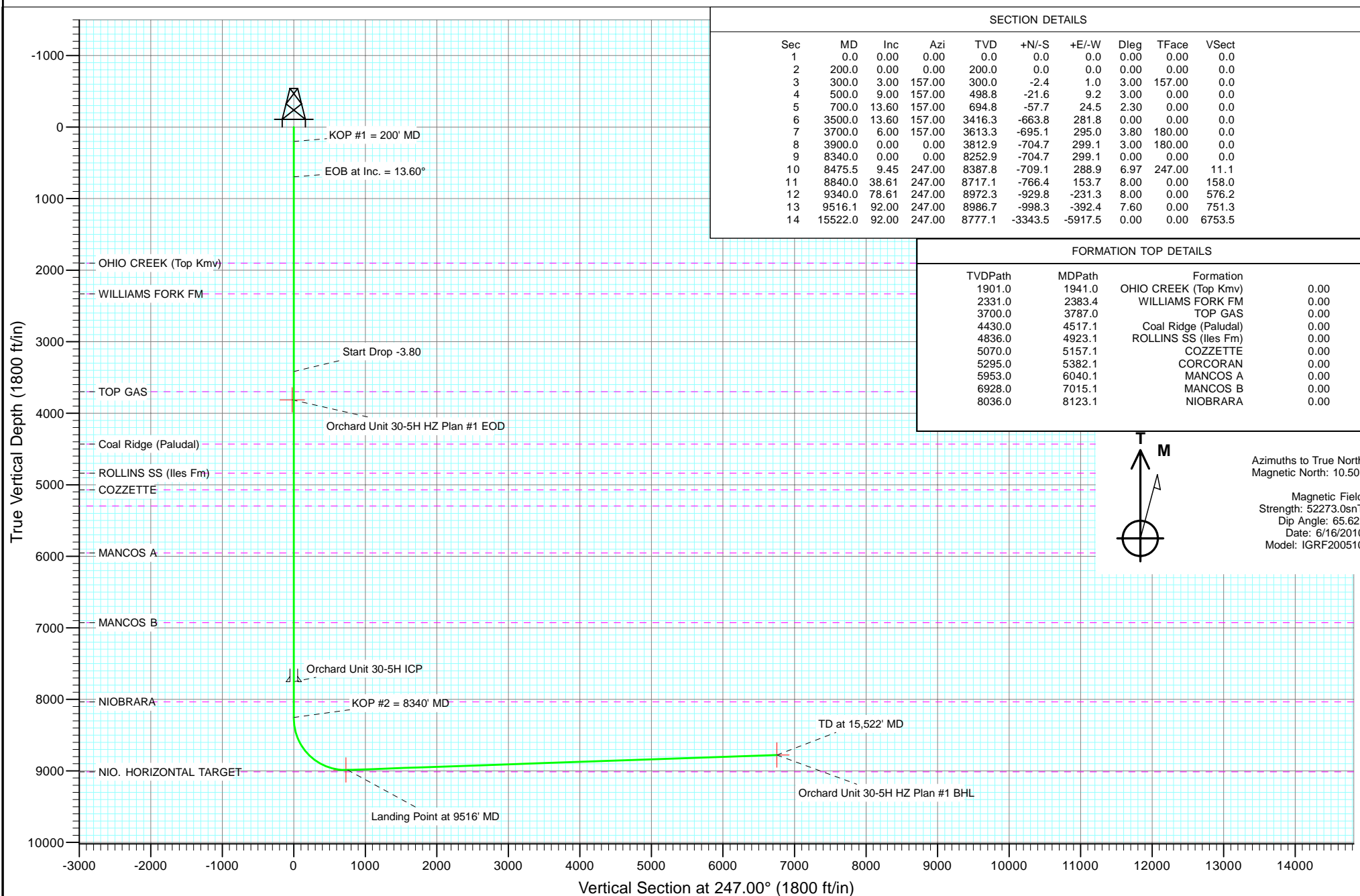


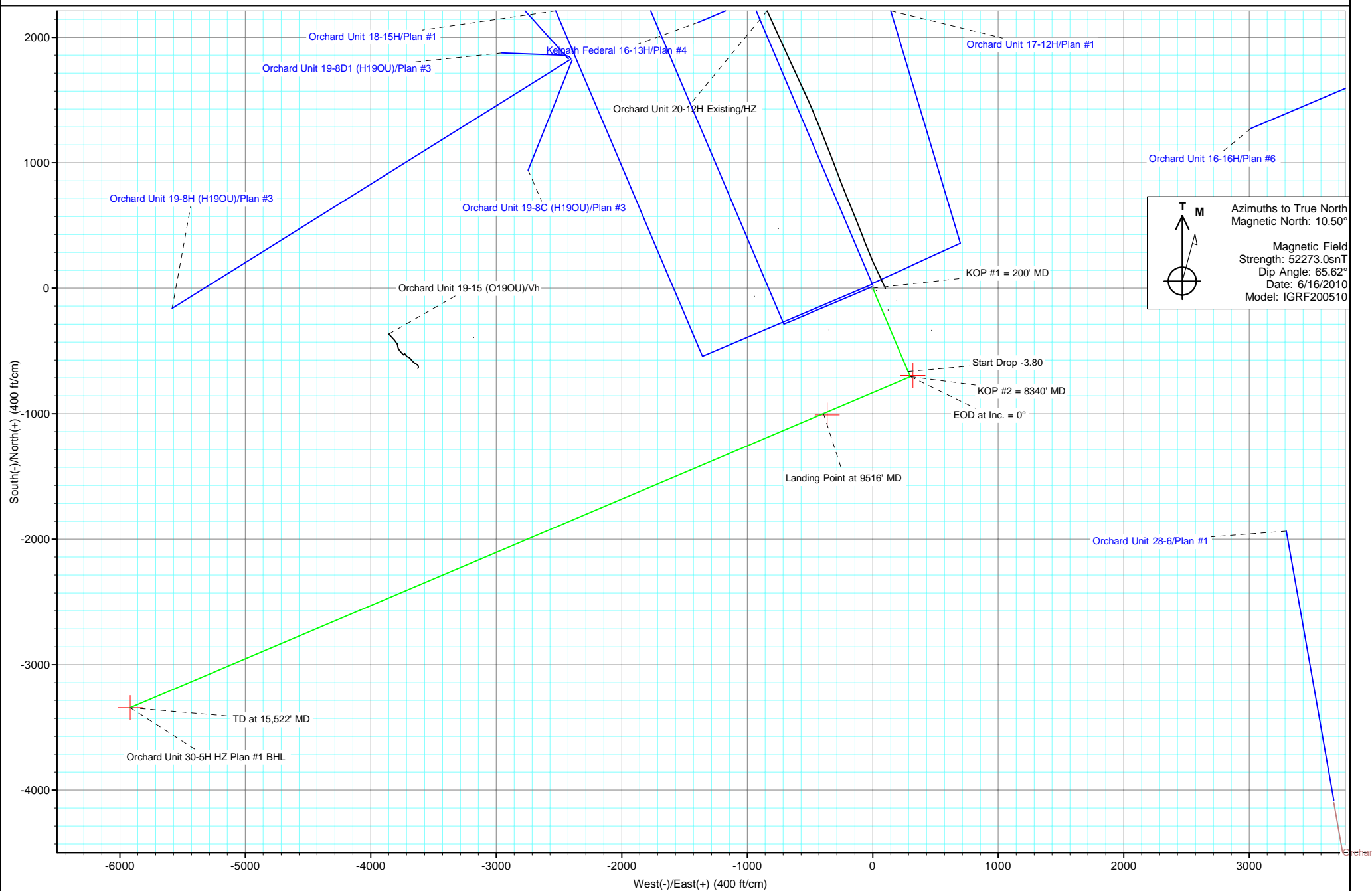


Project: Orchard
Site: NESW Sec20-8S-96W (K20OU Pad)
Well: Orchard Unit 30-5H
Design: Plan #2





Project: Orchard
Site: NESW Sec20-8S-96W (K200U Pad)
Well: Orchard Unit 30-5H
Wellbore: HZ
Plan: Plan #1



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Orchard Unit 30-5H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5951.0ft (Original Well Elev)
Project:	Orchard	MD Reference:	WELL @ 5951.0ft (Original Well Elev)
Site:	NESW Sec20-8S-96W (K20OU Pad)	North Reference:	True
Well:	Orchard Unit 30-5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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

Site		NESW Sec20-8S-96W (K20OU Pad)			
Site Position:		Northing:	1,556,589.03 ft	Latitude:	39.331906
From:	Lat/Long	Easting:	2,254,817.34 ft	Longitude:	-108.134858
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.66 °

Well	Orchard Unit 30-5H					
Well Position	+N/-S	0.0 ft	Northing:	1,556,636.14 ft	Latitude:	39.332028
	+E/-W	0.0 ft	Easting:	2,254,722.72 ft	Longitude:	-108.135197
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,929.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/16/2010	10.50	65.62	52,273

Design	Plan #2			
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	0.00

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	
300.0	3.00	157.00	300.0	-2.4	1.0	3.00	3.00	0.00	157.00	
500.0	9.00	157.00	498.8	-21.6	9.2	3.00	3.00	0.00	0.00	
700.0	13.60	157.00	694.8	-57.7	24.5	2.30	2.30	0.00	0.00	
3,500.0	13.60	157.00	3,416.3	-663.8	281.8	0.00	0.00	0.00	0.00	
3,700.0	6.00	157.00	3,613.3	-695.1	295.0	3.80	-3.80	0.00	180.00	
3,900.0	0.00	0.00	3,812.9	-704.7	299.1	3.00	-3.00	0.00	180.00	
8,340.0	0.00	0.00	8,252.9	-704.7	299.1	0.00	0.00	0.00	0.00	
8,475.5	9.45	247.00	8,387.8	-709.1	288.9	6.97	6.97	0.00	247.00	
8,840.0	38.61	247.00	8,717.1	-766.4	153.7	8.00	8.00	0.00	0.00	
