

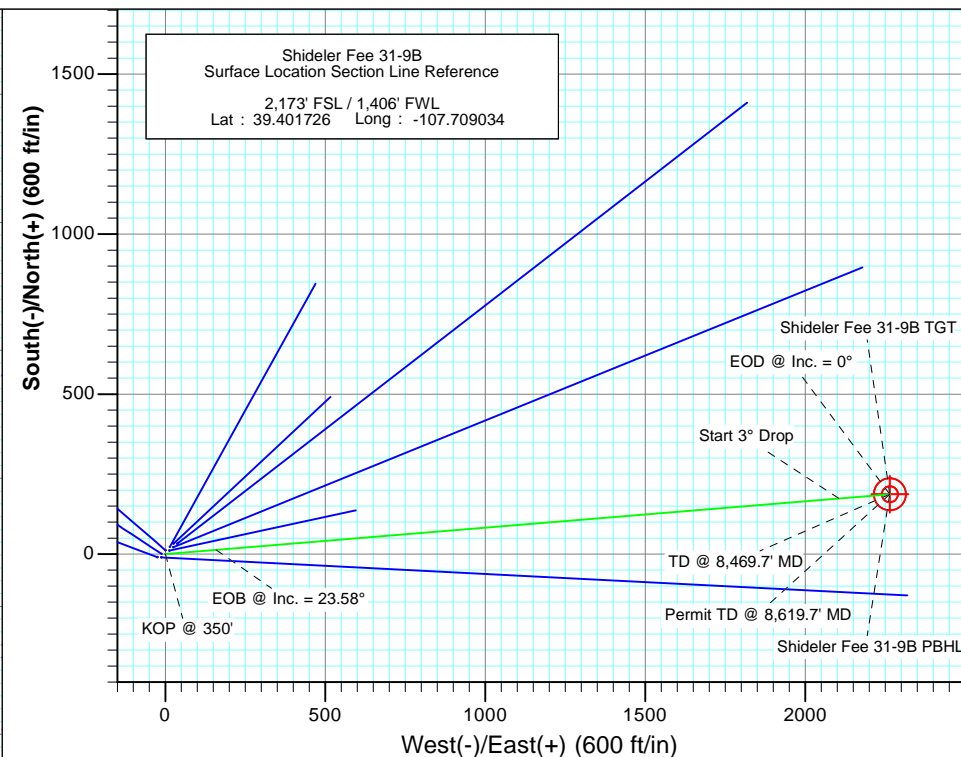
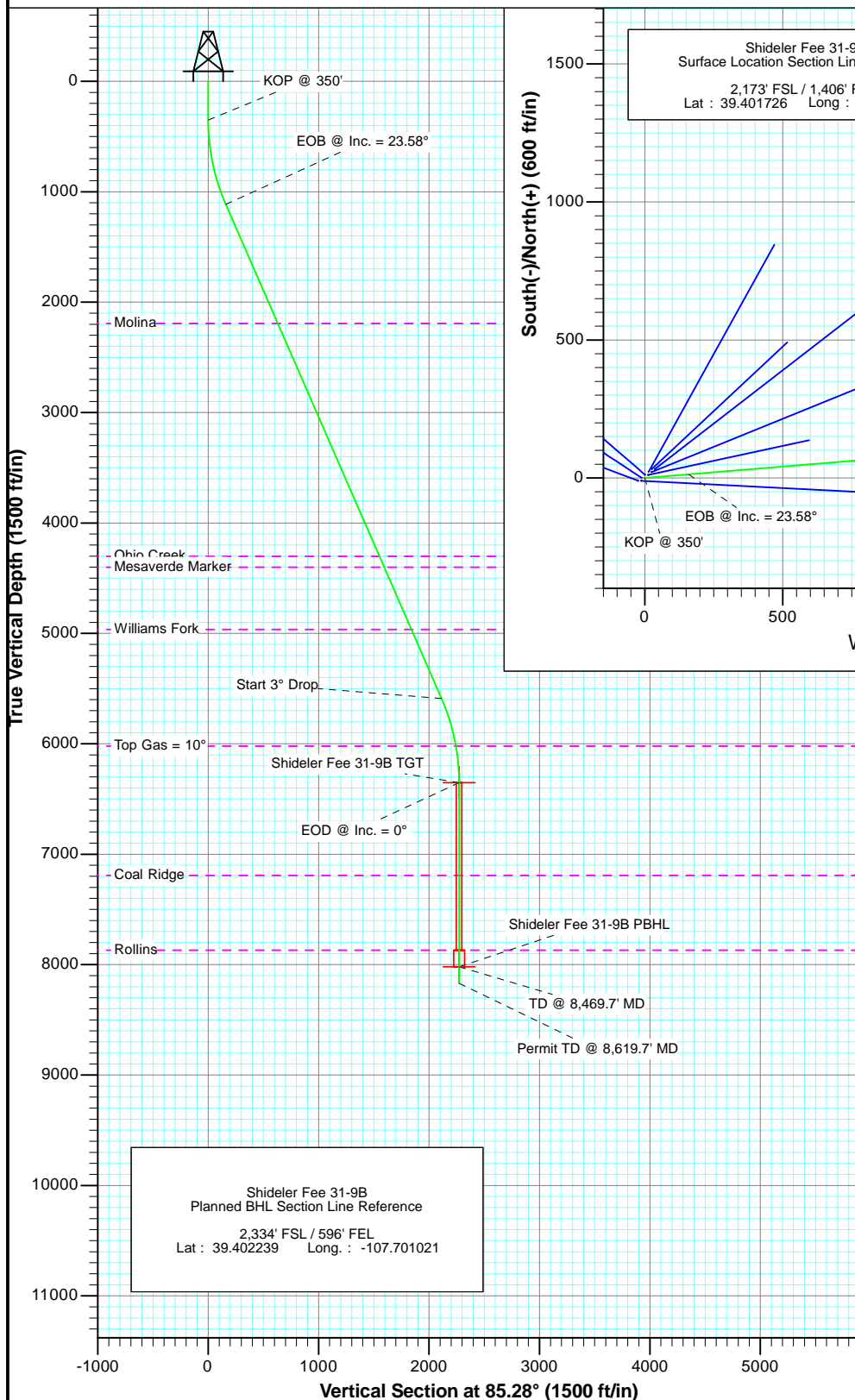


