

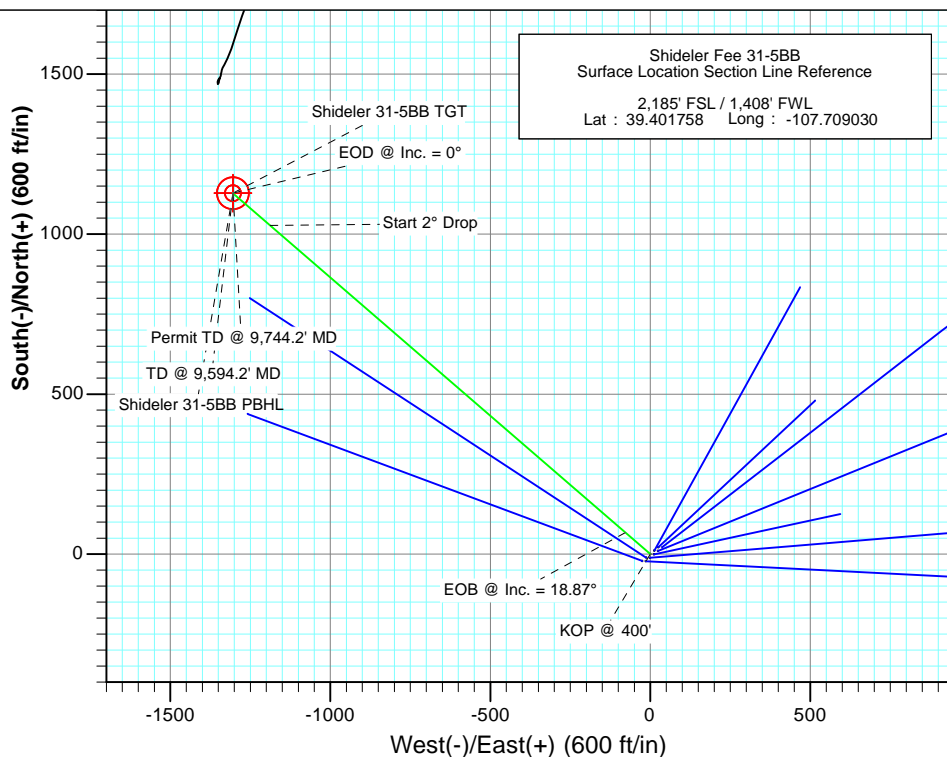
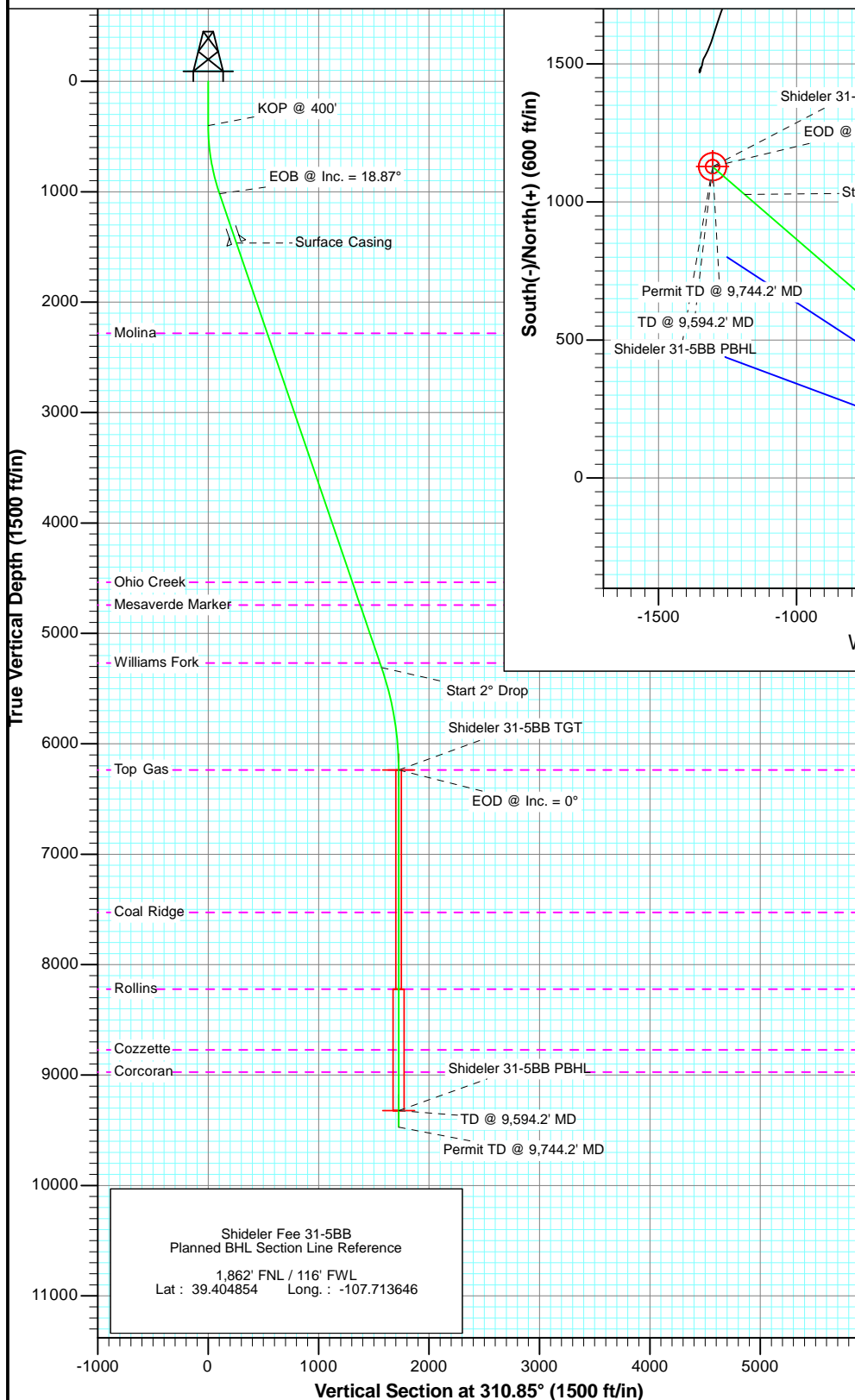


