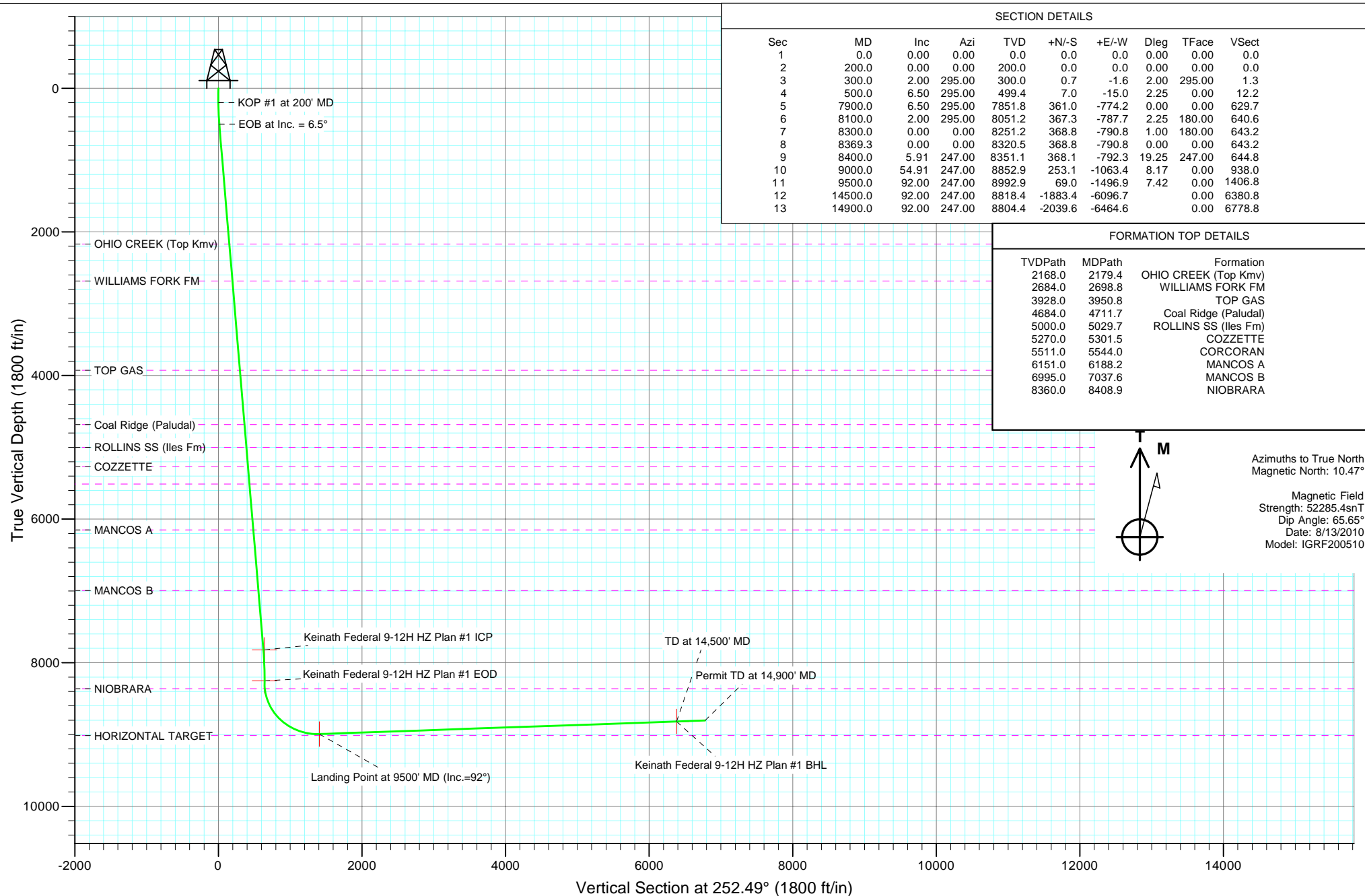


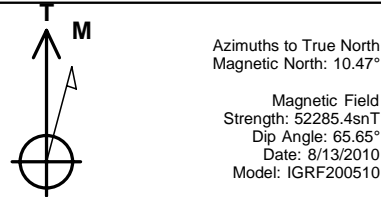


Project: Orchard  
Site: NENW Sec10-T8S-R96W (C10OU)  
Well: Keinath Federal 9-12H  
Wellbore: HZ  
Design: Plan #1



