

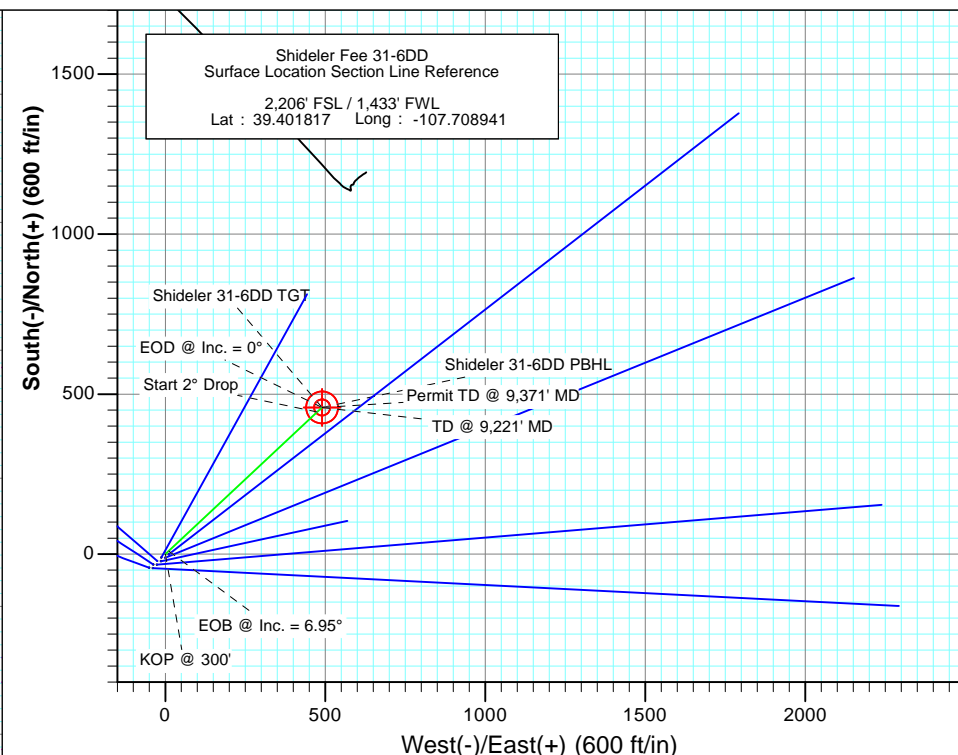
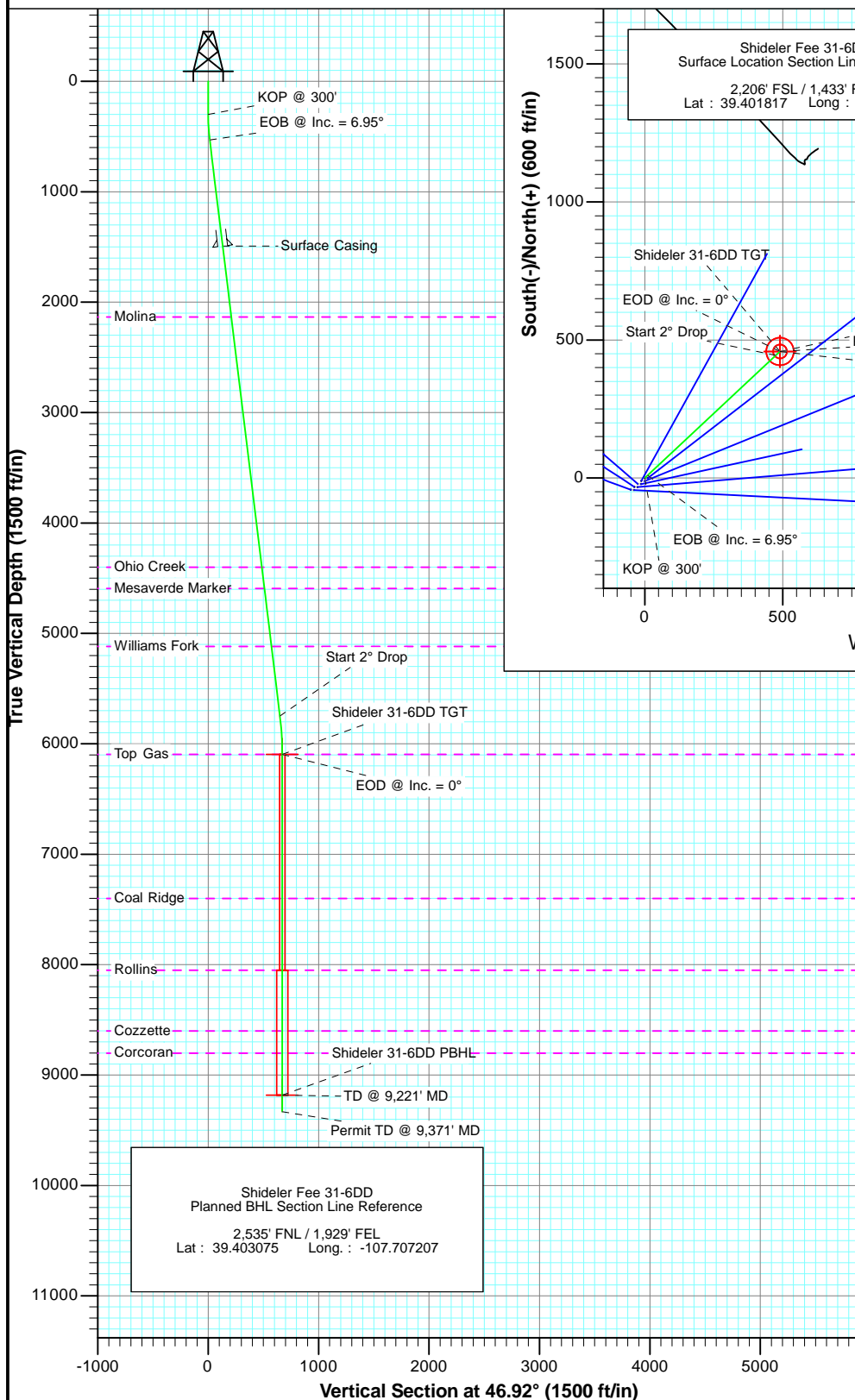


