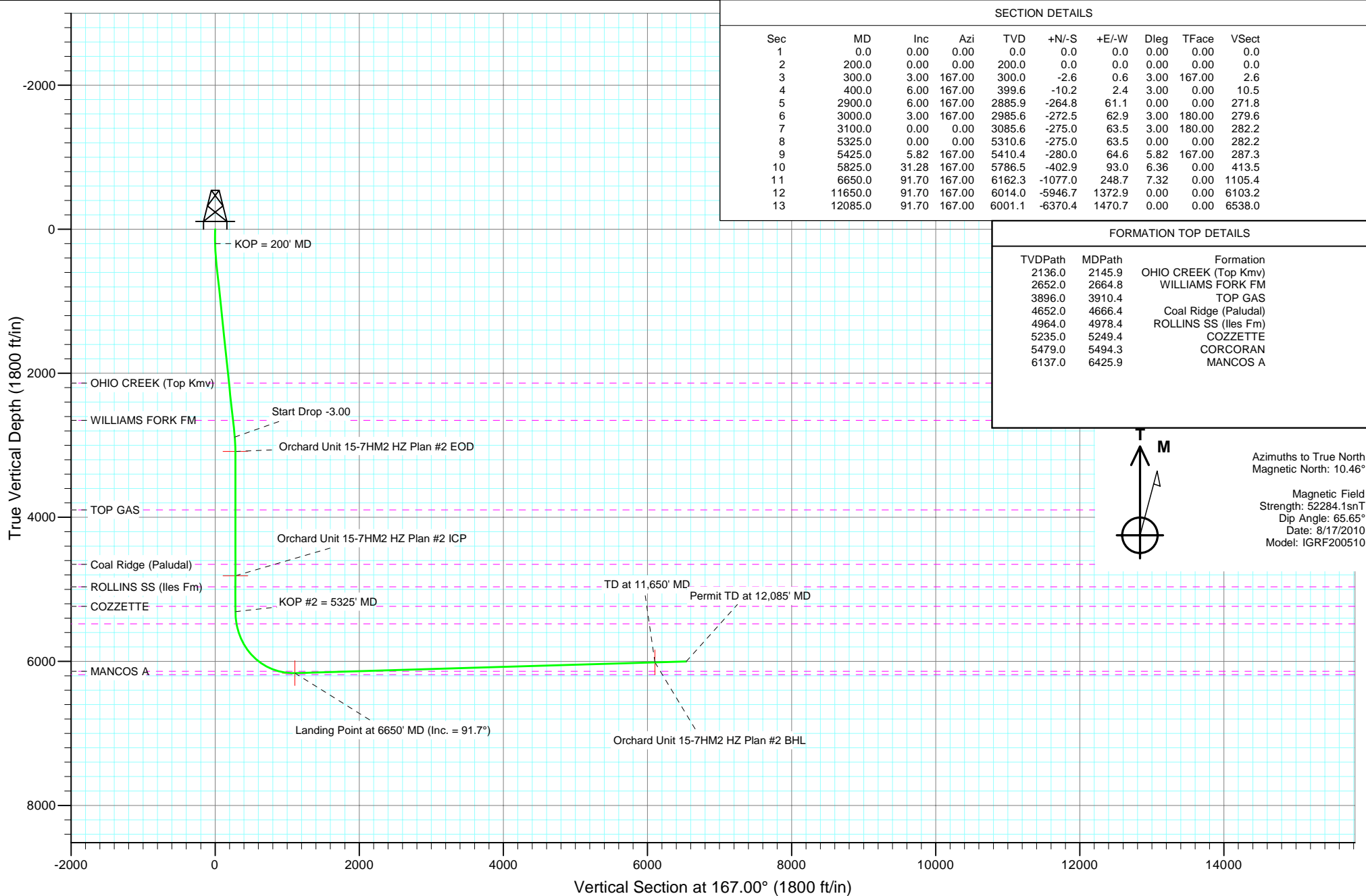


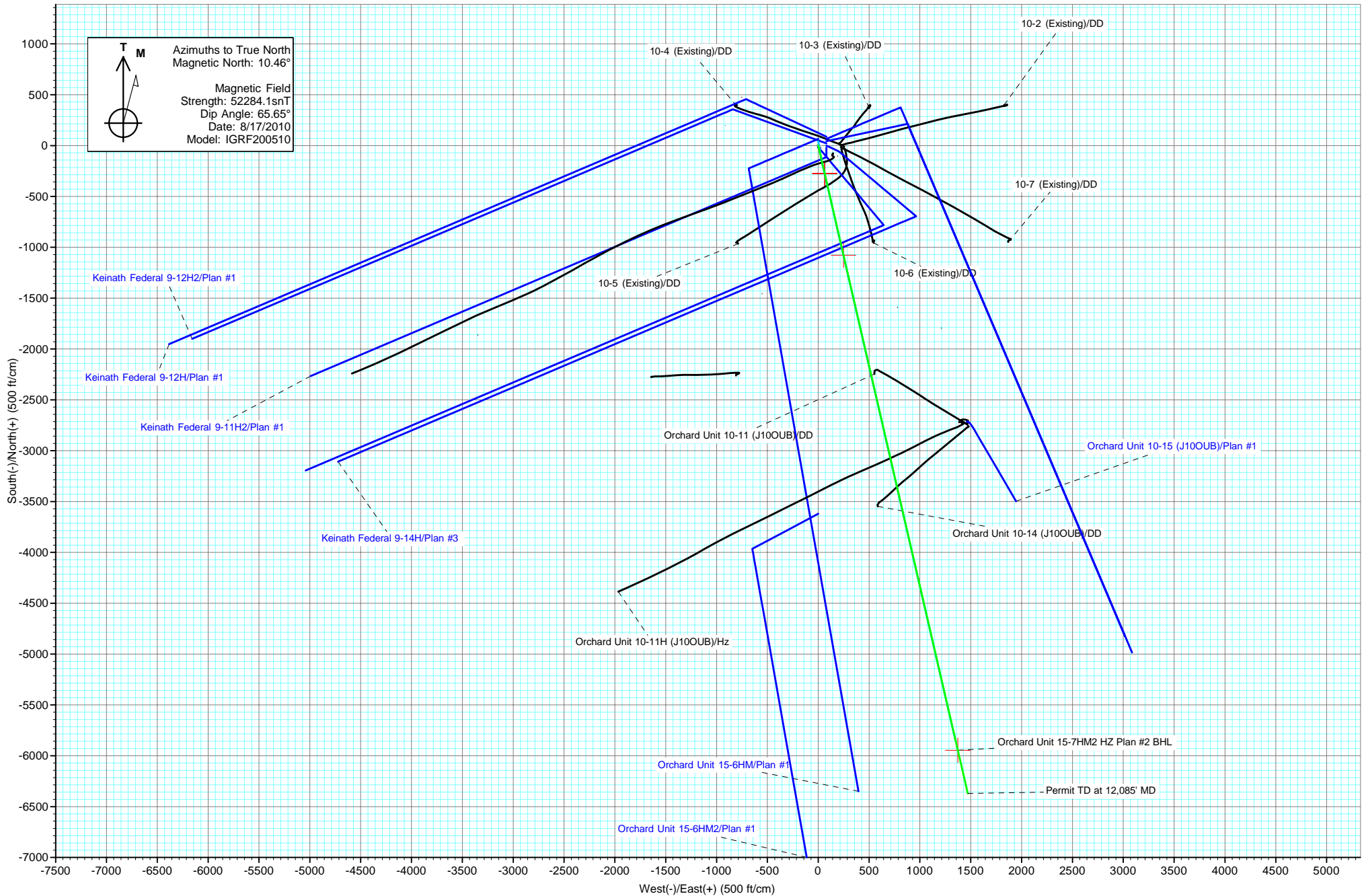


Project: Orchard
 Site: NENW Sec10-T8S-R96W (C10OU)
 Well: Orchard Unit 15-7HM2
 Wellbore: HZ
 Design: Plan #2





Project: Orchard
Site: NENW Sec10-T8S-R96W (C10OU)
Well: Orchard Unit 15-7HM2
Wellbore: HZ
Plan: Plan #2



Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference: Well Orchard Unit 15-7HM2
Company: EnCana Oil & Gas (USA) Inc	TVD Reference: KBE @ 5590.0ft (Original Well Elev)
Project: Orchard	MD Reference: KBE @ 5590.0ft (Original Well Elev)
Site: NENW Sec10-T8S-R96W (C10OU)	North Reference: True
Well: Orchard Unit 15-7HM2	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 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 Orchard Unit 15-7HM2					
Well Position	+N/-S	0.0 ft	Northing:	1,569,663.85 ft	Latitude: 39.368609
	+E/-W	0.0 ft	Easting:	2,265,189.92 ft	Longitude: -108.099525
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level: 5,568.0 ft

Wellbore HZ					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF200510	8/17/2010	(°) 10.47	(°) 65.65	(nT) 52,284

Design Plan #2				
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	167.00

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	167.00	300.0	-2.6	0.6	3.00	3.00	0.00	167.00	
400.0	6.00	167.00	399.6	-10.2	2.4	3.00	3.00	0.00	0.00	
2,900.0	6.00	167.00	2,885.9	-264.8	61.1	0.00	0.00	0.00	0.00	
3,000.0	3.00	167.00	2,985.6	-272.5	62.9	3.00	-3.00	0.00	180.00	
3,100.0	0.00	0.00	3,085.6	-275.0	63.5	3.00	-3.00	0.00	180.00	
5,325.0	0.00	0.00	5,310.6	-275.0	63.5	0.00	0.00	0.00	0.00	
5,425.0	5.82	167.00	5,410.4	-280.0	64.6	5.82	5.82	0.00	167.00	
5,825.0	31.28	167.00	5,786.5	-402.9	93.0	6.36	6.36	0.00	0.00	
6,650.0	91.70	167.00	6,162.3	-1,077.0	248.7	7.32	7.32	0.00	0.00	
11,650.0	91.70	167.00	6,014.0	-5,946.7	1,372.9	0.00	0.00	0.00	0.00	
