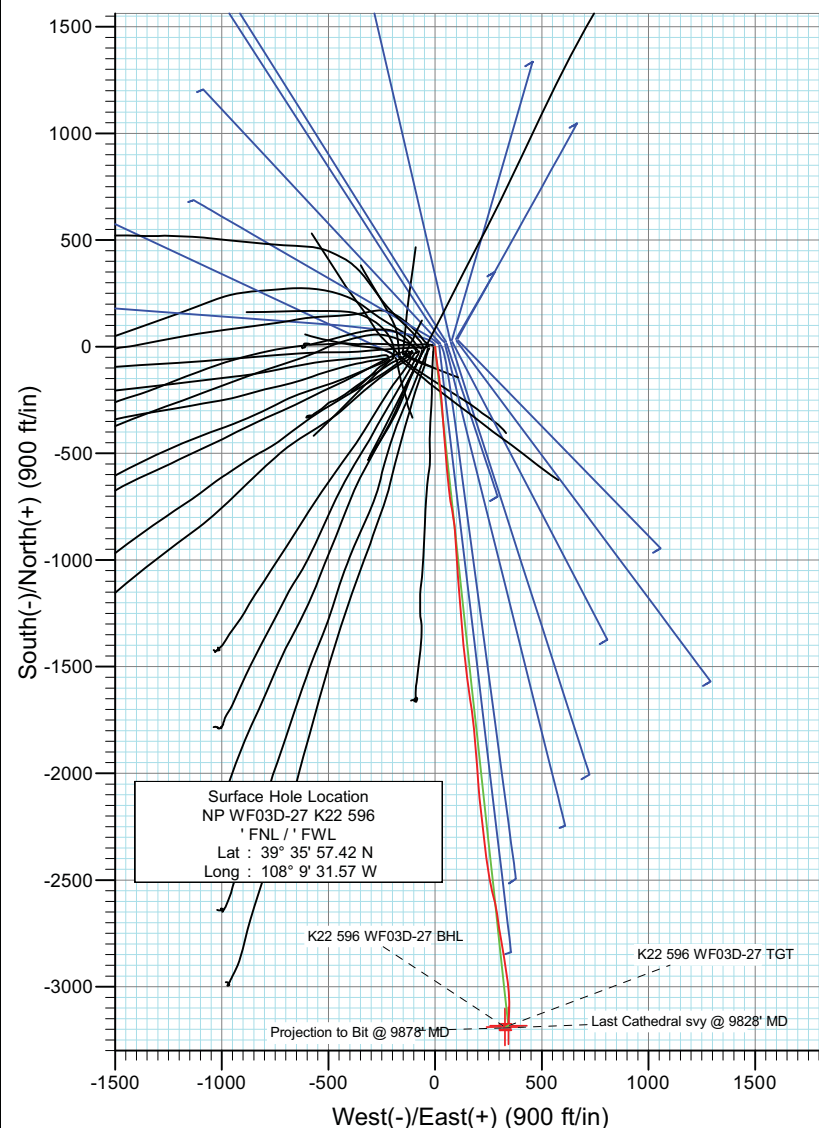