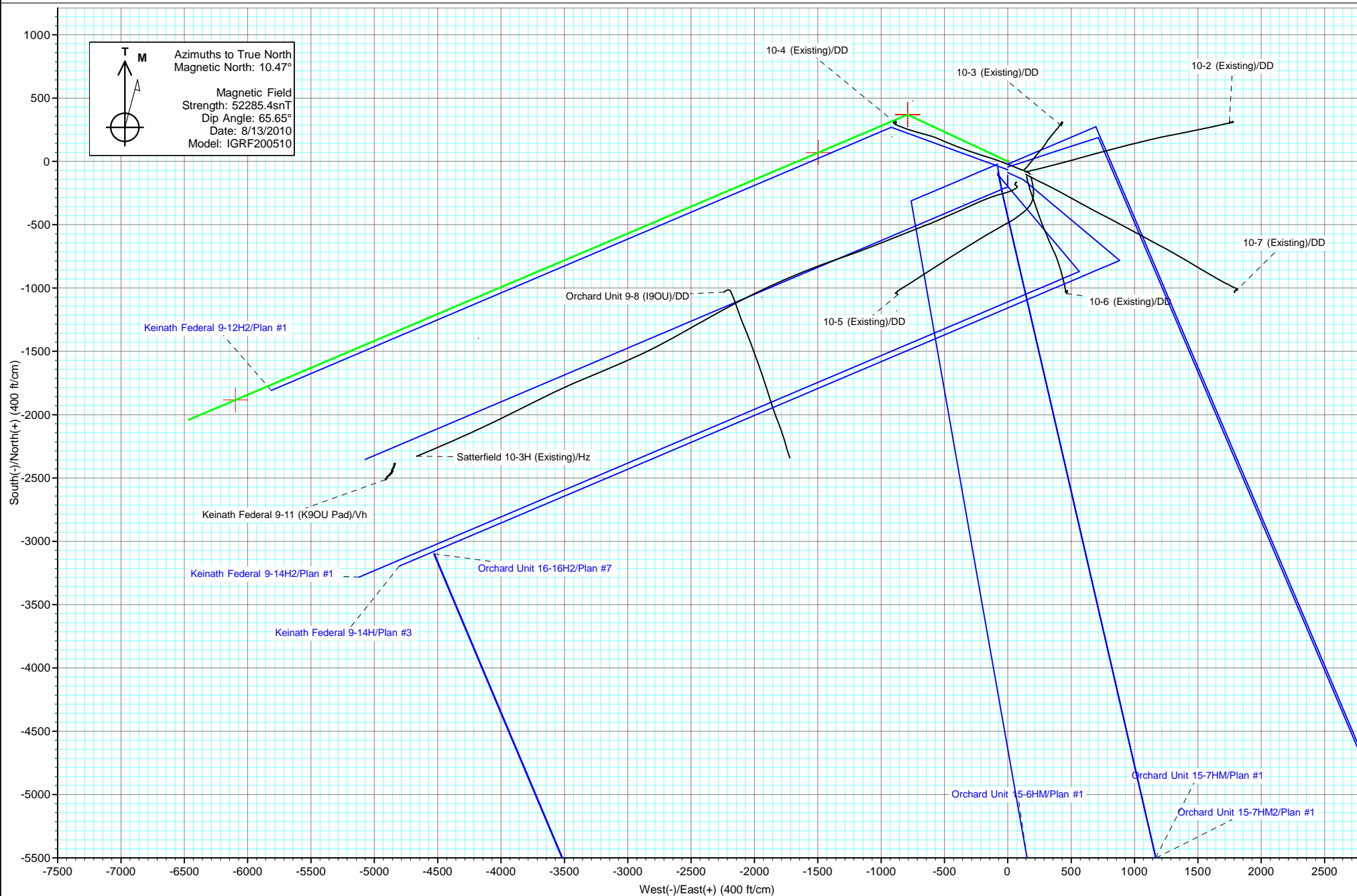
SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0
3	300.0	2.00	295.00	300.0	0.7	-1.6	2.00	295.00	1.3
4	500.0	6.50	295.00	499.4	7.0	-15.0	2.25	0.00	12.2
5	7900.0	6.50	295.00	7851.8	361.0	-774.2	0.00	0.00	629.7
6	8100.0	2.00	295.00	8051.2	367.3	-787.7	2.25	180.00	640.6
7	8300.0	0.00	0.00	8251.2	368.8	-790.8	1.00	180.00	643.2
8	8369.3	0.00	0.00	8320.5	368.8	-790.8	0.00	0.00	643.2
9	8400.0	5.91	247.00	8351.1	368.1	-792.3	19.25	247.00	644.8
10	9000.0	54.91	247.00	8852.9	253.1	-1063.4	8.17	0.00	938.0
11	9500.0	92.00	247.00	8992.9	69.0	-1496.9	7.42	0.00	1406.8
12	14500.0	92.00	247.00	8818.4	-1883.4	-6096.7		0.00	6380.8
13	14900.0	92.00	247.00	8804.4	-2039.6	-6464.6		0.00	6778.8

