

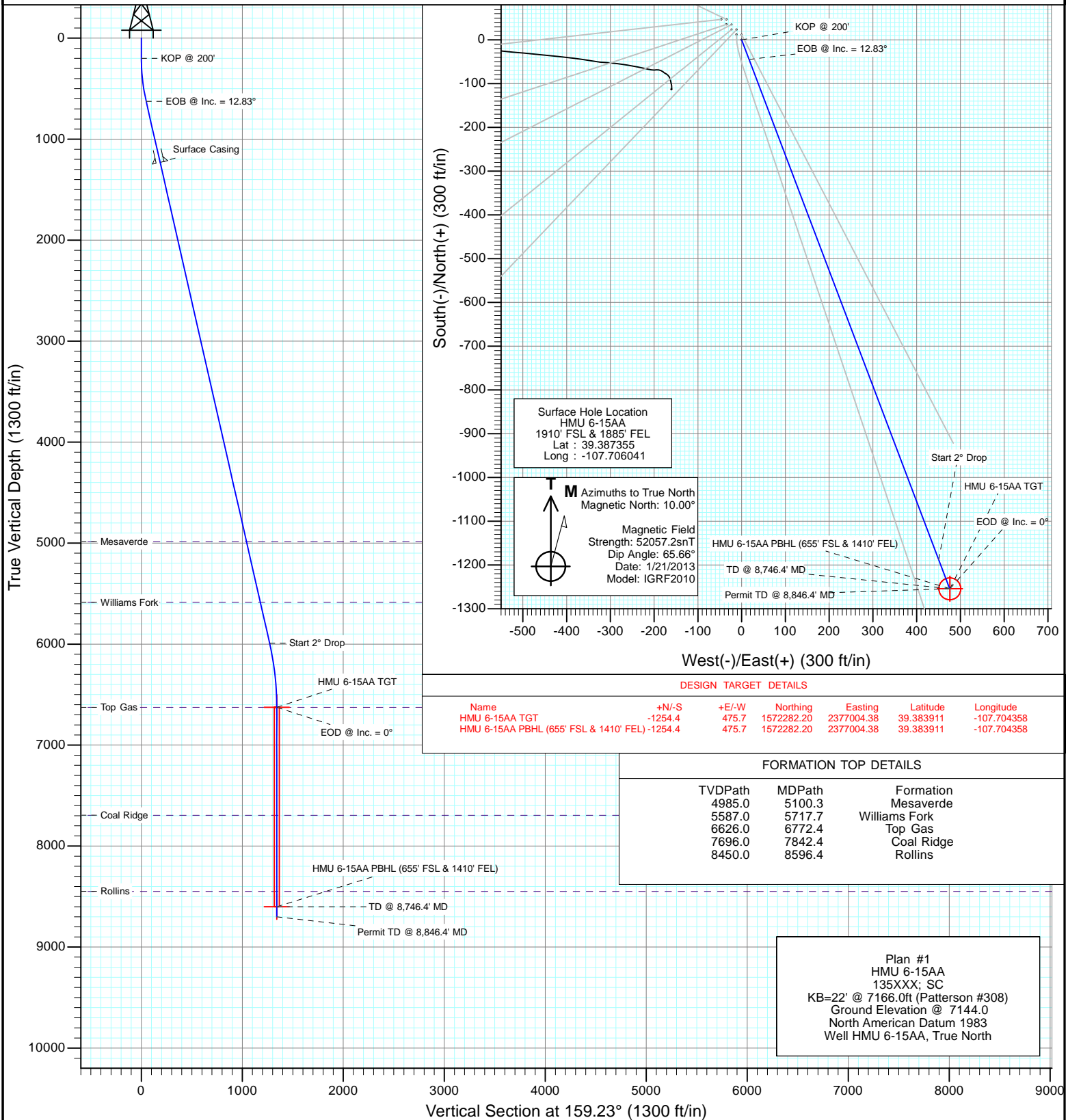


Project: Mamm Creek  
Site: J6SEB Pad  
Well: HMU 6-15AA  
Wellbore: OH  
Design: Plan #1



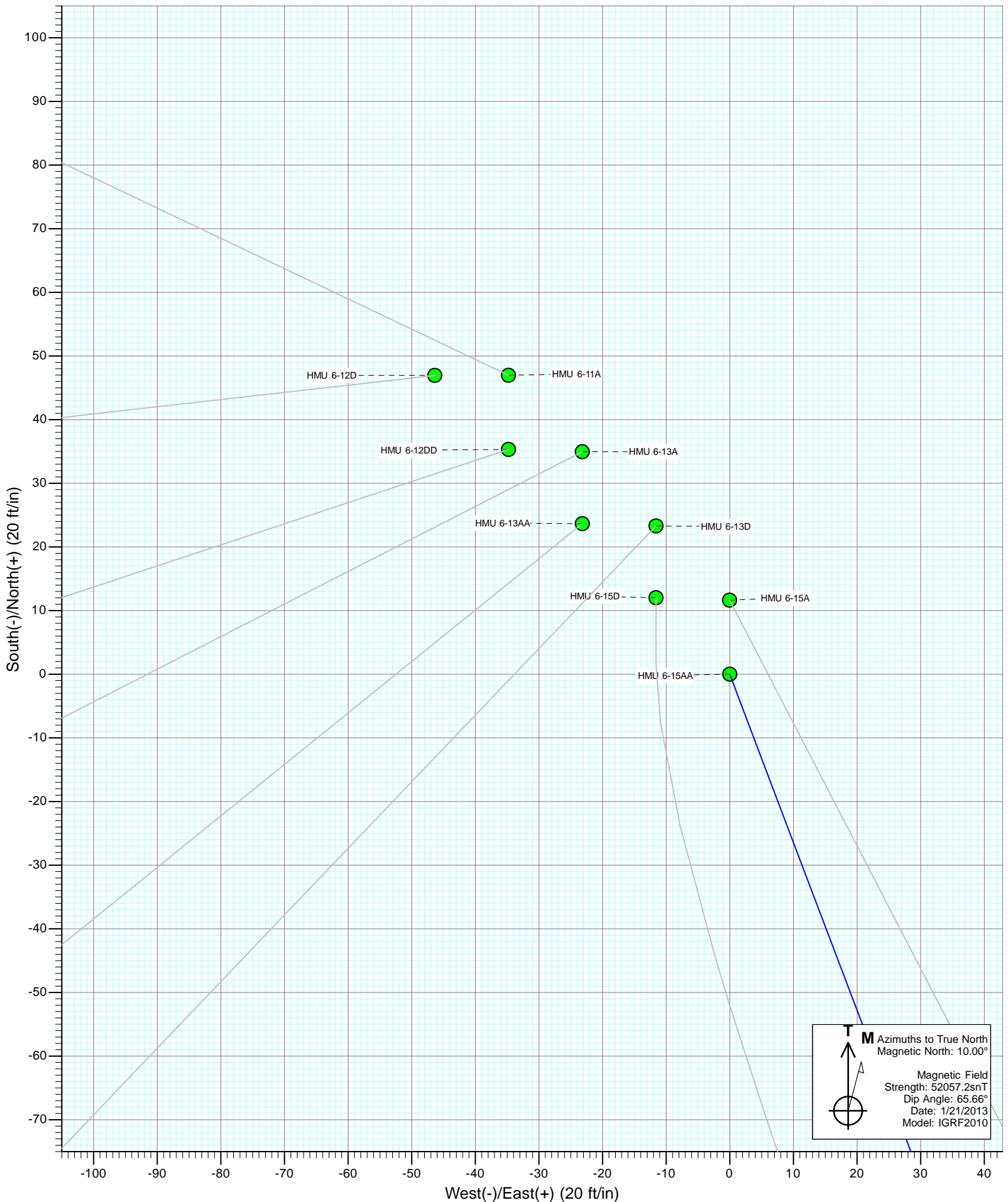
#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.00	0.00	0.00	0.0	
3	627.8	12.83	159.23	624.2	-44.6	16.9	3.00	159.23	47.7	
4	6130.7	12.83	159.23	5989.7	-1187.5	450.3	0.00	0.00	1270.0	
5	6772.4	0.00	0.00	6626.0	-1254.4	475.7	2.00	180.00	1341.6	HMU 6-15AA TGT
6	8746.4	0.00	0.00	8600.0	-1254.4	475.7	0.00	0.00	1341.6	HMU 6-15AA PBHL (655' FSL & 1410' FEL)
7	8846.4	0.00	0.00	8700.0	-1254.4	475.7	0.00	0.00	1341.6	