9,340.0	78.61	247.00	8,972.3	-929.8	-231.3	8.00	8.00	0.00	0.00	
9,516.1	92.00	247.00	8,986.7	-998.3	-392.4	7.60	7.60	0.00	0.00	
15,522.0	92.00	247.00	8,777.1	-3,343.5	-5,917.5	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Orchard Unit 30-5H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5951.0ft (Original Well Elev)
Project:	Orchard	MD Reference:	WELL @ 5951.0ft (Original Well Elev)
Site:	NESW Sec20-8S-96W (K20OU Pad)	North Reference:	True
Well:	Orchard Unit 30-5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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 = 200' MD
300.0	3.00	157.00	300.0	-2.4	1.0	-2.4	3.00	3.00	
400.0	6.00	157.00	399.6	-9.6	4.1	-9.6	3.00	3.00	
500.0	9.00	157.00	498.8	-21.6	9.2	-21.6	3.00	3.00	
600.0	11.30	157.00	597.2	-37.9	16.1	-37.9	2.30	2.30	
700.0	13.60	157.00	694.8	-57.7	24.5	-57.7	2.30	2.30	EOB at Inc. = 13.60°
800.0	13.60	157.00	792.0	-79.4	33.7	-79.4	0.00	0.00	
900.0	13.60	157.00	889.2	-101.0	42.9	-101.0	0.00	0.00	
1,000.0	13.60	157.00	986.4	-122.6	52.1	-122.6	0.00	0.00	
1,100.0	13.60	157.00	1,083.6	-144.3	61.2	-144.3	0.00	0.00	
1,200.0	13.60	157.00	1,180.8	-165.9	70.4	-165.9	0.00	0.00	
1,300.0	13.60	157.00	1,278.0	-187.6	79.6	-187.6	0.00	0.00	
1,400.0	13.60	157.00	1,375.2	-209.2	88.8	-209.2	0.00	0.00	
1,500.0	13.60	157.00	1,472.4	-230.9	98.0	-230.9	0.00	0.00	
1,600.0	13.60	157.00	1,569.6	-252.5	107.2	-252.5	0.00	0.00	
1,700.0	13.60	157.00	1,666.8	-274.2	116.4	-274.2	0.00	0.00	
1,800.0	13.60	157.00	1,764.0	-295.8	125.6	-295.8	0.00	0.00	
1,900.0	13.60	157.00	1,861.2	-317.4	134.7	-317.4	0.00	0.00	
1,941.0	13.60	157.00	1,901.0	-326.3	138.5	-326.3	0.00	0.00	OHIO CREEK (Top Kmv)
2,000.0	13.60	157.00	1,958.4	-339.1	143.9	-339.1	0.00	0.00	
2,100.0	13.60	157.00	2,055.6	-360.7	153.1	-360.7	0.00	0.00	
2,200.0	13.60	157.00	2,152.8	-382.4	162.3	-382.4	0.00	0.00	
2,300.0	13.60	157.00	2,250.0	-404.0	171.5	-404.0	0.00	0.00	