Project: Mamm Creek  
Site: K31E Pad  
Well: Shideler Fee 31-9B  
Wellbore: OH  
Plan: Plan #1



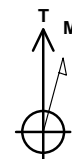
#### SECTION DETAILS

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	350.0	0.00	0.00	350.0	0.0	0.0	0.00	0.00	0.0	
3	1136.0	23.58	85.28	1114.0	13.1	158.9	3.00	85.28	159.5	
4	6018.2	23.58	85.28	5588.5	173.8	2105.4	0.00	0.00	2112.5	
5	6804.2	0.00	0.00	6352.5	187.0	2264.3	3.00	180.00	2272.0	Shideler Fee 31-9B TGT
6	8469.7	0.00	0.00	8018.0	187.0	2264.3	0.00	0.00	2272.0	Shideler Fee 31-9B PBHL
7	8619.7	0.00	0.00	8168.0	187.0	2264.3	0.00	0.00	2272.0	



#### FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
2192.0	2312.2	Molina
4302.0	4614.5	Ohio Creek
4400.0	4721.4	Mesaverde Marker
4964.0	5336.8	Williams Fork
6021.0	6471.0	Top Gas = 10°
7192.0	7643.7	Coal Ridge
7868.0	8319.7	Rollins



Azimuths to True North  
Magnetic North: 10.10°

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

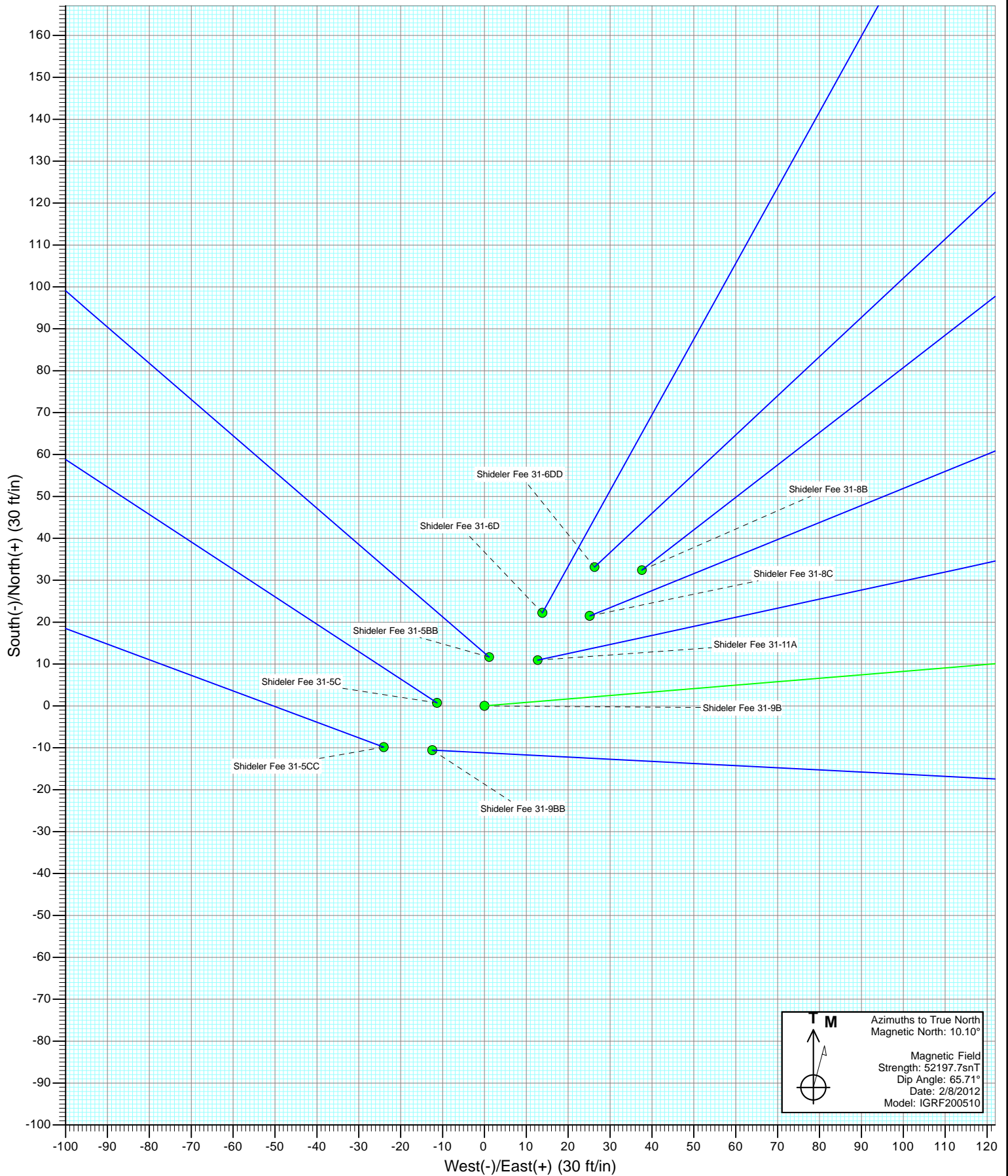
DESIGN DETAILS: Plan #1

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

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

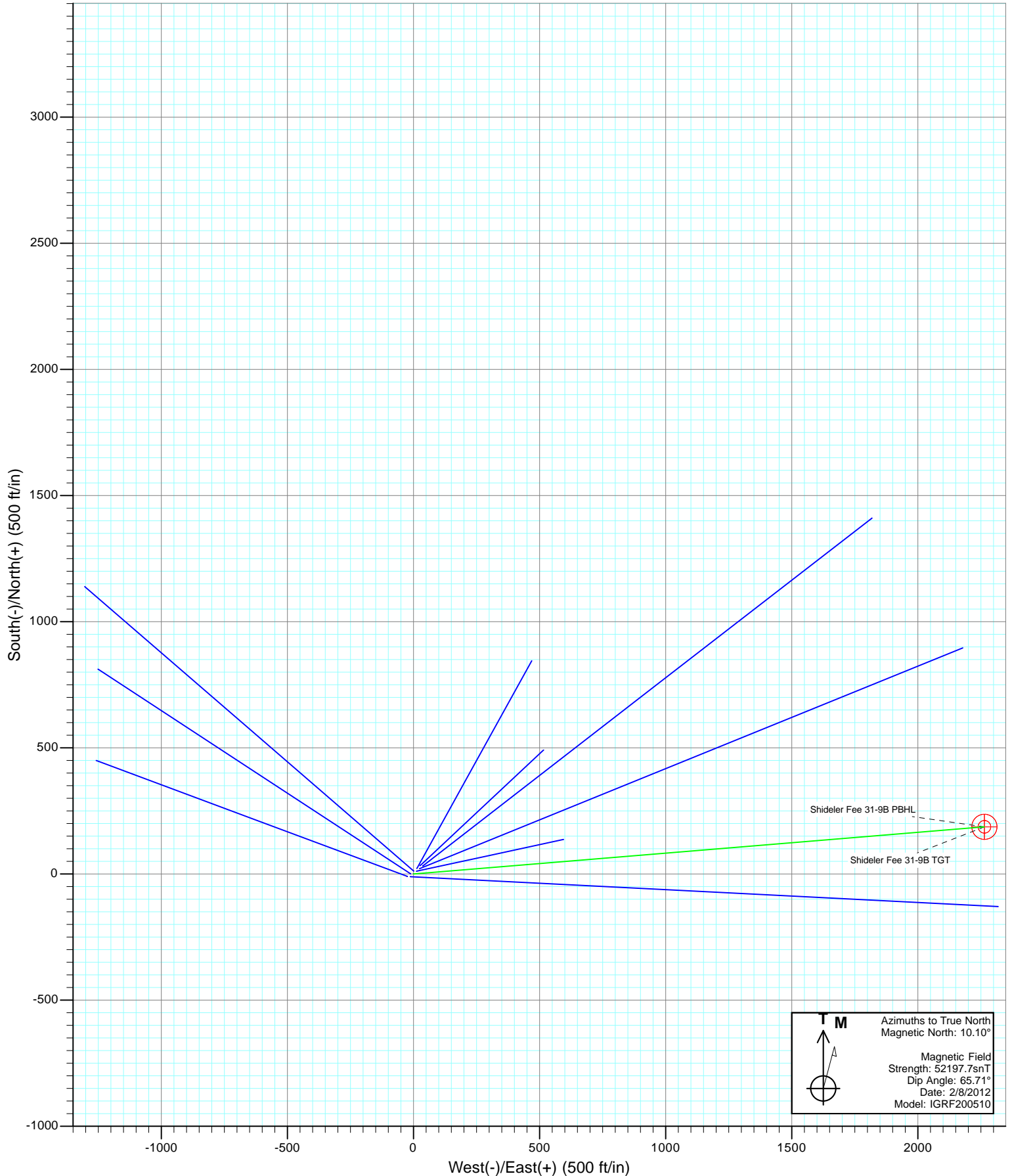


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Site: K31E Pad  
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Wellbore: OH  
Design: Plan #1