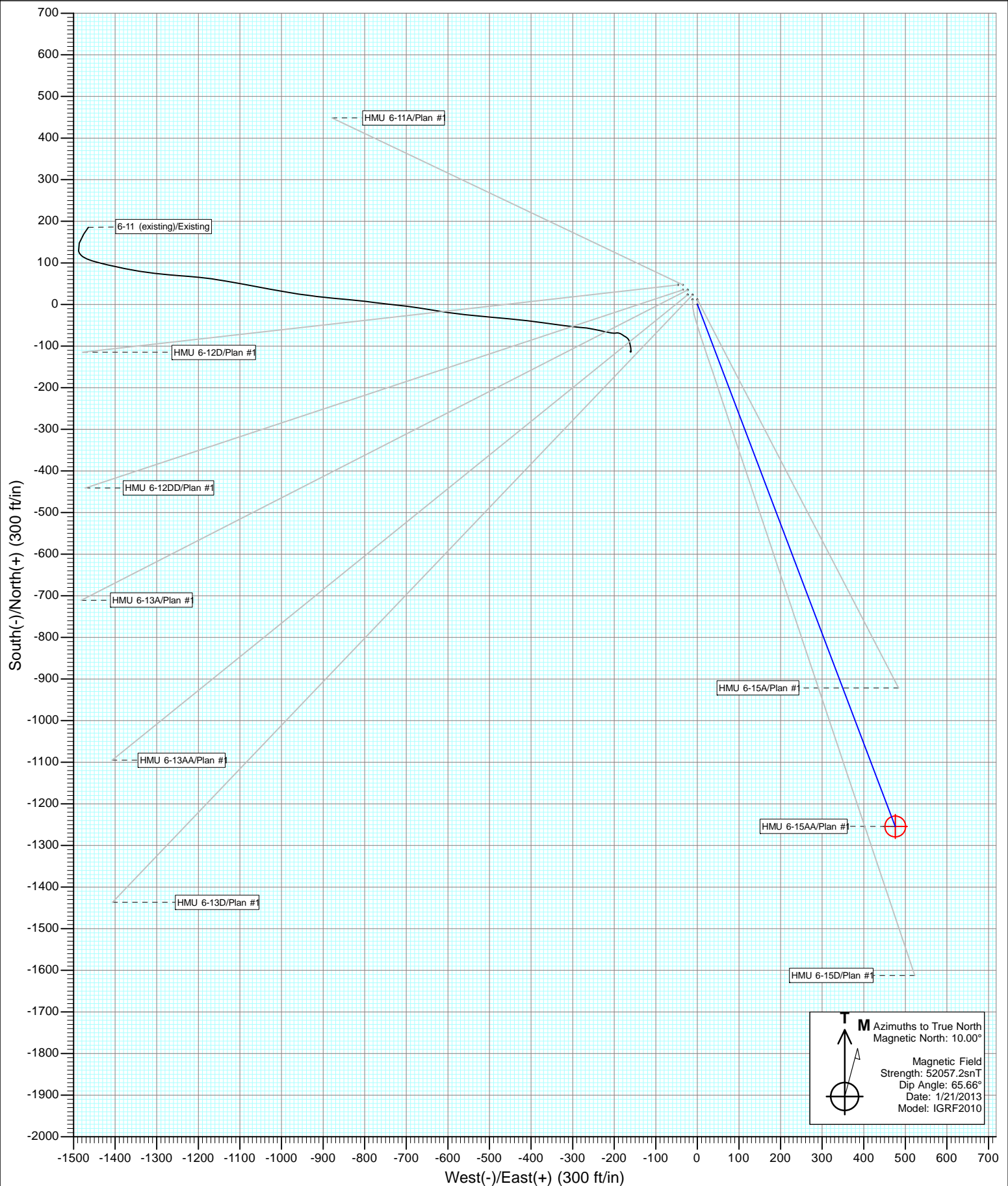


Project: Mamm Creek  
Site: J6SEB Pad  
Well: HMU 6-15AA  
Wellbore: OH  
Design: Plan #1



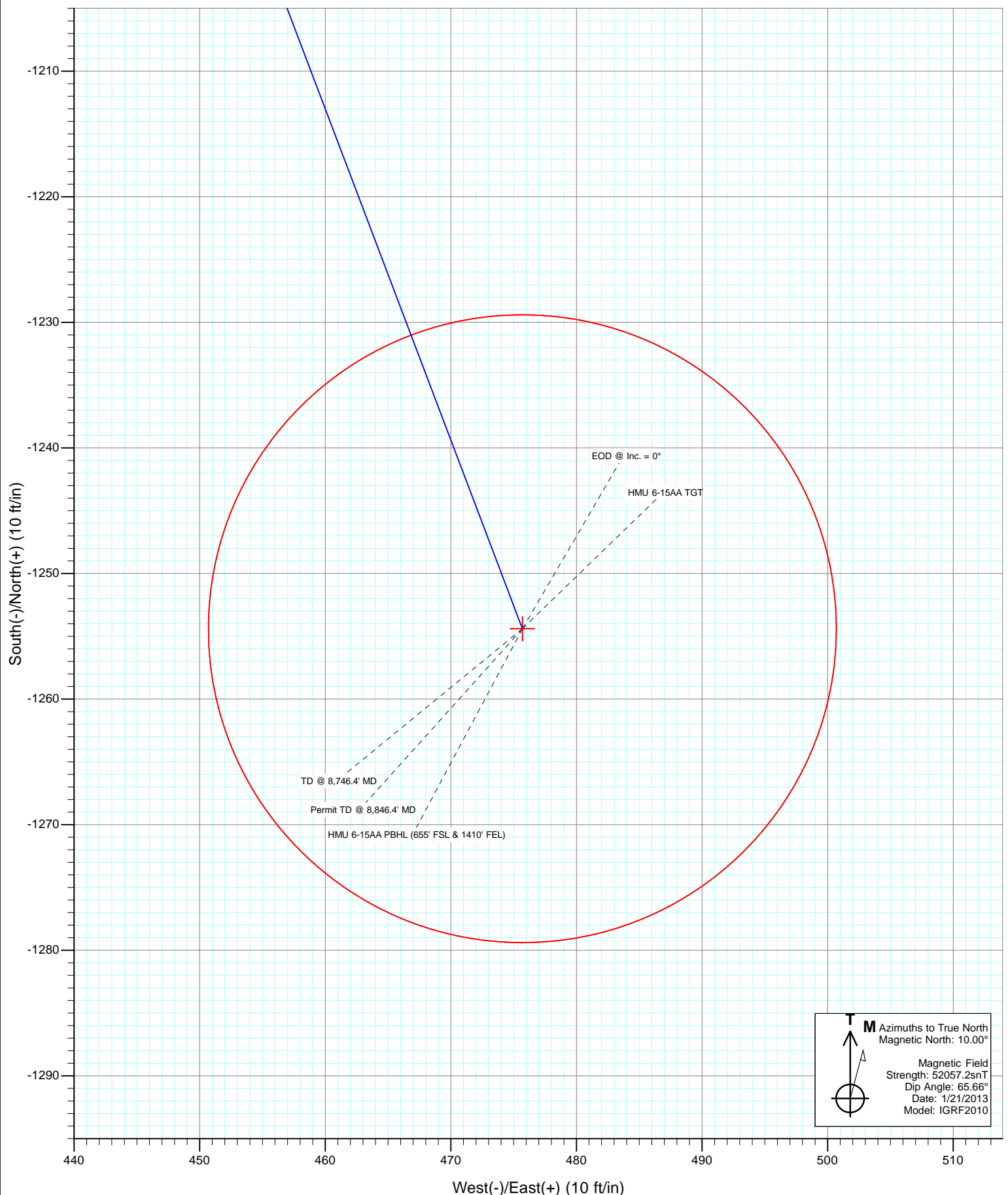


Project: Mamm Creek  
Site: J6SEB Pad  
Well: HMU 6-15AA  
Wellbore: OH  
Design: Plan #1





Project: Mamm Creek  
Site: J6SEB Pad  
Well: HMU 6-15AA  
Wellbore: OH  
Design: Plan #1



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site:</b>	J6SEB Pad	<b>North Reference:</b>	True
<b>Well:</b>	HMU 6-15AA	<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		J6SEB Pad			
Site Position:		Northing:	1,573,595.87 ft	Latitude:	39.387484
From:	Lat/Long	Easting:	2,376,514.08 ft	Longitude:	-107.706205
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.39 °

Well	HMU 6-15AA					
Well Position	+N/-S	0.0 ft	Northing:	1,573,547.77 ft	Latitude:	39.387355
	+E/-W	0.0 ft	Easting:	2,376,559.28 ft	Longitude:	-107.706041
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,144.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/21/2013	10.00	65.66	52,057

