

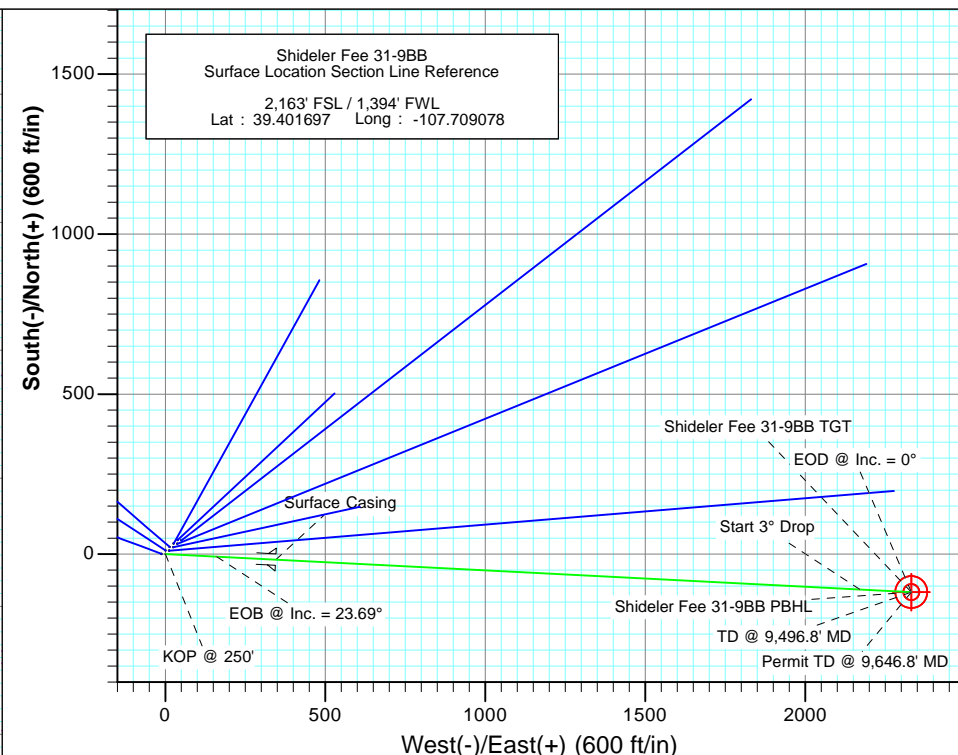
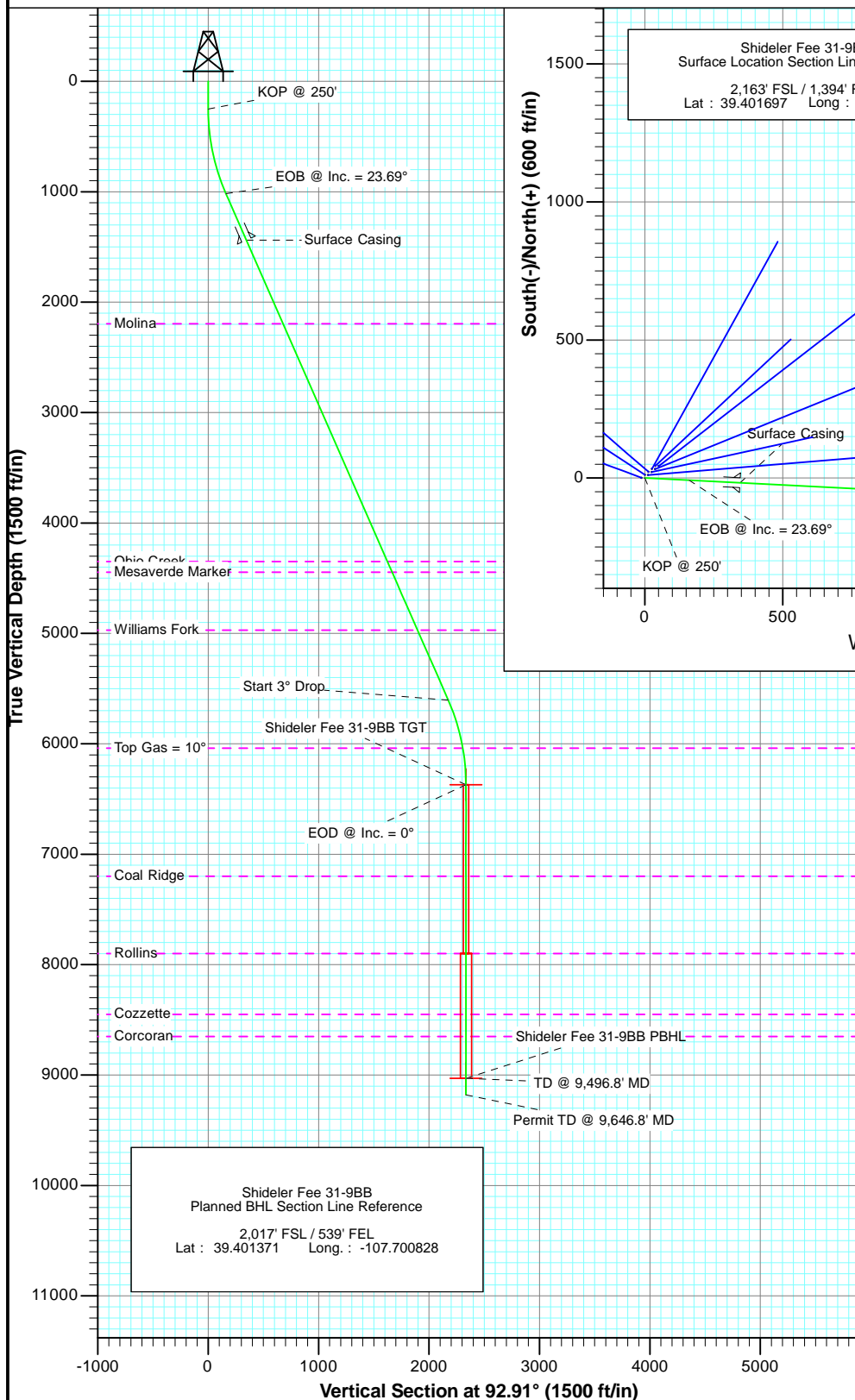