Project: Mamm Creek  
Site: K31E Pad  
Well: Shideler Fee 31-6DD  
Wellbore: OH  
Plan: Plan #1



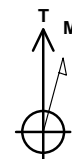
#### SECTION DETAILS

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	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	531.6	6.95	46.92	531.0	9.6	10.2	3.00	46.92	14.0	
4	5787.6	6.95	46.92	5748.5	443.9	474.6	0.00	0.00	649.8	
5	6135.0	0.00	0.00	6095.0	458.2	490.0	2.00	180.00	670.9	Shideler 31-6DD TGT
6	9221.0	0.00	0.00	9181.0	458.2	490.0	0.00	0.00	670.9	Shideler 31-6DD PBHL
7	9371.0	0.00	0.00	9331.0	458.2	490.0	0.00	0.00	670.9	



#### FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
2134.0	2146.4	Molina
4400.0	4429.2	Ohio Creek
4592.0	4622.6	Mesaverde Marker
5117.0	5151.5	Williams Fork
6095.0	6135.0	Top Gas
7401.0	7441.0	Coal Ridge
8050.0	8090.0	Rollins
8601.0	8641.0	Cozzette
8801.0	8841.0	Corcoran



Azimuths to True North  
Magnetic North: 10.10°

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

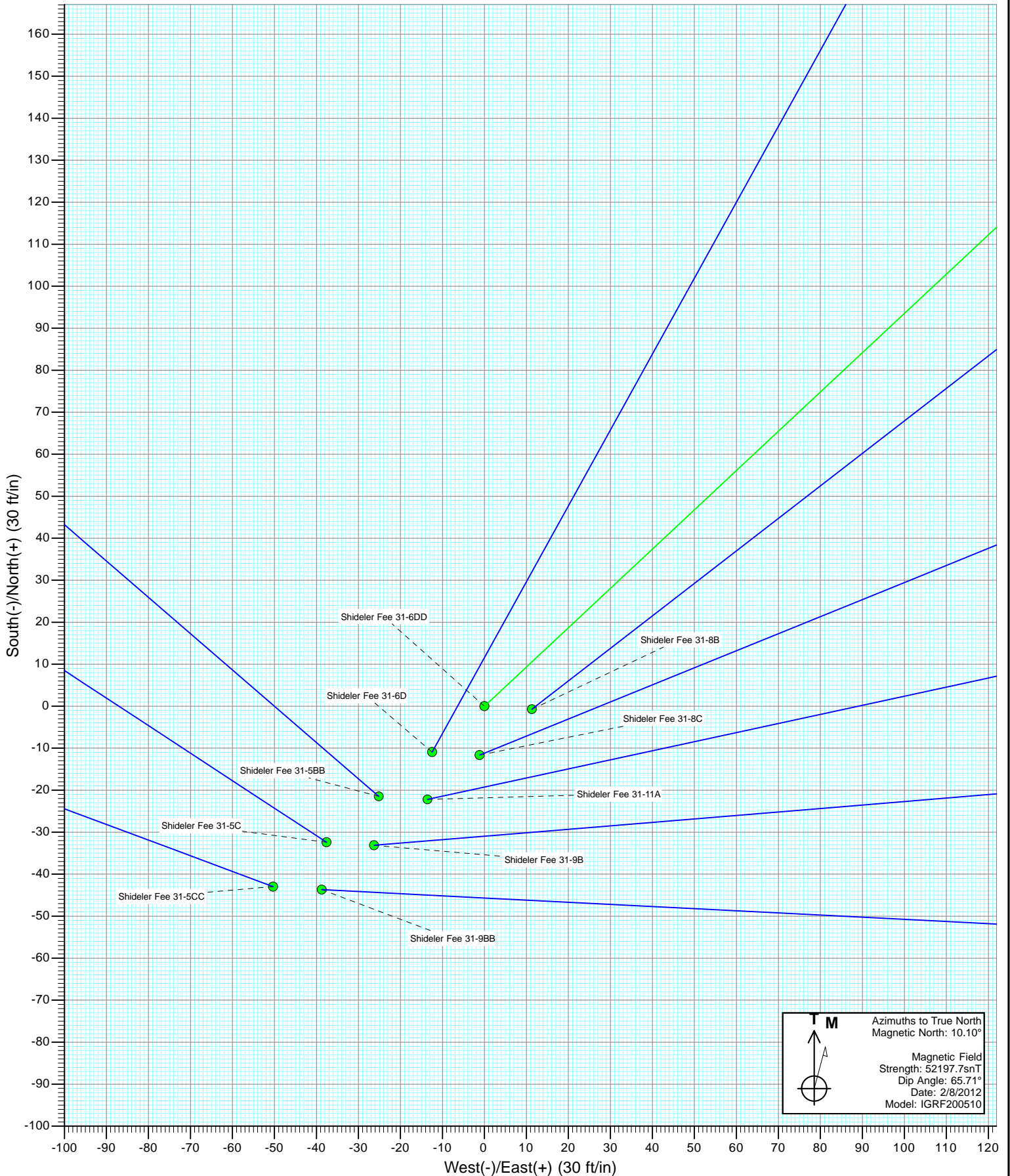
DESIGN DETAILS: Plan #1

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

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

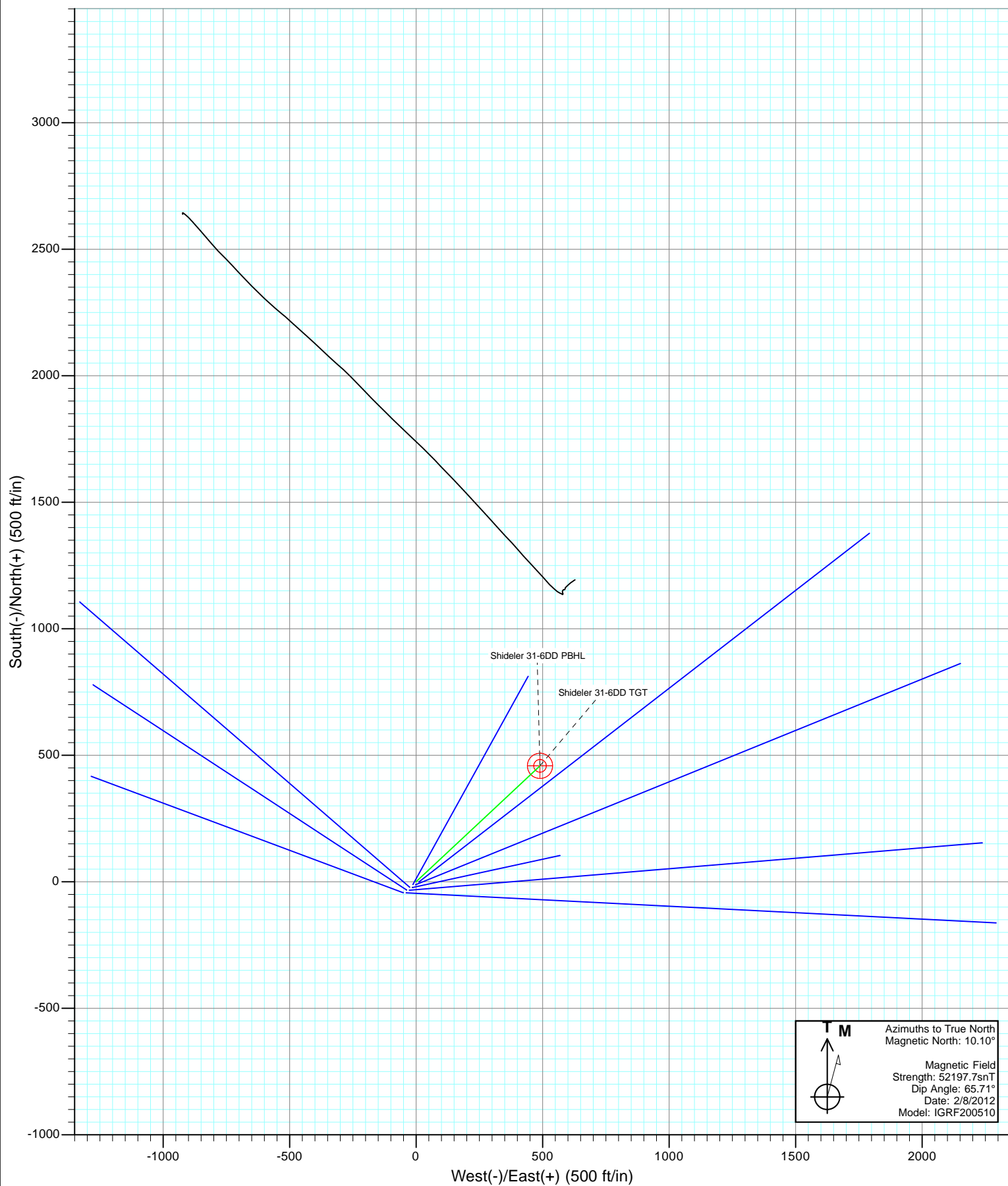


Project: Mamm Creek  
Site: K31E Pad  
Well: Shideler Fee 31-6DD  
Wellbore: OH  
Design: Plan #1