Project: Mamm Creek
Site: K31E Pad
Well: Shideler Fee 31-5BB
Wellbore: OH
Plan: Plan #1



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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1029.2	18.87	310.85	1017.8	67.2	-77.7	3.00	310.85	102.7	
4	5565.5	18.87	310.85	5310.2	1027.0	-1187.8	0.00	0.00	1570.2	
5	6509.2	0.00	0.00	6237.0	1127.7	-1304.3	2.00	180.00	1724.2	Shideler 31-5BB TGT
6	9594.2	0.00	0.00	9322.0	1127.7	-1304.3	0.00	0.00	1724.2	Shideler 31-5BB PBHL
7	9744.2	0.00	0.00	9472.0	1127.7	-1304.3	0.00	0.00	1724.2	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2281.0	2364.1	Molina
4537.0	4748.3	Ohio Creek
4743.0	4966.0	Mesaverde Marker
5267.0	5519.8	Williams Fork
6237.0	6509.2	Top Gas
7526.0	7798.2	Coal Ridge
8221.0	8493.2	Rollins
8772.0	9044.2	Cozzette
8972.0	9244.2	Corcoran



Azimuths to True North
Magnetic North: 10.10°

Magnetic Field
Strength: 52197.7snT
Dip Angle: 65.71°
Date: 2/8/2012
Model: IGRF200510