Project: Mamm Creek
Site: K31E Pad
Well: Shideler Fee 31-9BB
Wellbore: OH
Plan: Plan #1



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	250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.0	
3	1039.8	23.69	92.91	1017.5	-8.2	160.8	3.00	92.91	161.0	
4	6047.5	23.69	92.91	5603.0	-110.4	2170.5	0.00	0.00	2173.3	
5	6837.3	0.00	0.00	6370.5	-118.6	2331.3	3.00	180.00	2334.3	Shideler Fee 31-9BB TGT
6	9496.8	0.00	0.00	9030.0	-118.6	2331.3	0.00	0.00	2334.3	Shideler Fee 31-9BB PBHL
7	9646.8	0.00	0.00	9180.0	-118.6	2331.3	0.00	0.00	2334.3	



FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
2196.0	2326.8	Molina
4350.0	4679.1	Ohio Creek
4446.0	4783.9	Mesaverde Marker
4970.0	5356.2	Williams Fork
6039.0	6504.1	Top Gas = 10°
7199.0	7665.8	Coal Ridge
7899.0	8365.8	Rollins
8450.0	8916.8	Cozzette
8650.0	9116.8	Corcoran



Azimuths to True North
Magnetic North: 10.10°

Magnetic Field
Strength: 52197.6snT
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
92.91