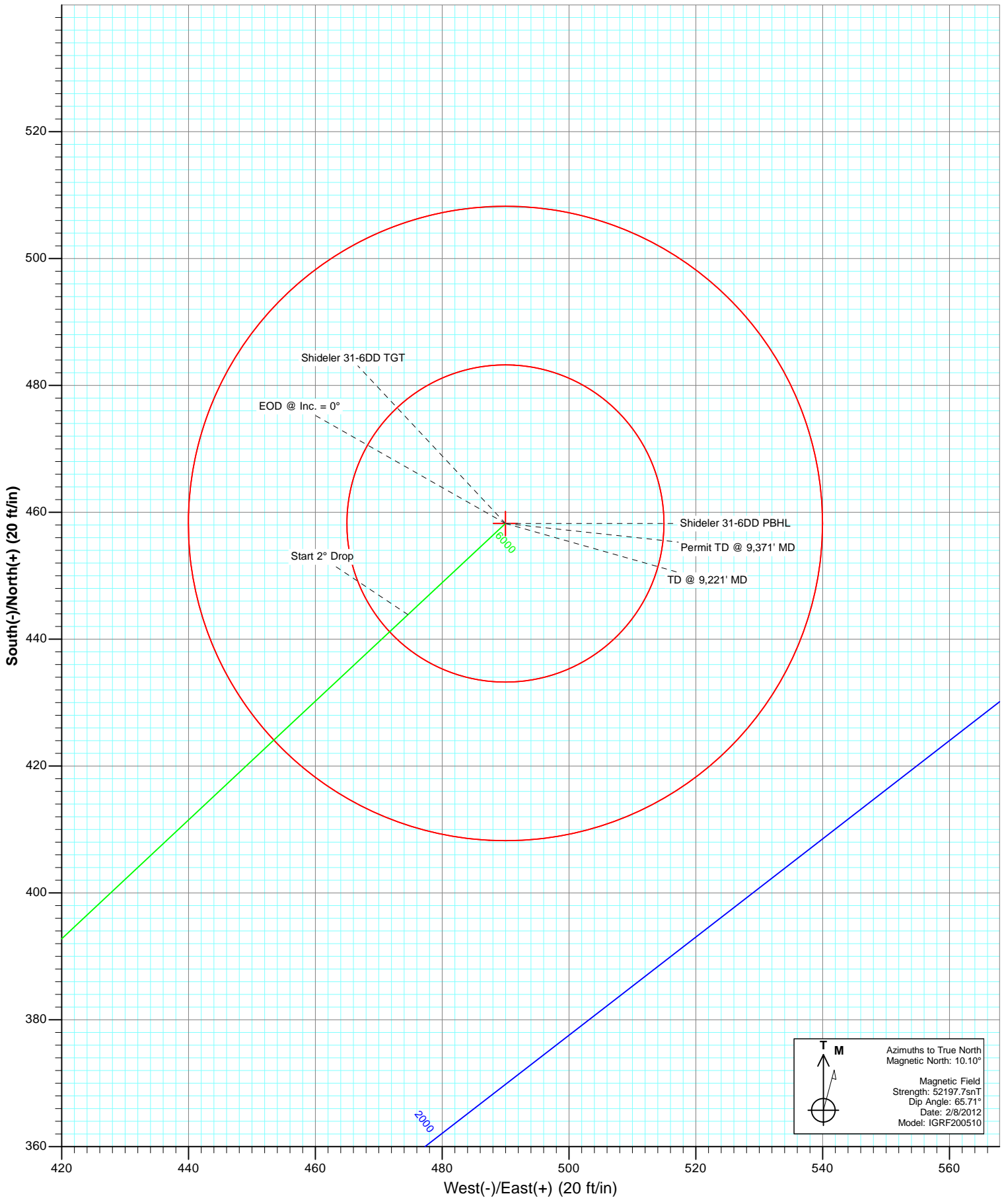


Project: Mamm Creek  
Site: K31E Pad  
Well: Shideler Fee 31-6DD  
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Design: Plan #1





Project: Mamm Creek  
Site: K31E Pad  
Well: Shideler Fee 31-6DD  
Wellbore: OH  
Plan: Plan #1



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-6DD
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 6921.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 6921.0ft (Original Well Elev)
<b>Site:</b>	K31E Pad	<b>North Reference:</b>	True
<b>Well:</b>	Shideler Fee 31-6DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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 31-6DD					
Well Position	+N/-S	0.0 ft	Northing:	1,578,833.60 ft	Latitude:	39.401817
	+E/-W	0.0 ft	Easting:	2,375,867.94 ft	Longitude:	-107.708941
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)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	46.92