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	159.23

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
627.8	12.83	159.23	624.2	-44.6	16.9	3.00	3.00	0.00	159.23	
6,130.7	12.83	159.23	5,989.7	-1,187.5	450.3	0.00	0.00	0.00	0.00	
6,772.4	0.00	0.00	6,626.0	-1,254.4	475.7	2.00	-2.00	0.00	180.00	HMU 6-15AA TGT
8,746.4	0.00	0.00	8,600.0	-1,254.4	475.7	0.00	0.00	0.00	0.00	HMU 6-15AA PBHL (€
8,846.4	0.00	0.00	8,700.0	-1,254.4	475.7	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 HMU 6-15AA
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site:</b>	J6SEB Pad	<b>North Reference:</b>	True
<b>Well:</b>	HMU 6-15AA	<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	KOP @ 200'
300.0	3.00	159.23	300.0	-2.4	0.9	2.6	3.00	3.00	
400.0	6.00	159.23	399.6	-9.8	3.7	10.5	3.00	3.00	
500.0	9.00	159.23	498.8	-22.0	8.3	23.5	3.00	3.00	
600.0	12.00	159.23	597.1	-39.0	14.8	41.7	3.00	3.00	
627.8	12.83	159.23	624.2	-44.6	16.9	47.7	3.00	3.00	EOB @ Inc. = 12.83°
700.0	12.83	159.23	694.6	-59.6	22.6	63.7	0.00	0.00	
800.0	12.83	159.23	792.1	-80.4	30.5	86.0	0.00	0.00	
900.0	12.83	159.23	889.6	-101.1	38.4	108.2	0.00	0.00	
1,000.0	12.83	159.23	987.1	-121.9	46.2	130.4	0.00	0.00	
1,100.0	12.83	159.23	1,084.6	-142.7	54.1	152.6	0.00	0.00	
1,200.0	12.83	159.23	1,182.1	-163.4	62.0	174.8	0.00	0.00	
1,249.1	12.83	159.23	1,230.0	-173.6	65.9	185.7	0.00	0.00	Surface Casing
1,300.0	12.83	159.23	1,279.6	-184.2	69.9	197.0	0.00	0.00	
1,400.0	12.83	159.23	1,377.1	-205.0	77.7	219.2	0.00	0.00	
1,500.0	12.83	159.23	1,474.6	-225.8	85.6	241.4	0.00	0.00	
1,600.0	12.83	159.23	1,572.1	-246.5	93.5	263.7	0.00	0.00	
1,700.0	12.83	159.23	1,669.6	-267.3	101.4	285.9	0.00	0.00	
1,800.0	12.83	159.23	1,767.2	-288.1	109.2	308.1	0.00	0.00	
1,900.0	12.83	159.23	1,864.7	-308.8	117.1	330.3	0.00	0.00	
2,000.0	12.83	159.23	1,962.2	-329.6	125.0	352.5	0.00	0.00	
2,100.0	12.83	159.23	2,059.7	-350.4	132.9	374.7	0.00	0.00	
2,200.0	12.83	159.23	2,157.2	-371.1	140.7	396.9	0.00	0.00	
2,300.0	12.83	159.23	2,254.7	-391.9	148.6	419.1	0.00	0.00	
2,400.0	12.83	159.23	2,352.2	-412.7	156.5	441.3	0.00	0.00	
2,500.0	12.83	159.23	2,449.7	-433.4	164.4	463.6	0.00	0.00	
2,600.0	12.83	159.23	2,547.2	-454.2	172.2	485.8	0.00	0.00	
2,700.0	12.83	159.23	2,644.7	-475.0	180.1	508.0	0.00	0.00	
2,800.0	12.83	159.23	2,742.2	-495.7	188.0	530.2	0.00	0.00	
2,900.0	12.83	159.23	2,839.7	-516.5	195.9	552.4	0.00	0.00	
3,000.0	12.83	159.23	2,937.2	-537.3	203.8	574.6	0.00	0.00	
3,100.0	12.83	159.23	3,034.7	-558.0	211.6	596.8	0.00	0.00	
3,200.0	12.83	159.23	3,132.2	-578.8	219.5	619.0	0.00	0.00	
3,300.0	12.83	159.23	3,229.7	-599.6	227.4	641.3	0.00	0.00	
3,400.0	12.83	159.23	3,327.2	-620.4	235.3	663.5	0.00	0.00	
3,500.0	12.83	159.23	3,424.7	-641.1	243.1	685.7	0.00	0.00	
3,600.0	12.83	159.23	3,522.2	-661.9	251.0	707.9	0.00	0.00	
3,700.0	12.83	159.23	3,619.7	-682.7	258.9	730.1	0.00	0.00	
3,800.0	12.83	159.23	3,717.2	-703.4	266.8	752.3	0.00	0.00	
3,900.0	12.83	159.23	3,814.7	-724.2	274.6	774.5	0.00	0.00	
4,000.0	12.83	159.23	3,912.2	-745.0	282.5	796.7	0.00	0.00	
4,100.0	12.83	159.23	4,009.7	-765.7	290.4	818.9	0.00	0.00	
4,200.0	12.83	159.23	4,107.2	-786.5	298.3	841.2	0.00	0.00	
4,300.0	12.83	159.23	4,204.7	-807.3	306.1	863.4	0.00	0.00	
4,400.0	12.83	159.23	4,302.2	-828.0	314.0	885.6	0.00	0.00	
4,500.0	12.83	159.23	4,399.7	-848.8	321.9	907.8	0.00	0.00	
4,600.0	12.83	159.23	4,497.2	-869.6	329.8	930.0	0.00	0.00	
4,700.0	12.83	159.23	4,594.7	-890.3	337.6	952.2	0.00	0.00	
4,800.0	12.83	159.23	4,692.2	-911.1	345.5	974.4	0.00	0.00	
4,900.0	12.83	159.23	4,789.7	-931.9	353.4	996.6	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 HMU 6-15AA
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site:</b>	J6SEB Pad	<b>North Reference:</b>	True
<b>Well:</b>	HMU 6-15AA	<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
5,000.0	12.83	159.23	4,887.2	-952.6	361.3	1,018.9	0.00	0.00	
5,100.0	12.83	159.23	4,984.7	-973.4	369.1	1,041.1	0.00	0.00	
5,100.3	12.83	159.23	4,985.0	-973.5	369.2	1,041.1	0.00	0.00	Mesaverde
5,200.0	12.83	159.23	5,082.2	-994.2	377.0	1,063.3	0.00	0.00	
5,300.0	12.83	159.23	5,179.7	-1,015.0	384.9	1,085.5	0.00	0.00	
5,400.0	12.83	159.23	5,277.2	-1,035.7	392.8	1,107.7	0.00	0.00	
5,500.0	12.83	159.23	5,374.7	-1,056.5	400.7	1,129.9	0.00	0.00	
5,600.0	12.83	159.23	5,472.2	-1,077.3	408.5	1,152.1	0.00	0.00	
5,700.0	12.83	159.23	5,569.7	-1,098.0	416.4	1,174.3	0.00	0.00	
5,717.7	12.83	159.23	5,587.0	-1,101.7	417.8	1,178.3	0.00	0.00	Williams Fork
5,800.0	12.83	159.23	5,667.2	-1,118.8	424.3	1,196.5	0.00	0.00	
5,900.0	12.83	159.23	5,764.7	-1,139.6	432.2	1,218.8	0.00	0.00	
6,000.0	12.83	159.23	5,862.2	-1,160.3	440.0	1,241.0	0.00	0.00	
6,100.0	12.83	159.23	5,959.7	-1,181.1	447.9	1,263.2	0.00	0.00	
6,130.7	12.83	159.23	5,989.7	-1,187.5	450.3	1,270.0	0.00	0.00	Start 2° Drop
6,200.0	11.45	159.23	6,057.4	-1,201.1	455.5	1,284.6	2.00	-2.00	
6,300.0	9.45	159.23	6,155.8	-1,218.1	461.9	1,302.7	2.00	-2.00	
6,400.0	7.45	159.23	6,254.7	-1,231.8	467.1	1,317.4	2.00	-2.00	
6,500.0	5.45	159.23	6,354.0	-1,242.3	471.1	1,328.6	2.00	-2.00	
6,600.0	3.45	159.23	6,453.7	-1,249.5	473.9	1,336.4	2.00	-2.00	
6,700.0	1.45	159.23	6,553.6	-1,253.5	475.4	1,340.6	2.00	-2.00	
6,772.4	0.00	0.00	6,626.0	-1,254.4	475.7	1,341.6	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,800.0	0.00	0.00	6,653.6	-1,254.4	475.7	1,341.6	0.00	0.00	
6,900.0	0.00	0.00	6,753.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,000.0	0.00	0.00	6,853.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,100.0	0.00	0.00	6,953.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,200.0	0.00	0.00	7,053.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,300.0	0.00	0.00	7,153.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,400.0	0.00	0.00	7,253.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,500.0	0.00	0.00	7,353.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,600.0	0.00	0.00	7,453.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,700.0	0.00	0.00	7,553.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,800.0	0.00	0.00	7,653.6	-1,254.4	475.7	1,341.6	0.00	0.00	
7,842.4	0.00	0.00	7,696.0	-1,254.4	475.7	1,341.6	0.00	0.00	Coal Ridge
7,900.0	0.00	0.00	7,753.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,000.0	0.00	0.00	7,853.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,100.0	0.00	0.00	7,953.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,200.0	0.00	0.00	8,053.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,300.0	0.00	0.00	8,153.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,400.0	0.00	0.00	8,253.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,500.0	0.00	0.00	8,353.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,596.4	0.00	0.00	8,450.0	-1,254.4	475.7	1,341.6	0.00	0.00	Rollins
8,600.0	0.00	0.00	8,453.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,700.0	0.00	0.00	8,553.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,746.4	0.00	0.00	8,600.0	-1,254.4	475.7	1,341.6	0.00	0.00	TD @ 8,746.4' MD
8,800.0	0.00	0.00	8,653.6	-1,254.4	475.7	1,341.6	0.00	0.00	
8,846.4	0.00	0.00	8,700.0	-1,254.4	475.7	1,341.6	0.00	0.00	Permit TD @ 8,846.4' MD

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Project:</b>	Mamm Creek	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site:</b>	J6SEB Pad	<b>North Reference:</b>	True
<b>Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
HMU 6-15AA PBHL (65'	0.00	0.00	8,600.0	-1,254.4	475.7	1,572,282.20	2,377,004.38	39.383911	-107.704358
- plan hits target center									
- Circle (radius 25.0)									
HMU 6-15AA TGT	0.00	0.00	6,626.0	-1,254.4	475.7	1,572,282.20	2,377,004.38	39.383911	-107.704358
- plan hits target center									
- Point									

Casing Points				
Measured Depth	Vertical Depth	Name		
(ft)	(ft)			
		Casing Diameter	Hole Diameter	
		(in)	(in)	
1,249.1	1,230.0	Surface Casing		

Formations					
Measured Depth	Vertical Depth	Name		Lithology	Dip
(ft)	(ft)				(°)
					Dip Direction
					(°)
5,100.3	4,985.0	Mesaverde			
5,717.7	5,587.0	Williams Fork			
6,772.4	6,626.0	Top Gas			
7,842.4	7,696.0	Coal Ridge			
8,596.4	8,450.0	Rollins			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
		(ft)	(ft)		
200.0	200.0	0.0	0.0	KOP @ 200'	
627.8	624.2	-44.6	16.9	EOB @ Inc. = 12.83°	
6,130.7	5,989.7	-1,187.5	450.3	Start 2° Drop	
6,772.4	6,626.0	-1,254.4	475.7	EOD @ Inc. = 0°	
8,746.4	8,600.0	-1,254.4	475.7	TD @ 8,746.4' MD	
8,846.4	8,700.0	-1,254.4	475.7	Permit TD @ 8,846.4' MD	



# **EnCana Oil & Gas (USA) Inc**

**Mamm Creek**

**J6SEB Pad**

**HMU 6-15AA**

**OH**

**Plan #1**

## **Anticollision Report**

**21 January, 2013**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	1/21/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	8,846.4	Plan #1 (OH)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
J6SE						
6-11 (existing) - Existing - Existing	576.9	550.0	185.2	182.9	79.926	CC
6-11 (existing) - Existing - Existing	600.0	572.0	185.4	182.9	75.784	ES
6-11 (existing) - Existing - Existing	1,200.0	1,146.2	256.4	251.2	48.626	SF
J6SEB Pad						
HMU 6-11A - OH - Plan #1	200.0	200.0	58.4	57.8	94.068	CC, ES
HMU 6-11A - OH - Plan #1	400.0	394.9	73.5	72.2	55.917	SF
HMU 6-12D - OH - Plan #1	200.0	200.0	66.0	65.4	106.210	CC, ES
HMU 6-12D - OH - Plan #1	500.0	489.4	101.9	100.1	57.723	SF
HMU 6-12DD - OH - Plan #1	200.0	200.0	49.6	48.9	79.773	CC, ES
HMU 6-12DD - OH - Plan #1	500.0	493.7	80.0	78.2	45.085	SF
HMU 6-13A - OH - Plan #1	200.0	200.0	41.9	41.3	67.515	CC, ES
HMU 6-13A - OH - Plan #1	500.0	497.5	66.8	65.1	38.588	SF
HMU 6-13AA - OH - Plan #1	200.0	200.0	33.1	32.5	53.327	CC, ES
HMU 6-13AA - OH - Plan #1	500.0	497.9	56.6	54.8	31.756	SF
HMU 6-13D - OH - Plan #1	200.0	200.0	26.0	25.4	41.897	CC, ES
HMU 6-13D - OH - Plan #1	400.0	400.2	35.6	34.3	26.894	SF
HMU 6-15A - OH - Plan #1	200.0	200.0	11.7	11.0	18.766	CC, ES
HMU 6-15A - OH - Plan #1	8,846.4	8,791.1	333.0	297.6	9.420	SF
HMU 6-15D - OH - Plan #1	200.0	200.0	16.7	16.1	26.876	CC
HMU 6-15D - OH - Plan #1	1,011.7	1,016.7	22.1	15.8	3.519	ES
HMU 6-15D - OH - Plan #1	1,100.0	1,104.8	22.9	15.8	3.236	SF