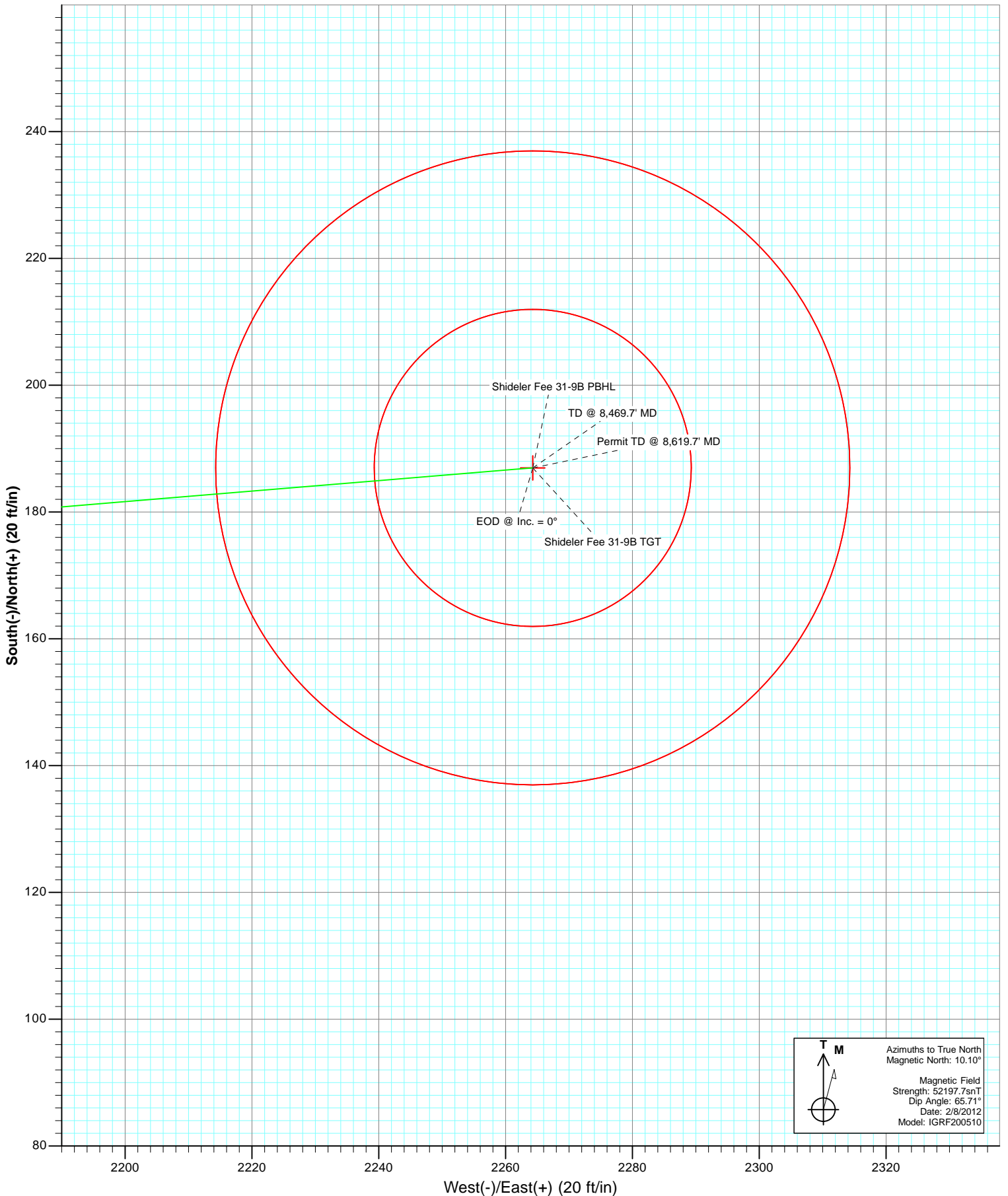


Project: Mamm Creek  
Site: K31E Pad  
Well: Shideler Fee 31-9B  
Wellbore: OH  
Design: Plan #1





Project: Mamm Creek  
Site: K31E Pad  
Well: Shideler Fee 31-9B  
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 31-9B
<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 31-9B	<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 31-9B					
Well Position	+N/-S	0.0 ft	Northing:	1,578,801.13 ft	Latitude:	39.401726
	+E/-W	0.0 ft	Easting:	2,375,840.86 ft	Longitude:	-107.709034
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	85.28