2,383.4	13.60	157.00	2,331.0	-422.1	179.2	-422.1	0.00	0.00	WILLIAMS FORK FM
2,400.0	13.60	157.00	2,347.2	-425.7	180.7	-425.7	0.00	0.00	
2,500.0	13.60	157.00	2,444.4	-447.3	189.9	-447.3	0.00	0.00	
2,600.0	13.60	157.00	2,541.6	-469.0	199.1	-469.0	0.00	0.00	
2,700.0	13.60	157.00	2,638.8	-490.6	208.3	-490.6	0.00	0.00	
2,800.0	13.60	157.00	2,736.0	-512.3	217.4	-512.3	0.00	0.00	
2,900.0	13.60	157.00	2,833.2	-533.9	226.6	-533.9	0.00	0.00	
3,000.0	13.60	157.00	2,930.3	-555.5	235.8	-555.5	0.00	0.00	
3,100.0	13.60	157.00	3,027.5	-577.2	245.0	-577.2	0.00	0.00	
3,200.0	13.60	157.00	3,124.7	-598.8	254.2	-598.8	0.00	0.00	
3,300.0	13.60	157.00	3,221.9	-620.5	263.4	-620.5	0.00	0.00	
3,400.0	13.60	157.00	3,319.1	-642.1	272.6	-642.1	0.00	0.00	
3,500.0	13.60	157.00	3,416.3	-663.8	281.8	-663.8	0.00	0.00	Start Drop -3.80
3,600.0	9.80	157.00	3,514.2	-682.4	289.7	-682.4	3.80	-3.80	
3,700.0	6.00	157.00	3,613.3	-695.1	295.0	-695.1	3.80	-3.80	
3,787.0	3.39	157.00	3,700.0	-701.6	297.8	-701.6	3.00	-3.00	TOP GAS
3,800.0	3.00	157.00	3,712.9	-702.3	298.1	-702.3	3.00	-3.00	
3,900.0	0.00	157.00	3,812.9	-704.7	299.1	-704.7	3.00	-3.00	EOD at Inc. = 0° - Orchard Unit 30-5H HZ Plan
4,000.0	0.00	0.00	3,912.9	-704.7	299.1	-704.7	0.00	0.00	
4,100.0	0.00	0.00	4,012.9	-704.7	299.1	-704.7	0.00	0.00	
4,200.0	0.00	0.00	4,112.9	-704.7	299.1	-704.7	0.00	0.00	
4,300.0	0.00	0.00	4,212.9	-704.7	299.1	-704.7	0.00	0.00	
4,400.0	0.00	0.00	4,312.9	-704.7	299.1	-704.7	0.00	0.00	
4,500.0	0.00	0.00	4,412.9	-704.7	299.1	-704.7	0.00	0.00	
4,517.1	0.00	0.00	4,430.0	-704.7	299.1	-704.7	0.00	0.00	Coal Ridge (Paludal)
4,600.0	0.00	0.00	4,512.9	-704.7	299.1	-704.7	0.00	0.00	
4,700.0	0.00	0.00	4,612.9	-704.7	299.1	-704.7	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Orchard Unit 30-5H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5951.0ft (Original Well Elev)
Project:	Orchard	MD Reference:	WELL @ 5951.0ft (Original Well Elev)