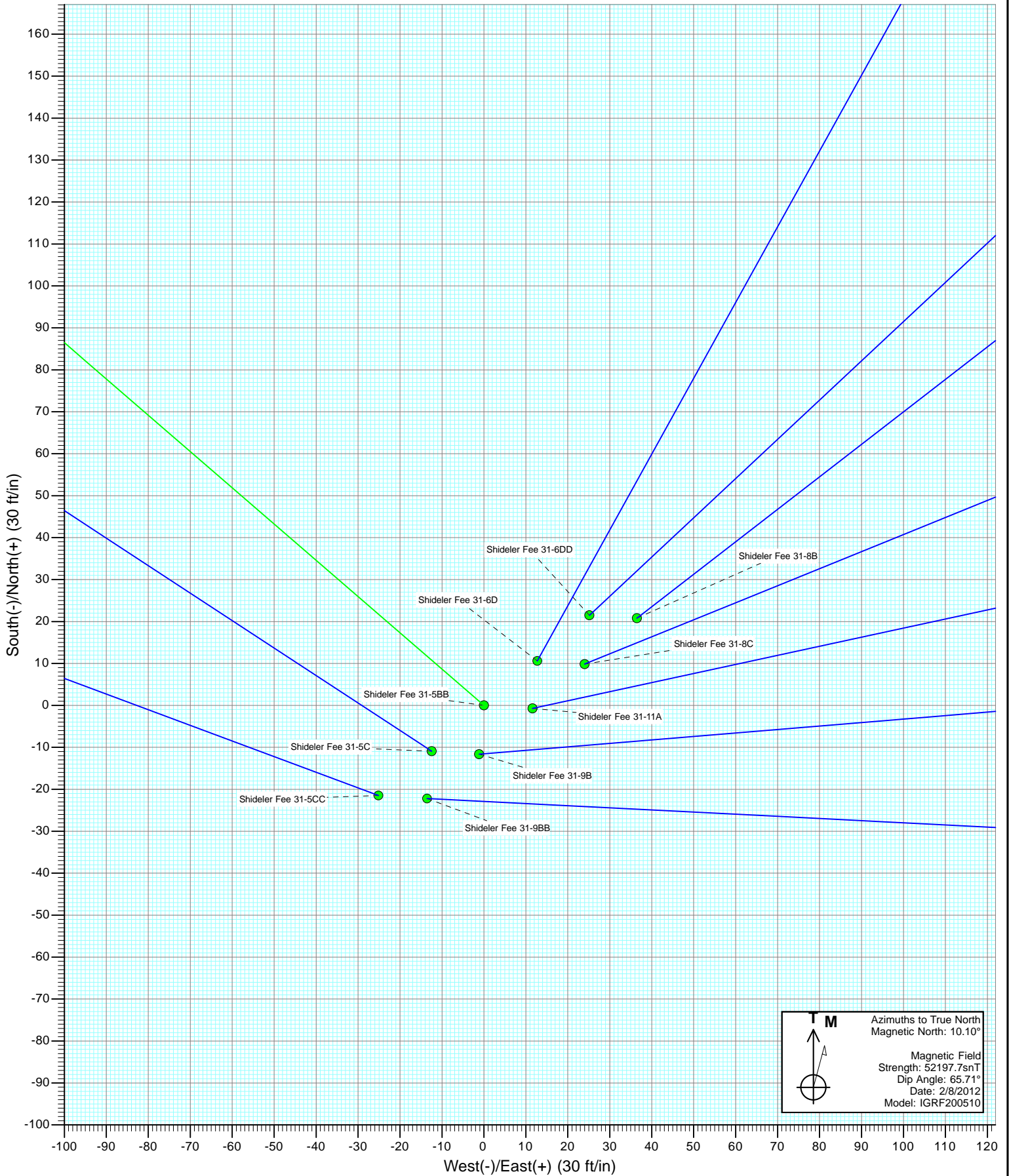
DESIGN DETAILS: Plan #1

125XXX; SC
KBE @ 6921.0ft (Original Well Elev)

