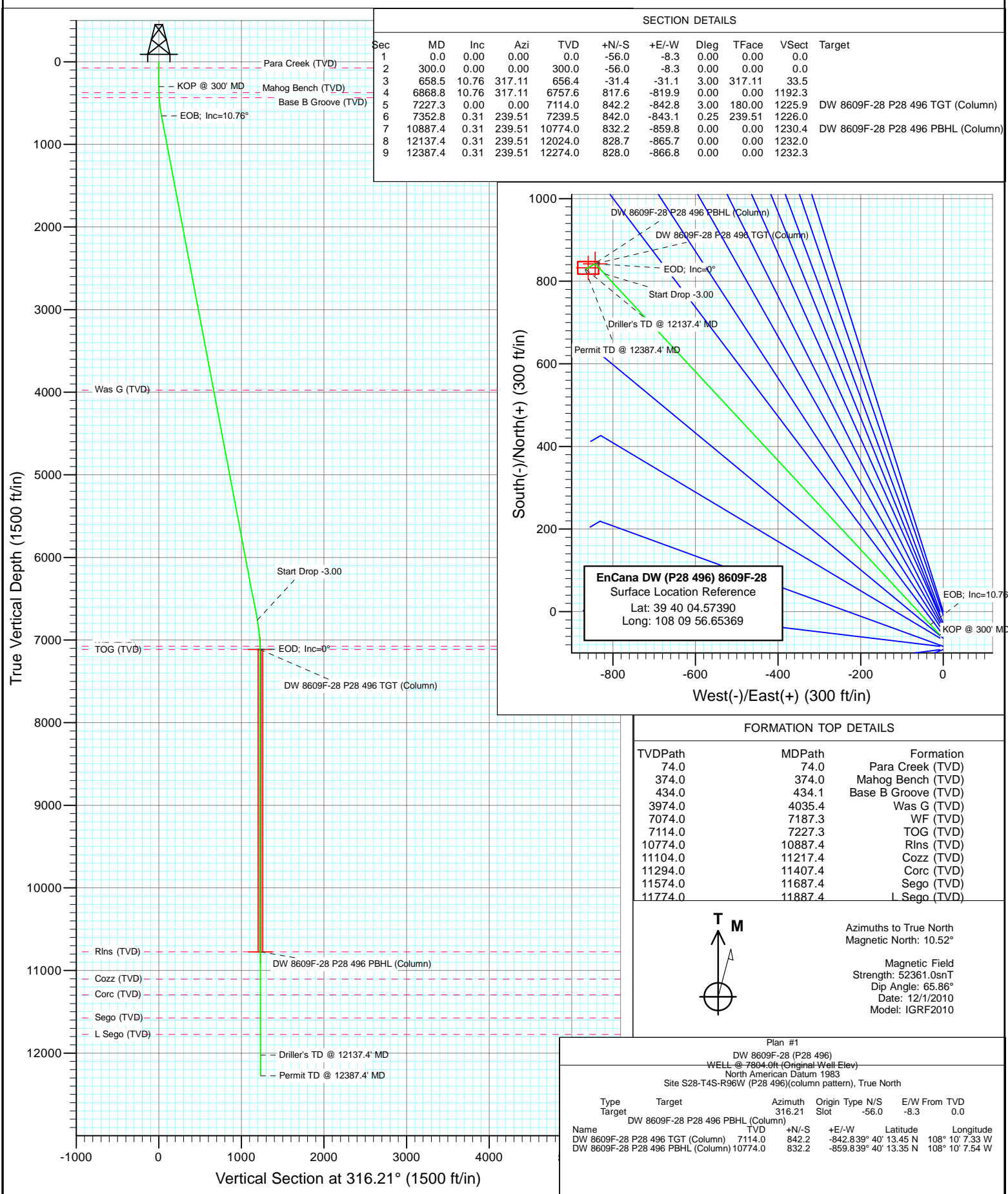




Project: Double Willow
Site: S28-T4S-R96W (P28 496)(column pattern)
Well: DW 8609F-28 (P28 496)
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site S28-T4S-R96W (P28 496)(column pattern)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7804.0ft (Original Well Elev)
Project:	Double Willow	MD Reference:	WELL @ 7804.0ft (Original Well Elev)
Site:	S28-T4S-R96W (P28 496)(column pattern)	North Reference:	True
Well:	DW 8609F-28 (P28 496)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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

Site	S28-T4S-R96W (P28 496)(column pattern)			
Site Position:		Northing:	1,679,243.29 ft	Latitude: 39° 40' 5.13 N
From:	Lat/Long	Easting:	2,249,687.54 ft	Longitude: 108° 9' 56.55 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.68 °

Well	DW 8609F-28 (P28 496)			
Well Position	+N/-S	-56.0 ft	Northing:	1,679,187.55 ft
	+E/-W	-8.3 ft	Easting:	2,249,677.63 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft
			Ground Level:	7,771.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/1/2010	10.52	65.86	52,361

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	-56.0	-8.3	316.21

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	-56.0	-8.3	0.00	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	-56.0	-8.3	0.00	0.00	0.00	0.00	
658.5	10.76	317.11	656.4	-31.4	-31.1	3.00	3.00	0.00	317.11	
6,868.8	10.76	317.11	6,757.6	817.6	-819.9	0.00	0.00	0.00	0.00	
7,227.3	0.00	0.00	7,114.0	842.2	-842.8	3.00	-3.00	0.00	180.00	DW 8609F-28 P28 49
7,352.8	0.31	239.51	7,239.5	842.0	-843.1	0.25	0.25	-95.97	239.51	
10,887.4	0.31	239.51	10,774.0	832.2	-859.8	0.00	0.00	0.00	0.00	DW 8609F-28 P28 49
12,137.4	0.31	239.51	12,024.0	828.7	-865.7	0.00	0.00	0.00	0.00	
12,387.4	0.31	239.51	12,274.0	828.0	-866.8	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:	Site S28-T4S-R96W (P28 496)(column pattern)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7804.0ft (Original Well Elev)
Project:	Double Willow	MD Reference:	WELL @ 7804.0ft (Original Well Elev)
Site:	S28-T4S-R96W (P28 496)(column pattern)	North Reference:	True