12,085.0	91.70	167.00	6,001.1	-6,370.4	1,470.7	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 15-7HM2
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 5590.0ft (Original Well Elev)
Project:	Orchard	MD Reference:	KBE @ 5590.0ft (Original Well Elev)
Site:	NENW Sec10-T8S-R96W (C10OU)	North Reference:	True
Well:	Orchard Unit 15-7HM2	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 = 200' MD
300.0	3.00	167.00	300.0	-2.6	0.6	2.6	3.00	3.00	
400.0	6.00	167.00	399.6	-10.2	2.4	10.5	3.00	3.00	EOB at Inc. = 6°
500.0	6.00	167.00	499.1	-20.4	4.7	20.9	0.00	0.00	
600.0	6.00	167.00	598.5	-30.6	7.1	31.4	0.00	0.00	
700.0	6.00	167.00	698.0	-40.7	9.4	41.8	0.00	0.00	
800.0	6.00	167.00	797.4	-50.9	11.8	52.3	0.00	0.00	
900.0	6.00	167.00	896.9	-61.1	14.1	62.7	0.00	0.00	
1,000.0	6.00	167.00	996.3	-71.3	16.5	73.2	0.00	0.00	
1,100.0	6.00	167.00	1,095.8	-81.5	18.8	83.6	0.00	0.00	
1,200.0	6.00	167.00	1,195.3	-91.7	21.2	94.1	0.00	0.00	
1,300.0	6.00	167.00	1,294.7	-101.9	23.5	104.5	0.00	0.00	
1,400.0	6.00	167.00	1,394.2	-112.0	25.9	115.0	0.00	0.00	
1,500.0	6.00	167.00	1,493.6	-122.2	28.2	125.4	0.00	0.00	
1,600.0	6.00	167.00	1,593.1	-132.4	30.6	135.9	0.00	0.00	
1,700.0	6.00	167.00	1,692.5	-142.6	32.9	146.3	0.00	0.00	
1,800.0	6.00	167.00	1,792.0	-152.8	35.3	156.8	0.00	0.00	
1,900.0	6.00	167.00	1,891.4	-163.0	37.6	167.3	0.00	0.00	
2,000.0	6.00	167.00	1,990.9	-173.2	40.0	177.7	0.00	0.00	
2,100.0	6.00	167.00	2,090.3	-183.3	42.3	188.2	0.00	0.00	
2,145.9	6.00	167.00	2,136.0	-188.0	43.4	193.0	0.00	0.00	OHIO CREEK (Top Kmv)
2,200.0	6.00	167.00	2,189.8	-193.5	44.7	198.6	0.00	0.00	
2,300.0	6.00	167.00	2,289.2	-203.7	47.0	209.1	0.00	0.00	
2,400.0	6.00	167.00	2,388.7	-213.9	49.4	219.5	0.00	0.00	
2,500.0	6.00	167.00	2,488.1	-224.1	51.7	230.0	0.00	0.00	
2,600.0	6.00	167.00	2,587.6	-234.3	54.1	240.4	0.00	0.00	
2,664.8	6.00	167.00	2,652.0	-240.9	55.6	247.2	0.00	0.00	WILLIAMS FORK FM