No Target (Freehand)	Azimuth	Origin Type	N/S	E/W
	310.85	Slot	0.0	0.0

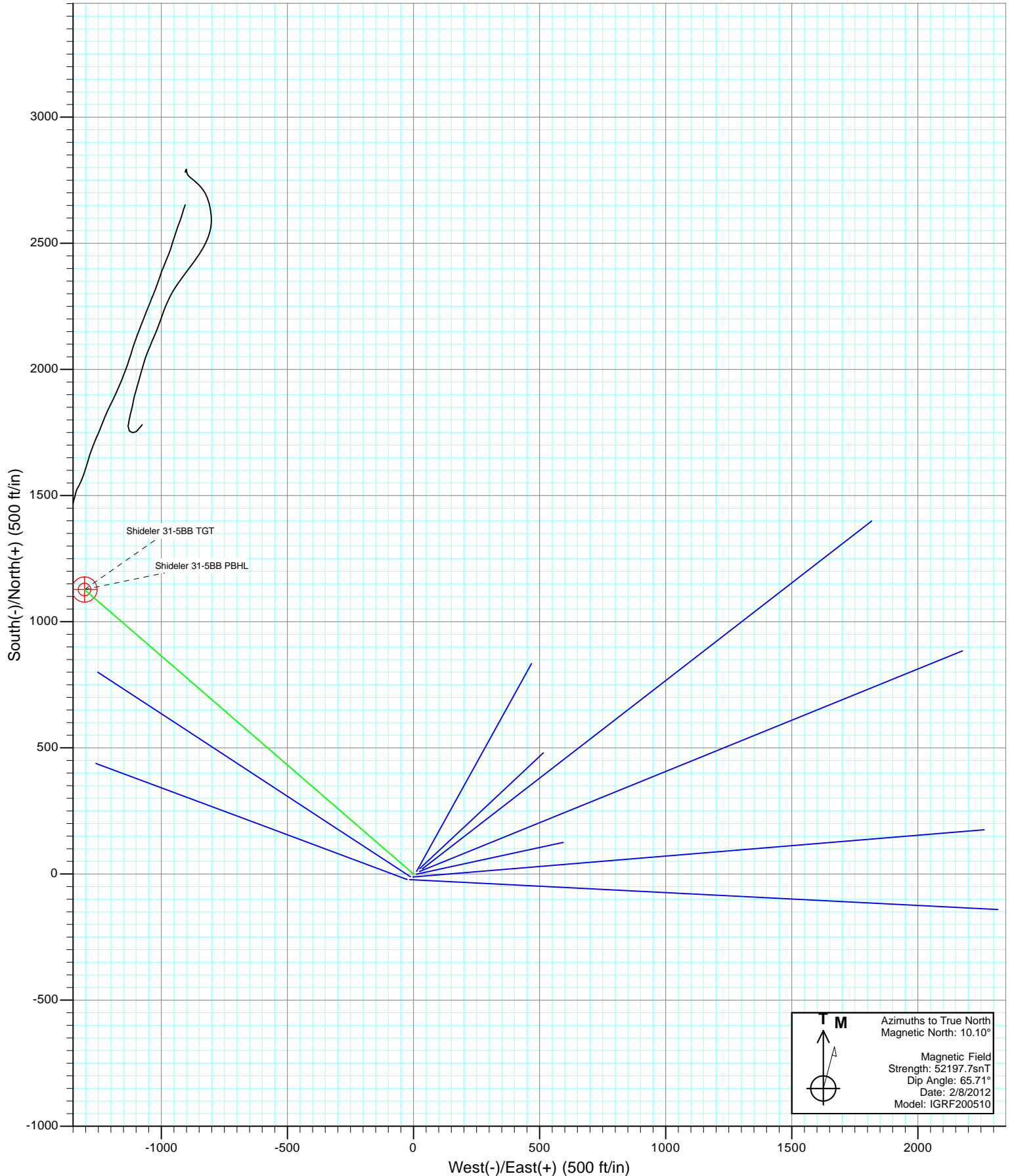


Project: Mamm Creek
Site: K31E Pad
Well: Shideler Fee 31-5BB
Wellbore: OH
Design: Plan #1