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SE - 6-11 (existing) - Existing - Existing													Offset Site Error:	0.0 ft
Survey Program: 160-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-125.20	-113.1	-160.3	198.0					
100.0	100.0	74.5	74.5	0.1	0.1	-125.18	-112.9	-160.2	196.0	195.8	0.26	767.959		
200.0	200.0	176.0	176.0	0.3	0.3	-125.08	-112.1	-159.6	195.0	194.4	0.60	326.020		
300.0	300.0	277.0	277.0	0.5	0.5	77.15	-109.4	-159.5	192.8	191.8	0.97	197.831		
400.0	399.6	377.1	376.9	0.7	0.7	80.99	-104.3	-160.3	189.3	187.9	1.39	135.934		
500.0	498.8	475.1	474.7	1.0	0.9	86.83	-98.0	-161.6	186.2	184.3	1.88	98.960		
576.9	574.5	550.0	549.4	1.3	1.0	92.41	-93.1	-162.6	185.2	182.9	2.32	79.926 CC		
600.0	597.1	572.0	571.4	1.4	1.1	94.22	-91.7	-162.9	185.4	182.9	2.45	75.784 ES		
700.0	694.6	666.1	665.3	1.8	1.3	102.11	-86.5	-164.5	189.1	186.1	3.01	62.815		
800.0	792.1	760.6	759.7	2.2	1.5	109.35	-82.4	-167.0	197.6	194.0	3.54	55.851		
900.0	889.6	856.9	855.9	2.6	1.6	115.73	-79.5	-170.1	209.7	205.7	4.02	52.169		
1,000.0	987.1	955.4	954.4	3.0	1.8	121.22	-77.7	-172.7	223.5	219.0	4.46	50.045		
1,100.0	1,084.6	1,051.4	1,050.3	3.4	2.0	125.89	-76.3	-175.3	239.0	234.1	4.88	48.955		
1,200.0	1,182.1	1,146.2	1,145.1	3.8	2.1	130.01	-74.3	-178.2	256.4	251.2	5.27	48.626 SF		
1,300.0	1,279.6	1,239.9	1,238.6	4.3	2.3	133.66	-71.6	-181.9	276.2	270.5	5.64	48.949		
1,400.0	1,377.1	1,337.0	1,335.6	4.7	2.5	136.73	-69.5	-186.7	297.5	291.5	6.00	49.580		
1,500.0	1,474.6	1,438.1	1,436.6	5.1	2.7	139.41	-68.3	-191.0	318.4	312.1	6.36	50.091		
1,600.0	1,572.1	1,537.5	1,535.9	5.5	2.9	141.56	-68.5	-194.6	338.8	332.1	6.71	50.466		
1,700.0	1,669.6	1,632.5	1,630.9	6.0	3.0	143.33	-68.9	-198.2	359.5	352.4	7.07	50.853		
1,800.0	1,767.2	1,722.6	1,720.9	6.4	3.2	144.79	-68.9	-202.8	381.8	374.4	7.42	51.453		
1,900.0	1,864.7	1,810.8	1,808.8	6.8	3.4	146.03	-68.1	-208.9	406.3	398.5	7.77	52.281		
2,000.0	1,962.2	1,897.9	1,895.5	7.2	3.6	147.07	-66.5	-216.6	433.1	424.9	8.12	53.300		
2,100.0	2,059.7	1,984.5	1,981.6	7.7	3.8	147.90	-64.3	-226.2	461.9	453.4	8.49	54.434		
2,200.0	2,157.2	2,070.8	2,067.2	8.1	4.0	148.52	-61.9	-237.5	492.7	483.8	8.86	55.621		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-11A - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-36.50	47.0	-34.8	58.4					
100.0	100.0	100.0	100.0	0.1	0.1	-36.50	47.0	-34.8	58.4	58.2	0.27	214.669		
200.0	200.0	200.0	200.0	0.3	0.3	-36.50	47.0	-34.8	58.4	57.8	0.62	94.068	CC, ES	
300.0	300.0	298.6	298.6	0.5	0.5	164.62	47.3	-35.3	61.5	60.6	0.97	63.569		
400.0	399.6	394.9	394.7	0.7	0.7	164.28	49.3	-39.7	73.5	72.2	1.31	55.917	SF	
500.0	498.8	488.9	488.3	1.0	0.9	163.40	53.4	-48.2	94.8	93.2	1.67	56.790		
600.0	597.1	582.0	580.5	1.4	1.2	162.51	59.1	-60.3	124.7	122.7	2.03	61.299		
700.0	694.6	676.1	673.5	1.8	1.4	162.38	65.2	-73.0	158.6	156.2	2.42	65.661		
800.0	792.1	770.1	766.4	2.2	1.7	162.37	71.2	-85.7	192.7	189.9	2.80	68.708		
900.0	889.6	864.1	859.4	2.6	2.0	162.37	77.2	-98.4	226.8	223.6	3.20	70.947		
1,000.0	987.1	958.1	952.3	3.0	2.3	162.36	83.3	-111.1	260.9	257.3	3.59	72.656		
1,100.0	1,084.6	1,052.2	1,045.3	3.4	2.6	162.36	89.3	-123.7	295.0	291.0	3.99	74.001		
1,200.0	1,182.1	1,146.2	1,138.2	3.8	2.9	162.36	95.4	-136.4	329.1	324.7	4.38	75.085		
1,300.0	1,279.6	1,240.2	1,231.2	4.3	3.2	162.36	101.4	-149.1	363.2	358.4	4.78	75.978		
1,400.0	1,377.1	1,334.2	1,324.1	4.7	3.5	162.35	107.4	-161.8	397.2	392.1	5.18	76.725		
1,500.0	1,474.6	1,428.2	1,417.1	5.1	3.7	162.35	113.5	-174.5	431.3	425.8	5.58	77.358		
1,600.0	1,572.1	1,522.2	1,510.0	5.5	4.0	162.35	119.5	-187.2	465.4	459.5	5.97	77.903		
1,700.0	1,669.6	1,616.2	1,603.0	6.0	4.3	162.35	125.6	-199.9	499.5	493.2	6.37	78.376		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-12D - OH - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft) +E/-W (ft)		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-44.62	47.0	-46.4	66.0					
100.0	100.0	100.0	100.0	0.1	0.1	-44.62	47.0	-46.4	66.0	65.7	0.27	242.375		
200.0	200.0	200.0	200.0	0.3	0.3	-44.62	47.0	-46.4	66.0	65.4	0.62	106.210	CC, ES	
300.0	300.0	297.7	297.7	0.5	0.5	155.34	46.7	-48.8	70.0	69.0	0.97	71.965		
400.0	399.6	394.5	394.2	0.7	0.7	153.35	45.9	-56.2	81.9	80.6	1.35	60.793		
500.0	498.8	489.4	488.3	1.0	1.0	151.04	44.5	-68.1	101.9	100.1	1.76	57.723	SF	
600.0	597.1	581.6	579.0	1.4	1.3	148.91	42.7	-84.1	129.6	127.3	2.23	57.997		
700.0	694.6	672.3	667.5	1.8	1.7	147.30	40.5	-103.9	163.6	160.8	2.75	59.548		
800.0	792.1	765.9	758.6	2.2	2.1	146.12	38.1	-125.3	198.5	195.3	3.29	60.343		
900.0	889.6	859.5	849.7	2.6	2.5	145.29	35.6	-146.8	233.6	229.8	3.84	60.788		
1,000.0	987.1	953.1	940.8	3.0	2.9	144.67	33.2	-168.2	268.7	264.3	4.40	61.050		
1,100.0	1,084.6	1,046.7	1,031.9	3.4	3.3	144.20	30.8	-189.6	303.8	298.8	4.96	61.211		
1,200.0	1,182.1	1,140.3	1,123.0	3.8	3.7	143.83	28.4	-211.1	338.9	333.4	5.53	61.314		
1,300.0	1,279.6	1,233.9	1,214.1	4.3	4.1	143.52	26.0	-232.5	374.0	367.9	6.09	61.381		
1,400.0	1,377.1	1,327.6	1,305.2	4.7	4.5	143.27	23.5	-253.9	409.2	402.5	6.66	61.425		
1,500.0	1,474.6	1,421.2	1,396.3	5.1	5.0	143.06	21.1	-275.4	444.3	437.1	7.23	61.454		
1,600.0	1,572.1	1,514.8	1,487.3	5.5	5.4	142.88	18.7	-296.8	479.4	471.6	7.80	61.473		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-12DD - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-44.54	35.3	-34.8	49.6					
100.0	100.0	100.0	100.0	0.1	0.1	-44.54	35.3	-34.8	49.6	49.3	0.27	182.046		
200.0	200.0	200.0	200.0	0.3	0.3	-44.54	35.3	-34.8	49.6	48.9	0.62	79.773 CC, ES		
300.0	300.0	299.1	299.0	0.5	0.5	155.93	34.9	-36.1	52.6	51.6	0.97	54.137		
400.0	399.6	397.1	396.9	0.7	0.7	153.48	32.9	-42.1	62.7	61.3	1.35	46.536		
500.0	498.8	493.7	492.9	1.0	0.9	150.23	29.4	-52.7	80.0	78.2	1.77	45.085 SF		
600.0	597.1	588.1	585.9	1.4	1.3	147.18	24.5	-67.4	104.5	102.2	2.27	46.011		
700.0	694.6	679.9	675.6	1.8	1.6	144.72	18.4	-85.9	135.0	132.2	2.84	47.566		
800.0	792.1	773.5	766.4	2.2	2.0	142.41	11.2	-107.6	167.6	164.2	3.44	48.701		
900.0	889.6	867.8	857.9	2.6	2.5	140.82	4.0	-129.4	200.5	196.4	4.06	49.387		
1,000.0	987.1	962.2	949.3	3.0	2.9	139.68	-3.3	-151.3	233.5	228.8	4.68	49.845		
1,100.0	1,084.6	1,056.5	1,040.8	3.4	3.3	138.82	-10.5	-173.1	266.5	261.2	5.31	50.169		
1,200.0	1,182.1	1,150.8	1,132.3	3.8	3.8	138.15	-17.8	-195.0	299.6	293.6	5.94	50.409		
1,300.0	1,279.6	1,245.1	1,223.8	4.3	4.2	137.61	-25.0	-216.8	332.7	326.1	6.57	50.594		
1,400.0	1,377.1	1,339.4	1,315.2	4.7	4.6	137.17	-32.3	-238.7	365.8	358.6	7.21	50.739		
1,500.0	1,474.6	1,433.8	1,406.7	5.1	5.1	136.81	-39.5	-260.5	398.9	391.1	7.84	50.857		
1,600.0	1,572.1	1,528.1	1,498.2	5.5	5.5	136.50	-46.7	-282.4	432.0	423.6	8.48	50.954		
1,700.0	1,669.6	1,622.4	1,589.6	6.0	6.0	136.23	-54.0	-304.2	465.2	456.1	9.12	51.035		
1,800.0	1,767.2	1,716.7	1,681.1	6.4	6.4	136.00	-61.2	-326.1	498.4	488.6	9.75	51.104		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-13A - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-33.54	35.0	-23.2	41.9					
100.0	100.0	100.0	100.0	0.1	0.1	-33.54	35.0	-23.2	41.9	41.7	0.27	154.072		
200.0	200.0	200.0	200.0	0.3	0.3	-33.54	35.0	-23.2	41.9	41.3	0.62	67.515 CC, ES		
300.0	300.0	299.9	299.9	0.5	0.5	167.75	34.9	-23.3	44.5	43.6	0.97	45.904		
400.0	399.6	399.2	399.1	0.7	0.7	165.29	33.1	-26.8	52.6	51.3	1.33	39.618		
500.0	498.8	497.5	497.0	1.0	0.9	160.33	29.1	-34.7	66.8	65.1	1.73	38.588 SF		
600.0	597.1	594.1	592.6	1.4	1.2	155.14	22.9	-46.8	87.5	85.3	2.21	39.585		
700.0	694.6	688.5	685.3	1.8	1.5	150.62	14.7	-62.9	113.6	110.8	2.78	40.853		
800.0	792.1	781.2	775.3	2.2	1.9	146.19	4.6	-82.6	142.4	139.0	3.43	41.474		
900.0	889.6	875.5	866.1	2.6	2.4	142.33	-6.9	-105.0	173.2	169.0	4.12	42.013		
1,000.0	987.1	970.1	957.3	3.0	2.8	139.61	-18.4	-127.5	204.4	199.6	4.82	42.446		
1,100.0	1,084.6	1,064.7	1,048.4	3.4	3.3	137.61	-29.9	-150.0	236.0	230.5	5.51	42.807		
1,200.0	1,182.1	1,159.3	1,139.6	3.8	3.8	136.09	-41.4	-172.6	267.8	261.6	6.21	43.113		
1,300.0	1,279.6	1,253.9	1,230.7	4.3	4.3	134.88	-53.0	-195.1	299.7	292.8	6.91	43.375		
1,400.0	1,377.1	1,348.5	1,321.9	4.7	4.7	133.91	-64.5	-217.6	331.7	324.1	7.61	43.600		
1,500.0	1,474.6	1,443.1	1,413.0	5.1	5.2	133.11	-76.0	-240.2	363.8	355.5	8.31	43.796		
1,600.0	1,572.1	1,537.7	1,504.2	5.5	5.7	132.44	-87.5	-262.7	396.0	386.9	9.01	43.968		
1,700.0	1,669.6	1,632.3	1,595.3	6.0	6.2	131.87	-99.1	-285.3	428.1	418.4	9.70	44.120		
1,800.0	1,767.2	1,726.9	1,686.5	6.4	6.6	131.38	-110.6	-307.8	460.3	449.9	10.40	44.255		
1,900.0	1,864.7	1,821.5	1,777.6	6.8	7.1	130.95	-122.1	-330.3	492.6	481.5	11.10	44.376		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> J6SEB Pad - HMU 6-13AA - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-44.38	23.7	-23.2	33.1					
100.0	100.0	100.0	100.0	0.1	0.1	-44.38	23.7	-23.2	33.1	32.9	0.27	121.694		
200.0	200.0	200.0	200.0	0.3	0.3	-44.38	23.7	-23.2	33.1	32.5	0.62	53.327 CC, ES		
300.0	300.0	299.9	299.9	0.5	0.5	157.00	23.3	-23.7	35.6	34.6	0.97	36.645		
400.0	399.6	399.3	399.2	0.7	0.7	154.09	20.0	-27.7	43.3	42.0	1.34	32.209		
500.0	498.8	497.9	497.2	1.0	0.9	149.27	13.6	-35.7	56.6	54.8	1.78	31.756 SF		
600.0	597.1	595.1	593.2	1.4	1.2	144.59	4.1	-47.4	75.8	73.4	2.32	32.666		
700.0	694.6	690.6	686.7	1.8	1.6	140.57	-8.1	-62.5	99.8	96.8	2.96	33.714		
800.0	792.1	784.5	777.6	2.2	2.0	136.23	-23.0	-81.0	126.2	122.5	3.69	34.189		
900.0	889.6	879.0	868.0	2.6	2.5	132.14	-40.2	-102.2	154.7	150.3	4.45	34.730		
1,000.0	987.1	974.3	959.2	3.0	3.0	129.22	-57.6	-123.8	183.9	178.7	5.23	35.190		
1,100.0	1,084.6	1,069.6	1,050.3	3.4	3.5	127.10	-75.1	-145.4	213.4	207.4	6.00	35.591		
1,200.0	1,182.1	1,164.9	1,141.5	3.8	4.1	125.50	-92.6	-167.0	243.1	236.3	6.76	35.936		
1,300.0	1,279.6	1,260.2	1,232.6	4.3	4.6	124.24	-110.0	-188.6	272.9	265.4	7.53	36.234		
1,400.0	1,377.1	1,355.5	1,323.8	4.7	5.1	123.23	-127.5	-210.1	302.9	294.6	8.30	36.492		
1,500.0	1,474.6	1,450.7	1,415.0	5.1	5.6	122.41	-144.9	-231.7	332.9	323.8	9.07	36.717		
1,600.0	1,572.1	1,546.0	1,506.1	5.5	6.1	121.72	-162.4	-253.3	362.9	353.1	9.83	36.914		
1,700.0	1,669.6	1,641.3	1,597.3	6.0	6.6	121.13	-179.8	-274.9	393.0	382.4	10.60	37.088		
1,800.0	1,767.2	1,736.6	1,688.4	6.4	7.2	120.63	-197.3	-296.5	423.2	411.8	11.36	37.243		
1,900.0	1,864.7	1,831.9	1,779.6	6.8	7.7	120.19	-214.7	-318.1	453.3	441.2	12.13	37.381		
2,000.0	1,962.2	1,927.2	1,870.7	7.2	8.2	119.81	-232.2	-339.7	483.5	470.6	12.89	37.505		