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	
350.0	0.00	0.00	350.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,136.0	23.58	85.28	1,114.0	13.1	158.9	3.00	3.00	0.00	85.28	
6,018.2	23.58	85.28	5,588.5	173.8	2,105.4	0.00	0.00	0.00	0.00	
6,804.2	0.00	0.00	6,352.5	187.0	2,264.3	3.00	-3.00	0.00	180.00	Shideler Fee 31-9B T
8,469.7	0.00	0.00	8,018.0	187.0	2,264.3	0.00	0.00	0.00	0.00	Shideler Fee 31-9B P
8,619.7	0.00	0.00	8,168.0	187.0	2,264.3	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 31-9B
<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 31-9B	<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	
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	KOP @ 350'
400.0	1.50	85.28	400.0	0.1	0.7	0.7	3.00	3.00	
500.0	4.50	85.28	499.8	0.5	5.9	5.9	3.00	3.00	
600.0	7.50	85.28	599.3	1.3	16.3	16.3	3.00	3.00	
700.0	10.50	85.28	698.0	2.6	31.9	32.0	3.00	3.00	
800.0	13.50	85.28	795.8	4.3	52.6	52.8	3.00	3.00	
900.0	16.50	85.28	892.4	6.5	78.4	78.6	3.00	3.00	
1,000.0	19.50	85.28	987.5	9.0	109.2	109.5	3.00	3.00	
1,100.0	22.50	85.28	1,080.9	12.0	144.9	145.4	3.00	3.00	
1,136.0	23.58	85.28	1,114.0	13.1	158.9	159.5	3.00	3.00	EOB @ Inc. = 23.58°
1,200.0	23.58	85.28	1,172.7	15.2	184.4	185.1	0.00	0.00	
1,300.0	23.58	85.28	1,264.3	18.5	224.3	225.1	0.00	0.00	
1,400.0	23.58	85.28	1,356.0	21.8	264.2	265.1	0.00	0.00	
1,500.0	23.58	85.28	1,447.6	25.1	304.0	305.1	0.00	0.00	Surface Casing
1,600.0	23.58	85.28	1,539.3	28.4	343.9	345.1	0.00	0.00	
1,700.0	23.58	85.28	1,630.9	31.7	383.8	385.1	0.00	0.00	
1,800.0	23.58	85.28	1,722.6	35.0	423.7	425.1	0.00	0.00	
1,900.0	23.58	85.28	1,814.2	38.3	463.5	465.1	0.00	0.00	
2,000.0	23.58	85.28	1,905.9	41.6	503.4	505.1	0.00	0.00	
2,100.0	23.58	85.28	1,997.5	44.9	543.3	545.1	0.00	0.00	
2,200.0	23.58	85.28	2,089.2	48.1	583.1	585.1	0.00	0.00	
2,300.0	23.58	85.28	2,180.8	51.4	623.0	625.1	0.00	0.00	
2,312.2	23.58	85.28	2,192.0	51.8	627.9	630.0	0.00	0.00	Molina
2,400.0	23.58	85.28	2,272.5	54.7	662.9	665.1	0.00	0.00	
2,500.0	23.58	85.28	2,364.1	58.0	702.7	705.1	0.00	0.00	
2,600.0	23.58	85.28	2,455.8	61.3	742.6	745.1	0.00	0.00	
2,700.0	23.58	85.28	2,547.4	64.6	782.5	785.1	0.00	0.00	
2,800.0	23.58	85.28	2,639.1	67.9	822.3	825.1	0.00	0.00	
2,900.0	23.58	85.28	2,730.7	71.2	862.2	865.1	0.00	0.00	
