	-2,085.3	2,085.8	0.00	0.00	
7,600.0	0.00	0.00	7,241.2	43.4	-2,085.3	2,085.8	0.00	0.00	
7,700.0	0.00	0.00	7,341.2	43.4	-2,085.3	2,085.8	0.00	0.00	
7,800.0	0.00	0.00	7,441.2	43.4	-2,085.3	2,085.8	0.00	0.00	
7,900.0	0.00	0.00	7,541.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,000.0	0.00	0.00	7,641.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,099.8	0.00	0.00	7,741.0	43.4	-2,085.3	2,085.8	0.00	0.00	Coal Ridge
8,100.0	0.00	0.00	7,741.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,200.0	0.00	0.00	7,841.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,300.0	0.00	0.00	7,941.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,400.0	0.00	0.00	8,041.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,500.0	0.00	0.00	8,141.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,600.0	0.00	0.00	8,241.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,700.0	0.00	0.00	8,341.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,800.0	0.00	0.00	8,441.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,837.8	0.00	0.00	8,479.0	43.4	-2,085.3	2,085.8	0.00	0.00	Rollins
8,900.0	0.00	0.00	8,541.2	43.4	-2,085.3	2,085.8	0.00	0.00	
8,987.8	0.00	0.00	8,629.0	43.4	-2,085.3	2,085.8	0.00	0.00	TD @ 8,987.8' MD
9,000.0	0.00	0.00	8,641.2	43.4	-2,085.3	2,085.8	0.00	0.00	
9,087.8	0.00	0.00	8,729.0	43.4	-2,085.3	2,085.8	0.00	0.00	Permit TD @ 9,087.8' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-13CC
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=24' @ 7128.0ft
Project:	Mamm Creek	MD Reference:	KB=24' @ 7128.0ft
Site:	O31E Pad	North Reference:	True
Well:	Shideler Fee 31-13CC	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Shideler Fee 31-13CC P - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,629.0	43.4	-2,085.3	1,576,904.41	2,374,507.96	39.396431	-107.713586
Shideler Fee 31-13CC F - plan misses target center by 57.7ft at 8990.8ft MD (8632.0 TVD, 43.4 N, -2085.3 E) - Circle (radius 25.0)	0.00	0.00	8,632.0	60.6	-2,140.4	1,576,922.87	2,374,453.28	39.396478	-107.713781
Shideler Fee 31-13CC T - plan hits target center - Point	0.00	0.00	6,741.0	43.4	-2,085.3	1,576,904.41	2,374,507.96	39.396431	-107.713586
Shideler Fee 31-13CC T - plan misses target center by 58.0ft at 7061.7ft MD (6703.0 TVD, 43.4 N, -2085.1 E) - Point	0.00	0.00	6,702.0	60.6	-2,140.4	1,576,922.87	2,374,453.28	39.396478	-107.713781

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,083.5	1,062.7	Suface Casing		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,068.3	4,795.0	Ohio Creek			
5,258.3	4,973.0	Mesaverde Marker			
5,873.3	5,549.0	Williams Fork			
7,099.8	6,741.0	Top Gas			
8,099.8	7,741.0	Coal Ridge			
8,837.8	8,479.0	Rollins			

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'
983.5	969.0	2.5	-121.0	EOB @ Inc. = 20.5°
6,074.6	5,737.5	39.7	-1,903.9	Start 2° Drop
7,099.8	6,741.0	43.4	-2,085.3	EOD @ Inc. = 0°
8,987.8	8,629.0	43.4	-2,085.3	TD @ 8,987.8' MD
9,087.8	8,729.0	43.4	-2,085.3	Permit TD @ 9,087.8' MD