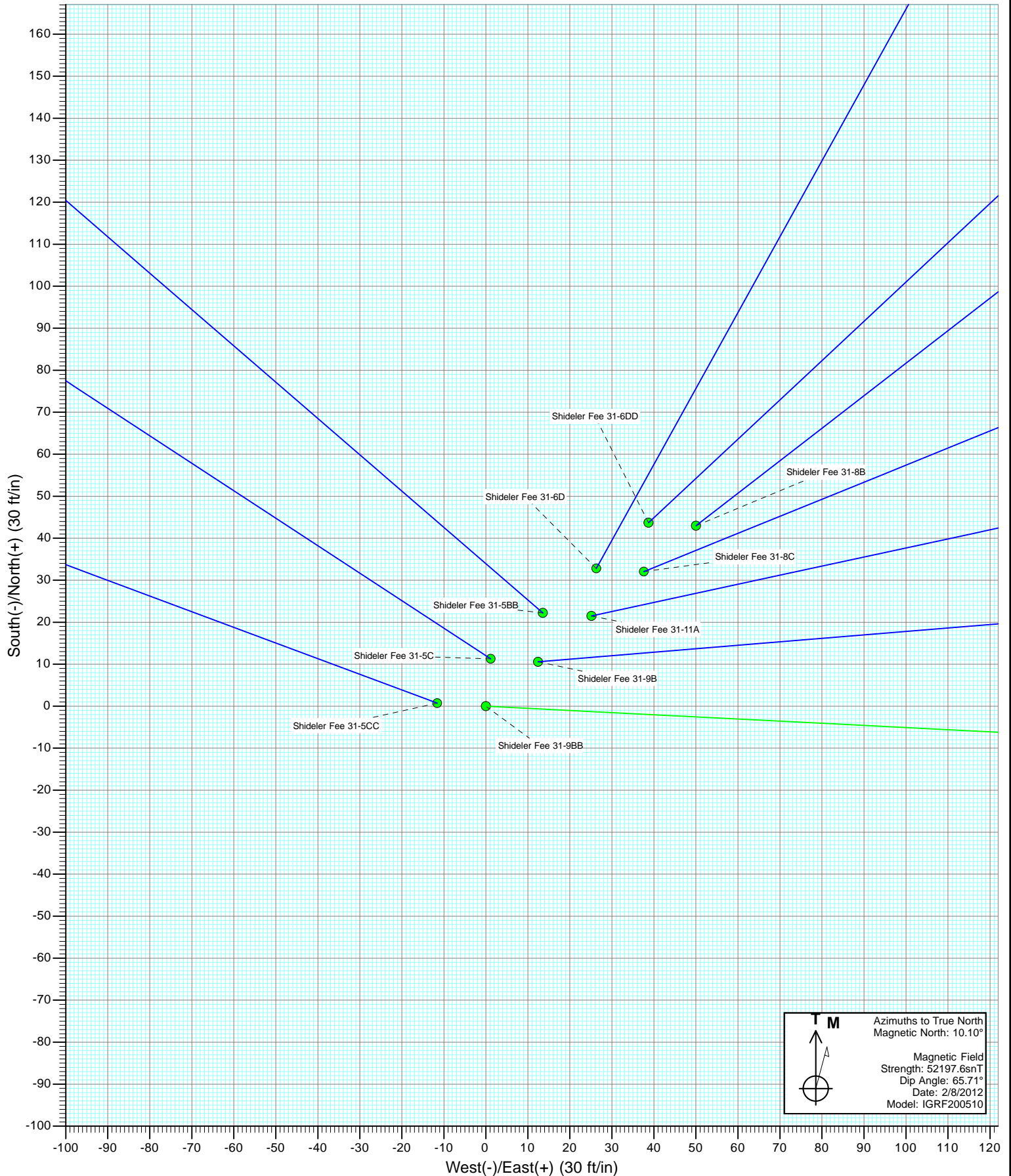
Origin Type
Slot

N/S
0.0

E/W
0.0

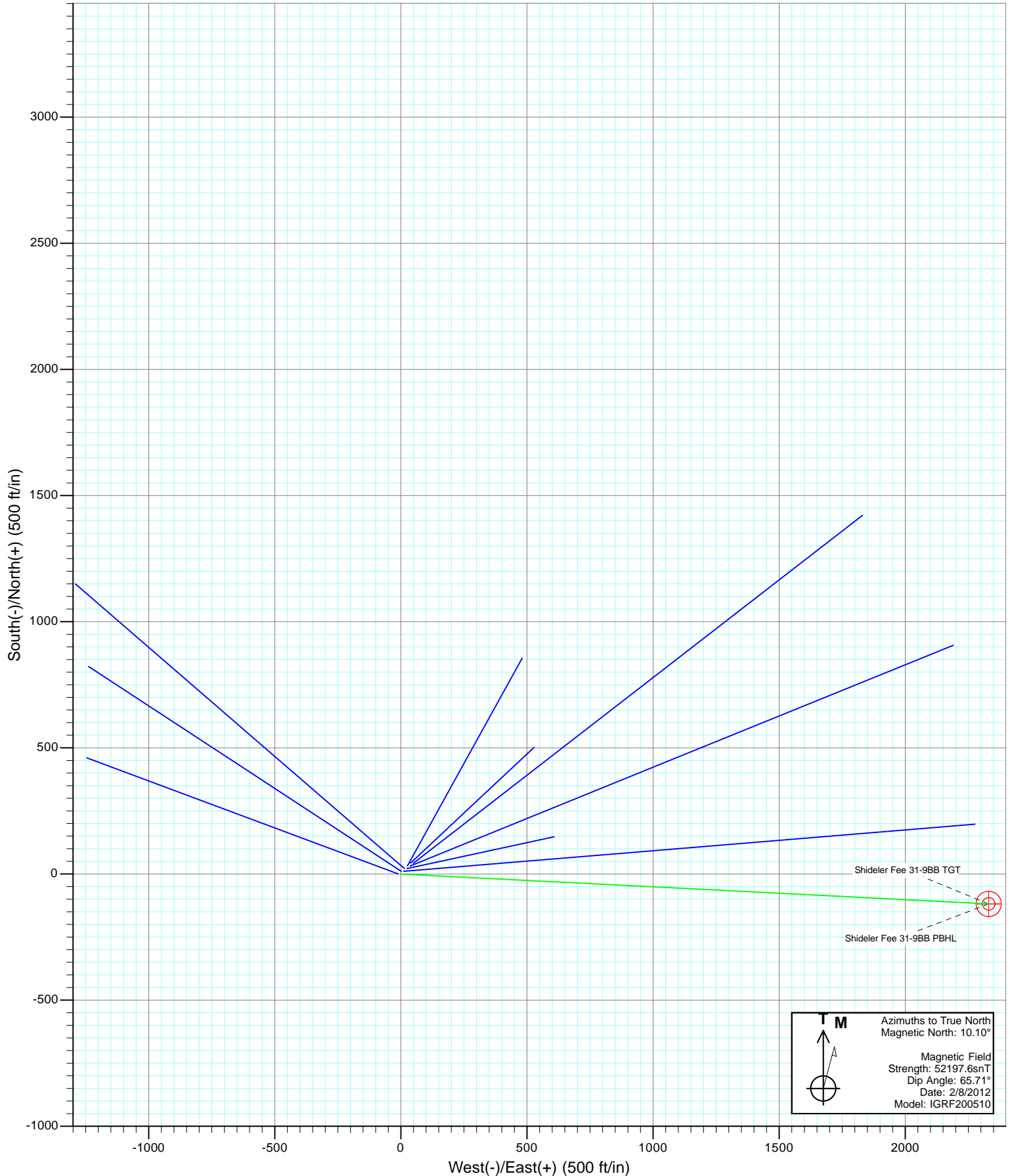


Project: Mamm Creek
Site: K31E Pad
Well: Shideler Fee 31-9BB
Wellbore: OH
Design: Plan #1