2,700.0	6.00	167.00	2,687.0	-244.4	56.4	250.9	0.00	0.00	
2,800.0	6.00	167.00	2,786.5	-254.6	58.8	261.3	0.00	0.00	
2,900.0	6.00	167.00	2,885.9	-264.8	61.1	271.8	0.00	0.00	Start Drop -3.00
3,000.0	3.00	167.00	2,985.6	-272.5	62.9	279.6	3.00	-3.00	
3,100.0	0.00	0.00	3,085.6	-275.0	63.5	282.2	3.00	-3.00	EOD at Inc. = 0° - Orchard Unit 15-7HM2 HZ PI
3,200.0	0.00	0.00	3,185.6	-275.0	63.5	282.2	0.00	0.00	
3,300.0	0.00	0.00	3,285.6	-275.0	63.5	282.2	0.00	0.00	
3,400.0	0.00	0.00	3,385.6	-275.0	63.5	282.2	0.00	0.00	
3,500.0	0.00	0.00	3,485.6	-275.0	63.5	282.2	0.00	0.00	
3,600.0	0.00	0.00	3,585.6	-275.0	63.5	282.2	0.00	0.00	
3,700.0	0.00	0.00	3,685.6	-275.0	63.5	282.2	0.00	0.00	
3,800.0	0.00	0.00	3,785.6	-275.0	63.5	282.2	0.00	0.00	
3,900.0	0.00	0.00	3,885.6	-275.0	63.5	282.2	0.00	0.00	
3,910.4	0.00	0.00	3,896.0	-275.0	63.5	282.2	0.00	0.00	TOP GAS
4,000.0	0.00	0.00	3,985.6	-275.0	63.5	282.2	0.00	0.00	
4,100.0	0.00	0.00	4,085.6	-275.0	63.5	282.2	0.00	0.00	
4,200.0	0.00	0.00	4,185.6	-275.0	63.5	282.2	0.00	0.00	
4,300.0	0.00	0.00	4,285.6	-275.0	63.5	282.2	0.00	0.00	
4,400.0	0.00	0.00	4,385.6	-275.0	63.5	282.2	0.00	0.00	
4,500.0	0.00	0.00	4,485.6	-275.0	63.5	282.2	0.00	0.00	
4,600.0	0.00	0.00	4,585.6	-275.0	63.5	282.2	0.00	0.00	
4,666.4	0.00	0.00	4,652.0	-275.0	63.5	282.2	0.00	0.00	Coal Ridge (Paludal)
4,700.0	0.00	0.00	4,685.6	-275.0	63.5	282.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Orchard Unit 15-7HM2
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 5590.0ft (Original Well Elev)
Project:	Orchard	MD Reference:	KBE @ 5590.0ft (Original Well Elev)
Site:	NENW Sec10-T8S-R96W (C10OU)	North Reference:	True
Well:	Orchard Unit 15-7HM2	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	4,785.6	-275.0	63.5	282.2	0.00	0.00	
4,825.0	0.00	0.00	4,810.6	-275.0	63.5	282.2	0.00	0.00	Orchard Unit 15-7HM2 HZ Plan #2 ICP