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2168.0	2179.4	OHIO CREEK (Top Kmv)
2684.0	2698.8	WILLIAMS FORK FM
3928.0	3950.8	TOP GAS
4684.0	4711.7	Coal Ridge (Paludal)
5000.0	5029.7	ROLLINS SS (Iles Fm)
5270.0	5301.5	COZZETTE
5511.0	5544.0	CORCORAN
6151.0	6188.2	MANCOS A
6995.0	7037.6	MANCOS B
8360.0	8408.9	NIOBRARA





Project: Orchard  
Site: NENW Sec10-T8S-R96W (C10OU)  
Well: Keinath Federal 9-12H  
Wellbore: HZ  
Plan: Plan #1



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Keinath Federal 9-12H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Project:</b>	Orchard	<b>MD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Site:</b>	NENW Sec10-T8S-R96W (C10OU)	<b>North Reference:</b>	True
<b>Well:</b>	Keinath Federal 9-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

<b>Project</b>	Orchard		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site		NENW Sec10-T8S-R96W (C10OU)			
Site Position:		Northing:	1,569,581.56 ft	Latitude:	39.368394
From:	Lat/Long	Easting:	2,265,333.69 ft	Longitude:	-108.099008
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.64 °

Well	Keinath Federal 9-12H					
Well Position	+N/-S	0.0 ft	Northing:	1,569,749.30 ft	Latitude:	39.368850
	+E/-W	0.0 ft	Easting:	2,265,272.41 ft	Longitude:	-108.099242
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,568.0 ft

<b>Wellbore</b>	HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
			(°)	(°)	(nT)
	IGRF200510	8/13/2010	10.47	65.65	52,285