Well:	DW 8609F-28 (P28 496)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	-56.0	-8.3	0.0	0.00	0.00	
74.0	0.00	0.00	74.0	-56.0	-8.3	0.0	0.00	0.00	Para Creek (TVD)
100.0	0.00	0.00	100.0	-56.0	-8.3	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	-56.0	-8.3	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	-56.0	-8.3	0.0	0.00	0.00	KOP @ 300' MD
374.0	2.22	317.11	374.0	-55.0	-9.2	1.4	3.00	3.00	Mahog Bench (TVD)
400.0	3.00	317.11	400.0	-54.1	-10.1	2.6	3.00	3.00	
434.1	4.02	317.11	434.0	-52.6	-11.5	4.7	3.00	3.00	Base B Groove (TVD)
500.0	6.00	317.11	499.6	-48.3	-15.4	10.5	3.00	3.00	
600.0	9.00	317.11	598.8	-38.8	-24.3	23.5	3.00	3.00	
658.5	10.76	317.11	656.4	-31.4	-31.1	33.5	3.00	3.00	EOB; Inc=10.76°
700.0	10.76	317.11	697.2	-25.8	-36.4	41.3	0.00	0.00	
800.0	10.76	317.11	795.4	-12.1	-49.1	59.9	0.00	0.00	
900.0	10.76	317.11	893.7	1.6	-61.8	78.6	0.00	0.00	
1,000.0	10.76	317.11	991.9	15.3	-74.5	97.3	0.00	0.00	
1,100.0	10.76	317.11	1,090.1	28.9	-87.2	115.9	0.00	0.00	
1,200.0	10.76	317.11	1,188.4	42.6	-99.9	134.6	0.00	0.00	
1,300.0	10.76	317.11	1,286.6	56.3	-112.6	153.2	0.00	0.00	
1,400.0	10.76	317.11	1,384.9	69.9	-125.3	171.9	0.00	0.00	
1,500.0	10.76	317.11	1,483.1	83.6	-138.0	190.6	0.00	0.00	
1,600.0	10.76	317.11	1,581.4	97.3	-150.7	209.2	0.00	0.00	
1,700.0	10.76	317.11	1,679.6	111.0	-163.4	227.9	0.00	0.00	
1,800.0	10.76	317.11	1,777.8	124.6	-176.1	246.5	0.00	0.00	
1,900.0	10.76	317.11	1,876.1	138.3	-188.8	265.2	0.00	0.00	
2,000.0	10.76	317.11	1,974.3	152.0	-201.5	283.9	0.00	0.00	
2,100.0	10.76	317.11	2,072.6	165.6	-214.2	302.5	0.00	0.00	
2,200.0	10.76	317.11	2,170.8	179.3	-226.9	321.2	0.00	0.00	
2,300.0	10.76	317.11	2,269.1	193.0	-239.6	339.8	0.00	0.00	
2,400.0	10.76	317.11	2,367.3	206.7	-252.3	358.5	0.00	0.00	
2,500.0	10.76	317.11	2,465.5	220.3	-265.0	377.2	0.00	0.00	
2,600.0	10.76	317.11	2,563.8	234.0	-277.7	395.8	0.00	0.00	
2,700.0	10.76	317.11	2,662.0	247.7	-290.4	414.5	0.00	0.00	
2,800.0	10.76	317.11	2,760.3	261.4	-303.1	433.1	0.00	0.00	
2,900.0	10.76	317.11	2,858.5	275.0	-315.8	451.8	0.00	0.00	
3,000.0	10.76	317.11	2,956.8	288.7	-328.5	470.5	0.00	0.00	
3,100.0	10.76	317.11	3,055.0	302.4	-341.2	489.1	0.00	0.00	
3,200.0	10.76	317.11	3,153.3	316.0	-353.9	507.8	0.00	0.00	