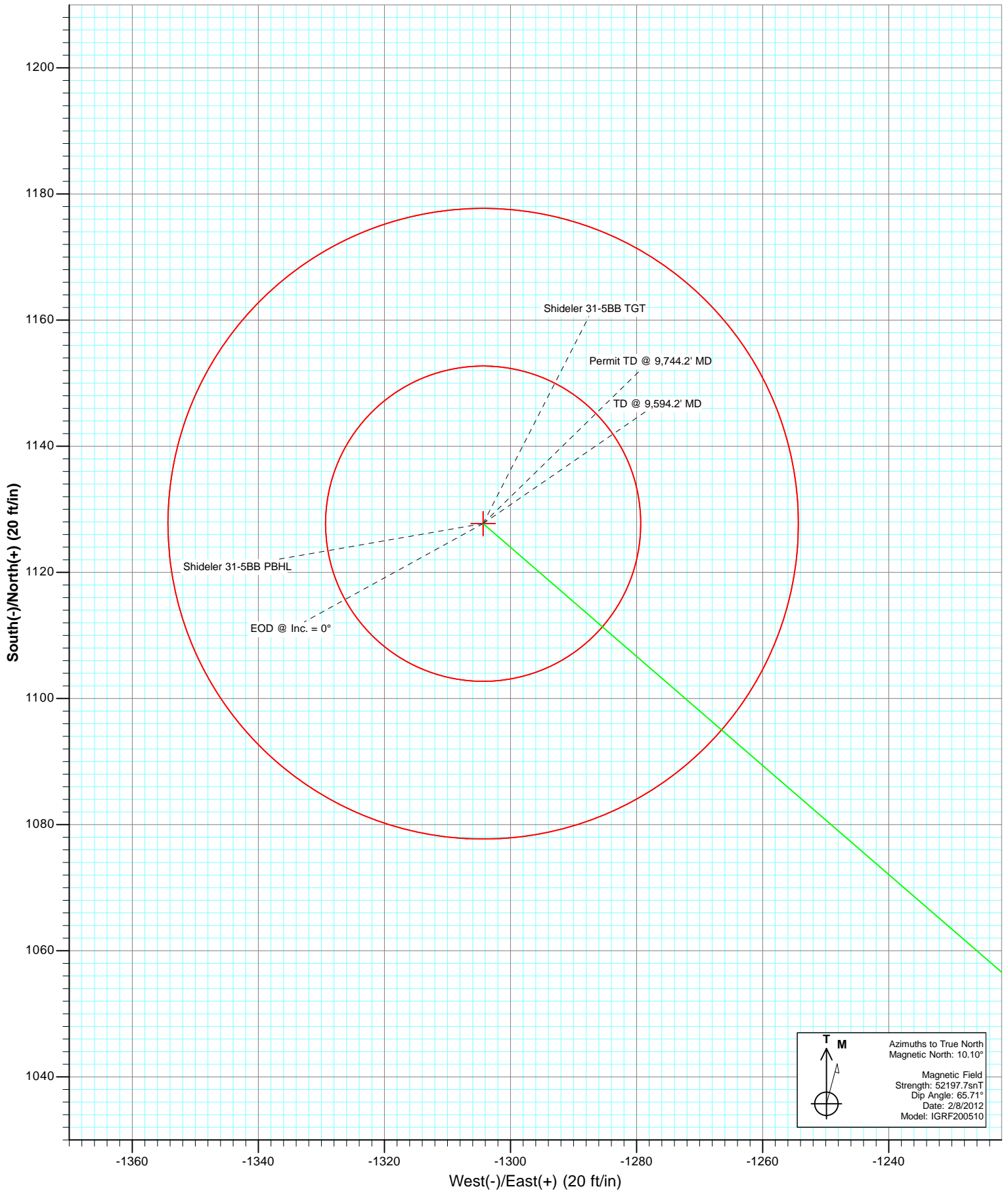


Project: Mamm Creek
Site: K31E Pad
Well: Shideler Fee 31-5BB
Wellbore: OH
Design: Plan #1





Project: Mamm Creek
Site: K31E Pad
Well: Shideler Fee 31-5BB
Wellbore: OH
Plan: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-5BB
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6921.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6921.0ft (Original Well Elev)
Site:	K31E Pad	North Reference:	True
Well:	Shideler Fee 31-5BB	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		K31E Pad			
Site Position:		Northing:	1,578,791.89 ft	Latitude:	39.401699
From:	Lat/Long	Easting:	2,375,816.61 ft	Longitude:	-107.709119
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.39 °

Well	Shideler Fee 31-5BB					
Well Position	+N/-S	0.0 ft	Northing:	1,578,812.73 ft	Latitude:	39.401758
	+E/-W	0.0 ft	Easting:	2,375,842.28 ft	Longitude:	-107.709030
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,899.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2/8/2012	10.10	65.71	52,198