<b>Design</b>	Plan #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	252.49

<b>Plan Sections</b>										
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	
300.0	2.00	295.00	300.0	0.7	-1.6	2.00	2.00	0.00	295.00	
500.0	6.50	295.00	499.4	7.0	-15.0	2.25	2.25	0.00	0.00	
7,900.0	6.50	295.00	7,851.8	361.0	-774.2	0.00	0.00	0.00	0.00	
8,100.0	2.00	295.00	8,051.2	367.3	-787.7	2.25	-2.25	0.00	180.00	
8,300.0	0.00	0.00	8,251.2	368.8	-790.8	1.00	-1.00	0.00	180.00	
8,369.3	0.00	0.00	8,320.5	368.8	-790.8	0.00	0.00	0.00	0.00	
8,400.0	5.91	247.00	8,351.1	368.1	-792.3	19.25	19.25	0.00	247.00	
9,000.0	54.91	247.00	8,852.9	253.1	-1,063.4	8.17	8.17	0.00	0.00	
9,500.0	92.00	247.00	8,992.9	69.0	-1,496.9	7.42	7.42	0.00	0.00	
14,500.0	92.00	247.00	8,818.4	-1,883.4	-6,096.7		0.00	0.00	0.00	
14,900.0	92.00	247.00	8,804.4	-2,039.6	-6,464.6		0.00	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Keinath Federal 9-12H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Project:</b>	Orchard	<b>MD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Site:</b>	NENW Sec10-T8S-R96W (C10OU)	<b>North Reference:</b>	True
<b>Well:</b>	Keinath Federal 9-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<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 #1 at 200' MD
300.0	2.00	295.00	300.0	0.7	-1.6	1.3	2.00	2.00	
400.0	4.25	295.00	399.8	3.0	-6.5	5.3	2.25	2.25	
500.0	6.50	295.00	499.4	7.0	-15.0	12.2	2.25	2.25	EOB at Inc. = 6.5°
600.0	6.50	295.00	598.7	11.8	-25.3	20.6	0.00	0.00	
700.0	6.50	295.00	698.1	16.6	-35.5	28.9	0.00	0.00	
800.0	6.50	295.00	797.5	21.4	-45.8	37.2	0.00	0.00	
900.0	6.50	295.00	896.8	26.1	-56.0	45.6	0.00	0.00	
1,000.0	6.50	295.00	996.2	30.9	-66.3	53.9	0.00	0.00	
1,100.0	6.50	295.00	1,095.5	35.7	-76.6	62.3	0.00	0.00	
1,200.0	6.50	295.00	1,194.9	40.5	-86.8	70.6	0.00	0.00	
1,300.0	6.50	295.00	1,294.2	45.3	-97.1	79.0	0.00	0.00	
1,400.0	6.50	295.00	1,393.6	50.1	-107.3	87.3	0.00	0.00	
1,500.0	6.50	295.00	1,493.0	54.8	-117.6	95.7	0.00	0.00	
1,600.0	6.50	295.00	1,592.3	59.6	-127.9	104.0	0.00	0.00	
1,700.0	6.50	295.00	1,691.7	64.4	-138.1	112.3	0.00	0.00	
1,800.0	6.50	295.00	1,791.0	69.2	-148.4	120.7	0.00	0.00	
1,900.0	6.50	295.00	1,890.4	74.0	-158.6	129.0	0.00	0.00	
2,000.0	6.50	295.00	1,989.7	78.8	-168.9	137.4	0.00	0.00	
2,100.0	6.50	295.00	2,089.1	83.5	-179.2	145.7	0.00	0.00	
2,179.4	6.50	295.00	2,168.0	87.3	-187.3	152.4	0.00	0.00	OHIO CREEK (Top Kmv)
2,200.0	6.50	295.00	2,188.5	88.3	-189.4	154.1	0.00	0.00	
2,300.0	6.50	295.00	2,287.8	93.1	-199.7	162.4	0.00	0.00	
2,400.0	6.50	295.00	2,387.2	97.9	-209.9	170.8	0.00	0.00	
2,500.0	6.50	295.00	2,486.5	102.7	-220.2	179.1	0.00	0.00	
2,600.0	6.50	295.00	2,585.9	107.5	-230.5	187.4	0.00	0.00	
2,698.8	6.50	295.00	2,684.0	112.2	-240.6	195.7	0.00	0.00	WILLIAMS FORK FM
2,700.0	6.50	295.00	2,685.2	112.3	-240.7	195.8	0.00	0.00	
2,800.0	6.50	295.00	2,784.6	117.0	-251.0	204.1	0.00	0.00	
2,900.0	6.50	295.00	2,884.0	121.8	-261.2	212.5	0.00	0.00	
3,000.0	6.50	295.00	2,983.3	126.6	-271.5	220.8	0.00	0.00	
3,100.0	6.50	295.00	3,082.7	131.4	-281.8	229.2	0.00	0.00	
3,200.0	6.50	295.00	3,182.0	136.2	-292.0	237.5	0.00	0.00	
3,300.0	6.50	295.00	3,281.4	141.0	-302.3	245.9	0.00	0.00	
3,400.0	6.50	295.00	3,380.7	145.7	-312.5	254.2	0.00	0.00	
3,500.0	6.50	295.00	3,480.1	150.5	-322.8	262.6	0.00	0.00	
3,600.0	6.50	295.00	3,579.5	155.3	-333.1	270.9	0.00	0.00	
3,700.0	6.50	295.00	3,678.8	160.1	-343.3	279.2	0.00	0.00	
3,800.0	6.50	295.00	3,778.2	164.9	-353.6	287.6	0.00	0.00	
3,900.0	6.50	295.00	3,877.5	169.7	-363.8	295.9	0.00	0.00	
3,950.8	6.50	295.00	3,928.0	172.1	-369.1	300.2	0.00	0.00	TOP GAS
4,000.0	6.50	295.00	3,976.9	174.4	-374.1	304.3	0.00	0.00	
4,100.0	6.50	295.00	4,076.2	179.2	-384.4	312.6	0.00	0.00	
4,200.0	6.50	295.00	4,175.6	184.0	-394.6	321.0	0.00	0.00	
4,300.0	6.50	295.00	4,275.0	188.8	-404.9	329.3	0.00	0.00	
4,400.0	6.50	295.00	4,374.3	193.6	-415.1	337.7	0.00	0.00	
4,500.0	6.50	295.00	4,473.7	198.4	-425.4	346.0	0.00	0.00	
4,600.0	6.50	295.00	4,573.0	203.2	-435.7	354.3	0.00	0.00	
4,700.0	6.50	295.00	4,672.4	207.9	-445.9	362.7	0.00	0.00	
4,711.7	6.50	295.00	4,684.0	208.5	-447.1	363.7	0.00	0.00	Coal Ridge (Paludal)

