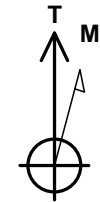
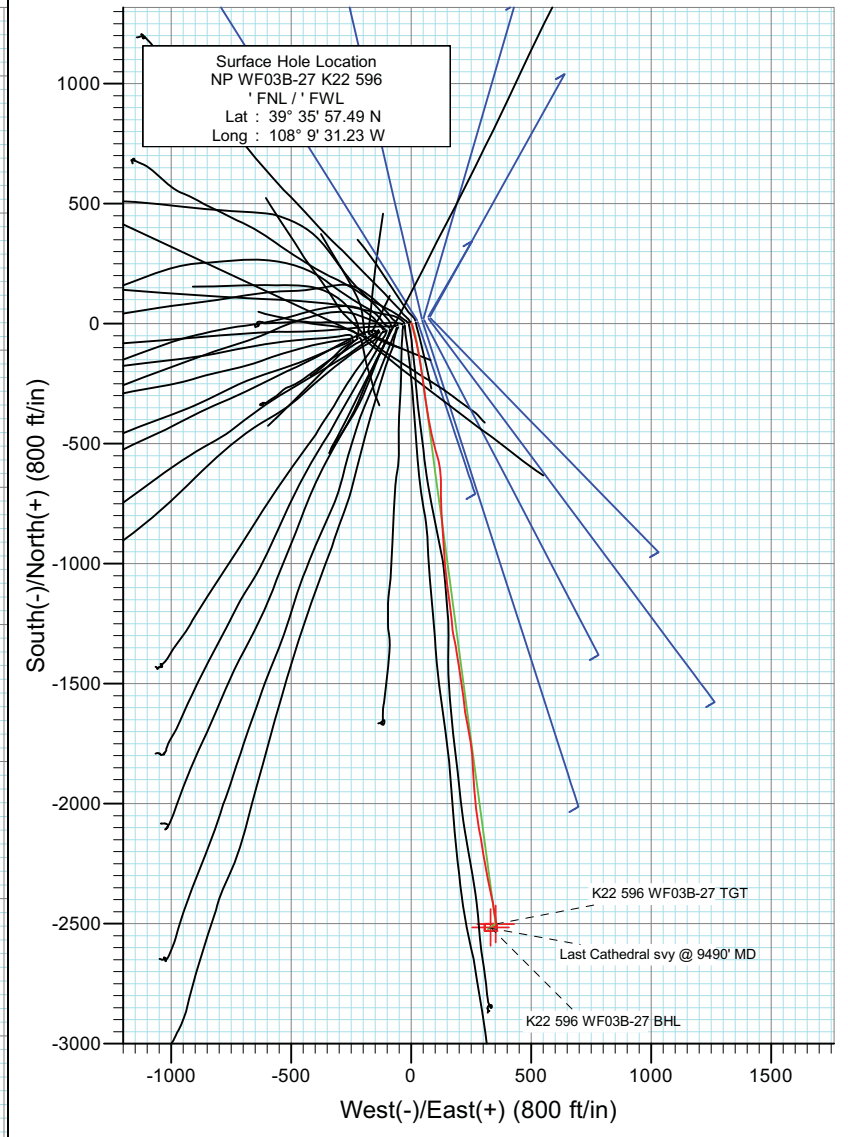
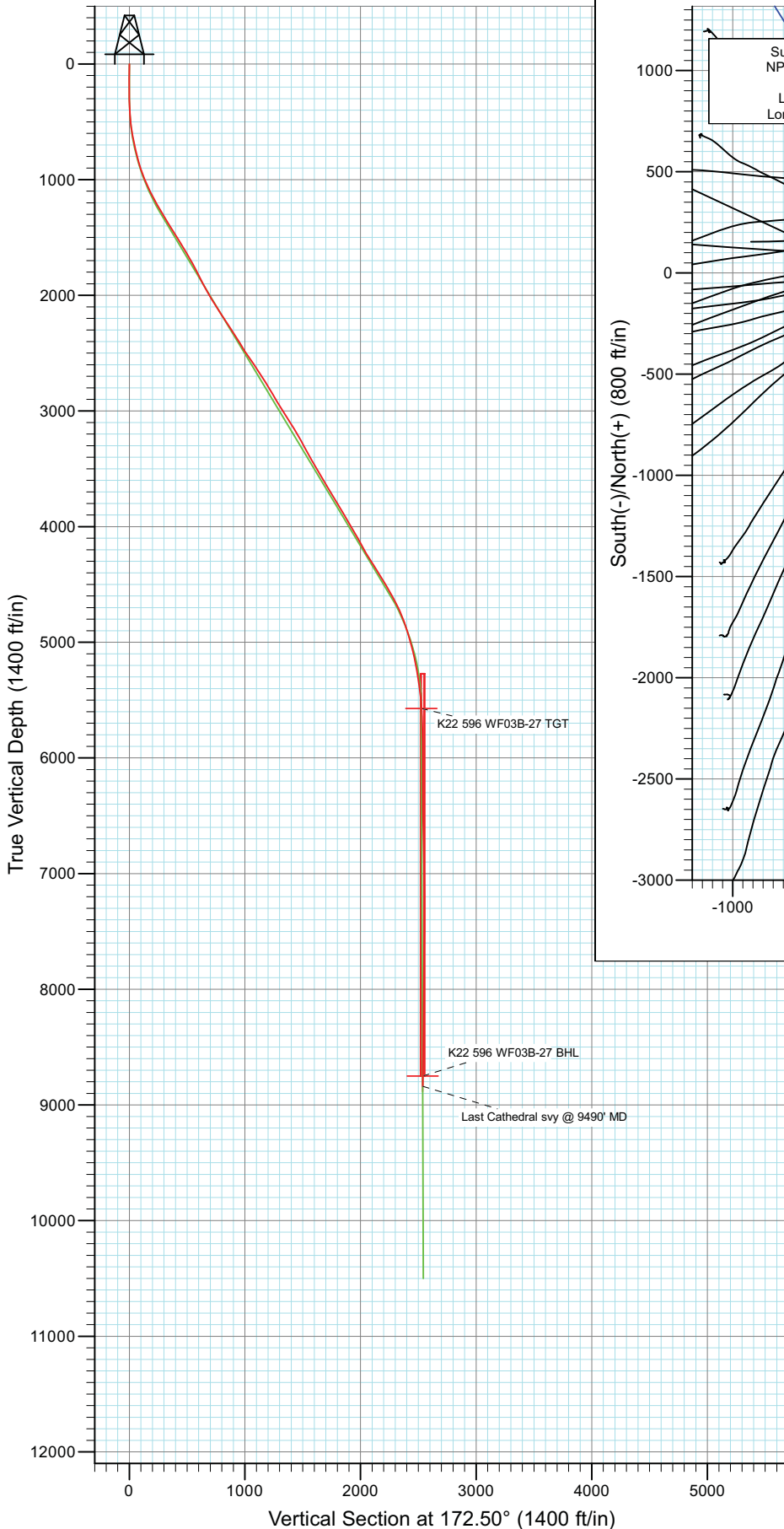




Project: North Piceance
 Site: K22 596 Pad (S22-T5S-R96W)
 Well: NP WF03B-27 K22 596
 Wellbore: DD
 Design: Final Survey



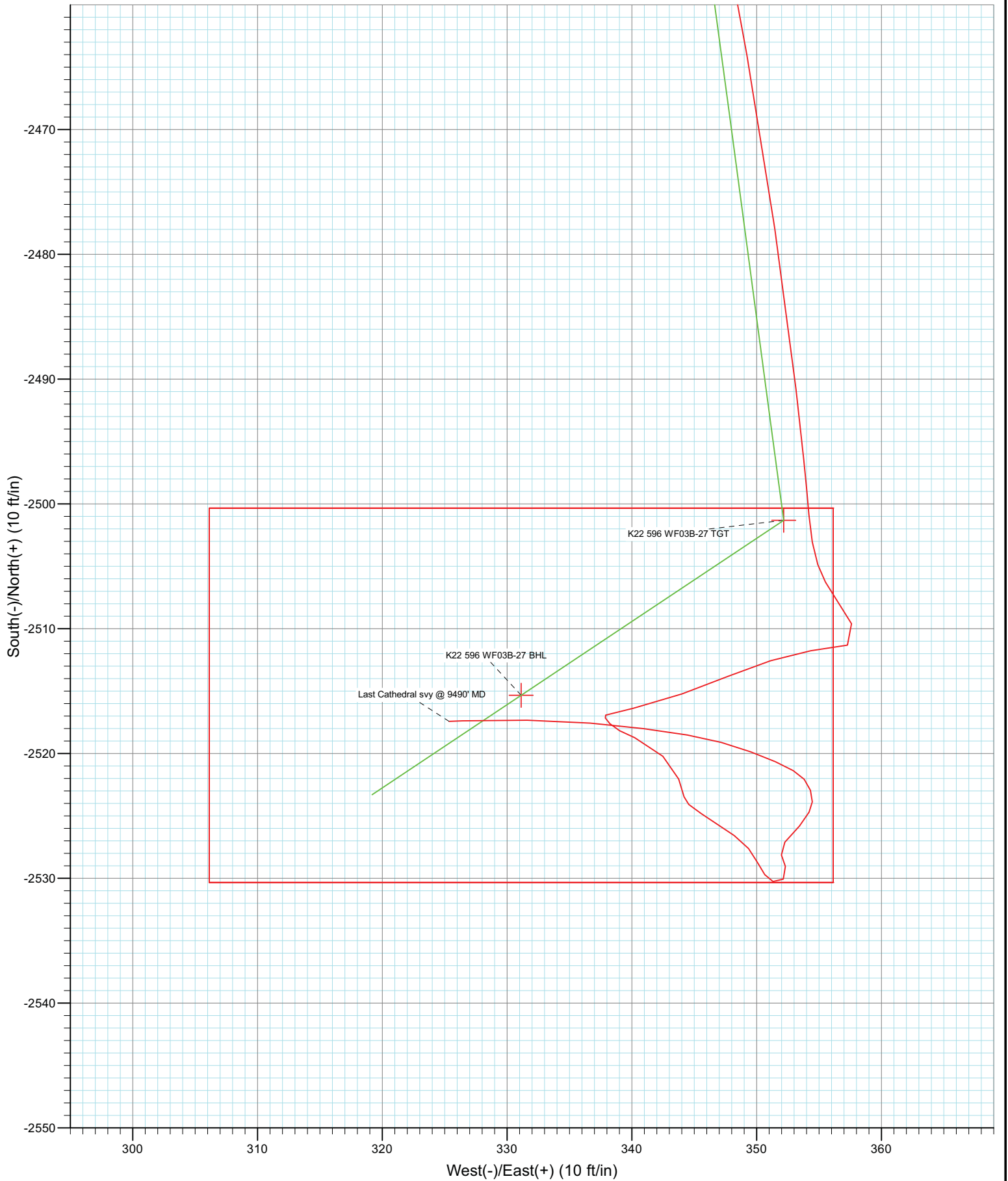
Azimuths to True North
 Magnetic North: 10.55°

Magnetic Field
 Strength: 52369.7snT
 Dip Angle: 65.82°
 Date: 7/27/2010
 Model: IGRF2010

DD				
NP WF03B-27 K22 596				
105250 (SH), 105313 (MH); LR				
Well @ 6549.0ft (Patterson 303)				
North American Datum 1983				
Well NP WF03B-27 K22 596, True North				
Target	Azimuth	Origin Type	N/S	E/Wom
K22 596 WF03B-27 BHL	172.50	Slot	0.0	0.0
Name	TVD	+N/-S	+E/-W Latitude	Longitude
K22 596 WF03B-27 BHL	8750.0	-2515.3	33 139° 35' 32.63 N	108° 9' 27.00 W



Project: North Piceance
Site: K22 596 Pad (S22-T5S-R96W)
Well: NP WF03B-27 K22 596
Wellbore: DD
Design: DD



Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well NP WF03B-27 K22 596
Project: North Piceance	TVD Reference: Well @ 6549.0ft (Patterson 303)
Site: K22 596 Pad (S22-T5S-R96W)	MD Reference: Well @ 6549.0ft (Patterson 303)
Well: NP WF03B-27 K22 596	North Reference: True
Wellbore: DD	Survey Calculation Method: Minimum Curvature
Design: DD	Database: EDM 5000.1 US Multi Users DB

Project North Piceance		
Map System: US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum: North American Datum 1983		
Map Zone: 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 WF03B-27 K22 596					
Well Position	+N/-S	0.0 ft	Northing:	1,654,139.50 ft	Latitude: 39° 35' 57.49 N