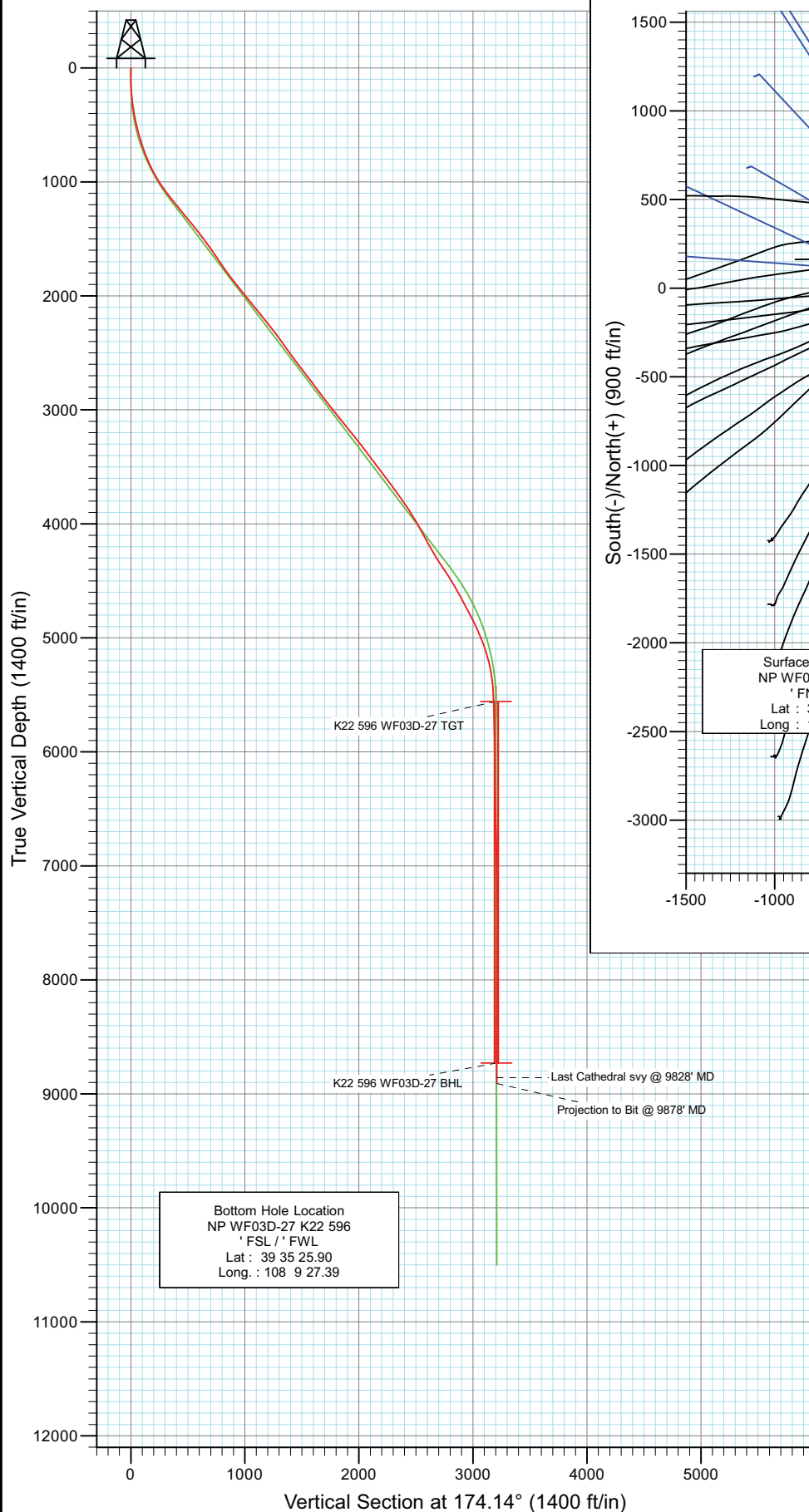