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Keinath Federal 9-12H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Project:</b>	Orchard	<b>MD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Site:</b>	NENW Sec10-T8S-R96W (C10OU)	<b>North Reference:</b>	True
<b>Well:</b>	Keinath Federal 9-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<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	6.50	295.00	4,771.7	212.7	-456.2	371.0	0.00	0.00	
4,900.0	6.50	295.00	4,871.1	217.5	-466.4	379.4	0.00	0.00	
5,000.0	6.50	295.00	4,970.5	222.3	-476.7	387.7	0.00	0.00	
5,029.7	6.50	295.00	5,000.0	223.7	-479.7	390.2	0.00	0.00	ROLLINS SS (Iles Fm)
5,100.0	6.50	295.00	5,069.8	227.1	-487.0	396.1	0.00	0.00	
5,200.0	6.50	295.00	5,169.2	231.9	-497.2	404.4	0.00	0.00	
5,300.0	6.50	295.00	5,268.5	236.6	-507.5	412.8	0.00	0.00	
5,301.5	6.50	295.00	5,270.0	236.7	-507.6	412.9	0.00	0.00	COZZETTE
5,400.0	6.50	295.00	5,367.9	241.4	-517.7	421.1	0.00	0.00	
5,500.0	6.50	295.00	5,467.2	246.2	-528.0	429.4	0.00	0.00	
5,544.0	6.50	295.00	5,511.0	248.3	-532.5	433.1	0.00	0.00	CORCORAN
5,600.0	6.50	295.00	5,566.6	251.0	-538.3	437.8	0.00	0.00	
5,700.0	6.50	295.00	5,666.0	255.8	-548.5	446.1	0.00	0.00	
5,800.0	6.50	295.00	5,765.3	260.6	-558.8	454.5	0.00	0.00	
5,900.0	6.50	295.00	5,864.7	265.3	-569.0	462.8	0.00	0.00	
6,000.0	6.50	295.00	5,964.0	270.1	-579.3	471.2	0.00	0.00	
6,100.0	6.50	295.00	6,063.4	274.9	-589.6	479.5	0.00	0.00	
6,188.2	6.50	295.00	6,151.0	279.1	-598.6	486.9	0.00	0.00	MANCOS A
6,200.0	6.50	295.00	6,162.7	279.7	-599.8	487.9	0.00	0.00	
6,300.0	6.50	295.00	6,262.1	284.5	-610.1	496.2	0.00	0.00	
6,400.0	6.50	295.00	6,361.5	289.3	-620.3	504.6	0.00	0.00	
6,500.0	6.50	295.00	6,460.8	294.1	-630.6	512.9	0.00	0.00	
6,600.0	6.50	295.00	6,560.2	298.8	-640.9	521.2	0.00	0.00	
6,700.0	6.50	295.00	6,659.5	303.6	-651.1	529.6	0.00	0.00	
6,800.0	6.50	295.00	6,758.9	308.4	-661.4	537.9	0.00	0.00	
6,900.0	6.50	295.00	6,858.2	313.2	-671.6	546.3	0.00	0.00	
7,000.0	6.50	295.00	6,957.6	318.0	-681.9	554.6	0.00	0.00	
7,037.6	6.50	295.00	6,995.0	319.8	-685.8	557.8	0.00	0.00	MANCOS B
7,100.0	6.50	295.00	7,057.0	322.8	-692.2	563.0	0.00	0.00	
7,200.0	6.50	295.00	7,156.3	327.5	-702.4	571.3	0.00	0.00	
7,300.0	6.50	295.00	7,255.7	332.3	-712.7	579.7	0.00	0.00	
7,400.0	6.50	295.00	7,355.0	337.1	-722.9	588.0	0.00	0.00	
7,500.0	6.50	295.00	7,454.4	341.9	-733.2	596.3	0.00	0.00	
7,600.0	6.50	295.00	7,553.7	346.7	-743.4	604.7	0.00	0.00	
7,700.0	6.50	295.00	7,653.1	351.5	-753.7	613.0	0.00	0.00	
7,800.0	6.50	295.00	7,752.5	356.2	-764.0	621.4	0.00	0.00	
7,871.0	6.50	295.00	7,823.0	359.6	-771.2	627.3	0.00	0.00	Keinath Federal 9-12H HZ Plan #1 ICP
7,900.0	6.50	295.00	7,851.8	361.0	-774.2	629.7	0.00	0.00	Start Drop -2.25
8,000.0	4.25	295.00	7,951.4	365.0	-782.7	636.6	2.25	-2.25	