	+E/-W	0.0 ft	Easting:	2,250,933.30 ft	Longitude: 108° 9' 31.23 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level: 6,527.0 ft

Wellbore DD					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/27/2010	10.55	65.82	52,370

Design DD					
Audit Notes:					
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0			
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	172.50	

Survey Program		Date 8/19/2010
From (ft)	To (ft)	Survey (Wellbore)
170.0	1,700.0	Survey #1 (DD)
1,789.0	9,490.0	Survey #2 (DD)
		Tool Name
		MWD
		MWD
		Description
		Geolink MWD
		Geolink MWD

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
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
170.0	1.10	37.30	170.0	1.3	1.0	-1.2	0.65	0.65	
199.0	0.80	66.10	199.0	1.6	1.3	-1.4	1.91	-1.03	
230.0	0.50	126.50	230.0	1.6	1.6	-1.4	2.27	-0.97	
260.0	0.70	148.90	260.0	1.4	1.8	-1.1	1.02	0.67	
290.0	1.50	145.20	290.0	0.9	2.2	-0.6	2.68	2.67	
320.0	1.80	148.80	320.0	0.2	2.6	0.2	1.06	1.00	
351.0	2.40	160.00	350.9	-0.9	3.1	1.3	2.34	1.94	
381.0	2.80	163.00	380.9	-2.1	3.5	2.6	1.41	1.33	
412.0	3.10	160.40	411.9	-3.7	4.0	4.2	1.06	0.97	
442.0	3.90	165.50	441.8	-5.4	4.6	6.0	2.86	2.67	
472.0	4.80	165.70	471.7	-7.6	5.1	8.2	3.00	3.00	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP WF03B-27 K22 596
Project:	North Piceance	TVD Reference:	Well @ 6549.0ft (Patterson 303)
Site:	K22 596 Pad (S22-T5S-R96W)	MD Reference:	Well @ 6549.0ft (Patterson 303)
Well:	NP WF03B-27 K22 596	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	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
503.0	5.20	169.50	502.6	-10.3	5.7	10.9	1.67	1.29	
552.0	8.40	170.70	551.3	-16.0	6.7	16.7	6.54	6.53	