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	310.85

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,029.2	18.87	310.85	1,017.8	67.2	-77.7	3.00	3.00	0.00	310.85	
5,565.5	18.87	310.85	5,310.2	1,027.0	-1,187.8	0.00	0.00	0.00	0.00	
6,509.2	0.00	0.00	6,237.0	1,127.7	-1,304.3	2.00	-2.00	0.00	180.00	Shideler 31-5BB TGT
9,594.2	0.00	0.00	9,322.0	1,127.7	-1,304.3	0.00	0.00	0.00	0.00	Shideler 31-5BB PBH
9,744.2	0.00	0.00	9,472.0	1,127.7	-1,304.3	0.00	0.00	0.00	0.00	

Cathedral Energy Services

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6921.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6921.0ft (Original Well Elev)
Site:	K31E Pad	North Reference:	True
Well:	Shideler Fee 31-5BB	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	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 400'
500.0	3.00	310.85	500.0	1.7	-2.0	2.6	3.00	3.00	
600.0	6.00	310.85	599.6	6.8	-7.9	10.5	3.00	3.00	
700.0	9.00	310.85	698.8	15.4	-17.8	23.5	3.00	3.00	
800.0	12.00	310.85	797.1	27.3	-31.6	41.7	3.00	3.00	
900.0	15.00	310.85	894.3	42.6	-49.2	65.1	3.00	3.00	
1,000.0	18.00	310.85	990.2	61.1	-70.7	93.5	3.00	3.00	
1,029.2	18.87	310.85	1,017.8	67.2	-77.7	102.7	3.00	3.00	EOB @ Inc. = 18.87°
1,100.0	18.87	310.85	1,084.9	82.2	-95.0	125.6	0.00	0.00	
1,200.0	18.87	310.85	1,179.5	103.3	-119.5	158.0	0.00	0.00	
1,300.0	18.87	310.85	1,274.1	124.5	-144.0	190.3	0.00	0.00	
1,400.0	18.87	310.85	1,368.7	145.6	-168.4	222.7	0.00	0.00	
1,500.0	18.87	310.85	1,463.4	166.8	-192.9	255.0	0.00	0.00	Surface Casing
1,600.0	18.87	310.85	1,558.0	187.9	-217.4	287.4	0.00	0.00	
1,700.0	18.87	310.85	1,652.6	209.1	-241.9	319.7	0.00	0.00	
1,800.0	18.87	310.85	1,747.2	230.3	-266.3	352.1	0.00	0.00	
1,900.0	18.87	310.85	1,841.9	251.4	-290.8	384.4	0.00	0.00	
2,000.0	18.87	310.85	1,936.5	272.6	-315.3	416.8	0.00	0.00	
2,100.0	18.87	310.85	2,031.1	293.7	-339.7	449.1	0.00	0.00	
2,200.0	18.87	310.85	2,125.7	314.9	-364.2	481.5	0.00	0.00	
2,300.0	18.87	310.85	2,220.3	336.1	-388.7	513.8	0.00	0.00	
2,364.1	18.87	310.85	2,281.0	349.6	-404.4	534.6	0.00	0.00	Molina
2,400.0	18.87	310.85	2,315.0	357.2	-413.2	546.2	0.00	0.00	
2,500.0	18.87	310.85	2,409.6	378.4	-437.6	578.5	0.00	0.00	
2,600.0	18.87	310.85	2,504.2	399.5	-462.1	610.9	0.00	0.00	
2,700.0	18.87	310.85	2,598.8	420.7	-486.6	643.2	0.00	0.00	
2,800.0	18.87	310.85	2,693.5	441.8	-511.0	675.6	0.00	0.00	
2,900.0	18.87	310.85	2,788.1	463.0	-535.5	707.9	0.00	0.00	
3,000.0	18.87	310.85	2,882.7	484.2	-560.0	740.3	0.00	0.00	
3,100.0	18.87	310.85	2,977.3	505.3	-584.5	772.6	0.00	0.00	
3,200.0	18.87	310.85	3,072.0	526.5	-608.9	805.0	0.00	0.00	
3,300.0	18.87	310.85	3,166.6	547.6	-633.4	837.3	0.00	0.00	
3,400.0	18.87	310.85	3,261.2	568.8	-657.9	869.7	0.00	0.00	
3,500.0	18.87	310.85	3,355.8	590.0	-682.3	902.0	0.00	0.00	
3,600.0	18.87	310.85	3,450.4	611.1	-706.8	934.4	0.00	0.00	
3,700.0	18.87	310.85	3,545.1	632.3	-731.3	966.7	0.00	0.00	
3,800.0	18.87	310.85	3,639.7	653.4	-755.8	999.1	0.00	0.00	
3,900.0	18.87	310.85	3,734.3	674.6	-780.2	1,031.4	0.00	0.00	
4,000.0	18.87	310.85	3,828.9	695.7	-804.7	1,063.8	0.00	0.00	
4,100.0	18.87	310.85	3,923.6	716.9	-829.2	1,096.1	0.00	0.00	
4,200.0	18.87	310.85	4,018.2	738.1	-853.6	1,128.5	0.00	0.00	
4,300.0	18.87	310.85	4,112.8	759.2	-878.1	1,160.8	0.00	0.00	