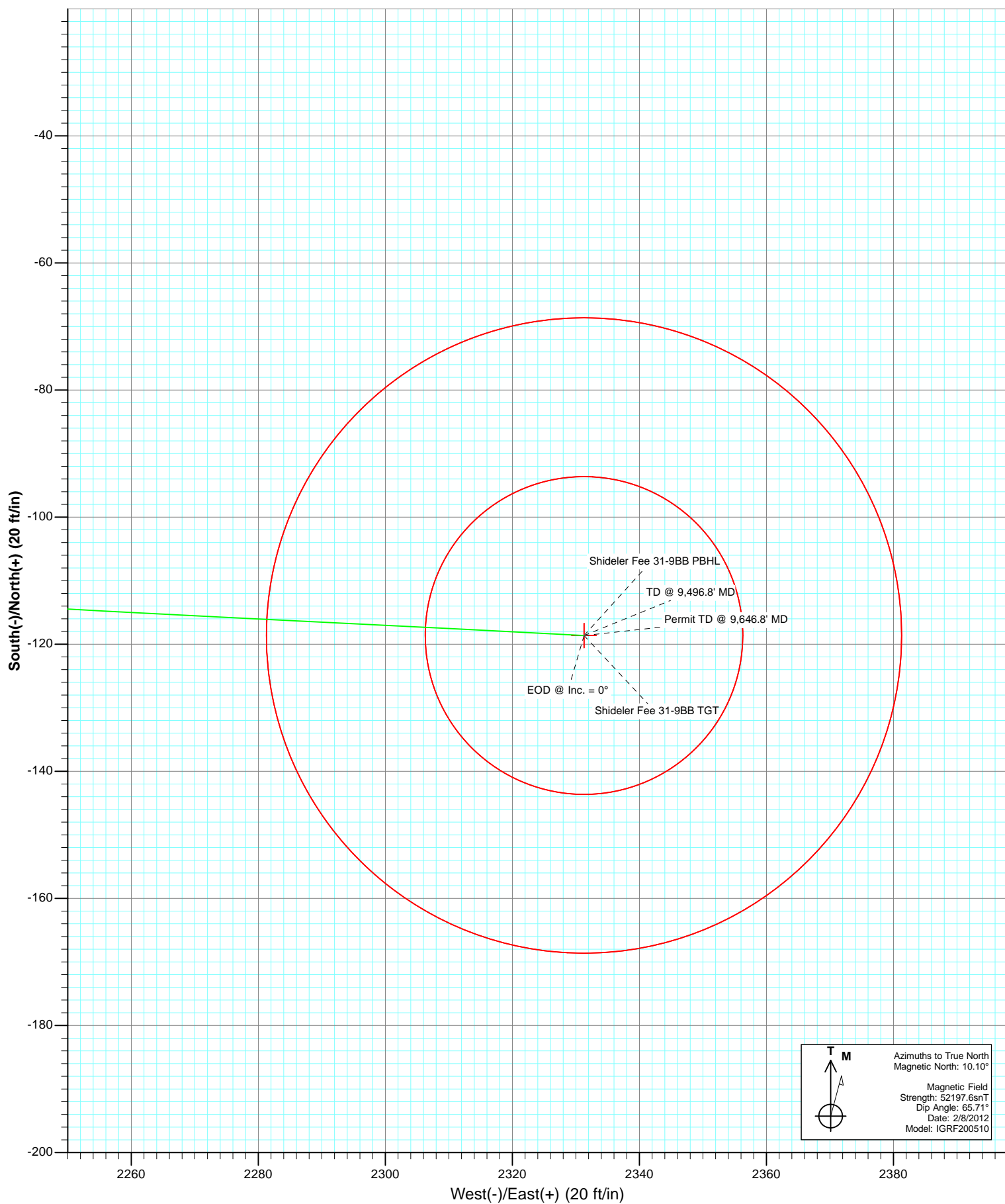


Project: Mamm Creek
Site: K31E Pad
Well: Shideler Fee 31-9BB
Wellbore: OH
Design: Plan #1





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



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-9BB
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 31-9BB	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 31-9BB					
Well Position	+N/-S	0.0 ft	Northing:	1,578,790.87 ft	Latitude:	39.401697
	+E/-W	0.0 ft	Easting:	2,375,828.18 ft	Longitude:	-107.709078
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	92.91

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	
250.0	0.00	0.00	250.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,039.8	23.69	92.91	1,017.5	-8.2	160.8	3.00	3.00	0.00	92.91	
6,047.5	23.69	92.91	5,603.0	-110.4	2,170.5	0.00	0.00	0.00	0.00	
6,837.3	0.00	0.00	6,370.5	-118.6	2,331.3	3.00	-3.00	0.00	180.00	Shideler Fee 31-9BB
9,496.8	0.00	0.00	9,030.0	-118.6	2,331.3	0.00	0.00	0.00	0.00	Shideler Fee 31-9BB
9,646.8	0.00	0.00	9,180.0	-118.6	2,331.3	0.00	0.00	0.00	0.00	