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	
531.6	6.95	46.92	531.0	9.6	10.2	3.00	3.00	0.00	46.92	
5,787.6	6.95	46.92	5,748.5	443.9	474.6	0.00	0.00	0.00	0.00	
6,135.0	0.00	0.00	6,095.0	458.2	490.0	2.00	-2.00	0.00	180.00	Shideler 31-6DD TGT
9,221.0	0.00	0.00	9,181.0	458.2	490.0	0.00	0.00	0.00	0.00	Shideler 31-6DD PBH
9,371.0	0.00	0.00	9,331.0	458.2	490.0	0.00	0.00	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-6DD
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 6921.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 6921.0ft (Original Well Elev)
<b>Site:</b>	K31E Pad	<b>North Reference:</b>	True
<b>Well:</b>	Shideler Fee 31-6DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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	46.92	400.0	1.8	1.9	2.6	3.00	3.00	
500.0	6.00	46.92	499.6	7.1	7.6	10.5	3.00	3.00	
531.6	6.95	46.92	531.0	9.6	10.2	14.0	3.00	3.00	EOB @ Inc. = 6.95°
600.0	6.95	46.92	598.9	15.2	16.3	22.3	0.00	0.00	
700.0	6.95	46.92	698.2	23.5	25.1	34.4	0.00	0.00	
800.0	6.95	46.92	797.5	31.8	34.0	46.5	0.00	0.00	
900.0	6.95	46.92	896.7	40.0	42.8	58.6	0.00	0.00	
1,000.0	6.95	46.92	996.0	48.3	51.6	70.7	0.00	0.00	
1,100.0	6.95	46.92	1,095.3	56.5	60.5	82.8	0.00	0.00	
1,200.0	6.95	46.92	1,194.5	64.8	69.3	94.9	0.00	0.00	
1,300.0	6.95	46.92	1,293.8	73.1	78.1	107.0	0.00	0.00	
1,400.0	6.95	46.92	1,393.1	81.3	87.0	119.1	0.00	0.00	
1,500.0	6.95	46.92	1,492.3	89.6	95.8	131.2	0.00	0.00	Surface Casing
1,600.0	6.95	46.92	1,591.6	97.9	104.6	143.3	0.00	0.00	
1,700.0	6.95	46.92	1,690.9	106.1	113.5	155.4	0.00	0.00	
1,800.0	6.95	46.92	1,790.1	114.4	122.3	167.5	0.00	0.00	
1,900.0	6.95	46.92	1,889.4	122.6	131.1	179.6	0.00	0.00	
2,000.0	6.95	46.92	1,988.6	130.9	140.0	191.7	0.00	0.00	
2,100.0	6.95	46.92	2,087.9	139.2	148.8	203.8	0.00	0.00	
2,146.4	6.95	46.92	2,134.0	143.0	152.9	209.4	0.00	0.00	Molina
2,200.0	6.95	46.92	2,187.2	147.4	157.6	215.8	0.00	0.00	
2,300.0	6.95	46.92	2,286.4	155.7	166.5	227.9	0.00	0.00	
2,400.0	6.95	46.92	2,385.7	164.0	175.3	240.0	0.00	0.00	
2,500.0	6.95	46.92	2,485.0	172.2	184.2	252.1	0.00	0.00	
2,600.0	6.95	46.92	2,584.2	180.5	193.0	264.2	0.00	0.00	
2,700.0	6.95	46.92	2,683.5	188.7	201.8	276.3	0.00	0.00	
2,800.0	6.95	46.92	2,782.8	197.0	210.7	288.4	0.00	0.00	
2,900.0	6.95	46.92	2,882.0	205.3	219.5	300.5	0.00	0.00	
3,000.0	6.95	46.92	2,981.3	213.5	228.3	312.6	0.00	0.00	
3,100.0	6.95	46.92	3,080.6	221.8	237.2	324.7	0.00	0.00	
3,200.0	6.95	46.92	3,179.8	230.1	246.0	336.8	0.00	0.00	