3,300.0	10.76	317.11	3,251.5	329.7	-366.6	526.4	0.00	0.00	
3,400.0	10.76	317.11	3,349.7	343.4	-379.3	545.1	0.00	0.00	
3,500.0	10.76	317.11	3,448.0	357.1	-392.0	563.7	0.00	0.00	
3,600.0	10.76	317.11	3,546.2	370.7	-404.7	582.4	0.00	0.00	
3,700.0	10.76	317.11	3,644.5	384.4	-417.4	601.1	0.00	0.00	
3,800.0	10.76	317.11	3,742.7	398.1	-430.1	619.7	0.00	0.00	
3,900.0	10.76	317.11	3,841.0	411.7	-442.8	638.4	0.00	0.00	
4,000.0	10.76	317.11	3,939.2	425.4	-455.5	657.0	0.00	0.00	
4,035.4	10.76	317.11	3,974.0	430.3	-460.0	663.7	0.00	0.00	Was G (TVD)
4,100.0	10.76	317.11	4,037.4	439.1	-468.2	675.7	0.00	0.00	
4,200.0	10.76	317.11	4,135.7	452.8	-480.9	694.4	0.00	0.00	
4,300.0	10.76	317.11	4,233.9	466.4	-493.7	713.0	0.00	0.00	
4,400.0	10.76	317.11	4,332.2	480.1	-506.4	731.7	0.00	0.00	
4,500.0	10.76	317.11	4,430.4	493.8	-519.1	750.3	0.00	0.00	
4,600.0	10.76	317.11	4,528.7	507.4	-531.8	769.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site S28-T4S-R96W (P28 496)(column pattern)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7804.0ft (Original Well Elev)
Project:	Double Willow	MD Reference:	WELL @ 7804.0ft (Original Well Elev)
Site:	S28-T4S-R96W (P28 496)(column pattern)	North Reference:	True
Well:	DW 8609F-28 (P28 496)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,700.0	10.76	317.11	4,626.9	521.1	-544.5	787.7	0.00	0.00	
4,800.0	10.76	317.11	4,725.1	534.8	-557.2	806.3	0.00	0.00	
4,900.0	10.76	317.11	4,823.4	548.5	-569.9	825.0	0.00	0.00	
5,000.0	10.76	317.11	4,921.6	562.1	-582.6	843.6	0.00	0.00	
5,100.0	10.76	317.11	5,019.9	575.8	-595.3	862.3	0.00	0.00	
5,200.0	10.76	317.11	5,118.1	589.5	-608.0	881.0	0.00	0.00	
5,300.0	10.76	317.11	5,216.4	603.1	-620.7	899.6	0.00	0.00	
5,400.0	10.76	317.11	5,314.6	616.8	-633.4	918.3	0.00	0.00	
5,500.0	10.76	317.11	5,412.8	630.5	-646.1	936.9	0.00	0.00	
5,600.0	10.76	317.11	5,511.1	644.2	-658.8	955.6	0.00	0.00	
5,700.0	10.76	317.11	5,609.3	657.8	-671.5	974.3	0.00	0.00	
5,800.0	10.76	317.11	5,707.6	671.5	-684.2	992.9	0.00	0.00	
5,900.0	10.76	317.11	5,805.8	685.2	-696.9	1,011.6	0.00	0.00	
6,000.0	10.76	317.11	5,904.1	698.8	-709.6	1,030.2	0.00	0.00	