597.0	10.10	166.60	595.7	-23.1	8.1	23.9	4.05	3.78	
643.0	11.50	166.30	640.9	-31.4	10.2	32.5	3.05	3.04	
689.0	11.60	163.60	685.9	-40.3	12.6	41.6	1.20	0.22	
735.0	13.00	165.70	730.9	-49.8	15.1	51.3	3.19	3.04	
780.0	13.90	166.30	774.6	-59.9	17.7	61.7	2.02	2.00	
826.0	15.00	166.90	819.2	-71.1	20.3	73.1	2.41	2.39	
872.0	16.80	168.10	863.4	-83.4	23.0	85.7	3.98	3.91	
918.0	18.50	168.40	907.3	-97.1	25.9	99.6	3.70	3.70	
963.0	19.70	169.20	949.8	-111.5	28.7	114.3	2.73	2.67	
1,009.0	21.30	170.30	992.9	-127.4	31.6	130.4	3.58	3.48	
1,055.0	23.70	169.60	1,035.4	-144.7	34.7	148.0	5.25	5.22	
1,101.0	25.80	171.70	1,077.1	-163.7	37.8	167.2	4.95	4.57	
1,146.0	27.10	170.30	1,117.4	-183.5	40.9	187.3	3.20	2.89	
1,192.0	28.30	171.00	1,158.1	-204.6	44.4	208.6	2.70	2.61	
1,238.0	29.10	171.20	1,198.5	-226.4	47.8	230.7	1.75	1.74	
1,329.0	30.60	173.00	1,277.4	-271.3	54.0	276.0	1.92	1.65	
1,421.0	31.30	171.20	1,356.3	-318.1	60.5	323.3	1.26	0.76	
1,512.0	31.70	170.70	1,433.9	-365.1	68.0	370.8	0.53	0.44	
1,654.0	31.30	169.70	1,555.0	-438.2	80.6	445.0	0.46	-0.28	
1,700.0	31.30	166.60	1,594.3	-461.6	85.6	468.8	3.50	0.00	Last Cathedral Survey @ 1700' MD
1,789.0	31.60	164.40	1,670.2	-506.5	97.2	514.9	1.33	0.34	
1,880.0	28.40	165.10	1,749.0	-550.4	109.2	559.9	3.54	-3.52	
1,972.0	26.10	170.70	1,830.8	-591.5	118.1	601.9	3.74	-2.50	
2,063.0	28.20	176.10	1,911.8	-632.7	122.8	643.4	3.56	2.31	
2,155.0	29.60	179.70	1,992.3	-677.2	124.4	687.6	2.43	1.52	
2,246.0	33.00	179.90	2,070.1	-724.4	124.5	734.5	3.74	3.74	
2,338.0	33.90	177.40	2,146.9	-775.1	125.7	784.9	1.79	0.98	
2,429.0	33.20	175.70	2,222.7	-825.3	128.7	835.1	1.29	-0.77	