3,000.0	23.58	85.28	2,822.4	74.5	902.1	905.1	0.00	0.00	
3,100.0	23.58	85.28	2,914.0	77.8	941.9	945.1	0.00	0.00	
3,200.0	23.58	85.28	3,005.7	81.1	981.8	985.1	0.00	0.00	
3,300.0	23.58	85.28	3,097.3	84.4	1,021.7	1,025.2	0.00	0.00	
3,400.0	23.58	85.28	3,189.0	87.7	1,061.5	1,065.2	0.00	0.00	
3,500.0	23.58	85.28	3,280.6	90.9	1,101.4	1,105.2	0.00	0.00	
3,600.0	23.58	85.28	3,372.3	94.2	1,141.3	1,145.2	0.00	0.00	
3,700.0	23.58	85.28	3,463.9	97.5	1,181.1	1,185.2	0.00	0.00	
3,800.0	23.58	85.28	3,555.6	100.8	1,221.0	1,225.2	0.00	0.00	
3,900.0	23.58	85.28	3,647.2	104.1	1,260.9	1,265.2	0.00	0.00	
4,000.0	23.58	85.28	3,738.9	107.4	1,300.8	1,305.2	0.00	0.00	
4,100.0	23.58	85.28	3,830.5	110.7	1,340.6	1,345.2	0.00	0.00	
4,200.0	23.58	85.28	3,922.2	114.0	1,380.5	1,385.2	0.00	0.00	
4,300.0	23.58	85.28	4,013.8	117.3	1,420.4	1,425.2	0.00	0.00	
4,400.0	23.58	85.28	4,105.4	120.6	1,460.2	1,465.2	0.00	0.00	
4,500.0	23.58	85.28	4,197.1	123.9	1,500.1	1,505.2	0.00	0.00	
4,600.0	23.58	85.28	4,288.7	127.2	1,540.0	1,545.2	0.00	0.00	
4,614.5	23.58	85.28	4,302.0	127.6	1,545.7	1,551.0	0.00	0.00	Ohio Creek
4,700.0	23.58	85.28	4,380.4	130.4	1,579.8	1,585.2	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 31-9B
<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 31-9B	<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
4,721.4	23.58	85.28	4,400.0	131.1	1,588.4	1,593.8	0.00	0.00	Mesaverde Marker
4,800.0	23.58	85.28	4,472.0	133.7	1,619.7	1,625.2	0.00	0.00	
4,900.0	23.58	85.28	4,563.7	137.0	1,659.6	1,665.2	0.00	0.00	
5,000.0	23.58	85.28	4,655.3	140.3	1,699.4	1,705.2	0.00	0.00	
5,100.0	23.58	85.28	4,747.0	143.6	1,739.3	1,745.2	0.00	0.00	
5,200.0	23.58	85.28	4,838.6	146.9	1,779.2	1,785.2	0.00	0.00	
5,300.0	23.58	85.28	4,930.3	150.2	1,819.0	1,825.2	0.00	0.00	Williams Fork
5,336.8	23.58	85.28	4,964.0	151.4	1,833.7	1,839.9	0.00	0.00	
5,400.0	23.58	85.28	5,021.9	153.5	1,858.9	1,865.2	0.00	0.00	
5,500.0	23.58	85.28	5,113.6	156.8	1,898.8	1,905.2	0.00	0.00	
5,600.0	23.58	85.28	5,205.2	160.1	1,938.6	1,945.2	0.00	0.00	
5,700.0	23.58	85.28	5,296.9	163.4	1,978.5	1,985.2	0.00	0.00	
5,800.0	23.58	85.28	5,388.5	166.7	2,018.4	2,025.2	0.00	0.00	
5,900.0	23.58	85.28	5,480.2	169.9	2,058.2	2,065.3	0.00	0.00	
