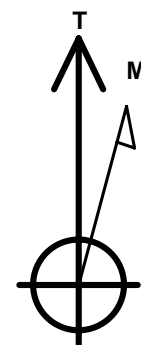
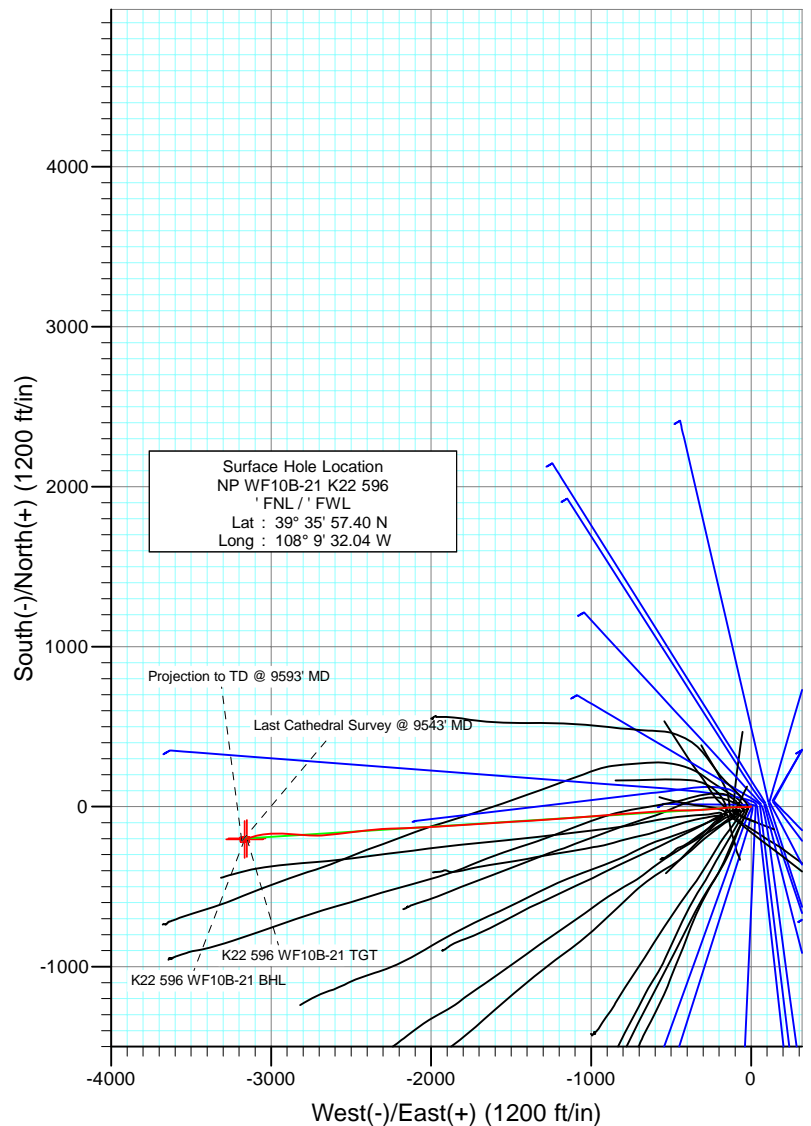
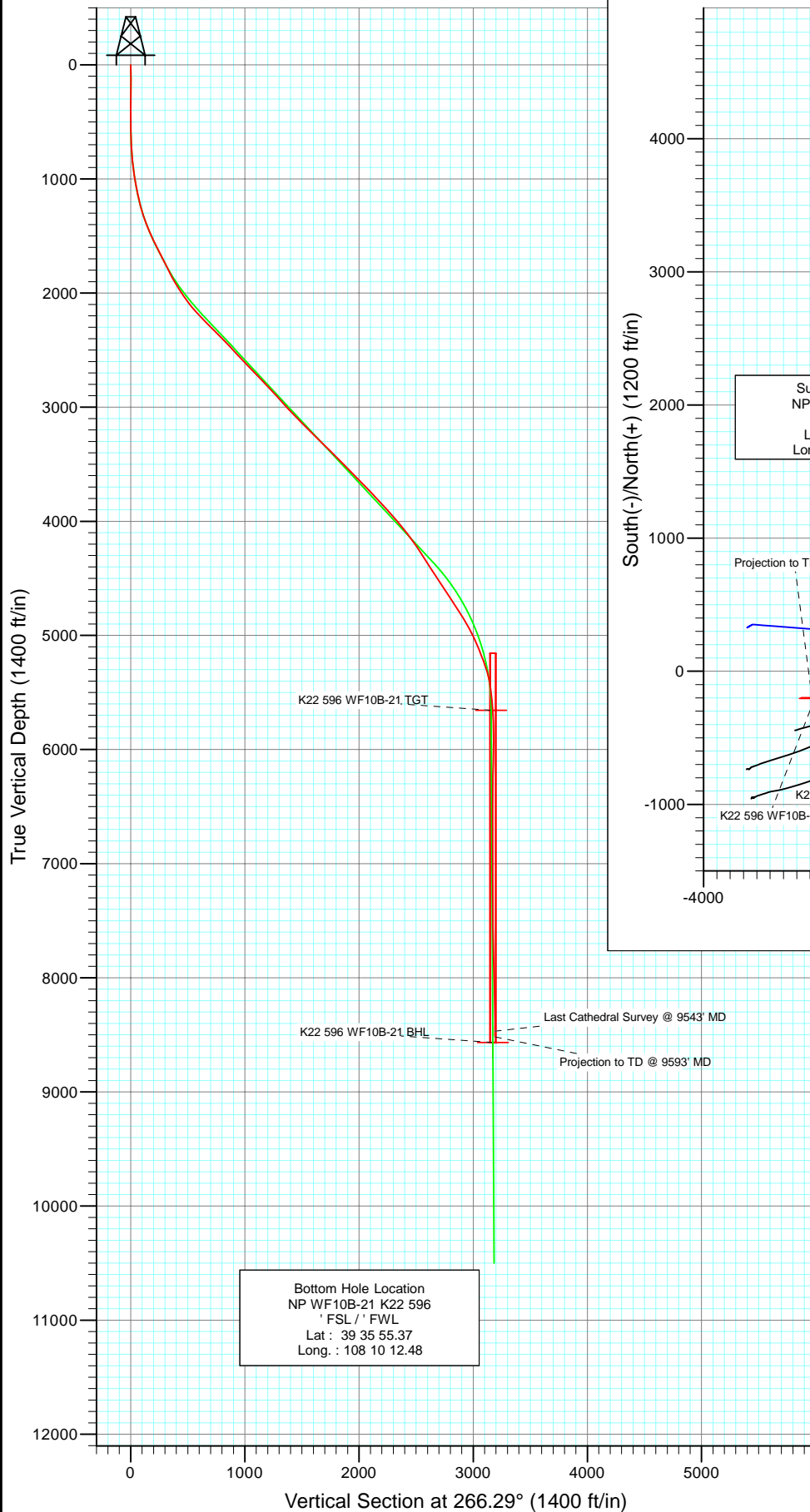