6,100.0	10.76	317.11	6,002.3	712.5	-722.3	1,048.9	0.00	0.00	
6,200.0	10.76	317.11	6,100.6	726.2	-735.0	1,067.6	0.00	0.00	
6,300.0	10.76	317.11	6,198.8	739.9	-747.7	1,086.2	0.00	0.00	
6,400.0	10.76	317.11	6,297.0	753.5	-760.4	1,104.9	0.00	0.00	
6,500.0	10.76	317.11	6,395.3	767.2	-773.1	1,123.5	0.00	0.00	
6,600.0	10.76	317.11	6,493.5	780.9	-785.8	1,142.2	0.00	0.00	
6,700.0	10.76	317.11	6,591.8	794.5	-798.5	1,160.8	0.00	0.00	
6,800.0	10.76	317.11	6,690.0	808.2	-811.2	1,179.5	0.00	0.00	
6,868.8	10.76	317.11	6,757.6	817.6	-819.9	1,192.3	0.00	0.00	Start Drop -3.00
6,900.0	9.82	317.11	6,788.3	821.7	-823.7	1,197.9	3.00	-3.00	
7,000.0	6.82	317.11	6,887.2	832.3	-833.6	1,212.4	3.00	-3.00	
7,100.0	3.82	317.11	6,986.8	839.1	-839.9	1,221.6	3.00	-3.00	
7,187.3	1.20	317.11	7,074.0	841.9	-842.5	1,225.5	3.00	-3.00	WF (TVD)
7,200.0	0.82	317.11	7,086.7	842.1	-842.6	1,225.7	3.00	-3.00	
7,227.3	0.00	0.00	7,114.0	842.2	-842.8	1,225.9	3.00	-3.00	EOD; Inc=0° - TOG (TVD) - DW 8609F-28 P28
7,300.0	0.18	239.51	7,186.7	842.1	-842.9	1,225.9	0.25	0.25	
7,352.8	0.31	239.51	7,239.5	842.0	-843.1	1,226.0	0.25	0.25	
7,400.0	0.31	239.51	7,286.7	841.9	-843.3	1,226.0	0.00	0.00	
7,500.0	0.31	239.51	7,386.7	841.6	-843.8	1,226.2	0.00	0.00	
7,600.0	0.31	239.51	7,486.7	841.3	-844.2	1,226.3	0.00	0.00	
7,700.0	0.31	239.51	7,586.7	841.1	-844.7	1,226.4	0.00	0.00	
7,800.0	0.31	239.51	7,686.7	840.8	-845.2	1,226.5	0.00	0.00	
7,900.0	0.31	239.51	7,786.7	840.5	-845.7	1,226.7	0.00	0.00	
8,000.0	0.31	239.51	7,886.7	840.2	-846.1	1,226.8	0.00	0.00	
8,100.0	0.31	239.51	7,986.7	840.0	-846.6	1,226.9	0.00	0.00	
8,200.0	0.31	239.51	8,086.7	839.7	-847.1	1,227.0	0.00	0.00	
8,300.0	0.31	239.51	8,186.7	839.4	-847.5	1,227.2	0.00	0.00	
8,400.0	0.31	239.51	8,286.7	839.1	-848.0	1,227.3	0.00	0.00	
8,500.0	0.31	239.51	8,386.7	838.8	-848.5	1,227.4	0.00	0.00	
8,600.0	0.31	239.51	8,486.7	838.6	-849.0	1,227.5	0.00	0.00	
8,700.0	0.31	239.51	8,586.7	838.3	-849.4	1,227.7	0.00	0.00	
8,800.0	0.31	239.51	8,686.7	838.0	-849.9	1,227.8	0.00	0.00	
8,900.0	0.31	239.51	8,786.7	837.7	-850.4	1,227.9	0.00	0.00	
9,000.0	0.31	239.51	8,886.7	837.5	-850.8	1,228.0	0.00	0.00	
9,100.0	0.31	239.51	8,986.7	837.2	-851.3	1,228.2	0.00	0.00	