8,100.0	2.00	295.00	8,051.2	367.3	-787.7	640.6	2.25	-2.25	
8,200.0	1.00	295.00	8,151.2	368.4	-790.0	642.6	1.00	-1.00	
8,300.0	0.00	0.00	8,251.2	368.8	-790.8	643.2	1.00	-1.00	EOD at Inc. = 0° - Keinath Federal 9-12H HZ P
8,369.3	0.00	0.00	8,320.5	368.8	-790.8	643.2	0.00	0.00	KOP #2 = 8369' MD
8,400.0	5.91	247.00	8,351.1	368.1	-792.3	644.8	19.25	19.25	
8,408.9	6.64	247.00	8,360.0	367.8	-793.2	645.8	8.17	8.17	NIOBRARA
8,500.0	14.08	247.00	8,449.5	361.4	-808.2	662.1	8.17	8.17	
8,600.0	22.24	247.00	8,544.5	349.2	-836.9	693.1	8.17	8.17	
8,700.0	30.41	247.00	8,634.0	331.9	-877.7	737.2	8.17	8.17	
8,800.0	38.58	247.00	8,716.4	309.8	-929.8	793.5	8.17	8.17	
8,900.0	46.74	247.00	8,789.8	283.3	-992.1	860.9	8.17	8.17	
9,000.0	54.91	247.00	8,852.9	253.1	-1,063.4	938.0	8.17	8.17	
9,100.0	62.33	247.00	8,905.0	219.7	-1,141.9	1,022.9	7.42	7.42	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Keinath Federal 9-12H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Project:</b>	Orchard	<b>MD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Site:</b>	NENW Sec10-T8S-R96W (C10OU)	<b>North Reference:</b>	True
<b>Well:</b>	Keinath Federal 9-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<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
9,200.0	69.75	247.00	8,945.6	184.0	-1,226.0	1,113.8	7.42	7.42	
9,300.0	77.16	247.00	8,974.0	146.6	-1,314.2	1,209.2	7.42	7.42	
9,400.0	84.58	247.00	8,989.9	108.1	-1,405.0	1,307.4	7.42	7.42	
9,500.0	92.00	247.00	8,992.9	69.0	-1,496.9	1,406.8	7.42	7.42	Landing Point at 9500' MD - Keinath Federal 9-
9,600.0	92.00	247.00	8,989.4	30.0	-1,588.9	1,506.3	0.00	0.00	
9,700.0	92.00	247.00	8,985.9	-9.1	-1,680.9	1,605.8	0.00	0.00	
9,800.0	92.00	247.00	8,982.4	-48.1	-1,772.9	1,705.2	0.00	0.00	
9,900.0	92.00	247.00	8,978.9	-87.2	-1,864.9	1,804.7	0.00	0.00	
10,000.0	92.00	247.00	8,975.4	-126.2	-1,956.9	1,904.2	0.00	0.00	
10,100.0	92.00	247.00	8,971.9	-165.3	-2,048.9	2,003.7	0.00	0.00	
10,200.0	92.00	247.00	8,968.4	-204.3	-2,140.9	2,103.2	0.00	0.00	
10,300.0	92.00	247.00	8,964.9	-243.4	-2,232.9	2,202.6	0.00	0.00	
10,400.0	92.00	247.00	8,961.4	-282.4	-2,324.9	2,302.1	0.00	0.00	
10,500.0	92.00	247.00	8,958.0	-321.5	-2,416.9	2,401.6	0.00	0.00	
10,600.0	92.00	247.00	8,954.5	-360.5	-2,508.9	2,501.1	0.00	0.00	
10,700.0	92.00	247.00	8,951.0	-399.6	-2,600.9	2,600.6	0.00	0.00	
10,800.0	92.00	247.00	8,947.5	-438.6	-2,692.9	2,700.0	0.00	0.00	
10,900.0	92.00	247.00	8,944.0	-477.7	-2,784.9	2,799.5	0.00	0.00	
11,000.0	92.00	247.00	8,940.5	-516.7	-2,876.9	2,899.0	0.00	0.00	
11,100.0	92.00	247.00	8,937.0	-555.8	-2,968.8	2,998.5	0.00	0.00	
11,200.0	92.00	247.00	8,933.5	-594.8	-3,060.8	3,098.0	0.00	0.00	
11,300.0	92.00	247.00	8,930.0	-633.8	-3,152.8	3,197.4	0.00	0.00	
11,400.0	92.00	247.00	8,926.5	-672.9	-3,244.8	3,296.9	0.00	0.00	