Site:	NESW Sec20-8S-96W (K20OU Pad)	North Reference:	True
Well:	Orchard Unit 30-5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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	0.00	0.00	4,712.9	-704.7	299.1	-704.7	0.00	0.00	
4,900.0	0.00	0.00	4,812.9	-704.7	299.1	-704.7	0.00	0.00	
4,923.1	0.00	0.00	4,836.0	-704.7	299.1	-704.7	0.00	0.00	ROLLINS SS (Iles Fm)
5,000.0	0.00	0.00	4,912.9	-704.7	299.1	-704.7	0.00	0.00	
5,100.0	0.00	0.00	5,012.9	-704.7	299.1	-704.7	0.00	0.00	
5,157.1	0.00	0.00	5,070.0	-704.7	299.1	-704.7	0.00	0.00	COZZETTE
5,200.0	0.00	0.00	5,112.9	-704.7	299.1	-704.7	0.00	0.00	
5,300.0	0.00	0.00	5,212.9	-704.7	299.1	-704.7	0.00	0.00	
5,382.1	0.00	0.00	5,295.0	-704.7	299.1	-704.7	0.00	0.00	CORCORAN
5,400.0	0.00	0.00	5,312.9	-704.7	299.1	-704.7	0.00	0.00	
5,500.0	0.00	0.00	5,412.9	-704.7	299.1	-704.7	0.00	0.00	
5,600.0	0.00	0.00	5,512.9	-704.7	299.1	-704.7	0.00	0.00	
5,700.0	0.00	0.00	5,612.9	-704.7	299.1	-704.7	0.00	0.00	
5,800.0	0.00	0.00	5,712.9	-704.7	299.1	-704.7	0.00	0.00	
5,900.0	0.00	0.00	5,812.9	-704.7	299.1	-704.7	0.00	0.00	
6,000.0	0.00	0.00	5,912.9	-704.7	299.1	-704.7	0.00	0.00	
6,040.1	0.00	0.00	5,953.0	-704.7	299.1	-704.7	0.00	0.00	MANCOS A
6,100.0	0.00	0.00	6,012.9	-704.7	299.1	-704.7	0.00	0.00	
6,200.0	0.00	0.00	6,112.9	-704.7	299.1	-704.7	0.00	0.00	
6,300.0	0.00	0.00	6,212.9	-704.7	299.1	-704.7	0.00	0.00	
6,400.0	0.00	0.00	6,312.9	-704.7	299.1	-704.7	0.00	0.00	
6,500.0	0.00	0.00	6,412.9	-704.7	299.1	-704.7	0.00	0.00	
6,600.0	0.00	0.00	6,512.9	-704.7	299.1	-704.7	0.00	0.00	
6,700.0	0.00	0.00	6,612.9	-704.7	299.1	-704.7	0.00	0.00	
6,800.0	0.00	0.00	6,712.9	-704.7	299.1	-704.7	0.00	0.00	
6,900.0	0.00	0.00	6,812.9	-704.7	299.1	-704.7	0.00	0.00	
7,000.0	0.00	0.00	6,912.9	-704.7	299.1	-704.7	0.00	0.00	
7,015.1	0.00	0.00	6,928.0	-704.7	299.1	-704.7	0.00	0.00	MANCOS B
7,100.0	0.00	0.00	7,012.9	-704.7	299.1	-704.7	0.00	0.00	
7,200.0	0.00	0.00	7,112.9	-704.7	299.1	-704.7	0.00	0.00	