2,521.0	31.60	176.60	2,300.4	-874.5	132.1	884.3	1.82	-1.74	
2,612.0	32.80	175.30	2,377.4	-922.9	135.5	932.7	1.52	1.32	
2,704.0	31.70	176.30	2,455.2	-971.8	139.1	981.7	1.33	-1.20	
2,795.0	34.10	175.70	2,531.6	-1,021.1	142.6	1,031.0	2.66	2.64	
2,887.0	34.90	172.10	2,607.4	-1,072.9	148.1	1,083.1	2.38	0.87	
2,978.0	33.40	172.50	2,682.7	-1,123.5	155.0	1,134.2	1.67	-1.65	
3,069.0	31.10	172.60	2,759.7	-1,171.7	161.2	1,182.7	2.53	-2.53	
3,161.0	29.90	172.80	2,838.9	-1,218.0	167.2	1,229.4	1.31	-1.30	
3,252.0	31.30	175.70	2,917.3	-1,264.1	171.8	1,275.7	2.24	1.54	
3,344.0	33.50	167.10	2,995.0	-1,312.7	179.3	1,324.9	5.54	2.39	
3,435.0	32.00	171.40	3,071.5	-1,361.0	188.5	1,374.0	3.04	-1.65	
3,526.0	31.40	171.20	3,149.0	-1,408.3	195.7	1,421.8	0.67	-0.66	
3,618.0	29.60	171.30	3,228.2	-1,454.4	202.8	1,468.5	1.96	-1.96	
3,710.0	28.10	171.00	3,308.8	-1,498.3	209.6	1,512.8	1.64	-1.63	
3,801.0	30.30	173.50	3,388.2	-1,542.3	215.6	1,557.2	2.76	2.42	
3,893.0	30.30	173.50	3,467.7	-1,588.4	220.8	1,603.6	0.00	0.00	
3,984.0	29.40	168.80	3,546.6	-1,633.1	227.8	1,648.9	2.75	-0.99	
4,076.0	31.40	169.70	3,625.9	-1,678.9	236.5	1,695.4	2.23	2.17	
4,167.0	29.30	169.70	3,704.5	-1,724.1	244.7	1,741.3	2.31	-2.31	
4,259.0	31.60	173.90	3,783.8	-1,770.2	251.3	1,787.9	3.40	2.50	
4,350.0	32.80	176.60	3,860.8	-1,818.5	255.3	1,836.3	2.06	1.32	
4,442.0	29.60	176.20	3,939.5	-1,866.1	258.2	1,883.8	3.49	-3.48	
4,533.0	30.00	176.60	4,018.4	-1,911.2	261.1	1,929.0	0.49	0.44	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP WF03B-27 K22 596
Project:	North Piceance	TVD Reference:	Well @ 6549.0ft (Patterson 303)
Site:	K22 596 Pad (S22-T5S-R96W)	MD Reference:	Well @ 6549.0ft (Patterson 303)