3,300.0	6.95	46.92	3,279.1	238.3	254.8	348.9	0.00	0.00	
3,400.0	6.95	46.92	3,378.4	246.6	263.7	361.0	0.00	0.00	
3,500.0	6.95	46.92	3,477.6	254.8	272.5	373.1	0.00	0.00	
3,600.0	6.95	46.92	3,576.9	263.1	281.3	385.2	0.00	0.00	
3,700.0	6.95	46.92	3,676.2	271.4	290.2	397.3	0.00	0.00	
3,800.0	6.95	46.92	3,775.4	279.6	299.0	409.4	0.00	0.00	
3,900.0	6.95	46.92	3,874.7	287.9	307.8	421.5	0.00	0.00	
4,000.0	6.95	46.92	3,974.0	296.2	316.7	433.6	0.00	0.00	
4,100.0	6.95	46.92	4,073.2	304.4	325.5	445.7	0.00	0.00	
4,200.0	6.95	46.92	4,172.5	312.7	334.3	457.8	0.00	0.00	
4,300.0	6.95	46.92	4,271.8	321.0	343.2	469.9	0.00	0.00	
4,400.0	6.95	46.92	4,371.0	329.2	352.0	482.0	0.00	0.00	
4,429.2	6.95	46.92	4,400.0	331.6	354.6	485.5	0.00	0.00	Ohio Creek
4,500.0	6.95	46.92	4,470.3	337.5	360.9	494.1	0.00	0.00	
4,600.0	6.95	46.92	4,569.6	345.7	369.7	506.2	0.00	0.00	
4,622.6	6.95	46.92	4,592.0	347.6	371.7	508.9	0.00	0.00	Mesaverde Marker
4,700.0	6.95	46.92	4,668.8	354.0	378.5	518.3	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-6DD
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 6921.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 6921.0ft (Original Well Elev)
<b>Site:</b>	K31E Pad	<b>North Reference:</b>	True
<b>Well:</b>	Shideler Fee 31-6DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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	6.95	46.92	4,768.1	362.3	387.4	530.4	0.00	0.00	
4,900.0	6.95	46.92	4,867.4	370.5	396.2	542.5	0.00	0.00	
5,000.0	6.95	46.92	4,966.6	378.8	405.0	554.6	0.00	0.00	
5,100.0	6.95	46.92	5,065.9	387.1	413.9	566.7	0.00	0.00	
5,151.5	6.95	46.92	5,117.0	391.3	418.4	572.9	0.00	0.00	Williams Fork
5,200.0	6.95	46.92	5,165.2	395.3	422.7	578.7	0.00	0.00	
5,300.0	6.95	46.92	5,264.4	403.6	431.5	590.8	0.00	0.00	
5,400.0	6.95	46.92	5,363.7	411.8	440.4	602.9	0.00	0.00	
5,500.0	6.95	46.92	5,462.9	420.1	449.2	615.0	0.00	0.00	
5,600.0	6.95	46.92	5,562.2	428.4	458.0	627.1	0.00	0.00	
5,700.0	6.95	46.92	5,661.5	436.6	466.9	639.2	0.00	0.00	
5,787.6	6.95	46.92	5,748.5	443.9	474.6	649.8	0.00	0.00	Start 2° Drop
5,800.0	6.70	46.92	5,760.7	444.9	475.7	651.3	2.00	-2.00	
5,900.0	4.70	46.92	5,860.2	451.7	482.9	661.2	2.00	-2.00	
6,000.0	2.70	46.92	5,960.0	456.1	487.7	667.7	2.00	-2.00	
6,100.0	0.70	46.92	6,060.0	458.1	489.8	670.7	2.00	-2.00	
6,135.0	0.00	0.00	6,095.0	458.2	490.0	670.9	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,200.0	0.00	0.00	6,160.0	458.2	490.0	670.9	0.00	0.00	
6,300.0	0.00	0.00	6,260.0	458.2	490.0	670.9	0.00	0.00	