Project: North Piceance  
 Site: K22 596 Pad (S22-T5S-R96W)  
 Well: NP WF03D-27 K22 596  
 Wellbore: DD  
 Design: Final



Azimuths to True North  
 Magnetic North: 10.54°

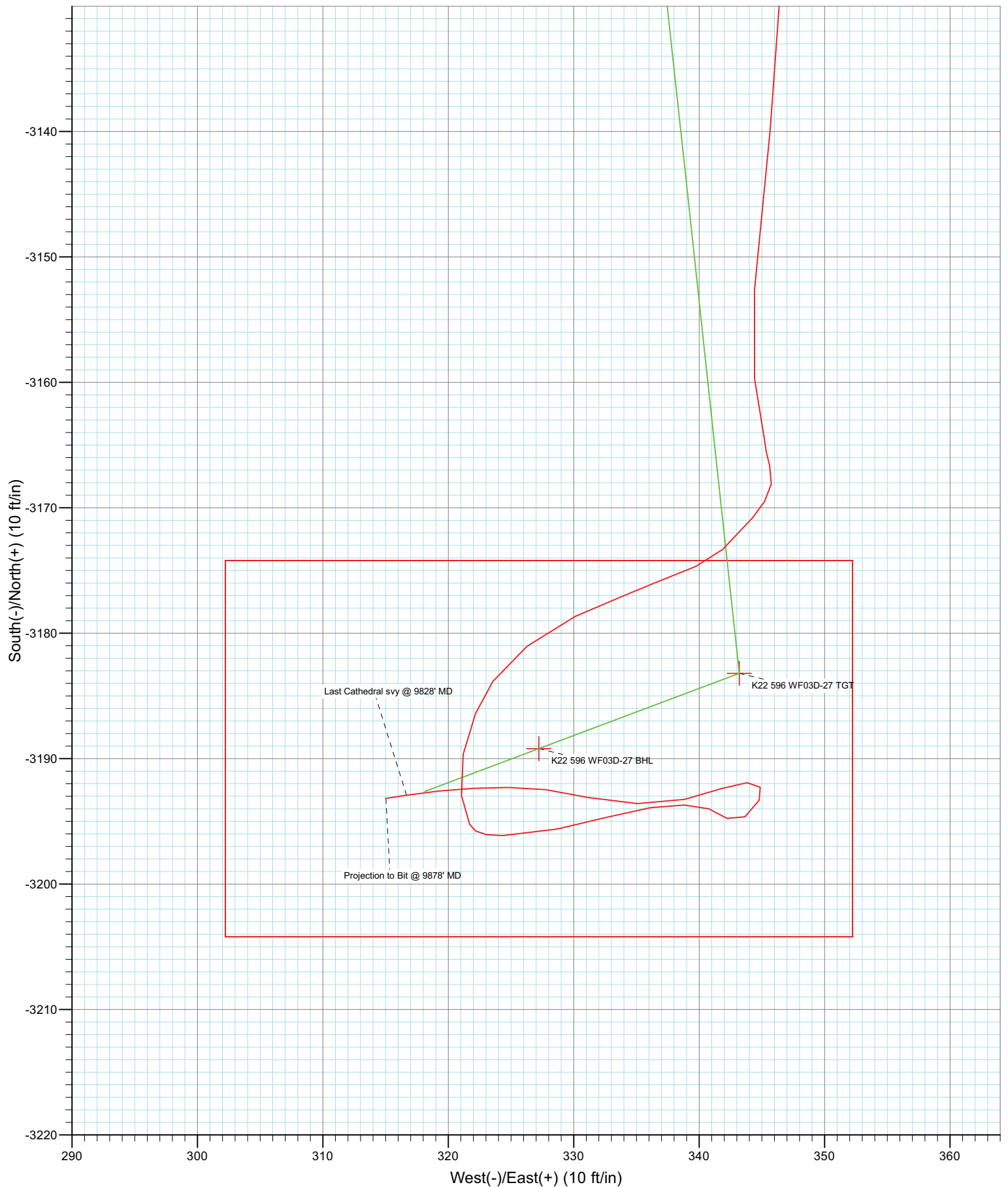
Magnetic Field  
 Strength: 52406.1snT  
 Dip Angle: 65.83°  
 Date: 7/4/2010  
 Model: IGRF200510

#### DESIGN DETAILS: DD

Target 105230(SH); 105286 (MH); LR  
 WELL @ 6549.0ft (Patterson 303)  
 K22 596 WF03D-27 BHL  
 Azimuth 174.14  
 Origin Slot N/S E/WFrom TVD  
 174.14 0.0 0.0 0.0



Project: North Piceance  
Site: K22 596 Pad (S22-T5S-R96W)  
Well: NP WF03D-27 K22 596  
Wellbore: DD  
Design: Final



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP WF03D-27 K22 596
<b>Project:</b>	North Piceance	<b>TVD Reference:</b>	WELL @ 6549.0ft (Patterson 303)
<b>Site:</b>	K22 596 Pad (S22-T5S-R96W)	<b>MD Reference:</b>	WELL @ 6549.0ft (Patterson 303)
<b>Well:</b>	NP WF03D-27 K22 596	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB

<b>Project</b>	North Piceance		
<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		K22 596 Pad (S22-T5S-R96W)			
Site Position:		Northing:	1,654,096.85 ft	Latitude:	39° 35' 57.02 N
From:	Lat/Long	Easting:	2,250,762.90 ft	Longitude:	108° 9' 33.39 W
Position Uncertainty:	0.0 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.68 °

Well	NP WF03D-27 K22 596					
Well Position	+N/-S	0.0 ft	Northing:	1,654,133.20 ft	Latitude:	39° 35' 57.42 N
	+E/-W	0.0 ft	Easting:	2,250,906.49 ft	Longitude:	108° 9' 31.57 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,527.0 ft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	7/4/2010	10.54	65.83	52,406