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-13D - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-26.43	23.3	-11.6	26.0					
100.0	100.0	100.0	100.0	0.1	0.1	-26.43	23.3	-11.6	26.0	25.8	0.27	95.611		
200.0	200.0	200.0	200.0	0.3	0.3	-26.43	23.3	-11.6	26.0	25.4	0.62	41.897 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	174.85	23.3	-11.6	28.6	27.7	0.97	29.535		
400.0	399.6	400.2	400.2	0.7	0.7	171.98	21.4	-13.4	35.6	34.3	1.32	26.894 SF		
500.0	498.8	500.0	499.7	1.0	0.9	164.89	15.7	-18.8	46.5	44.8	1.71	27.134		
600.0	597.1	598.9	597.6	1.4	1.1	157.29	6.4	-27.7	62.2	60.0	2.19	28.383		
700.0	694.6	696.5	693.6	1.8	1.5	150.51	-6.3	-39.9	82.1	79.3	2.80	29.329		
800.0	792.1	793.0	787.5	2.2	1.9	143.78	-22.4	-55.3	103.6	100.1	3.54	29.285		
900.0	889.6	888.0	878.7	2.6	2.4	137.29	-41.6	-73.6	127.3	122.9	4.38	29.077		
1,000.0	987.1	981.8	967.5	3.0	2.9	131.28	-63.6	-94.6	153.7	148.5	5.26	29.226		
1,100.0	1,084.6	1,076.9	1,057.0	3.4	3.5	126.64	-86.7	-116.7	181.8	175.7	6.14	29.623		
1,200.0	1,182.1	1,171.9	1,146.6	3.8	4.1	123.23	-109.7	-138.7	210.8	203.8	7.00	30.118		
1,300.0	1,279.6	1,267.0	1,236.2	4.3	4.7	120.65	-132.8	-160.7	240.2	232.4	7.84	30.622		
1,400.0	1,377.1	1,362.1	1,325.7	4.7	5.2	118.63	-155.9	-182.8	270.0	261.3	8.68	31.102		
1,500.0	1,474.6	1,457.1	1,415.3	5.1	5.8	117.00	-178.9	-204.8	300.1	290.6	9.51	31.546		
1,600.0	1,572.1	1,552.2	1,504.8	5.5	6.4	115.68	-202.0	-226.8	330.3	320.0	10.34	31.951		
1,700.0	1,669.6	1,647.3	1,594.4	6.0	7.0	114.57	-225.0	-248.8	360.7	349.5	11.16	32.320		
1,800.0	1,767.2	1,742.3	1,683.9	6.4	7.6	113.64	-248.1	-270.9	391.2	379.2	11.98	32.654		
1,900.0	1,864.7	1,837.4	1,773.5	6.8	8.2	112.84	-271.2	-292.9	421.7	408.9	12.80	32.958		
2,000.0	1,962.2	1,932.5	1,863.0	7.2	8.8	112.15	-294.2	-314.9	452.3	438.7	13.61	33.235		
2,100.0	2,059.7	2,027.5	1,952.6	7.7	9.4	111.55	-317.3	-337.0	483.0	468.6	14.42	33.487		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-15A - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	11.7	0.0	11.7					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	11.7	0.0	11.7	11.4	0.27	42.824		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	11.7	0.0	11.7	11.0	0.62	18.766 CC, ES		
300.0	300.0	300.0	300.0	0.5	0.5	-162.97	11.7	0.0	14.1	13.2	0.97	14.570		
400.0	399.6	400.4	400.4	0.7	0.7	-167.76	10.3	0.7	20.4	19.0	1.32	15.432		
500.0	498.8	501.4	501.1	1.0	0.9	-169.11	4.4	3.7	26.9	25.2	1.67	16.108		
600.0	597.1	602.7	601.7	1.4	1.1	-168.88	-6.2	9.3	33.6	31.5	2.03	16.527		
700.0	694.6	703.6	701.2	1.8	1.4	-167.67	-21.2	17.0	39.4	37.0	2.42	16.307		
800.0	792.1	803.5	799.5	2.2	1.7	-166.43	-36.8	25.1	44.5	41.7	2.82	15.815		
900.0	889.6	903.3	897.8	2.6	2.1	-165.45	-52.4	33.2	49.7	46.5	3.23	15.400		
1,000.0	987.1	1,003.2	996.1	3.0	2.4	-164.66	-68.0	41.3	54.8	51.2	3.64	15.047		
1,100.0	1,084.6	1,103.0	1,094.4	3.4	2.8	-164.00	-83.6	49.4	60.0	55.9	4.07	14.745		
1,200.0	1,182.1	1,202.9	1,192.7	3.8	3.1	-163.44	-99.3	57.5	65.2	60.7	4.50	14.484		
1,300.0	1,279.6	1,302.8	1,291.0	4.3	3.5	-162.97	-114.9	65.6	70.4	65.5	4.94	14.257		
1,400.0	1,377.1	1,402.6	1,389.3	4.7	3.8	-162.56	-130.5	73.7	75.6	70.2	5.38	14.058		
1,500.0	1,474.6	1,502.5	1,487.6	5.1	4.1	-162.21	-146.1	81.8	80.8	75.0	5.82	13.883		
1,600.0	1,572.1	1,602.4	1,585.9	5.5	4.5	-161.90	-161.7	89.9	86.0	79.7	6.26	13.728		
1,700.0	1,669.6	1,702.2	1,684.2	6.0	4.8	-161.62	-177.4	98.0	91.2	84.5	6.71	13.590		
1,800.0	1,767.2	1,802.1	1,782.5	6.4	5.2	-161.37	-193.0	106.1	96.4	89.2	7.16	13.465		
1,900.0	1,864.7	1,902.0	1,880.8	6.8	5.6	-161.15	-208.6	114.1	101.6	94.0	7.61	13.354		
2,000.0	1,962.2	2,001.8	1,979.1	7.2	5.9	-160.95	-224.2	122.2	106.8	98.7	8.06	13.252		
2,100.0	2,059.7	2,101.7	2,077.4	7.7	6.3	-160.77	-239.8	130.3	112.0	103.5	8.51	13.160		
2,200.0	2,157.2	2,201.5	2,175.7	8.1	6.6	-160.61	-255.5	138.4	117.2	108.2	8.96	13.076		
2,300.0	2,254.7	2,301.4	2,274.0	8.5	7.0	-160.46	-271.1	146.5	122.4	113.0	9.42	12.999		
2,400.0	2,352.2	2,401.3	2,372.3	8.9	7.3	-160.32	-286.7	154.6	127.6	117.7	9.87	12.928		
2,500.0	2,449.7	2,501.1	2,470.6	9.4	7.7	-160.19	-302.3	162.7	132.8	122.5	10.33	12.862		
2,600.0	2,547.2	2,601.0	2,568.9	9.8	8.0	-160.07	-317.9	170.8	138.0	127.2	10.78	12.802		
2,700.0	2,644.7	2,700.9	2,667.2	10.2	8.4	-159.96	-333.5	178.9	143.2	132.0	11.24	12.746		
2,800.0	2,742.2	2,800.7	2,765.5	10.6	8.7	-159.86	-349.2	187.0	148.4	136.7	11.69	12.694		
2,900.0	2,839.7	2,900.6	2,863.8	11.1	9.1	-159.76	-364.8	195.1	153.6	141.5	12.15	12.645		
3,000.0	2,937.2	3,000.5	2,962.1	11.5	9.4	-159.68	-380.4	203.2	158.9	146.2	12.61	12.599		
3,100.0	3,034.7	3,100.3	3,060.4	11.9	9.8	-159.59	-396.0	211.3	164.1	151.0	13.07	12.557		
3,200.0	3,132.2	3,200.2	3,158.8	12.3	10.1	-159.51	-411.6	219.4	169.3	155.8	13.52	12.517		
3,300.0	3,229.7	3,300.1	3,257.1	12.8	10.5	-159.44	-427.3	227.5	174.5	160.5	13.98	12.479		
3,400.0	3,327.2	3,399.9	3,355.4	13.2	10.8	-159.37	-442.9	235.6	179.7	165.3	14.44	12.444		
3,500.0	3,424.7	3,499.8	3,453.7	13.6	11.2	-159.31	-458.5	243.7	184.9	170.0	14.90	12.410		
3,600.0	3,522.2	3,599.6	3,552.0	14.0	11.5	-159.25	-474.1	251.8	190.1	174.8	15.36	12.379		
3,700.0	3,619.7	3,699.5	3,650.3	14.5	11.9	-159.19	-489.7	259.8	195.3	179.5	15.82	12.349		
3,800.0	3,717.2	3,799.4	3,748.6	14.9	12.3	-159.13	-505.4	267.9	200.5	184.3	16.28	12.320		
3,900.0	3,814.7	3,899.2	3,846.9	15.3	12.6	-159.08	-521.0	276.0	205.8	189.0	16.74	12.294		
4,000.0	3,912.2	3,999.1	3,945.2	15.7	13.0	-159.03	-536.6	284.1	211.0	193.8	17.20	12.268		
4,100.0	4,009.7	4,099.0	4,043.5	16.2	13.3	-158.98	-552.2	292.2	216.2	198.5	17.66	12.244		
4,200.0	4,107.2	4,198.8	4,141.8	16.6	13.7	-158.94	-567.8	300.3	221.4	203.3	18.12	12.220		
4,300.0	4,204.7	4,298.7	4,240.1	17.0	14.0	-158.89	-583.4	308.4	226.6	208.0	18.58	12.198		
4,400.0	4,302.2	4,398.6	4,338.4	17.4	14.4	-158.85	-599.1	316.5	231.8	212.8	19.04	12.177		
4,500.0	4,399.7	4,498.4	4,436.7	17.9	14.7	-158.81	-614.7	324.6	237.0	217.5	19.50	12.157		
4,600.0	4,497.2	4,598.3	4,535.0	18.3	15.1	-158.77	-630.3	332.7	242.3	222.3	19.96	12.138		
4,700.0	4,594.7	4,698.1	4,633.3	18.7	15.4	-158.74	-645.9	340.8	247.5	227.1	20.42	12.119		