9,200.0	0.31	239.51	9,086.7	836.9	-851.8	1,228.3	0.00	0.00	
9,300.0	0.31	239.51	9,186.7	836.6	-852.3	1,228.4	0.00	0.00	
9,400.0	0.31	239.51	9,286.7	836.3	-852.7	1,228.5	0.00	0.00	

Cathedral Energy Services

Planning Report

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Project:	Double Willow	MD Reference:	WELL @ 7804.0ft (Original Well Elev)
Site:	S28-T4S-R96W (P28 496)(column pattern)	North Reference:	True
Well:	DW 8609F-28 (P28 496)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,500.0	0.31	239.51	9,386.7	836.1	-853.2	1,228.7	0.00	0.00	
9,600.0	0.31	239.51	9,486.7	835.8	-853.7	1,228.8	0.00	0.00	
9,700.0	0.31	239.51	9,586.7	835.5	-854.1	1,228.9	0.00	0.00	
9,800.0	0.31	239.51	9,686.7	835.2	-854.6	1,229.1	0.00	0.00	
9,900.0	0.31	239.51	9,786.7	834.9	-855.1	1,229.2	0.00	0.00	
10,000.0	0.31	239.51	9,886.7	834.7	-855.6	1,229.3	0.00	0.00	
10,100.0	0.31	239.51	9,986.7	834.4	-856.0	1,229.4	0.00	0.00	
10,200.0	0.31	239.51	10,086.7	834.1	-856.5	1,229.6	0.00	0.00	
10,300.0	0.31	239.51	10,186.7	833.8	-857.0	1,229.7	0.00	0.00	
10,400.0	0.31	239.51	10,286.7	833.6	-857.5	1,229.8	0.00	0.00	
10,500.0	0.31	239.51	10,386.7	833.3	-857.9	1,229.9	0.00	0.00	
10,600.0	0.31	239.51	10,486.7	833.0	-858.4	1,230.1	0.00	0.00	
10,700.0	0.31	239.51	10,586.6	832.7	-858.9	1,230.2	0.00	0.00	
10,800.0	0.31	239.51	10,686.6	832.4	-859.3	1,230.3	0.00	0.00	
10,887.4	0.31	239.51	10,774.0	832.2	-859.8	1,230.4	0.00	0.00	Rins (TVD) - DW 8609F-28 P28 496 PBHL (Col
10,900.0	0.31	239.51	10,786.6	832.2	-859.8	1,230.4	0.00	0.00	
11,000.0	0.31	239.51	10,886.6	831.9	-860.3	1,230.6	0.00	0.00	
11,100.0	0.31	239.51	10,986.6	831.6	-860.8	1,230.7	0.00	0.00	
11,200.0	0.31	239.51	11,086.6	831.3	-861.2	1,230.8	0.00	0.00	
11,217.4	0.31	239.51	11,104.0	831.3	-861.3	1,230.8	0.00	0.00	Cozz (TVD)
11,300.0	0.31	239.51	11,186.6	831.1	-861.7	1,230.9	0.00	0.00	
11,400.0	0.31	239.51	11,286.6	830.8	-862.2	1,231.1	0.00	0.00	
11,407.4	0.31	239.51	11,294.0	830.8	-862.2	1,231.1	0.00	0.00	Corc (TVD)
11,500.0	0.31	239.51	11,386.6	830.5	-862.6	1,231.2	0.00	0.00	
11,600.0	0.31	239.51	11,486.6	830.2	-863.1	1,231.3	0.00	0.00	
11,687.4	0.31	239.51	11,574.0	830.0	-863.5	1,231.4	0.00	0.00	Sego (TVD)