<b>Design</b>	DD				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<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	174.14	

<b>Survey Program</b>	<b>Date</b>	8/20/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
160.0	1,750.0	Survey #1 (DD)	MWD	Geolink MWD	
1,834.0	9,878.0	Survey #2 (DD)	MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Vertical</b>	<b>Dogleg</b>	<b>Build</b>	<b>Formations /</b>	
<b>Depth</b>	<b>(°)</b>	<b>(°)</b>	<b>Depth</b>	<b>(ft)</b>	<b>(ft)</b>	<b>Section</b>	<b>Rate</b>	<b>Rate</b>	<b>Comments</b>	
<b>(ft)</b>			<b>(ft)</b>			<b>(ft)</b>	<b>(°/100ft)</b>	<b>(°/100ft)</b>		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
160.0	1.50	177.50	160.0	-2.1	0.1	2.1	0.94	0.94		
189.0	3.00	170.30	189.0	-3.2	0.2	3.2	5.25	5.17		
220.0	4.00	175.50	219.9	-5.1	0.5	5.1	3.38	3.23		
250.0	5.40	175.10	249.8	-7.5	0.7	7.6	4.67	4.67		
280.0	6.70	173.20	279.6	-10.7	1.0	10.7	4.38	4.33		
310.0	7.90	177.00	309.4	-14.5	1.3	14.5	4.31	4.00		
341.0	8.40	178.40	340.1	-18.9	1.5	18.9	1.74	1.61		
371.0	8.90	175.10	369.7	-23.4	1.7	23.4	2.35	1.67		
402.0	9.50	166.50	400.3	-28.3	2.5	28.4	4.83	1.94		
432.0	10.90	176.00	429.9	-33.5	3.3	33.7	7.28	4.67		
462.0	11.60	173.90	459.3	-39.3	3.8	39.5	2.70	2.33		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP WF03D-27 K22 596
<b>Project:</b>	North Piceance	<b>TVD Reference:</b>	WELL @ 6549.0ft (Patterson 303)
<b>Site:</b>	K22 596 Pad (S22-T5S-R96W)	<b>MD Reference:</b>	WELL @ 6549.0ft (Patterson 303)
<b>Well:</b>	NP WF03D-27 K22 596	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
496.0	12.40	170.60	492.5	-46.3	4.8	46.6	3.10	2.35	
539.0	14.80	171.30	534.3	-56.3	6.4	56.7	5.59	5.58	
584.0	15.70	172.20	577.8	-68.0	8.1	68.5	2.07	2.00	
630.0	16.90	171.70	621.9	-80.8	9.9	81.4	2.63	2.61	
676.0	17.60	172.20	665.8	-94.3	11.8	95.0	1.56	1.52	
722.0	19.50	170.40	709.4	-108.8	14.0	109.6	4.31	4.13	
767.0	20.80	172.40	751.7	-124.1	16.3	125.1	3.27	2.89	
816.0	22.20	174.30	797.3	-141.9	18.4	143.1	3.19	2.86	
862.0	24.30	173.30	839.5	-160.0	20.4	161.2	4.65	4.57	
908.0	26.60	173.20	881.1	-179.6	22.7	181.0	5.00	5.00	
953.0	28.20	175.30	921.0	-200.2	24.8	201.7	4.15	3.56	
999.0	30.50	174.50	961.1	-222.7	26.8	224.2	5.07	5.00	
1,045.0	31.80	174.60	1,000.5	-246.4	29.0	248.0	2.83	2.83	
1,091.0	34.40	174.40	1,039.0	-271.4	31.4	273.2	5.66	5.65	
1,136.0	36.40	175.80	1,075.7	-297.3	33.6	299.2	4.80	4.44	
1,228.0	38.10	175.30	1,148.9	-352.8	38.0	354.9	1.88	1.85	
1,319.0	38.90	175.50	1,220.1	-409.3	42.5	411.5	0.89	0.88	
1,411.0	39.20	175.50	1,291.6	-467.1	47.1	469.5	0.33	0.33	
1,502.0	39.80	176.00	1,361.8	-524.8	51.4	527.3	0.75	0.66	
1,594.0	37.90	174.60	1,433.5	-582.3	56.1	585.0	2.28	-2.07	
1,685.0	37.60	174.60	1,505.4	-637.8	61.3	640.7	0.33	-0.33	
1,750.0	36.90	173.00	1,557.1	-676.9	65.6	680.1	1.84	-1.08	Last Cathedral svy @ 1750' MD
1,834.0	33.50	171.10	1,625.8	-724.9	72.2	728.4	4.25	-4.05	
1,880.0	32.80	168.70	1,664.3	-749.6	76.6	753.5	3.23	-1.52	