6,000.0	23.58	85.28	5,571.8	173.2	2,098.1	2,105.3	0.00	0.00	
6,018.2	23.58	85.28	5,588.5	173.8	2,105.4	2,112.5	0.00	0.00	Start 3° Drop
6,100.0	21.13	85.28	5,664.2	176.4	2,136.4	2,143.6	3.00	-3.00	
6,200.0	18.13	85.28	5,758.4	179.2	2,169.8	2,177.2	3.00	-3.00	
6,300.0	15.13	85.28	5,854.2	181.5	2,198.4	2,205.8	3.00	-3.00	
6,400.0	12.13	85.28	5,951.3	183.5	2,221.8	2,229.4	3.00	-3.00	
6,471.0	10.00	85.28	6,021.0	184.6	2,235.4	2,243.0	3.00	-3.00	
6,500.0	9.13	85.28	6,049.6	185.0	2,240.2	2,247.8	3.00	-3.00	Top Gas = 10°
6,600.0	6.13	85.28	6,148.7	186.1	2,253.4	2,261.1	3.00	-3.00	
6,700.0	3.13	85.28	6,248.4	186.7	2,261.5	2,269.2	3.00	-3.00	
6,804.2	0.00	0.00	6,352.5	187.0	2,264.3	2,272.0	3.00	-3.00	EOD @ Inc. = 0°
6,900.0	0.00	0.00	6,448.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,000.0	0.00	0.00	6,548.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,100.0	0.00	0.00	6,648.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,200.0	0.00	0.00	6,748.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,300.0	0.00	0.00	6,848.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,400.0	0.00	0.00	6,948.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,500.0	0.00	0.00	7,048.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,600.0	0.00	0.00	7,148.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,643.7	0.00	0.00	7,192.0	187.0	2,264.3	2,272.0	0.00	0.00	Coal Ridge
7,700.0	0.00	0.00	7,248.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,800.0	0.00	0.00	7,348.3	187.0	2,264.3	2,272.0	0.00	0.00	
7,900.0	0.00	0.00	7,448.3	187.0	2,264.3	2,272.0	0.00	0.00	
8,000.0	0.00	0.00	7,548.3	187.0	2,264.3	2,272.0	0.00	0.00	
8,100.0	0.00	0.00	7,648.3	187.0	2,264.3	2,272.0	0.00	0.00	
8,200.0	0.00	0.00	7,748.3	187.0	2,264.3	2,272.0	0.00	0.00	
8,300.0	0.00	0.00	7,848.3	187.0	2,264.3	2,272.0	0.00	0.00	
8,319.7	0.00	0.00	7,868.0	187.0	2,264.3	2,272.0	0.00	0.00	
8,400.0	0.00	0.00	7,948.3	187.0	2,264.3	2,272.0	0.00	0.00	Rollins
8,469.7	0.00	0.00	8,018.0	187.0	2,264.3	2,272.0	0.00	0.00	
8,500.0	0.00	0.00	8,048.3	187.0	2,264.3	2,272.0	0.00	0.00	
8,600.0	0.00	0.00	8,148.3	187.0	2,264.3	2,272.0	0.00	0.00	TD @ 8,469.7' MD
8,619.7	0.00	0.00	8,168.0	187.0	2,264.3	2,272.0	0.00	0.00	
									Permit TD @ 8,619.7' MD