11,700.0	0.31	239.51	11,586.6	829.9	-863.6	1,231.4	0.00	0.00	
11,800.0	0.31	239.51	11,686.6	829.7	-864.1	1,231.6	0.00	0.00	
11,887.4	0.31	239.51	11,774.0	829.4	-864.5	1,231.7	0.00	0.00	L Sego (TVD)
11,900.0	0.31	239.51	11,786.6	829.4	-864.5	1,231.7	0.00	0.00	
12,000.0	0.31	239.51	11,886.6	829.1	-865.0	1,231.8	0.00	0.00	
12,100.0	0.31	239.51	11,986.6	828.8	-865.5	1,231.9	0.00	0.00	
12,137.4	0.31	239.51	12,024.0	828.7	-865.7	1,232.0	0.00	0.00	Driller's TD @ 12137.4' MD
12,200.0	0.31	239.51	12,086.6	828.6	-865.9	1,232.1	0.00	0.00	
12,300.0	0.31	239.51	12,186.6	828.3	-866.4	1,232.2	0.00	0.00	
12,387.4	0.31	239.51	12,274.0	828.0	-866.8	1,232.3	0.00	0.00	

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
DW 8609F-28 P28 496 f - hit/miss target - Shape - plan hits target center - Rectangle (sides W30.0 H50.0 D0.0)	0.00	0.00	10,774.0	832.2	-859.8	1,680,100.36	2,248,852.57	39° 40' 13.35 N	108° 10' 7.54 W
DW 8609F-28 P28 496 1 - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	7,114.0	842.2	-842.8	1,680,109.86	2,248,869.84	39° 40' 13.45 N	108° 10' 7.33 W

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Site S28-T4S-R96W (P28 496)(column pattern)
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7804.0ft (Original Well Elev)
Project:	Double Willow	MD Reference:	WELL @ 7804.0ft (Original Well Elev)
Site:	S28-T4S-R96W (P28 496)(column pattern)	North Reference:	True
Well:	DW 8609F-28 (P28 496)	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
74.0	74.0	Para Creek (TVD)				
374.0	374.0	Mahog Bench (TVD)				
434.1	434.0	Base B Groove (TVD)				
4,035.4	3,974.0	Was G (TVD)				
7,187.3	7,074.0	WF (TVD)				
7,227.3	7,114.0	TOG (TVD)				
10,887.4	10,774.0	Rlns (TVD)				
11,217.4	11,104.0	Cozz (TVD)				
11,407.4	11,294.0	Corc (TVD)				
11,687.4	11,574.0	Sego (TVD)				
11,887.4	11,774.0	L Sego (TVD)				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
300.0	300.0	-56.0	-8.3	KOP @ 300' MD	
658.5	656.4	-31.4	-31.1	EOB; Inc=10.76°	
6,868.8	6,757.6	817.6	-819.9	Start Drop -3.00	
7,227.3	7,114.0	842.2	-842.8	EOD; Inc=0°	
12,137.4	12,024.0	828.7	-865.7	Driller's TD @ 12137.4' MD	
12,387.4	12,274.0	828.0	-866.8	Permit TD @ 12387.4' MD	