4,900.0	0.00	0.00	4,885.6	-275.0	63.5	282.2	0.00	0.00	
4,978.4	0.00	0.00	4,964.0	-275.0	63.5	282.2	0.00	0.00	ROLLINS SS (Iles Fm)
5,000.0	0.00	0.00	4,985.6	-275.0	63.5	282.2	0.00	0.00	
5,100.0	0.00	0.00	5,085.6	-275.0	63.5	282.2	0.00	0.00	
5,200.0	0.00	0.00	5,185.6	-275.0	63.5	282.2	0.00	0.00	
5,249.4	0.00	0.00	5,235.0	-275.0	63.5	282.2	0.00	0.00	COZZETTE
5,300.0	0.00	0.00	5,285.6	-275.0	63.5	282.2	0.00	0.00	
5,325.0	0.00	0.00	5,310.6	-275.0	63.5	282.2	0.00	0.00	KOP #2 = 5325' MD
5,400.0	4.37	167.00	5,385.5	-277.8	64.1	285.1	5.82	5.82	
5,425.0	5.82	167.00	5,410.4	-280.0	64.6	287.3	5.82	5.82	
5,494.3	10.23	167.00	5,479.0	-289.4	66.8	297.0	6.36	6.36	CORCORAN
5,500.0	10.59	167.00	5,484.6	-290.4	67.0	298.0	6.36	6.36	
5,600.0	16.96	167.00	5,581.7	-313.6	72.4	321.8	6.36	6.36	
5,700.0	23.32	167.00	5,675.5	-347.1	80.1	356.2	6.36	6.36	
5,800.0	29.69	167.00	5,765.0	-390.6	90.2	400.8	6.36	6.36	
5,825.0	31.28	167.00	5,786.5	-402.9	93.0	413.5	6.36	6.36	
5,900.0	36.77	167.00	5,848.6	-443.8	102.5	455.5	7.32	7.32	
6,000.0	44.10	167.00	5,924.7	-507.0	117.0	520.3	7.32	7.32	
6,100.0	51.42	167.00	5,991.9	-579.0	133.7	594.3	7.32	7.32	
6,200.0	58.74	167.00	6,049.1	-658.9	152.1	676.2	7.32	7.32	
6,300.0	66.07	167.00	6,095.4	-745.2	172.0	764.8	7.32	7.32	
6,400.0	73.39	167.00	6,130.0	-836.5	193.1	858.5	7.32	7.32	
6,425.9	75.29	167.00	6,137.0	-860.9	198.7	883.5	7.32	7.32	MANCOS A
6,500.0	80.71	167.00	6,152.4	-931.4	215.0	955.9	7.32	7.32	
6,600.0	88.04	167.00	6,162.2	-1,028.3	237.4	1,055.4	7.32	7.32	
6,650.0	91.70	167.00	6,162.3	-1,077.0	248.7	1,105.4	7.32	7.32	Landing Point at 6650' MD - Orchard Unit 15-7H
6,700.0	91.70	167.00	6,160.8	-1,125.7	259.9	1,155.3	0.00	0.00	
6,800.0	91.70	167.00	6,157.8	-1,223.1	282.4	1,255.3	0.00	0.00	
6,900.0	91.70	167.00	6,154.9	-1,320.5	304.9	1,355.2	0.00	0.00	
7,000.0	91.70	167.00	6,151.9	-1,417.9	327.3	1,455.2	0.00	0.00	