1,972.0	34.80	171.20	1,740.7	-800.0	85.5	804.6	2.65	2.17	
2,063.0	36.50	174.80	1,814.7	-852.6	91.9	857.6	2.97	1.87	
2,155.0	39.60	177.80	1,887.1	-909.2	95.6	914.2	3.92	3.37	
2,246.0	39.10	176.30	1,957.5	-966.8	98.5	971.8	1.18	-0.55	
2,338.0	38.90	175.70	2,029.0	-1,024.6	102.6	1,029.7	0.46	-0.22	
2,429.0	38.60	174.90	2,100.0	-1,081.3	107.2	1,086.6	0.64	-0.33	
2,521.0	38.80	175.30	2,171.8	-1,138.6	112.1	1,144.1	0.35	0.22	
2,612.0	38.30	175.60	2,242.9	-1,195.2	116.6	1,200.8	0.59	-0.55	
2,704.0	37.10	175.10	2,315.7	-1,251.3	121.2	1,257.1	1.35	-1.30	
2,795.0	37.40	175.00	2,388.2	-1,306.1	125.9	1,312.2	0.34	0.33	
2,887.0	35.10	175.60	2,462.4	-1,360.3	130.4	1,366.5	2.53	-2.50	
2,978.0	35.50	175.70	2,536.6	-1,412.8	134.4	1,419.1	0.44	0.44	
3,069.0	38.20	173.50	2,609.4	-1,467.1	139.6	1,473.7	3.30	2.97	
3,161.0	37.50	172.90	2,682.1	-1,523.1	146.2	1,530.1	0.86	-0.76	
3,252.0	36.30	172.40	2,754.9	-1,577.3	153.2	1,584.7	1.36	-1.32	
3,344.0	37.40	171.90	2,828.5	-1,632.0	160.8	1,639.9	1.24	1.20	
3,435.0	36.90	171.00	2,901.0	-1,686.3	168.9	1,694.8	0.81	-0.55	
3,526.0	38.90	174.10	2,972.8	-1,741.7	176.2	1,750.6	3.03	2.20	
3,618.0	37.30	173.50	3,045.2	-1,798.2	182.3	1,807.4	1.79	-1.74	
3,710.0	39.80	175.30	3,117.2	-1,855.2	187.8	1,864.7	2.98	2.72	
3,801.0	39.50	175.20	3,187.2	-1,913.1	192.7	1,922.8	0.34	-0.33	
3,893.0	38.20	176.00	3,258.9	-1,970.6	197.1	1,980.5	1.51	-1.41	
3,984.0	37.60	175.30	3,330.7	-2,026.4	201.3	2,036.3	0.81	-0.66	
4,076.0	35.70	176.50	3,404.5	-2,081.1	205.3	2,091.2	2.21	-2.07	
4,167.0	38.50	173.60	3,477.1	-2,135.8	210.0	2,146.1	3.63	3.08	
4,259.0	36.50	173.40	3,550.1	-2,191.5	216.4	2,202.1	2.18	-2.17	
4,350.0	36.10	174.30	3,623.4	-2,245.0	222.2	2,256.0	0.73	-0.44	
4,492.0	37.30	172.70	3,737.2	-2,329.3	231.8	2,340.8	1.08	0.85	
4,533.0	35.90	173.30	3,770.2	-2,353.6	234.8	2,365.3	3.52	-3.41	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP WF03D-27 K22 596
<b>Project:</b>	North Piceance	<b>TVD Reference:</b>	WELL @ 6549.0ft (Patterson 303)
<b>Site:</b>	K22 596 Pad (S22-T5S-R96W)	<b>MD Reference:</b>	WELL @ 6549.0ft (Patterson 303)
<b>Well:</b>	NP WF03D-27 K22 596	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
4,625.0	33.10	172.50	3,846.0	-2,405.3	241.2	2,417.3	3.08	-3.04	
4,716.0	31.80	171.40	3,922.8	-2,453.6	248.0	2,466.1	1.57	-1.43	
4,808.0	30.60	168.60	4,001.5	-2,500.6	256.3	2,513.7	2.05	-1.30	
4,899.0	28.40	167.40	4,080.7	-2,544.4	265.6	2,558.2	2.50	-2.42	
4,991.0	27.80	165.90	4,161.8	-2,586.6	275.6	2,601.2	1.01	-0.65	
5,083.0	30.00	168.90	4,242.4	-2,629.9	285.2	2,645.3	2.86	2.39	
5,174.0	34.00	172.10	4,319.5	-2,677.5	293.1	2,693.4	4.77	4.40	
5,265.0	33.10	170.90	4,395.4	-2,727.2	300.5	2,743.7	1.23	-0.99	
5,357.0	32.00	171.10	4,472.9	-2,776.1	308.3	2,793.1	1.20	-1.20	
5,448.0	30.40	170.50	4,550.7	-2,822.6	315.8	2,840.1	1.79	-1.76	
5,540.0	29.10	170.50	4,630.6	-2,867.7	323.3	2,885.7	1.41	-1.41	
5,631.0	27.90	169.10	4,710.6	-2,910.4	331.0	2,929.0	1.51	-1.32	