Well:	NP WF03B-27 K22 596	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	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	29.00	175.20	4,098.5	-1,956.4	264.3	1,974.2	1.32	-1.09	
4,716.0	29.20	173.60	4,178.0	-2,000.5	268.6	2,018.4	0.88	0.22	
4,808.0	31.40	173.20	4,257.5	-2,046.6	274.0	2,064.8	2.40	2.39	
4,899.0	32.90	170.20	4,334.5	-2,094.5	281.0	2,113.2	2.41	1.65	
4,991.0	32.00	169.50	4,412.1	-2,143.1	289.7	2,162.5	1.06	-0.98	
5,083.0	30.60	170.80	4,490.8	-2,190.1	297.9	2,210.3	1.69	-1.52	
5,174.0	30.00	170.90	4,569.3	-2,235.5	305.2	2,256.2	0.66	-0.66	
5,265.0	26.90	168.80	4,649.3	-2,278.1	312.8	2,299.5	3.58	-3.41	
5,357.0	24.70	168.20	4,732.1	-2,317.4	320.7	2,339.4	2.41	-2.39	
5,446.0	20.20	170.60	4,814.4	-2,350.7	327.1	2,373.3	5.16	-5.06	
5,540.0	17.10	166.00	4,903.4	-2,380.2	333.1	2,403.3	3.65	-3.30	
5,631.0	15.80	166.40	4,990.7	-2,405.2	339.2	2,428.9	1.43	-1.43	
5,723.0	15.00	173.90	5,079.4	-2,429.2	343.4	2,453.3	2.33	-0.87	
5,814.0	10.30	168.30	5,168.2	-2,448.9	346.3	2,473.2	5.33	-5.16	
5,905.0	9.20	170.10	5,257.9	-2,464.0	349.2	2,488.5	1.25	-1.21	
5,997.0	8.40	171.70	5,348.8	-2,477.9	351.5	2,502.6	0.91	-0.87	
6,088.0	8.00	173.30	5,438.9	-2,490.8	353.2	2,515.6	0.51	-0.44	
6,180.0	4.60	175.50	5,530.3	-2,500.8	354.2	2,525.7	3.70	-3.70	
6,271.0	2.60	149.70	5,621.1	-2,506.3	355.5	2,531.2	2.78	-2.20	
6,363.0	2.30	146.10	5,713.0	-2,509.6	357.6	2,534.8	0.37	-0.33	
6,454.0	1.70	261.30	5,804.0	-2,511.3	357.3	2,536.5	3.73	-0.66	
6,546.0	2.00	261.30	5,895.9	-2,511.8	354.3	2,536.5	0.33	0.33	
6,637.0	2.20	251.30	5,986.9	-2,512.6	351.1	2,536.9	0.46	0.22	