7,300.0	0.00	0.00	7,212.9	-704.7	299.1	-704.7	0.00	0.00	
7,400.0	0.00	0.00	7,312.9	-704.7	299.1	-704.7	0.00	0.00	
7,500.0	0.00	0.00	7,412.9	-704.7	299.1	-704.7	0.00	0.00	
7,600.0	0.00	0.00	7,512.9	-704.7	299.1	-704.7	0.00	0.00	
7,700.0	0.00	0.00	7,612.9	-704.7	299.1	-704.7	0.00	0.00	
7,800.0	0.00	0.00	7,712.9	-704.7	299.1	-704.7	0.00	0.00	
7,840.0	0.00	0.00	7,752.9	-704.7	299.1	-704.7	0.00	0.00	Orchard Unit 30-5H ICP
7,900.0	0.00	0.00	7,812.9	-704.7	299.1	-704.7	0.00	0.00	
8,000.0	0.00	0.00	7,912.9	-704.7	299.1	-704.7	0.00	0.00	
8,100.0	0.00	0.00	8,012.9	-704.7	299.1	-704.7	0.00	0.00	
8,123.1	0.00	0.00	8,036.0	-704.7	299.1	-704.7	0.00	0.00	NIORARA
8,200.0	0.00	0.00	8,112.9	-704.7	299.1	-704.7	0.00	0.00	
8,300.0	0.00	0.00	8,212.9	-704.7	299.1	-704.7	0.00	0.00	
8,340.0	0.00	0.00	8,252.9	-704.7	299.1	-704.7	0.00	0.00	KOP #2 = 8340' MD
8,400.0	4.18	247.00	8,312.8	-705.6	297.1	-705.6	6.97	6.97	
8,475.5	9.45	247.00	8,387.8	-709.1	288.9	-709.1	6.97	6.97	
8,500.0	11.41	247.00	8,411.9	-710.8	284.8	-710.8	8.00	8.00	
8,600.0	19.41	247.00	8,508.2	-721.2	260.3	-721.2	8.00	8.00	
8,700.0	27.41	247.00	8,599.9	-736.7	223.8	-736.7	8.00	8.00	
8,800.0	35.41	247.00	8,685.2	-757.0	175.9	-757.0	8.00	8.00	
8,840.0	38.61	247.00	8,717.1	-766.4	153.7	-766.4	8.00	8.00	
8,900.0	43.41	247.00	8,762.4	-781.8	117.5	-781.8	8.00	8.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Orchard Unit 30-5H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5951.0ft (Original Well Elev)
Project:	Orchard	MD Reference:	WELL @ 5951.0ft (Original Well Elev)
Site:	NESW Sec20-8S-96W (K20OU Pad)	North Reference:	True
Well:	Orchard Unit 30-5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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
9,000.0	51.41	247.00	8,830.0	-810.6	49.8	-810.6	8.00	8.00	
9,100.0	59.41	247.00	8,886.7	-842.7	-26.0	-842.7	8.00	8.00	
9,200.0	67.41	247.00	8,931.4	-877.6	-108.2	-877.6	8.00	8.00	