6,400.0	0.00	0.00	6,360.0	458.2	490.0	670.9	0.00	0.00	
6,500.0	0.00	0.00	6,460.0	458.2	490.0	670.9	0.00	0.00	
6,600.0	0.00	0.00	6,560.0	458.2	490.0	670.9	0.00	0.00	
6,700.0	0.00	0.00	6,660.0	458.2	490.0	670.9	0.00	0.00	
6,800.0	0.00	0.00	6,760.0	458.2	490.0	670.9	0.00	0.00	
6,900.0	0.00	0.00	6,860.0	458.2	490.0	670.9	0.00	0.00	
7,000.0	0.00	0.00	6,960.0	458.2	490.0	670.9	0.00	0.00	
7,100.0	0.00	0.00	7,060.0	458.2	490.0	670.9	0.00	0.00	
7,200.0	0.00	0.00	7,160.0	458.2	490.0	670.9	0.00	0.00	
7,300.0	0.00	0.00	7,260.0	458.2	490.0	670.9	0.00	0.00	
7,400.0	0.00	0.00	7,360.0	458.2	490.0	670.9	0.00	0.00	
7,441.0	0.00	0.00	7,401.0	458.2	490.0	670.9	0.00	0.00	Coal Ridge
7,500.0	0.00	0.00	7,460.0	458.2	490.0	670.9	0.00	0.00	
7,600.0	0.00	0.00	7,560.0	458.2	490.0	670.9	0.00	0.00	
7,700.0	0.00	0.00	7,660.0	458.2	490.0	670.9	0.00	0.00	
7,800.0	0.00	0.00	7,760.0	458.2	490.0	670.9	0.00	0.00	
7,900.0	0.00	0.00	7,860.0	458.2	490.0	670.9	0.00	0.00	
8,000.0	0.00	0.00	7,960.0	458.2	490.0	670.9	0.00	0.00	
8,090.0	0.00	0.00	8,050.0	458.2	490.0	670.9	0.00	0.00	Rollins
8,100.0	0.00	0.00	8,060.0	458.2	490.0	670.9	0.00	0.00	
8,200.0	0.00	0.00	8,160.0	458.2	490.0	670.9	0.00	0.00	
8,300.0	0.00	0.00	8,260.0	458.2	490.0	670.9	0.00	0.00	
8,400.0	0.00	0.00	8,360.0	458.2	490.0	670.9	0.00	0.00	
8,500.0	0.00	0.00	8,460.0	458.2	490.0	670.9	0.00	0.00	
8,600.0	0.00	0.00	8,560.0	458.2	490.0	670.9	0.00	0.00	
8,641.0	0.00	0.00	8,601.0	458.2	490.0	670.9	0.00	0.00	Cozzette
8,700.0	0.00	0.00	8,660.0	458.2	490.0	670.9	0.00	0.00	
8,800.0	0.00	0.00	8,760.0	458.2	490.0	670.9	0.00	0.00	
8,841.0	0.00	0.00	8,801.0	458.2	490.0	670.9	0.00	0.00	Corcoran
8,900.0	0.00	0.00	8,860.0	458.2	490.0	670.9	0.00	0.00	
9,000.0	0.00	0.00	8,960.0	458.2	490.0	670.9	0.00	0.00	
9,100.0	0.00	0.00	9,060.0	458.2	490.0	670.9	0.00	0.00	
9,200.0	0.00	0.00	9,160.0	458.2	490.0	670.9	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-6DD
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KBE @ 6921.0ft (Original Well Elev)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KBE @ 6921.0ft (Original Well Elev)
<b>Site:</b>	K31E Pad	<b>North Reference:</b>	True
<b>Well:</b>	Shideler Fee 31-6DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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
9,221.0	0.00	0.00	9,181.0	458.2	490.0	670.9	0.00	0.00	TD @ 9,221' MD
9,300.0	0.00	0.00	9,260.0	458.2	490.0	670.9	0.00	0.00	
9,371.0	0.00	0.00	9,331.0	458.2	490.0	670.9	0.00	0.00	Permit TD @ 9,371' MD