5,723.0	27.30	174.60	4,792.1	-2,952.6	337.1	2,971.5	2.84	-0.65	
5,814.0	26.90	173.20	4,873.1	-2,993.8	341.5	3,013.0	0.83	-0.44	
5,905.0	23.10	176.60	4,955.6	-3,032.0	345.0	3,051.4	4.46	-4.18	
5,997.0	20.70	173.90	5,041.0	-3,066.2	347.8	3,085.7	2.83	-2.61	
6,088.0	17.50	184.00	5,127.0	-3,095.9	348.5	3,115.3	5.04	-3.52	
6,180.0	14.00	182.70	5,215.5	-3,120.8	347.0	3,139.9	3.82	-3.80	
6,272.0	10.00	186.10	5,305.5	-3,139.9	345.7	3,158.8	4.41	-4.35	
6,363.0	6.20	184.80	5,395.5	-3,152.6	344.4	3,171.3	4.18	-4.18	
6,454.0	2.80	169.10	5,486.3	-3,159.7	344.4	3,178.4	3.94	-3.74	
6,546.0	2.50	172.60	5,578.2	-3,163.9	345.1	3,182.6	0.37	-0.33	
6,637.0	1.00	160.80	5,669.1	-3,166.6	345.6	3,185.4	1.69	-1.65	
6,729.0	0.90	191.10	5,761.1	-3,168.1	345.8	3,186.8	0.55	-0.11	
6,820.0	1.00	210.20	5,852.1	-3,169.5	345.2	3,188.2	0.36	0.11	
6,911.0	1.00	221.60	5,943.1	-3,170.8	344.3	3,189.4	0.22	0.00	
7,003.0	1.10	225.20	6,035.1	-3,172.0	343.1	3,190.5	0.13	0.11	
7,094.0	1.20	221.60	6,126.0	-3,173.3	341.9	3,191.6	0.14	0.11	
7,186.0	2.00	247.20	6,218.0	-3,174.7	339.8	3,192.8	1.15	0.87	
7,277.0	2.00	249.30	6,308.9	-3,175.8	336.8	3,193.6	0.08	0.00	
7,369.0	2.30	245.80	6,400.9	-3,177.2	333.6	3,194.6	0.36	0.33	
7,460.0	2.50	247.80	6,491.8	-3,178.7	330.1	3,195.8	0.24	0.22	
7,552.0	3.20	230.70	6,583.7	-3,181.0	326.3	3,197.7	1.19	0.76	
7,643.0	1.80	212.20	6,674.6	-3,183.9	323.5	3,200.3	1.76	-1.54	
7,735.0	1.80	204.40	6,766.6	-3,186.4	322.2	3,202.6	0.27	0.00	
7,826.0	2.50	191.50	6,857.5	-3,189.7	321.2	3,205.8	0.93	0.77	
7,918.0	1.70	168.90	6,949.4	-3,193.0	321.1	3,209.1	1.24	-0.87	
8,009.0	1.30	157.80	7,040.4	-3,195.2	321.7	3,211.4	0.54	-0.44	
8,101.0	2.80	88.30	7,132.3	-3,196.1	324.3	3,212.6	2.87	1.63	
8,192.0	2.70	77.70	7,223.2	-3,195.6	328.7	3,212.5	0.57	-0.11	
8,284.0	2.50	75.70	7,315.2	-3,194.7	332.7	3,211.9	0.24	-0.22	
8,375.0	1.90	80.10	7,406.1	-3,193.9	336.1	3,211.5	0.68	-0.66	
8,466.0	1.50	92.20	7,497.0	-3,193.7	338.8	3,211.6	0.59	-0.44	
8,558.0	1.00	108.40	7,589.0	-3,194.0	340.8	3,212.1	0.66	-0.54	
8,649.0	1.10	126.30	7,680.0	-3,194.8	342.2	3,213.0	0.38	0.11	
8,741.0	1.20	48.00	7,772.0	-3,194.6	343.7	3,213.0	1.58	0.11	
8,833.0	1.00	31.20	7,864.0	-3,193.3	344.8	3,211.8	0.41	-0.22	
8,924.0	0.60	316.60	7,955.0	-3,192.3	344.9	3,210.8	1.12	-0.44	
9,016.0	0.90	271.60	8,047.0	-3,191.9	343.8	3,210.3	0.69	0.33	
9,107.0	1.70	249.10	8,137.9	-3,192.4	341.8	3,210.6	1.03	0.88	
9,199.0	2.20	257.40	8,229.9	-3,193.2	338.8	3,211.2	0.62	0.54	
9,290.0	2.60	271.20	8,320.8	-3,193.6	335.1	3,211.1	0.77	0.44	
9,381.0	2.40	283.50	8,411.7	-3,193.1	331.2	3,210.2	0.63	-0.22	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP WF03D-27 K22 596
<b>Project:</b>	North Piceance	<b>TVD Reference:</b>	WELL @ 6549.0ft (Patterson 303)
<b>Site:</b>	K22 596 Pad (S22-T5S-R96W)	<b>MD Reference:</b>	WELL @ 6549.0ft (Patterson 303)
<b>Well:</b>	NP WF03D-27 K22 596	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	EDM 5000.1 US Multi Users DB