9,300.0	75.41	247.00	8,963.3	-914.6	-195.4	-914.6	8.00	8.00	
9,340.0	78.61	247.00	8,972.3	-929.8	-231.3	-929.8	8.00	8.00	
9,400.0	83.17	247.00	8,981.8	-953.0	-285.8	-953.0	7.60	7.60	
9,493.6	90.29	247.00	8,987.1	-989.5	-371.7	-989.5	7.60	7.60	Orchard Unit 30-5H HZ Plan #1 Landing Point
9,500.0	90.78	247.00	8,987.1	-992.0	-377.6	-992.0	7.60	7.60	
9,516.1	92.00	247.00	8,986.7	-998.3	-392.4	-998.3	7.60	7.60	Landing Point at 9516' MD
9,600.0	92.00	247.00	8,983.7	-1,031.0	-469.6	-1,031.0	0.00	0.00	
9,700.0	92.00	247.00	8,980.3	-1,070.1	-561.6	-1,070.1	0.00	0.00	
9,800.0	92.00	247.00	8,976.8	-1,109.1	-653.6	-1,109.1	0.00	0.00	
9,900.0	92.00	247.00	8,973.3	-1,148.2	-745.6	-1,148.2	0.00	0.00	
10,000.0	92.00	247.00	8,969.8	-1,187.2	-837.6	-1,187.2	0.00	0.00	
10,100.0	92.00	247.00	8,966.3	-1,226.3	-929.6	-1,226.3	0.00	0.00	
10,200.0	92.00	247.00	8,962.8	-1,265.3	-1,021.6	-1,265.3	0.00	0.00	
10,300.0	92.00	247.00	8,959.3	-1,304.4	-1,113.6	-1,304.4	0.00	0.00	
10,400.0	92.00	247.00	8,955.8	-1,343.4	-1,205.6	-1,343.4	0.00	0.00	
10,500.0	92.00	247.00	8,952.3	-1,382.5	-1,297.6	-1,382.5	0.00	0.00	
10,600.0	92.00	247.00	8,948.8	-1,421.5	-1,389.6	-1,421.5	0.00	0.00	
10,700.0	92.00	247.00	8,945.4	-1,460.6	-1,481.6	-1,460.6	0.00	0.00	
10,800.0	92.00	247.00	8,941.9	-1,499.6	-1,573.6	-1,499.6	0.00	0.00	
10,900.0	92.00	247.00	8,938.4	-1,538.7	-1,665.6	-1,538.7	0.00	0.00	
11,000.0	92.00	247.00	8,934.9	-1,577.7	-1,757.5	-1,577.7	0.00	0.00	
11,100.0	92.00	247.00	8,931.4	-1,616.8	-1,849.5	-1,616.8	0.00	0.00	
11,200.0	92.00	247.00	8,927.9	-1,655.8	-1,941.5	-1,655.8	0.00	0.00	
11,300.0	92.00	247.00	8,924.4	-1,694.9	-2,033.5	-1,694.9	0.00	0.00	
11,400.0	92.00	247.00	8,920.9	-1,733.9	-2,125.5	-1,733.9	0.00	0.00	
11,500.0	92.00	247.00	8,917.4	-1,773.0	-2,217.5	-1,773.0	0.00	0.00	
11,600.0	92.00	247.00	8,913.9	-1,812.0	-2,309.5	-1,812.0	0.00	0.00	
11,700.0	92.00	247.00	8,910.5	-1,851.1	-2,401.5	-1,851.1	0.00	0.00	