11,500.0	92.00	247.00	8,923.1	-711.9	-3,336.8	3,396.4	0.00	0.00	
11,600.0	92.00	247.00	8,919.6	-751.0	-3,428.8	3,495.9	0.00	0.00	
11,700.0	92.00	247.00	8,916.1	-790.0	-3,520.8	3,595.4	0.00	0.00	
11,800.0	92.00	247.00	8,912.6	-829.1	-3,612.8	3,694.9	0.00	0.00	
11,900.0	92.00	247.00	8,909.1	-868.1	-3,704.8	3,794.3	0.00	0.00	
12,000.0	92.00	247.00	8,905.6	-907.2	-3,796.8	3,893.8	0.00	0.00	
12,100.0	92.00	247.00	8,902.1	-946.2	-3,888.8	3,993.3	0.00	0.00	
12,200.0	92.00	247.00	8,898.6	-985.3	-3,980.8	4,092.8	0.00	0.00	
12,300.0	92.00	247.00	8,895.1	-1,024.3	-4,072.8	4,192.3	0.00	0.00	
12,400.0	92.00	247.00	8,891.6	-1,063.4	-4,164.8	4,291.7	0.00	0.00	
12,500.0	92.00	247.00	8,888.2	-1,102.4	-4,256.8	4,391.2	0.00	0.00	
12,600.0	92.00	247.00	8,884.7	-1,141.5	-4,348.8	4,490.7	0.00	0.00	
12,700.0	92.00	247.00	8,881.2	-1,180.5	-4,440.8	4,590.2	0.00	0.00	
12,800.0	92.00	247.00	8,877.7	-1,219.6	-4,532.8	4,689.7	0.00	0.00	
12,900.0	92.00	247.00	8,874.2	-1,258.6	-4,624.7	4,789.1	0.00	0.00	
13,000.0	92.00	247.00	8,870.7	-1,297.7	-4,716.7	4,888.6	0.00	0.00	
13,100.0	92.00	247.00	8,867.2	-1,336.7	-4,808.7	4,988.1	0.00	0.00	
13,200.0	92.00	247.00	8,863.7	-1,375.8	-4,900.7	5,087.6	0.00	0.00	
13,300.0	92.00	247.00	8,860.2	-1,414.8	-4,992.7	5,187.1	0.00	0.00	
13,400.0	92.00	247.00	8,856.7	-1,453.9	-5,084.7	5,286.5	0.00	0.00	
13,500.0	92.00	247.00	8,853.3	-1,492.9	-5,176.7	5,386.0	0.00	0.00	
13,600.0	92.00	247.00	8,849.8	-1,532.0	-5,268.7	5,485.5	0.00	0.00	
13,700.0	92.00	247.00	8,846.3	-1,571.0	-5,360.7	5,585.0	0.00	0.00	
13,800.0	92.00	247.00	8,842.8	-1,610.1	-5,452.7	5,684.5	0.00	0.00	
13,900.0	92.00	247.00	8,839.3	-1,649.1	-5,544.7	5,784.0	0.00	0.00	
14,000.0	92.00	247.00	8,835.8	-1,688.2	-5,636.7	5,883.4	0.00	0.00	
14,100.0	92.00	247.00	8,832.3	-1,727.2	-5,728.7	5,982.9	0.00	0.00	
14,200.0	92.00	247.00	8,828.8	-1,766.3	-5,820.7	6,082.4	0.00	0.00	
14,300.0	92.00	247.00	8,825.3	-1,805.3	-5,912.7	6,181.9	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Keinath Federal 9-12H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Project:</b>	Orchard	<b>MD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Site:</b>	NENW Sec10-T8S-R96W (C10OU)	<b>North Reference:</b>	True
<b>Well:</b>	Keinath Federal 9-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<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
14,400.0	92.00	247.00	8,821.8	-1,844.4	-6,004.7	6,281.4	0.00	0.00	
14,500.0	92.00	247.00	8,818.4	-1,883.4	-6,096.7	6,380.8	0.00	0.00	TD at 14,500' MD - Keinath Federal 9-12H HZ F
14,600.0	92.00	247.00	8,814.9	-1,922.5	-6,188.7	6,480.3	0.00	0.00	
14,700.0	92.00	247.00	8,811.4	-1,961.5	-6,280.6	6,579.8	0.00	0.00	
14,800.0	92.00	247.00	8,807.9	-2,000.6	-6,372.6	6,679.3	0.00	0.00	
14,900.0	92.00	247.00	8,804.4	-2,039.6	-6,464.6	6,778.8	0.00	0.00	Permit TD at 14,900' MD