Cathedral Energy Services

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Project:	Mamm Creek	MD Reference:	KBE @ 6921.0ft (Original Well Elev)
Site:	K31E Pad	North Reference:	True
Well:	Shideler Fee 31-9BB	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	
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	KOP @ 250'
300.0	1.50	92.91	300.0	0.0	0.7	0.7	3.00	3.00	
400.0	4.50	92.91	399.8	-0.3	5.9	5.9	3.00	3.00	
500.0	7.50	92.91	499.3	-0.8	16.3	16.3	3.00	3.00	
600.0	10.50	92.91	598.0	-1.6	31.9	32.0	3.00	3.00	
700.0	13.50	92.91	695.8	-2.7	52.7	52.8	3.00	3.00	
800.0	16.50	92.91	792.4	-4.0	78.5	78.6	3.00	3.00	
900.0	19.50	92.91	887.5	-5.6	109.4	109.5	3.00	3.00	
1,000.0	22.50	92.91	980.9	-7.4	145.2	145.4	3.00	3.00	
1,039.8	23.69	92.91	1,017.5	-8.2	160.8	161.0	3.00	3.00	EOB @ Inc. = 23.69°
1,100.0	23.69	92.91	1,072.6	-9.4	184.9	185.2	0.00	0.00	
1,200.0	23.69	92.91	1,164.2	-11.5	225.1	225.4	0.00	0.00	
1,300.0	23.69	92.91	1,255.7	-13.5	265.2	265.6	0.00	0.00	
1,400.0	23.69	92.91	1,347.3	-15.5	305.3	305.7	0.00	0.00	
1,500.0	23.69	92.91	1,438.9	-17.6	345.5	345.9	0.00	0.00	Surface Casing
1,600.0	23.69	92.91	1,530.5	-19.6	385.6	386.1	0.00	0.00	
1,700.0	23.69	92.91	1,622.0	-21.7	425.7	426.3	0.00	0.00	
1,800.0	23.69	92.91	1,713.6	-23.7	465.9	466.5	0.00	0.00	
1,900.0	23.69	92.91	1,805.2	-25.7	506.0	506.7	0.00	0.00	
2,000.0	23.69	92.91	1,896.7	-27.8	546.1	546.8	0.00	0.00	
2,100.0	23.69	92.91	1,988.3	-29.8	586.3	587.0	0.00	0.00	
2,200.0	23.69	92.91	2,079.9	-31.9	626.4	627.2	0.00	0.00	
2,300.0	23.69	92.91	2,171.5	-33.9	666.5	667.4	0.00	0.00	
2,326.8	23.69	92.91	2,196.0	-34.5	677.3	678.2	0.00	0.00	Molina
2,400.0	23.69	92.91	2,263.0	-36.0	706.7	707.6	0.00	0.00	
2,500.0	23.69	92.91	2,354.6	-38.0	746.8	747.8	0.00	0.00	
2,600.0	23.69	92.91	2,446.2	-40.0	786.9	788.0	0.00	0.00	
2,700.0	23.69	92.91	2,537.7	-42.1	827.1	828.1	0.00	0.00	
2,800.0	23.69	92.91	2,629.3	-44.1	867.2	868.3	0.00	0.00	
2,900.0	23.69	92.91	2,720.9	-46.2	907.3	908.5	0.00	0.00	
3,000.0	23.69	92.91	2,812.4	-48.2	947.5	948.7	0.00	0.00	
3,100.0	23.69	92.91	2,904.0	-50.3	987.6	988.9	0.00	0.00	
3,200.0	23.69	92.91	2,995.6	-52.3	1,027.7	1,029.1	0.00	0.00	
3,300.0	23.69	92.91	3,087.2	-54.3	1,067.9	1,069.3	0.00	0.00	
3,400.0	23.69	92.91	3,178.7	-56.4	1,108.0	1,109.4	0.00	0.00	
3,500.0	23.69	92.91	3,270.3	-58.4	1,148.1	1,149.6	0.00	0.00	
3,600.0	23.69	92.91	3,361.9	-60.5	1,188.3	1,189.8	0.00	0.00	
3,700.0	23.69	92.91	3,453.4	-62.5	1,228.4	1,230.0	0.00	0.00	
3,800.0	23.69	92.91	3,545.0	-64.5	1,268.5	1,270.2	0.00	0.00	
3,900.0	23.69	92.91	3,636.6	-66.6	1,308.7	1,310.4	0.00	0.00	
4,000.0	23.69	92.91	3,728.2	-68.6	1,348.8	1,350.5	0.00	0.00	
4,100.0	23.69	92.91	3,819.7	-70.7	1,388.9	1,390.7	0.00	0.00	
4,200.0	23.69	92.91	3,911.3	-72.7	1,429.1	1,430.9	0.00	0.00	
4,300.0	23.69	92.91	4,002.9	-74.8	1,469.2	1,471.1	0.00	0.00	
4,400.0	23.69	92.91	4,094.4	-76.8	1,509.3	1,511.3	0.00	0.00	
4,500.0	23.69	92.91	4,186.0	-78.8	1,549.5	1,551.5	0.00	0.00	
4,600.0	23.69	92.91	4,277.6	-80.9	1,589.6	1,591.7	0.00	0.00	
4,679.1	23.69	92.91	4,350.0	-82.5	1,621.3	1,623.4	0.00	0.00	Ohio Creek
4,700.0	23.69	92.91	4,369.1	-82.9	1,629.7	1,631.8	0.00	0.00	