4,400.0	18.87	310.85	4,207.4	780.4	-902.6	1,193.2	0.00	0.00	
4,500.0	18.87	310.85	4,302.0	801.5	-927.1	1,225.5	0.00	0.00	
4,600.0	18.87	310.85	4,396.7	822.7	-951.5	1,257.9	0.00	0.00	
4,700.0	18.87	310.85	4,491.3	843.9	-976.0	1,290.2	0.00	0.00	
4,748.3	18.87	310.85	4,537.0	854.1	-987.8	1,305.8	0.00	0.00	Ohio Creek
4,800.0	18.87	310.85	4,585.9	865.0	-1,000.5	1,322.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-5BB
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6921.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6921.0ft (Original Well Elev)
Site:	K31E Pad	North Reference:	True
Well:	Shideler Fee 31-5BB	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
4,900.0	18.87	310.85	4,680.5	886.2	-1,024.9	1,354.9	0.00	0.00	
4,966.0	18.87	310.85	4,743.0	900.1	-1,041.1	1,376.3	0.00	0.00	Mesaverde Marker
5,000.0	18.87	310.85	4,775.2	907.3	-1,049.4	1,387.3	0.00	0.00	
5,100.0	18.87	310.85	4,869.8	928.5	-1,073.9	1,419.6	0.00	0.00	
5,200.0	18.87	310.85	4,964.4	949.6	-1,098.4	1,452.0	0.00	0.00	
5,300.0	18.87	310.85	5,059.0	970.8	-1,122.8	1,484.3	0.00	0.00	
5,400.0	18.87	310.85	5,153.7	992.0	-1,147.3	1,516.7	0.00	0.00	
5,500.0	18.87	310.85	5,248.3	1,013.1	-1,171.8	1,549.0	0.00	0.00	
5,519.8	18.87	310.85	5,267.0	1,017.3	-1,176.6	1,555.4	0.00	0.00	Williams Fork
5,565.5	18.87	310.85	5,310.2	1,027.0	-1,187.8	1,570.2	0.00	0.00	Start 2° Drop
5,600.0	18.18	310.85	5,343.0	1,034.1	-1,196.1	1,581.2	2.00	-2.00	
5,700.0	16.18	310.85	5,438.5	1,053.5	-1,218.4	1,610.7	2.00	-2.00	
5,800.0	14.18	310.85	5,535.0	1,070.6	-1,238.3	1,636.9	2.00	-2.00	
5,900.0	12.18	310.85	5,632.4	1,085.5	-1,255.5	1,659.7	2.00	-2.00	
6,000.0	10.18	310.85	5,730.5	1,098.2	-1,270.2	1,679.1	2.00	-2.00	
6,100.0	8.18	310.85	5,829.2	1,108.6	-1,282.3	1,695.1	2.00	-2.00	
6,200.0	6.18	310.85	5,928.4	1,116.8	-1,291.7	1,707.6	2.00	-2.00	
6,300.0	4.18	310.85	6,028.0	1,122.7	-1,298.6	1,716.6	2.00	-2.00	
6,400.0	2.18	310.85	6,127.8	1,126.4	-1,302.8	1,722.2	2.00	-2.00	
6,509.2	0.00	0.00	6,237.0	1,127.7	-1,304.3	1,724.2	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,600.0	0.00	0.00	6,327.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
6,700.0	0.00	0.00	6,427.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
6,800.0	0.00	0.00	6,527.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
6,900.0	0.00	0.00	6,627.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,000.0	0.00	0.00	6,727.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,100.0	0.00	0.00	6,827.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,200.0	0.00	0.00	6,927.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,300.0	0.00	0.00	7,027.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,400.0	0.00	0.00	7,127.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,500.0	0.00	0.00	7,227.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,600.0	0.00	0.00	7,327.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,700.0	0.00	0.00	7,427.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,798.2	0.00	0.00	7,526.0	1,127.7	-1,304.3	1,724.2	0.00	0.00	Coal Ridge
7,800.0	0.00	0.00	7,527.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