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Shideler Fee 31-9B
<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 31-9B	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

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 31-9B TGT	0.00	0.00	6,352.5	187.0	2,264.3	1,578,932.98	2,378,109.03	39.402239	-107.701021
- plan hits target center									
- Circle (radius 25.0)									
Shideler Fee 31-9B PBI-	0.00	0.00	8,018.0	187.0	2,264.3	1,578,932.98	2,378,109.03	39.402239	-107.701021
- plan hits target center									
- Circle (radius 50.0)									

Casing Points					
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter
(ft)	(ft)	Name		(in)	(in)
1,500.0	1,447.6	Surface Casing		0.000	0.000

Formations						
Measured Depth	Vertical Depth				Dip	Dip Direction
(ft)	(ft)	Name	Lithology		(°)	(°)
2,312.2	2,192.0	Molina				
4,614.5	4,302.0	Ohio Creek				
4,721.4	4,400.0	Mesaverde Marker				
5,336.8	4,964.0	Williams Fork				
6,471.0	6,021.0	Top Gas = 10°				
7,643.7	7,192.0	Coal Ridge				
8,319.7	7,868.0	Rollins				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment
350.0	350.0	0.0	0.0	KOP @ 350'
1,136.0	1,114.0	13.1	158.9	EOB @ Inc. = 23.58°
6,018.2	5,588.5	173.8	2,105.4	Start 3° Drop
6,804.2	6,352.5	187.0	2,264.3	EOD @ Inc. = 0°
8,469.7	8,018.0	187.0	2,264.3	TD @ 8,469.7' MD
8,619.7	8,168.0	187.0	2,264.3	Permit TD @ 8,619.7' MD