Cathedral Energy Services

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Project:	Mamm Creek	MD Reference:	KBE @ 6921.0ft (Original Well Elev)
Site:	K31E Pad	North Reference:	True
Well:	Shideler Fee 31-9BB	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
4,783.9	23.69	92.91	4,446.0	-84.6	1,663.4	1,665.6	0.00	0.00	Mesaverde Marker
4,800.0	23.69	92.91	4,460.7	-85.0	1,669.9	1,672.0	0.00	0.00	
4,900.0	23.69	92.91	4,552.3	-87.0	1,710.0	1,712.2	0.00	0.00	
5,000.0	23.69	92.91	4,643.9	-89.1	1,750.1	1,752.4	0.00	0.00	
5,100.0	23.69	92.91	4,735.4	-91.1	1,790.3	1,792.6	0.00	0.00	
5,200.0	23.69	92.91	4,827.0	-93.1	1,830.4	1,832.8	0.00	0.00	
5,300.0	23.69	92.91	4,918.6	-95.2	1,870.5	1,872.9	0.00	0.00	Williams Fork
5,356.2	23.69	92.91	4,970.0	-96.3	1,893.1	1,895.5	0.00	0.00	
5,400.0	23.69	92.91	5,010.1	-97.2	1,910.7	1,913.1	0.00	0.00	
5,500.0	23.69	92.91	5,101.7	-99.3	1,950.8	1,953.3	0.00	0.00	
5,600.0	23.69	92.91	5,193.3	-101.3	1,990.9	1,993.5	0.00	0.00	
5,700.0	23.69	92.91	5,284.9	-103.3	2,031.1	2,033.7	0.00	0.00	
5,800.0	23.69	92.91	5,376.4	-105.4	2,071.2	2,073.9	0.00	0.00	
5,900.0	23.69	92.91	5,468.0	-107.4	2,111.3	2,114.1	0.00	0.00	
6,000.0	23.69	92.91	5,559.6	-109.5	2,151.5	2,154.2	0.00	0.00	
6,047.5	23.69	92.91	5,603.0	-110.4	2,170.5	2,173.3	0.00	0.00	Start 3° Drop
6,100.0	22.12	92.91	5,651.4	-111.5	2,190.9	2,193.8	3.00	-3.00	
6,200.0	19.12	92.91	5,745.0	-113.3	2,226.1	2,229.0	3.00	-3.00	
6,300.0	16.12	92.91	5,840.3	-114.8	2,256.3	2,259.2	3.00	-3.00	
6,400.0	13.12	92.91	5,937.1	-116.1	2,281.5	2,284.5	3.00	-3.00	
6,500.0	10.12	92.91	6,035.0	-117.1	2,301.6	2,304.6	3.00	-3.00	
6,504.1	10.00	92.91	6,039.0	-117.2	2,302.3	2,305.3	3.00	-3.00	Top Gas = 10°
6,600.0	7.12	92.91	6,133.9	-117.9	2,316.6	2,319.6	3.00	-3.00	
6,700.0	4.12	92.91	6,233.4	-118.4	2,326.4	2,329.4	3.00	-3.00	
6,800.0	1.12	92.91	6,333.2	-118.6	2,330.9	2,333.9	3.00	-3.00	EOD @ Inc. = 0°
6,837.3	0.00	0.00	6,370.5	-118.6	2,331.3	2,334.3	3.00	-3.00	
6,900.0	0.00	0.00	6,433.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,000.0	0.00	0.00	6,533.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,100.0	0.00	0.00	6,633.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,200.0	0.00	0.00	6,733.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,300.0	0.00	0.00	6,833.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,400.0	0.00	0.00	6,933.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,500.0	0.00	0.00	7,033.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,600.0	0.00	0.00	7,133.2	-118.6	2,331.3	2,334.3	0.00	0.00	Coal Ridge
7,665.8	0.00	0.00	7,199.0	-118.6	2,331.3	2,334.3	0.00	0.00	
7,700.0	0.00	0.00	7,233.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,800.0	0.00	0.00	7,333.2	-118.6	2,331.3	2,334.3	0.00	0.00	
7,900.0	0.00	0.00	7,433.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,000.0	0.00	0.00	7,533.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,100.0	0.00	0.00	7,633.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,200.0	0.00	0.00	7,733.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,300.0	0.00	0.00	7,833.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,365.8	0.00	0.00	7,899.0	-118.6	2,331.3	2,334.3	0.00	0.00	Rollins
8,400.0	0.00	0.00	7,933.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,500.0	0.00	0.00	8,033.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,600.0	0.00	0.00	8,133.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,700.0	0.00	0.00	8,233.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,800.0	0.00	0.00	8,333.2	-118.6	2,331.3	2,334.3	0.00	0.00	
8,900.0	0.00	0.00	8,433.2	-118.6	2,331.3	2,334.3	0.00	0.00	Cozzette
8,916.8	0.00	0.00	8,450.0	-118.6	2,331.3	2,334.3	0.00	0.00	
9,000.0	0.00	0.00	8,533.2	-118.6	2,331.3	2,334.3	0.00	0.00	
9,100.0	0.00	0.00	8,633.2	-118.6	2,331.3	2,334.3	0.00	0.00	