7,900.0	0.00	0.00	7,627.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,000.0	0.00	0.00	7,727.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,100.0	0.00	0.00	7,827.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,200.0	0.00	0.00	7,927.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,300.0	0.00	0.00	8,027.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,400.0	0.00	0.00	8,127.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,493.2	0.00	0.00	8,221.0	1,127.7	-1,304.3	1,724.2	0.00	0.00	Rollins
8,500.0	0.00	0.00	8,227.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,600.0	0.00	0.00	8,327.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,700.0	0.00	0.00	8,427.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,800.0	0.00	0.00	8,527.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
8,900.0	0.00	0.00	8,627.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
9,000.0	0.00	0.00	8,727.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
9,044.2	0.00	0.00	8,772.0	1,127.7	-1,304.3	1,724.2	0.00	0.00	Cozzette
9,100.0	0.00	0.00	8,827.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
9,200.0	0.00	0.00	8,927.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
9,244.2	0.00	0.00	8,972.0	1,127.7	-1,304.3	1,724.2	0.00	0.00	Corcoran
9,300.0	0.00	0.00	9,027.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6921.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6921.0ft (Original Well Elev)
Site:	K31E Pad	North Reference:	True
Well:	Shideler Fee 31-5BB	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	9,127.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
9,500.0	0.00	0.00	9,227.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
9,594.2	0.00	0.00	9,322.0	1,127.7	-1,304.3	1,724.2	0.00	0.00	TD @ 9,594.2' MD
9,600.0	0.00	0.00	9,327.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
9,700.0	0.00	0.00	9,427.8	1,127.7	-1,304.3	1,724.2	0.00	0.00	
9,744.2	0.00	0.00	9,472.0	1,127.7	-1,304.3	1,724.2	0.00	0.00	Permit TD @ 9,744.2' 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									
Shideler 31-5BB PBHL	0.00	0.00	9,322.0	1,127.7	-1,304.3	1,579,971.83	2,374,565.75	39.404854	-107.713646
- plan hits target center									
- Circle (radius 50.0)									
Shideler 31-5BB TGT	0.00	0.00	6,237.0	1,127.7	-1,304.3	1,579,971.83	2,374,565.75	39.404854	-107.713646
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,500.0	1,463.4	Surface Casing	0.000	0.000	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,364.1	2,281.0	Molina				
4,748.3	4,537.0	Ohio Creek				
4,966.0	4,743.0	Mesaverde Marker				
5,519.8	5,267.0	Williams Fork				
6,509.2	6,237.0	Top Gas				
7,798.2	7,526.0	Coal Ridge				
8,493.2	8,221.0	Rollins				
9,044.2	8,772.0	Cozzette				
9,244.2	8,972.0	Corcoran				

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-5BB
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6921.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	KBE @ 6921.0ft (Original Well Elev)
Site:	K31E Pad	North Reference:	True
Well:	Shideler Fee 31-5BB	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)	
400.0	400.0	0.0	0.0	KOP @ 400'
1,029.2	1,017.8	67.2	-77.7	EOB @ Inc. = 18.87°
5,565.5	5,310.2	1,027.0	-1,187.8	Start 2° Drop
6,509.2	6,237.0	1,127.7	-1,304.3	EOD @ Inc. = 0°
9,594.2	9,322.0	1,127.7	-1,304.3	TD @ 9,594.2' MD
9,744.2	9,472.0	1,127.7	-1,304.3	Permit TD @ 9,744.2' MD