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
9,473.0	1.90	276.30	8,503.7	-3,192.5	327.8	3,209.3	0.62	-0.54	
9,565.0	1.80	270.50	8,595.6	-3,192.3	324.8	3,208.8	0.23	-0.11	
9,656.0	1.70	266.60	8,686.6	-3,192.4	322.0	3,208.6	0.17	-0.11	
9,747.0	1.80	264.30	8,777.5	-3,192.6	319.3	3,208.5	0.13	0.11	
9,828.0	1.90	261.40	8,858.5	-3,192.9	316.7	3,208.6	0.17	0.12	Last Cathedral svy @ 9828' MD
9,878.0	1.90	261.40	8,908.5	-3,193.2	315.0	3,208.6	0.00	0.00	Projection to Bit @ 9878' 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
K22 596 WF03D-27 BHI - actual wellpath misses target center by 7.3ft at 9699.3ft MD (8729.8 TVD, -3192.5 N, 320.7 E) - Rectangle (sides W30.0 H50.0 D0.0)	0.00	0.00	8,730.0	-3,189.2	327.2	1,650,935.79	2,251,140.25	39° 35' 25.90 N	108° 9' 27.39 W
K22 596 WF03D-27 TG <sup>1</sup> - actual wellpath misses target center by 20.3ft at 6525.7ft MD (5557.9 TVD, -3163.0 N, 345.0 E) - Point	0.00	0.00	5,557.0	-3,183.2	343.2	1,650,941.32	2,251,156.39	39° 35' 25.96 N	108° 9' 27.19 W

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,750.0	1,557.1	-676.9	65.6	Last Cathedral svy @ 1750' MD
9,828.0	8,858.5	-3,192.9	316.7	Last Cathedral svy @ 9828' MD
9,878.0	8,908.5	-3,193.2	315.0	Projection to Bit @ 9878' MD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_