11,800.0	92.00	247.00	8,907.0	-1,890.1	-2,493.5	-1,890.1	0.00	0.00	
11,900.0	92.00	247.00	8,903.5	-1,929.2	-2,585.5	-1,929.2	0.00	0.00	
12,000.0	92.00	247.00	8,900.0	-1,968.2	-2,677.5	-1,968.2	0.00	0.00	
12,100.0	92.00	247.00	8,896.5	-2,007.3	-2,769.5	-2,007.3	0.00	0.00	
12,200.0	92.00	247.00	8,893.0	-2,046.3	-2,861.5	-2,046.3	0.00	0.00	
12,300.0	92.00	247.00	8,889.5	-2,085.4	-2,953.5	-2,085.4	0.00	0.00	
12,400.0	92.00	247.00	8,886.0	-2,124.4	-3,045.5	-2,124.4	0.00	0.00	
12,500.0	92.00	247.00	8,882.5	-2,163.5	-3,137.5	-2,163.5	0.00	0.00	
12,600.0	92.00	247.00	8,879.0	-2,202.5	-3,229.5	-2,202.5	0.00	0.00	
12,700.0	92.00	247.00	8,875.6	-2,241.6	-3,321.5	-2,241.6	0.00	0.00	
12,800.0	92.00	247.00	8,872.1	-2,280.6	-3,413.4	-2,280.6	0.00	0.00	
12,900.0	92.00	247.00	8,868.6	-2,319.7	-3,505.4	-2,319.7	0.00	0.00	
13,000.0	92.00	247.00	8,865.1	-2,358.7	-3,597.4	-2,358.7	0.00	0.00	
13,100.0	92.00	247.00	8,861.6	-2,397.8	-3,689.4	-2,397.8	0.00	0.00	
13,200.0	92.00	247.00	8,858.1	-2,436.8	-3,781.4	-2,436.8	0.00	0.00	
13,300.0	92.00	247.00	8,854.6	-2,475.9	-3,873.4	-2,475.9	0.00	0.00	
13,400.0	92.00	247.00	8,851.1	-2,514.9	-3,965.4	-2,514.9	0.00	0.00	
13,500.0	92.00	247.00	8,847.6	-2,554.0	-4,057.4	-2,554.0	0.00	0.00	
13,600.0	92.00	247.00	8,844.1	-2,593.0	-4,149.4	-2,593.0	0.00	0.00	
13,700.0	92.00	247.00	8,840.7	-2,632.0	-4,241.4	-2,632.0	0.00	0.00	
13,800.0	92.00	247.00	8,837.2	-2,671.1	-4,333.4	-2,671.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Orchard Unit 30-5H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5951.0ft (Original Well Elev)
Project:	Orchard	MD Reference:	WELL @ 5951.0ft (Original Well Elev)
Site:	NESW Sec20-8S-96W (K20OU Pad)	North Reference:	True
Well:	Orchard Unit 30-5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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
13,900.0	92.00	247.00	8,833.7	-2,710.1	-4,425.4	-2,710.1	0.00	0.00	