7,100.0	91.70	167.00	6,148.9	-1,515.3	349.8	1,555.2	0.00	0.00	
7,200.0	91.70	167.00	6,146.0	-1,612.7	372.3	1,655.1	0.00	0.00	
7,300.0	91.70	167.00	6,143.0	-1,710.1	394.8	1,755.1	0.00	0.00	
7,400.0	91.70	167.00	6,140.0	-1,807.5	417.3	1,855.0	0.00	0.00	
7,500.0	91.70	167.00	6,137.1	-1,904.9	439.8	1,955.0	0.00	0.00	
7,600.0	91.70	167.00	6,134.1	-2,002.3	462.3	2,054.9	0.00	0.00	
7,700.0	91.70	167.00	6,131.1	-2,099.7	484.7	2,154.9	0.00	0.00	
7,800.0	91.70	167.00	6,128.2	-2,197.1	507.2	2,254.9	0.00	0.00	
7,900.0	91.70	167.00	6,125.2	-2,294.5	529.7	2,354.8	0.00	0.00	
8,000.0	91.70	167.00	6,122.2	-2,391.8	552.2	2,454.8	0.00	0.00	
8,100.0	91.70	167.00	6,119.3	-2,489.2	574.7	2,554.7	0.00	0.00	
8,200.0	91.70	167.00	6,116.3	-2,586.6	597.2	2,654.7	0.00	0.00	
8,300.0	91.70	167.00	6,113.3	-2,684.0	619.7	2,754.6	0.00	0.00	
8,400.0	91.70	167.00	6,110.4	-2,781.4	642.1	2,854.6	0.00	0.00	
8,500.0	91.70	167.00	6,107.4	-2,878.8	664.6	2,954.5	0.00	0.00	
8,600.0	91.70	167.00	6,104.4	-2,976.2	687.1	3,054.5	0.00	0.00	
8,700.0	91.70	167.00	6,101.5	-3,073.6	709.6	3,154.5	0.00	0.00	
8,800.0	91.70	167.00	6,098.5	-3,171.0	732.1	3,254.4	0.00	0.00	
8,900.0	91.70	167.00	6,095.5	-3,268.4	754.6	3,354.4	0.00	0.00	
9,000.0	91.70	167.00	6,092.6	-3,365.8	777.1	3,454.3	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference: Well Orchard Unit 15-7HM2
Company: EnCana Oil & Gas (USA) Inc	TVD Reference: KBE @ 5590.0ft (Original Well Elev)
Project: Orchard	MD Reference: KBE @ 5590.0ft (Original Well Elev)
Site: NENW Sec10-T8S-R96W (C10OU)	North Reference: True
Well: Orchard Unit 15-7HM2	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
9,100.0	91.70	167.00	6,089.6	-3,463.2	799.5	3,554.3	0.00	0.00	
9,200.0	91.70	167.00	6,086.6	-3,560.6	822.0	3,654.2	0.00	0.00	
9,300.0	91.70	167.00	6,083.7	-3,658.0	844.5	3,754.2	0.00	0.00	