4,800.0	4,692.2	4,798.0	4,731.6	19.2	15.8	-158.70	-661.5	348.9	252.7	231.8	20.88	12.102		
4,900.0	4,789.7	4,897.9	4,829.9	19.6	16.1	-158.67	-677.2	357.0	257.9	236.6	21.34	12.085		
5,000.0	4,887.2	4,997.7	4,928.2	20.0	16.5	-158.64	-692.8	365.1	263.1	241.3	21.80	12.068		
5,100.0	4,984.7	5,097.6	5,026.5	20.4	16.9	-158.61	-708.4	373.2	268.3	246.1	22.26	12.053		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-15A - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
5,200.0	5,082.2	5,197.5	5,124.8	20.9	17.2	-158.58	-724.0	381.3	273.5	250.8	22.72	12.038		
5,300.0	5,179.7	5,297.3	5,223.1	21.3	17.6	-158.55	-739.6	389.4	278.8	255.6	23.19	12.023		
5,400.0	5,277.2	5,397.2	5,321.4	21.7	17.9	-158.52	-755.2	397.5	284.0	260.3	23.65	12.009		
5,500.0	5,374.7	5,497.1	5,419.7	22.1	18.3	-158.50	-770.9	405.5	289.2	265.1	24.11	11.996		
5,600.0	5,472.2	5,596.9	5,518.0	22.6	18.6	-158.47	-786.5	413.6	294.4	269.8	24.57	11.983		
5,700.0	5,569.7	5,696.8	5,616.3	23.0	19.0	-158.45	-802.1	421.7	299.6	274.6	25.03	11.970		
5,800.0	5,667.2	5,796.6	5,714.6	23.4	19.3	-158.42	-817.7	429.8	304.8	279.3	25.49	11.958		
5,900.0	5,764.7	5,896.5	5,812.9	23.8	19.7	-158.40	-833.3	437.9	310.0	284.1	25.95	11.946		
6,000.0	5,862.2	5,996.4	5,911.2	24.3	20.0	-158.38	-849.0	446.0	315.3	288.8	26.41	11.935		
6,100.0	5,959.7	6,096.2	6,009.5	24.7	20.4	-158.36	-864.6	454.1	320.5	293.6	26.88	11.924		
6,200.0	6,057.4	6,196.1	6,107.9	25.1	20.7	-158.30	-880.2	462.2	324.9	297.6	27.36	11.877		
6,300.0	6,155.8	6,287.9	6,198.3	25.4	21.0	-158.15	-893.5	469.1	327.4	299.6	27.82	11.768		
6,400.0	6,254.7	6,378.7	6,288.4	25.7	21.3	-158.04	-904.2	474.6	329.4	301.2	28.23	11.669		
6,500.0	6,354.0	6,469.5	6,378.7	25.9	21.5	-157.95	-912.3	478.8	331.0	302.4	28.58	11.580		
6,600.0	6,453.7	6,560.3	6,469.3	26.1	21.6	-157.90	-917.9	481.7	332.1	303.2	28.88	11.499		
6,700.0	6,553.6	6,661.0	6,569.9	26.2	21.7	-157.87	-920.9	483.3	332.8	303.7	29.13	11.424		
6,800.0	6,653.6	6,744.7	6,653.6	26.3	21.8	1.36	-921.5	483.6	333.0	303.6	29.36	11.342		
6,900.0	6,753.6	6,844.7	6,753.6	26.4	21.9	1.36	-921.5	483.6	333.0	303.4	29.64	11.235		
7,000.0	6,853.6	6,944.7	6,853.6	26.5	22.0	1.36	-921.5	483.6	333.0	303.1	29.92	11.129		
7,100.0	6,953.6	7,044.7	6,953.6	26.5	22.1	1.36	-921.5	483.6	333.0	302.8	30.21	11.024		
7,200.0	7,053.6	7,144.7	7,053.6	26.6	22.2	1.36	-921.5	483.6	333.0	302.5	30.49	10.921		
7,300.0	7,153.6	7,244.7	7,153.6	26.7	22.3	1.36	-921.5	483.6	333.0	302.2	30.78	10.820		
7,400.0	7,253.6	7,344.7	7,253.6	26.8	22.4	1.36	-921.5	483.6	333.0	301.9	31.07	10.719		
7,500.0	7,353.6	7,444.7	7,353.6	26.9	22.5	1.36	-921.5	483.6	333.0	301.6	31.35	10.621		
7,600.0	7,453.6	7,544.7	7,453.6	27.0	22.6	1.36	-921.5	483.6	333.0	301.4	31.64	10.523		
7,700.0	7,553.6	7,644.7	7,553.6	27.0	22.7	1.36	-921.5	483.6	333.0	301.1	31.94	10.427		
7,800.0	7,653.6	7,744.7	7,653.6	27.1	22.8	1.36	-921.5	483.6	333.0	300.8	32.23	10.333		
7,900.0	7,753.6	7,844.7	7,753.6	27.2	22.9	1.36	-921.5	483.6	333.0	300.5	32.52	10.239		
8,000.0	7,853.6	7,944.7	7,853.6	27.3	23.0	1.36	-921.5	483.6	333.0	300.2	32.82	10.147		
8,100.0	7,953.6	8,044.7	7,953.6	27.4	23.1	1.36	-921.5	483.6	333.0	299.9	33.11	10.057		
8,200.0	8,053.6	8,144.7	8,053.6	27.5	23.2	1.36	-921.5	483.6	333.0	299.6	33.41	9.967		
8,300.0	8,153.6	8,244.7	8,153.6	27.6	23.3	1.36	-921.5	483.6	333.0	299.3	33.71	9.879		
8,400.0	8,253.6	8,344.7	8,253.6	27.7	23.4	1.36	-921.5	483.6	333.0	299.0	34.01	9.793		
8,500.0	8,353.6	8,444.7	8,353.6	27.8	23.5	1.36	-921.5	483.6	333.0	298.7	34.31	9.707		
8,600.0	8,453.6	8,544.7	8,453.6	27.9	23.7	1.36	-921.5	483.6	333.0	298.4	34.61	9.623		
8,700.0	8,553.6	8,644.7	8,553.6	27.9	23.8	1.36	-921.5	483.6	333.0	298.1	34.91	9.540		
8,800.0	8,653.6	8,744.7	8,653.6	28.0	23.9	1.36	-921.5	483.6	333.0	297.8	35.21	9.458		
8,846.4	8,700.0	8,791.1	8,700.0	28.1	23.9	1.36	-921.5	483.6	333.0	297.6	35.35	9.420 SF		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-15D - OH - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-43.94	12.0	-11.6	16.7					
100.0	100.0	100.0	100.0	0.1	0.1	-43.94	12.0	-11.6	16.7	16.4	0.27	61.333		
200.0	200.0	200.0	200.0	0.3	0.3	-43.94	12.0	-11.6	16.7	16.1	0.62	26.876	CC	
300.0	300.0	300.5	300.5	0.5	0.5	156.81	10.5	-11.6	18.0	17.1	0.97	18.533		
400.0	399.6	401.2	400.9	0.7	0.7	152.63	3.9	-11.6	20.6	19.2	1.35	15.239		
500.0	498.8	502.1	501.1	1.0	0.9	147.28	-7.9	-10.9	23.9	22.2	1.78	13.417		
600.0	597.1	603.2	600.9	1.4	1.3	144.32	-24.3	-7.7	27.1	24.8	2.30	11.775		
700.0	694.6	704.5	699.7	1.8	1.7	141.41	-45.5	-2.0	28.8	25.9	2.92	9.869		
800.0	792.1	805.5	797.1	2.2	2.2	132.76	-71.1	6.2	26.5	22.7	3.79	6.986		
900.0	889.6	905.3	892.6	2.6	2.7	118.58	-98.3	15.3	23.4	18.5	4.94	4.736		
1,000.0	987.1	1,005.1	988.2	3.0	3.2	101.56	-125.6	24.4	22.1	16.0	6.16	3.596		
1,011.7	998.6	1,016.7	999.4	3.0	3.3	99.48	-128.8	25.5	22.1	15.8	6.29	3.519	ES	
1,100.0	1,084.6	1,104.8	1,083.7	3.4	3.7	84.17	-152.8	33.5	22.9	15.8	7.09	3.236	SF	
1,200.0	1,182.1	1,204.6	1,179.3	3.8	4.3	69.21	-180.0	42.7	25.6	18.0	7.61	3.369		
1,300.0	1,279.6	1,304.3	1,274.8	4.3	4.8	57.69	-207.3	51.8	29.7	21.8	7.86	3.780		
1,400.0	1,377.1	1,404.1	1,370.3	4.7	5.3	49.20	-234.5	60.9	34.7	26.7	8.01	4.328		
1,500.0	1,474.6	1,503.9	1,465.9	5.1	5.8	42.93	-261.8	70.0	40.2	32.0	8.15	4.931		
1,600.0	1,572.1	1,603.6	1,561.4	5.5	6.4	38.22	-289.0	79.2	46.1	37.8	8.32	5.542		
1,700.0	1,669.6	1,703.4	1,656.9	6.0	6.9	34.59	-316.2	88.3	52.2	43.7	8.51	6.136		
1,800.0	1,767.2	1,803.2	1,752.5	6.4	7.4	31.73	-343.5	97.4	58.5	49.8	8.73	6.700		
1,900.0	1,864.7	1,902.9	1,848.0	6.8	8.0	29.44	-370.7	106.5	64.9	56.0	8.98	7.231		
2,000.0	1,962.2	2,002.7	1,943.6	7.2	8.5	27.56	-397.9	115.6	71.4	62.2	9.25	7.725		
2,100.0	2,059.7	2,102.5	2,039.1	7.7	9.0	25.99	-425.2	124.8	78.0	68.5	9.53	8.186		
2,200.0	2,157.2	2,202.2	2,134.6	8.1	9.5	24.67	-452.4	133.9	84.6	74.8	9.82	8.613		
2,300.0	2,254.7	2,302.0	2,230.2	8.5	10.1	23.54	-479.6	143.0	91.3	81.1	10.13	9.010		
2,400.0	2,352.2	2,401.7	2,325.7	8.9	10.6	22.56	-506.9	152.1	98.0	87.5	10.44	9.378		
2,500.0	2,449.7	2,501.5	2,421.3	9.4	11.1	21.71	-534.1	161.2	104.7	93.9	10.77	9.721		