14,000.0	92.00	247.00	8,830.2	-2,749.2	-4,517.4	-2,749.2	0.00	0.00	
14,100.0	92.00	247.00	8,826.7	-2,788.2	-4,609.4	-2,788.2	0.00	0.00	
14,200.0	92.00	247.00	8,823.2	-2,827.3	-4,701.4	-2,827.3	0.00	0.00	
14,300.0	92.00	247.00	8,819.7	-2,866.3	-4,793.4	-2,866.3	0.00	0.00	
14,400.0	92.00	247.00	8,816.2	-2,905.4	-4,885.4	-2,905.4	0.00	0.00	
14,500.0	92.00	247.00	8,812.7	-2,944.4	-4,977.4	-2,944.4	0.00	0.00	
14,600.0	92.00	247.00	8,809.2	-2,983.5	-5,069.3	-2,983.5	0.00	0.00	
14,700.0	92.00	247.00	8,805.8	-3,022.5	-5,161.3	-3,022.5	0.00	0.00	
14,800.0	92.00	247.00	8,802.3	-3,061.6	-5,253.3	-3,061.6	0.00	0.00	
14,900.0	92.00	247.00	8,798.8	-3,100.6	-5,345.3	-3,100.6	0.00	0.00	
15,000.0	92.00	247.00	8,795.3	-3,139.7	-5,437.3	-3,139.7	0.00	0.00	
15,100.0	92.00	247.00	8,791.8	-3,178.7	-5,529.3	-3,178.7	0.00	0.00	
15,200.0	92.00	247.00	8,788.3	-3,217.8	-5,621.3	-3,217.8	0.00	0.00	
15,300.0	92.00	247.00	8,784.8	-3,256.8	-5,713.3	-3,256.8	0.00	0.00	
15,400.0	92.00	247.00	8,781.3	-3,295.9	-5,805.3	-3,295.9	0.00	0.00	
15,500.0	92.00	247.00	8,777.8	-3,334.9	-5,897.3	-3,334.9	0.00	0.00	
15,522.0	92.00	247.00	8,777.1	-3,343.5	-5,917.5	-3,343.5	0.00	0.00	TD at 15,522' MD - Orchard Unit 30-5H HZ Plar

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Orchard Unit 30-5H HZ I	0.00	358.34	8,986.7	-1,009.2	-363.3	1,555,637.87	2,254,330.28	39.329257	-108.136482
- plan misses target center by 21.5ft at 9493.6ft MD (8987.1 TVD, -989.5 N, -371.7 E)									
- Point									
Orchard Unit 30-5H HZ I	0.00	0.00	8,777.1	-3,343.5	-5,917.5	1,553,465.64	2,248,710.70	39.322846	-108.156115
- plan hits target center									
- Point									
Orchard Unit 30-5H HZ I	0.00	358.34	3,812.9	-695.7	319.4	1,555,931.43	2,255,021.85	39.330118	-108.134068
- plan misses target center by 22.2ft at 3900.0ft MD (3812.9 TVD, -704.7 N, 299.1 E)									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
7,840.0	7,752.9	Orchard Unit 30-5H ICP		