9,400.0	91.70	167.00	6,080.7	-3,755.4	867.0	3,854.1	0.00	0.00	
9,500.0	91.70	167.00	6,077.7	-3,852.8	889.5	3,954.1	0.00	0.00	
9,600.0	91.70	167.00	6,074.8	-3,950.2	912.0	4,054.1	0.00	0.00	
9,700.0	91.70	167.00	6,071.8	-4,047.5	934.5	4,154.0	0.00	0.00	
9,800.0	91.70	167.00	6,068.8	-4,144.9	956.9	4,254.0	0.00	0.00	
9,900.0	91.70	167.00	6,065.9	-4,242.3	979.4	4,353.9	0.00	0.00	
10,000.0	91.70	167.00	6,062.9	-4,339.7	1,001.9	4,453.9	0.00	0.00	
10,100.0	91.70	167.00	6,059.9	-4,437.1	1,024.4	4,553.8	0.00	0.00	
10,200.0	91.70	167.00	6,057.0	-4,534.5	1,046.9	4,653.8	0.00	0.00	
10,300.0	91.70	167.00	6,054.0	-4,631.9	1,069.4	4,753.8	0.00	0.00	
10,400.0	91.70	167.00	6,051.0	-4,729.3	1,091.8	4,853.7	0.00	0.00	
10,500.0	91.70	167.00	6,048.1	-4,826.7	1,114.3	4,953.7	0.00	0.00	
10,600.0	91.70	167.00	6,045.1	-4,924.1	1,136.8	5,053.6	0.00	0.00	
10,700.0	91.70	167.00	6,042.1	-5,021.5	1,159.3	5,153.6	0.00	0.00	
10,800.0	91.70	167.00	6,039.2	-5,118.9	1,181.8	5,253.5	0.00	0.00	
10,900.0	91.70	167.00	6,036.2	-5,216.3	1,204.3	5,353.5	0.00	0.00	
11,000.0	91.70	167.00	6,033.2	-5,313.7	1,226.8	5,453.4	0.00	0.00	
11,100.0	91.70	167.00	6,030.3	-5,411.1	1,249.2	5,553.4	0.00	0.00	
11,200.0	91.70	167.00	6,027.3	-5,508.5	1,271.7	5,653.4	0.00	0.00	
11,300.0	91.70	167.00	6,024.3	-5,605.9	1,294.2	5,753.3	0.00	0.00	
11,400.0	91.70	167.00	6,021.4	-5,703.2	1,316.7	5,853.3	0.00	0.00	
11,500.0	91.70	167.00	6,018.4	-5,800.6	1,339.2	5,953.2	0.00	0.00	
11,600.0	91.70	167.00	6,015.4	-5,898.0	1,361.7	6,053.2	0.00	0.00	
11,650.0	91.70	167.00	6,014.0	-5,946.7	1,372.9	6,103.2	0.00	0.00	TD at 11,650' MD - Orchard Unit 15-7HM2 HZ F
11,700.0	91.70	167.00	6,012.5	-5,995.4	1,384.2	6,153.1	0.00	0.00	
11,800.0	91.70	167.00	6,009.5	-6,092.8	1,406.6	6,253.1	0.00	0.00	
11,900.0	91.70	167.00	6,006.5	-6,190.2	1,429.1	6,353.0	0.00	0.00	
12,000.0	91.70	167.00	6,003.6	-6,287.6	1,451.6	6,453.0	0.00	0.00	