6,729.0	2.40	248.40	6,078.8	-2,513.8	347.7	2,537.7	0.25	0.22	
6,820.0	2.50	249.70	6,169.7	-2,515.2	344.0	2,538.6	0.13	0.11	
6,911.0	2.60	257.50	6,260.6	-2,516.4	340.2	2,539.2	0.40	0.11	
7,003.0	0.30	242.20	6,352.6	-2,516.9	337.9	2,539.5	2.51	-2.50	
7,094.0	1.00	135.40	6,443.6	-2,517.6	338.2	2,540.2	1.24	0.77	
7,186.0	1.90	111.50	6,535.6	-2,518.7	340.2	2,541.6	1.16	0.98	
7,277.0	1.60	137.40	6,626.5	-2,520.2	342.5	2,543.4	0.92	-0.33	
7,369.0	1.20	156.10	6,718.5	-2,522.0	343.8	2,545.3	0.65	-0.43	
7,460.0	0.70	174.10	6,809.5	-2,523.5	344.2	2,546.8	0.63	-0.55	
7,552.0	1.90	120.90	6,901.5	-2,524.8	345.6	2,548.3	1.72	1.30	
7,643.0	2.10	126.30	6,992.4	-2,526.6	348.2	2,550.4	0.30	0.22	
7,735.0	1.60	155.80	7,084.4	-2,528.7	350.1	2,552.8	1.15	-0.54	
7,826.0	1.00	116.40	7,175.3	-2,530.3	351.3	2,554.5	1.15	-0.66	
7,918.0	0.70	10.80	7,267.3	-2,530.1	352.1	2,554.4	1.48	-0.33	
8,009.0	0.60	6.70	7,358.3	-2,529.0	352.3	2,553.4	0.12	-0.11	
8,101.0	0.70	319.60	7,450.3	-2,528.1	352.0	2,552.5	0.57	0.11	
8,192.0	1.10	45.80	7,541.3	-2,527.1	352.3	2,551.5	1.39	0.44	
8,284.0	1.10	38.90	7,633.3	-2,525.8	353.4	2,550.3	0.14	0.00	
8,375.0	0.60	25.90	7,724.3	-2,524.7	354.2	2,549.3	0.59	-0.55	
8,466.0	0.50	7.00	7,815.3	-2,523.9	354.5	2,548.5	0.23	-0.11	
8,558.0	0.70	339.70	7,907.3	-2,522.9	354.3	2,547.6	0.37	0.22	
8,649.0	0.60	319.70	7,998.3	-2,522.1	353.8	2,546.7	0.27	-0.11	
8,741.0	0.80	299.30	8,090.3	-2,521.4	352.9	2,545.9	0.34	0.22	
8,833.0	1.20	295.00	8,182.3	-2,520.7	351.5	2,545.0	0.44	0.43	
8,924.0	1.50	289.30	8,273.2	-2,519.9	349.5	2,543.9	0.36	0.33	
9,016.0	1.60	286.20	8,365.2	-2,519.1	347.2	2,542.9	0.14	0.11	