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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
9,116.8	0.00	0.00	8,650.0	-118.6	2,331.3	2,334.3	0.00	0.00	Corcoran
9,200.0	0.00	0.00	8,733.2	-118.6	2,331.3	2,334.3	0.00	0.00	
9,300.0	0.00	0.00	8,833.2	-118.6	2,331.3	2,334.3	0.00	0.00	
9,400.0	0.00	0.00	8,933.2	-118.6	2,331.3	2,334.3	0.00	0.00	
9,496.8	0.00	0.00	9,030.0	-118.6	2,331.3	2,334.3	0.00	0.00	TD @ 9,496.8' MD
9,500.0	0.00	0.00	9,033.2	-118.6	2,331.3	2,334.3	0.00	0.00	
9,600.0	0.00	0.00	9,133.2	-118.6	2,331.3	2,334.3	0.00	0.00	
9,646.8	0.00	0.00	9,180.0	-118.6	2,331.3	2,334.3	0.00	0.00	Permit TD @ 9,646.8' MD

Targets										
Target Name										
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting			
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		Latitude	Longitude
Shideler Fee 31-9BB TG - plan hits target center - Circle (radius 25.0)	0.00	0.00	6,370.5	-118.6	2,331.3	1,578,615.60	2,378,155.89		39.401371	-107.700828
Shideler Fee 31-9BB PB - plan hits target center - Circle (radius 50.0)	0.00	0.00	9,030.0	-118.6	2,331.3	1,578,615.60	2,378,155.89		39.401371	-107.700828

Casing Points						Casing Diameter (in)	Hole Diameter (in)
Measured Depth (ft)	Vertical Depth (ft)	Name					
1,500.0	1,438.9	Surface Casing				0.000	0.000

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,326.8	2,196.0	Molina				
4,679.1	4,350.0	Ohio Creek				
4,783.9	4,446.0	Mesaverde Marker				
5,356.2	4,970.0	Williams Fork				
6,504.1	6,039.0	Top Gas = 10°				
7,665.8	7,199.0	Coal Ridge				
8,365.8	7,899.0	Rollins				
8,916.8	8,450.0	Cozzette				
9,116.8	8,650.0	Corcoran				

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Shideler Fee 31-9BB
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 31-9BB	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)	
250.0	250.0	0.0	0.0	KOP @ 250'
1,039.8	1,017.5	-8.2	160.8	EOB @ Inc. = 23.69°
6,047.5	5,603.0	-110.4	2,170.5	Start 3° Drop
6,837.3	6,370.5	-118.6	2,331.3	EOD @ Inc. = 0°
9,496.8	9,030.0	-118.6	2,331.3	TD @ 9,496.8' MD
9,646.8	9,180.0	-118.6	2,331.3	Permit TD @ 9,646.8' MD