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
- Shape									Latitude Longitude
Shideler 31-6DD TGT	- plan hits target center - Circle (radius 25.0)	0.00	0.00	6,095.0	458.2	490.0	1,579,279.79	2,376,368.92	39.403075 -107.707207
Shideler 31-6DD PBHL	- plan hits target center - Circle (radius 50.0)	0.00	0.00	9,181.0	458.2	490.0	1,579,279.79	2,376,368.92	39.403075 -107.707207

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,500.0	1,492.3	Surface Casing	0.000	0.000	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,146.4	2,134.0	Molina			
4,429.2	4,400.0	Ohio Creek			
4,622.6	4,592.0	Mesaverde Marker			
5,151.5	5,117.0	Williams Fork			
6,135.0	6,095.0	Top Gas			
7,441.0	7,401.0	Coal Ridge			
8,090.0	8,050.0	Rollins			
8,641.0	8,601.0	Cozzette			
8,841.0	8,801.0	Corcoran			

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'
531.6	531.0	9.6	10.2	EOB @ Inc. = 6.95°
5,787.6	5,748.5	443.9	474.6	Start 2° Drop
6,135.0	6,095.0	458.2	490.0	EOD @ Inc. = 0°
9,221.0	9,181.0	458.2	490.0	TD @ 9,221' MD
9,371.0	9,331.0	458.2	490.0	Permit TD @ 9,371' MD