9,107.0	1.90	278.90	8,456.2	-2,518.5	344.4	2,541.9	0.41	0.33	
9,199.0	2.50	278.00	8,548.1	-2,518.0	340.9	2,541.0	0.65	0.65	
9,290.0	2.90	274.10	8,639.0	-2,517.6	336.7	2,540.0	0.48	0.44	
9,381.0	3.50	271.20	8,729.8	-2,517.3	331.6	2,539.1	0.68	0.66	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well NP WF03B-27 K22 596
Project: North Piceance	TVD Reference: Well @ 6549.0ft (Patterson 303)
Site: K22 596 Pad (S22-T5S-R96W)	MD Reference: Well @ 6549.0ft (Patterson 303)
Well: NP WF03B-27 K22 596	North Reference: True
Wellbore: DD	Survey Calculation Method: Minimum Curvature
Design: DD	Database: 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
9,471.0	3.10	267.60	8,819.7	-2,517.4	326.4	2,538.5	0.50	-0.44	
9,490.0	3.40	268.30	8,838.7	-2,517.4	325.4	2,538.4	1.59	1.58	Last Cathedral svy @ 9490' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
K22 596 WF03B-27 BHL - hit/miss target - Shape	0.00	0.00	8,750.0	-2,515.3	331.1	1,651,615.55	2,251,190.69	39° 35' 32.63 N	108° 9' 27.00 W
- actual wellpath misses target center by 2.1ft at 9401.2ft MD (8750.0 TVD, -2517.3 N, 330.4 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
K22 596 WF03B-27 TG1 - hit/miss target - Shape	0.00	0.00	5,572.0	-2,501.3	352.2	1,651,628.95	2,251,212.13	39° 35' 32.77 N	108° 9' 26.73 W
- actual wellpath misses target center by 3.5ft at 6221.6ft MD (5571.8 TVD, -2503.8 N, 354.6 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,700.0	1,594.3	-461.6	85.6	Last Cathedral Survey @ 1700' MD	
9,490.0	8,838.7	-2,517.4	325.4	Last Cathedral svy @ 9490' MD	

Checked By: _____	Approved By: _____	Date: _____
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