2,600.0	2,547.2	2,601.3	2,516.8	9.8	11.7	20.96	-561.4	170.4	111.4	100.3	11.09	10.040		
2,700.0	2,644.7	2,701.0	2,612.3	10.2	12.2	20.30	-588.6	179.5	118.1	106.7	11.43	10.338		
2,800.0	2,742.2	2,800.8	2,707.9	10.6	12.7	19.71	-615.8	188.6	124.9	113.1	11.76	10.617		
2,900.0	2,839.7	2,900.6	2,803.4	11.1	13.3	19.17	-643.1	197.7	131.7	119.6	12.10	10.877		
3,000.0	2,937.2	3,000.3	2,899.0	11.5	13.8	18.70	-670.3	206.8	138.4	126.0	12.45	11.121		
3,100.0	3,034.7	3,100.1	2,994.5	11.9	14.3	18.26	-697.5	216.0	145.2	132.4	12.79	11.350		
3,200.0	3,132.2	3,199.8	3,090.0	12.3	14.9	17.87	-724.8	225.1	152.0	138.9	13.14	11.566		
3,300.0	3,229.7	3,299.6	3,185.6	12.8	15.4	17.50	-752.0	234.2	158.8	145.3	13.50	11.769		
3,400.0	3,327.2	3,399.4	3,281.1	13.2	15.9	17.17	-779.3	243.3	165.6	151.8	13.85	11.961		
3,500.0	3,424.7	3,499.1	3,376.7	13.6	16.5	16.87	-806.5	252.5	172.5	158.2	14.20	12.142		
3,600.0	3,522.2	3,598.9	3,472.2	14.0	17.0	16.58	-833.7	261.6	179.3	164.7	14.56	12.313		
3,700.0	3,619.7	3,698.7	3,567.7	14.5	17.5	16.32	-861.0	270.7	186.1	171.2	14.92	12.476		
3,800.0	3,717.2	3,798.4	3,663.3	14.9	18.1	16.08	-888.2	279.8	192.9	177.6	15.27	12.630		
3,900.0	3,814.7	3,898.2	3,758.8	15.3	18.6	15.85	-915.4	288.9	199.7	184.1	15.63	12.776		
4,000.0	3,912.2	3,998.0	3,854.3	15.7	19.1	15.64	-942.7	298.1	206.6	190.6	16.00	12.915		
4,100.0	4,009.7	4,097.7	3,949.9	16.2	19.6	15.44	-969.9	307.2	213.4	197.1	16.36	13.048		
4,200.0	4,107.2	4,197.5	4,045.4	16.6	20.2	15.26	-997.1	316.3	220.3	203.5	16.72	13.174		
4,300.0	4,204.7	4,297.2	4,141.0	17.0	20.7	15.08	-1,024.4	325.4	227.1	210.0	17.08	13.295		
4,400.0	4,302.2	4,397.0	4,236.5	17.4	21.2	14.92	-1,051.6	334.5	233.9	216.5	17.44	13.410		
4,500.0	4,399.7	4,496.8	4,332.0	17.9	21.8	14.76	-1,078.9	343.7	240.8	223.0	17.81	13.520		
4,600.0	4,497.2	4,596.5	4,427.6	18.3	22.3	14.62	-1,106.1	352.8	247.6	229.5	18.17	13.625		
4,700.0	4,594.7	4,696.3	4,523.1	18.7	22.8	14.48	-1,133.3	361.9	254.5	235.9	18.54	13.726		
4,800.0	4,692.2	4,796.1	4,618.7	19.2	23.4	14.35	-1,160.6	371.0	261.3	242.4	18.90	13.823		
4,900.0	4,789.7	4,895.8	4,714.2	19.6	23.9	14.22	-1,187.8	380.1	268.2	248.9	19.27	13.916		
5,000.0	4,887.2	4,995.6	4,809.7	20.0	24.4	14.10	-1,215.0	389.3	275.0	255.4	19.64	14.005		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J6SEB Pad - HMU 6-15D - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
5,100.0	4,984.7	5,095.4	4,905.3	20.4	25.0	13.99	-1,242.3	398.4	281.9	261.9	20.00	14.091		
5,200.0	5,082.2	5,195.1	5,000.8	20.9	25.5	13.88	-1,269.5	407.5	288.7	268.4	20.37	14.174		
5,300.0	5,179.7	5,294.9	5,096.4	21.3	26.0	13.78	-1,296.7	416.6	295.6	274.8	20.74	14.253		
5,400.0	5,277.2	5,394.6	5,191.9	21.7	26.6	13.68	-1,324.0	425.8	302.4	281.3	21.11	14.329		
5,500.0	5,374.7	5,494.4	5,287.4	22.1	27.1	13.59	-1,351.2	434.9	309.3	287.8	21.47	14.403		
5,600.0	5,472.2	5,594.2	5,383.0	22.6	27.6	13.50	-1,378.5	444.0	316.1	294.3	21.84	14.474		
5,700.0	5,569.7	5,693.9	5,478.5	23.0	28.2	13.42	-1,405.7	453.1	323.0	300.8	22.21	14.543		
5,800.0	5,667.2	5,793.7	5,574.1	23.4	28.7	13.33	-1,432.9	462.2	329.9	307.3	22.58	14.609		
5,900.0	5,764.7	5,893.5	5,669.6	23.8	29.2	13.26	-1,460.2	471.4	336.7	313.8	22.95	14.673		
6,000.0	5,862.2	5,993.2	5,765.1	24.3	29.8	13.18	-1,487.4	480.5	343.6	320.3	23.32	14.735		
6,100.0	5,959.7	6,101.6	5,869.2	24.7	30.3	13.13	-1,516.2	490.1	349.7	325.9	23.71	14.748		
6,200.0	6,057.4	6,215.2	5,979.3	25.1	30.8	13.18	-1,542.5	498.9	352.9	328.8	24.13	14.628		
6,300.0	6,155.8	6,329.0	6,090.7	25.4	31.2	13.23	-1,564.8	506.4	355.5	331.0	24.52	14.503		
6,400.0	6,254.7	6,442.9	6,202.9	25.7	31.6	13.27	-1,582.8	512.4	357.7	332.8	24.87	14.380		
6,500.0	6,354.0	6,556.9	6,316.0	25.9	31.8	13.31	-1,596.6	517.0	359.3	334.1	25.20	14.258		
6,600.0	6,453.7	6,670.9	6,429.6	26.1	32.0	13.33	-1,606.1	520.2	360.4	334.9	25.49	14.135		
6,700.0	6,553.6	6,785.0	6,543.6	26.2	32.2	13.34	-1,611.3	522.0	361.0	335.2	25.76	14.013		
6,800.0	6,653.6	6,895.1	6,653.6	26.3	32.3	172.58	-1,612.4	522.3	361.1	335.0	26.02	13.876		
6,900.0	6,753.6	6,995.1	6,753.6	26.4	32.3	172.58	-1,612.4	522.3	361.1	334.7	26.34	13.707		
7,000.0	6,853.6	7,095.1	6,853.6	26.5	32.4	172.58	-1,612.4	522.3	361.1	334.4	26.66	13.542		
7,100.0	6,953.6	7,195.1	6,953.6	26.5	32.5	172.58	-1,612.4	522.3	361.1	334.1	26.98	13.381		
7,200.0	7,053.6	7,295.1	7,053.6	26.6	32.5	172.58	-1,612.4	522.3	361.1	333.8	27.31	13.223		
7,300.0	7,153.6	7,395.1	7,153.6	26.7	32.6	172.58	-1,612.4	522.3	361.1	333.4	27.63	13.069		
7,400.0	7,253.6	7,495.1	7,253.6	26.8	32.7	172.58	-1,612.4	522.3	361.1	333.1	27.95	12.917		
7,500.0	7,353.6	7,595.1	7,353.6	26.9	32.7	172.58	-1,612.4	522.3	361.1	332.8	28.28	12.769		
7,600.0	7,453.6	7,695.1	7,453.6	27.0	32.8	172.58	-1,612.4	522.3	361.1	332.5	28.60	12.624		
7,700.0	7,553.6	7,795.1	7,553.6	27.0	32.9	172.58	-1,612.4	522.3	361.1	332.1	28.93	12.483		
7,800.0	7,653.6	7,895.1	7,653.6	27.1	32.9	172.58	-1,612.4	522.3	361.1	331.8	29.25	12.344		
7,900.0	7,753.6	7,995.1	7,753.6	27.2	33.0	172.58	-1,612.4	522.3	361.1	331.5	29.58	12.207		
8,000.0	7,853.6	8,095.1	7,853.6	27.3	33.1	172.58	-1,612.4	522.3	361.1	331.2	29.90	12.074		
8,100.0	7,953.6	8,195.1	7,953.6	27.4	33.2	172.58	-1,612.4	522.3	361.1	330.8	30.23	11.943		
8,200.0	8,053.6	8,295.1	8,053.6	27.5	33.2	172.58	-1,612.4	522.3	361.1	330.5	30.56	11.815		
8,300.0	8,153.6	8,395.1	8,153.6	27.6	33.3	172.58	-1,612.4	522.3	361.1	330.2	30.89	11.690		
8,400.0	8,253.6	8,495.1	8,253.6	27.7	33.4	172.58	-1,612.4	522.3	361.1	329.8	31.22	11.567		
8,500.0	8,353.6	8,595.1	8,353.6	27.8	33.5	172.58	-1,612.4	522.3	361.1	329.5	31.54	11.446		
8,600.0	8,453.6	8,695.1	8,453.6	27.9	33.6	172.58	-1,612.4	522.3	361.1	329.2	31.87	11.328		
8,700.0	8,553.6	8,795.1	8,553.6	27.9	33.6	172.58	-1,612.4	522.3	361.1	328.9	32.20	11.212		
8,800.0	8,653.6	8,895.1	8,653.6	28.0	33.7	172.58	-1,612.4	522.3	361.1	328.5	32.53	11.098		
8,830.6	8,684.2	8,925.7	8,684.2	28.1	33.7	172.58	-1,612.4	522.3	361.1	328.4	32.64	11.063		
8,846.4	8,700.0	8,940.5	8,699.0	28.1	33.7	172.58	-1,612.4	522.3	361.1	328.4	32.69	11.046		