Project: North Piceance  
Site: K22 596 Pad (S22-T5S-R96W)  
Well: NP WF10B-21 K22 596  
Wellbore: DD  
Design: Final



Azimuths to True North  
Magnetic North: 10.56°

Magnetic Field  
Strength: 52420.0nT  
Dip Angle: 65.83°  
Date: 5/13/2010  
Model: IGRF200510

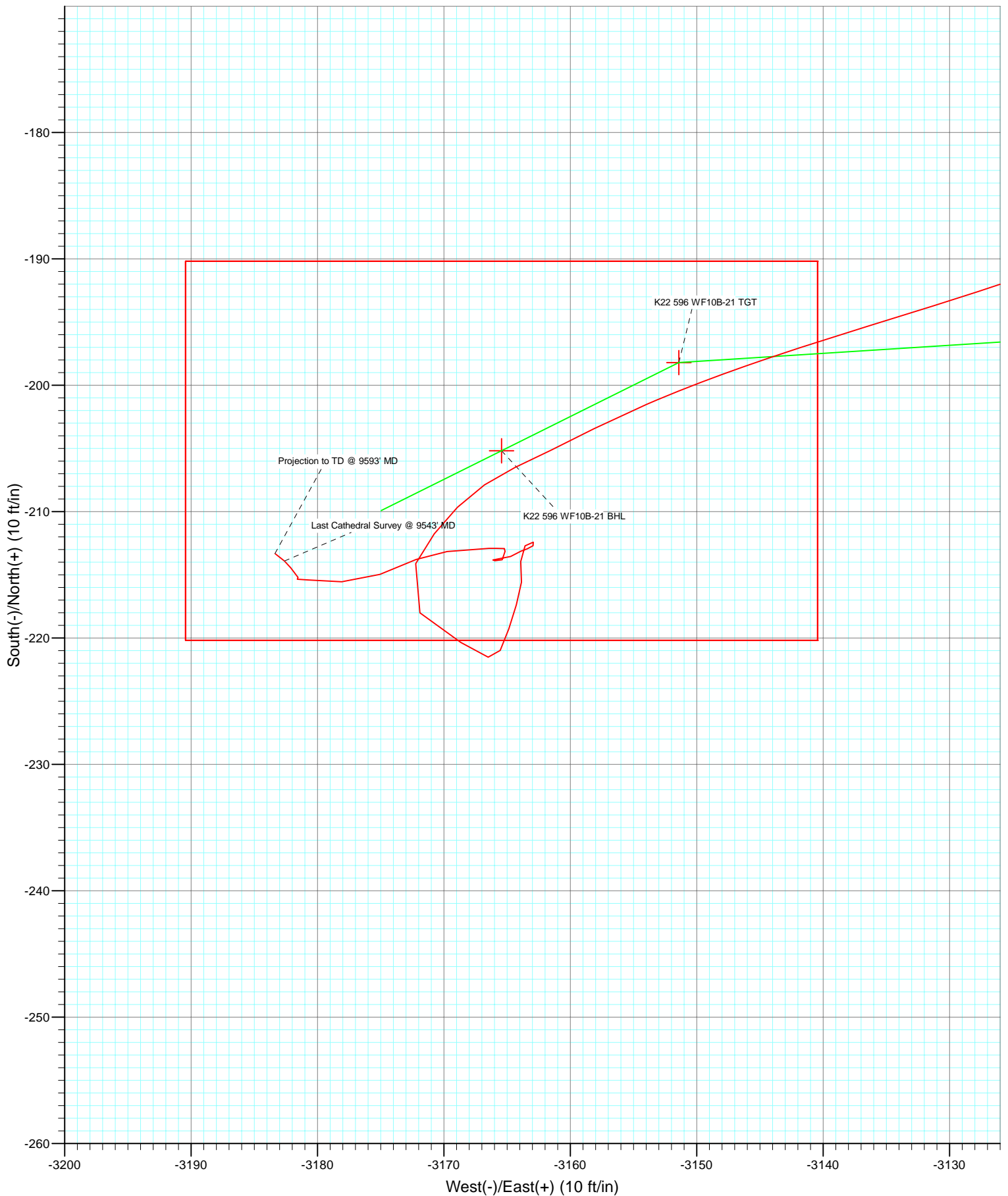
DESIGN DETAILS: DD

105140, 105213; LR  
Well @ 6549.0ft (Patterson 303)

Target	Azimuth	Origin	N/S	E/W From TVD
K22 596 WF10B-21 BHL	266.29	Slot	0.0	0.0



Project: North Piceance  
Site: K22 596 Pad (S22-T5S-R96W)  
Well: NP WF10B-21 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 WF10B-21 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 WF10B-21 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 WF10B-21 K22 596					
Well Position	+N/-S	0.0 ft	Northing:	1,654,132.25 ft	Latitude:	39° 35' 57.40 N
	+E/-W	0.0 ft	Easting:	2,250,869.66 ft	Longitude:	108° 9' 32.04 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	5/13/2010	10.56	65.83	52,420

<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	266.29	

<b>Survey Program</b>	<b>Date</b>	5/24/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
174.0	1,670.0	Survey #1 (DD)	MWD	Geolink MWD	
1,800.0	9,593.0	Survey #2 (DD)	MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
174.0	0.50	346.40	174.0	0.7	-0.2	0.1	0.29	0.29		
204.0	0.80	319.20	204.0	1.0	-0.3	0.3	1.41	1.00		