12,085.0	91.70	167.00	6,001.1	-6,370.4	1,470.7	6,538.0	0.00	0.00	Permit TD at 12,085' 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
Orchard Unit 15-7HM2 † - plan hits target center - Point	0.00	0.00	6,014.0	-5,946.7	1,372.9	1,563,680.27	2,266,392.13	39.352282	-108.094670
Orchard Unit 15-7HM2 † - plan hits target center - Point	0.00	0.00	3,085.6	-275.0	63.5	1,569,387.13	2,265,245.52	39.367854	-108.099300
Orchard Unit 15-7HM2 † - plan hits target center - Point	0.00	0.00	4,810.6	-275.0	63.5	1,569,387.13	2,265,245.52	39.367854	-108.099300
Orchard Unit 15-7HM2 † - plan hits target center - Point	0.00	0.00	6,162.3	-1,077.0	248.7	1,568,580.15	2,265,407.66	39.365652	-108.098646

Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference: Well Orchard Unit 15-7HM2
Company: EnCana Oil & Gas (USA) Inc	TVD Reference: KBE @ 5590.0ft (Original Well Elev)
Project: Orchard	MD Reference: KBE @ 5590.0ft (Original Well Elev)
Site: NENW Sec10-T8S-R96W (C10OU)	North Reference: True
Well: Orchard Unit 15-7HM2	Survey Calculation Method: Minimum Curvature
Wellbore: HZ	
Design: Plan #2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,145.9	2,136.0	OHIO CREEK (Top Kmv)				
2,664.8	2,652.0	WILLIAMS FORK FM				
3,910.4	3,896.0	TOP GAS				
4,666.4	4,652.0	Coal Ridge (Paludal)				
4,978.4	4,964.0	ROLLINS SS (Iles Fm)				
5,249.4	5,235.0	COZZETTE				
5,494.3	5,479.0	CORCORAN				
6,425.9	6,137.0	MANCOS A				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
200.0	200.0			KOP = 200' MD	
400.0	399.6	0.0	0.0	EOB at Inc. = 6°	
2,900.0	2,885.9	-10.2	2.4	Start Drop -3.00	
3,100.0	3,085.6	-264.8	61.1	EOD at Inc. = 0°	
5,325.0	5,310.6	-275.0	63.5	KOP #2 = 5325' MD	
6,650.0	6,162.3	-275.0	63.5	Landing Point at 6650' MD	
11,650.0	6,014.0	-1,077.0	248.7	TD at 11,650' MD	
12,085.0	6,001.1	-5,946.7	1,372.9	Permit TD at 12,085' MD	