# Cathedral Energy Services

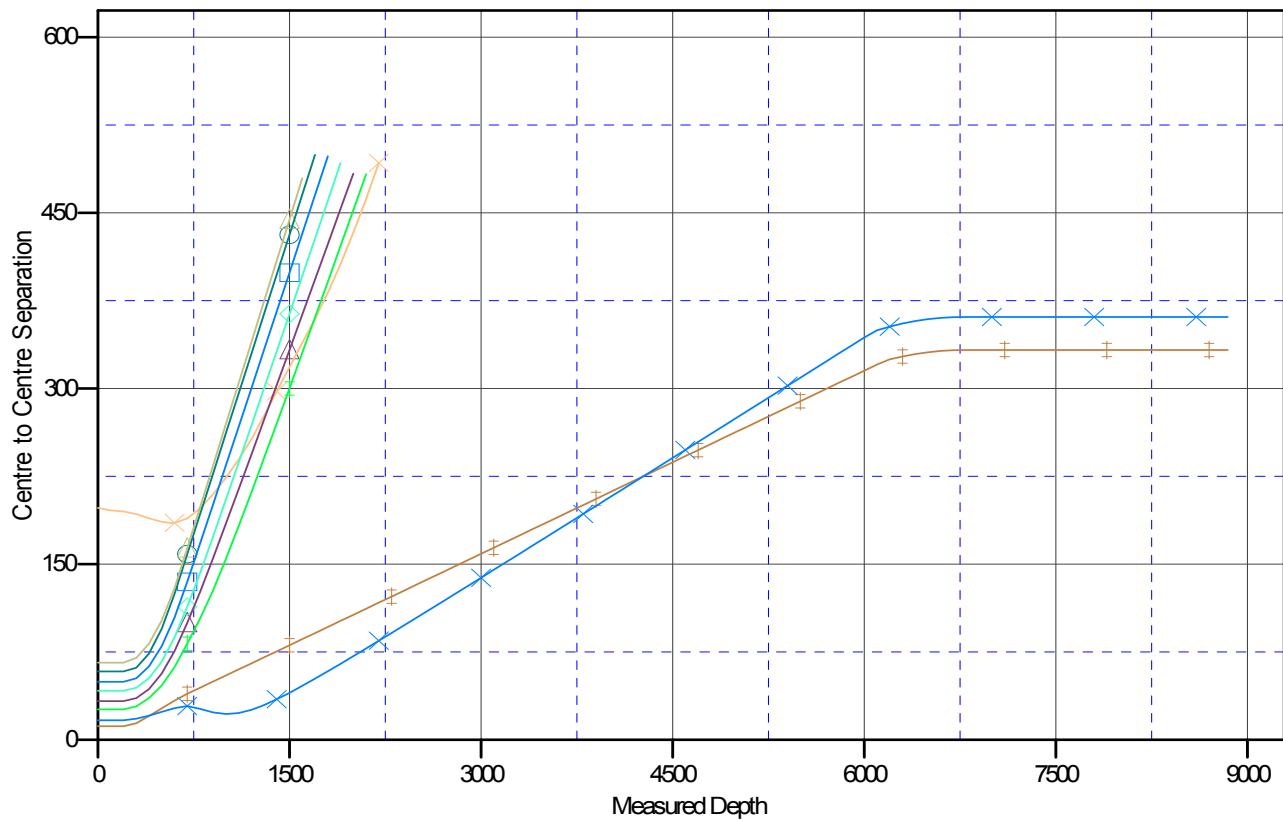
## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 6-15AA
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Reference Site:</b>	J6SEB Pad	<b>MD Reference:</b>	KB=22' @ 7166.0ft (Patterson #308)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	HMU 6-15AA	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB=22' @ 7166.0ft (Patterson #308)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: HMU 6-15AA  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.39°

### Ladder Plot



### LEGEND

- 6-11 (existing), Existing, Existing V0
- HMU6-11A, OH, Plan #1 V0
- HMU6-12DD, OH, Plan #1 V0
- HMU6-13AA, OH, Plan #1 V0
- HMU6-13A, OH, Plan #1 V0
- HMU6-12D, OH, Plan #1 V0
- HMU6-15A, OH, Plan #1 V0
- HMU6-15D, OH, Plan #1 V0
- HMU6-13D, OH, Plan #1 V0