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Keinath Federal 9-12H F - plan misses target center by 21.7ft at 7871.0ft MD (7823.0 TVD, 359.6 N, -771.2 E) - Point	0.00	0.00	7,820.5	368.8	-790.8	1,570,140.54	2,264,492.46	39.369862	-108.102039
Keinath Federal 9-12H F - plan hits target center - Point	0.00	0.00	8,818.4	-1,883.4	-6,096.7	1,568,041.06	2,259,124.37	39.363677	-108.120805
Keinath Federal 9-12H F - plan hits target center - Point	0.00	0.00	8,992.9	69.0	-1,496.9	1,569,861.14	2,263,778.06	39.369039	-108.104537
Keinath Federal 9-12H F - plan hits target center - Point	0.00	0.00	8,251.2	368.8	-790.8	1,570,140.54	2,264,492.46	39.369862	-108.102039

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,179.4	2,168.0	OHIO CREEK (Top Kmv)			
2,698.8	2,684.0	WILLIAMS FORK FM			
3,950.8	3,928.0	TOP GAS			
4,711.7	4,684.0	Coal Ridge (Paludal)			
5,029.7	5,000.0	ROLLINS SS (Iles Fm)			
5,301.5	5,270.0	COZZETTE			
5,544.0	5,511.0	CORCORAN			
6,188.2	6,151.0	MANCOS A			
7,037.6	6,995.0	MANCOS B			
8,408.9	8,360.0	NIOBRARA			

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	EDM 5000.1 US Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Keinath Federal 9-12H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Project:</b>	Orchard	<b>MD Reference:</b>	WELL @ 5590.0ft (Original Well Elev)
<b>Site:</b>	NENW Sec10-T8S-R96W (C10OU)	<b>North Reference:</b>	True
<b>Well:</b>	Keinath Federal 9-12H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #1		

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP #1 at 200' MD
500.0	499.4	0.7	-1.6	EOB at Inc. = 6.5°
7,900.0	7,851.8	7.0	-15.0	Start Drop -2.25
8,300.0	8,251.2	361.0	-774.2	EOD at Inc. = 0°
8,369.3	8,320.5	367.3	-787.7	KOP #2 = 8369' MD
9,500.0	8,992.9	368.8	-790.8	Landing Point at 9500' MD
14,500.0	8,818.4	368.8	-790.8	TD at 14,500' MD
14,900.0	8,804.4	368.1	-792.3	Permit TD at 14,900' MD