235.0	0.90	319.40	235.0	1.4	-0.6	0.6	0.32	0.32		
266.0	0.80	328.70	266.0	1.7	-0.9	0.8	0.55	-0.32		
296.0	0.70	309.30	296.0	2.0	-1.2	1.0	0.90	-0.33		
327.0	0.30	320.80	327.0	2.2	-1.4	1.2	1.32	-1.29		
358.0	0.20	304.80	358.0	2.3	-1.5	1.3	0.39	-0.32		
389.0	0.20	280.60	389.0	2.4	-1.6	1.4	0.27	0.00		
419.0	0.30	221.00	419.0	2.3	-1.7	1.5	0.88	0.33		
450.0	0.40	208.90	450.0	2.1	-1.8	1.6	0.40	0.32		
481.0	0.60	202.60	481.0	1.9	-1.9	1.8	0.67	0.65		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP WF10B-21 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 WF10B-21 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
512.0	0.50	207.60	512.0	1.6	-2.0	1.9	0.36	-0.32	
561.0	0.80	196.50	561.0	1.1	-2.2	2.1	0.66	0.61	
606.0	1.00	194.30	606.0	0.4	-2.4	2.4	0.45	0.44	
652.0	1.00	215.60	652.0	-0.3	-2.7	2.7	0.80	0.00	
698.0	2.20	253.00	697.9	-0.9	-3.8	3.8	3.33	2.61	
744.0	4.00	267.40	743.9	-1.2	-6.2	6.3	4.23	3.91	
790.0	5.30	270.50	789.7	-1.2	-10.0	10.0	2.88	2.83	
836.0	6.70	268.40	835.5	-1.3	-14.8	14.8	3.08	3.04	
881.0	7.30	269.30	880.1	-1.4	-20.3	20.3	1.36	1.33	
927.0	7.90	268.00	925.7	-1.6	-26.3	26.4	1.36	1.30	
973.0	8.20	266.00	971.3	-1.9	-32.8	32.8	0.89	0.65	
1,019.0	9.00	265.80	1,016.8	-2.4	-39.6	39.7	1.74	1.74	
1,065.0	10.20	267.70	1,062.1	-2.8	-47.3	47.4	2.70	2.61	
1,111.0	11.30	268.00	1,107.3	-3.1	-55.9	56.0	2.39	2.39	
1,156.0	12.10	269.50	1,151.4	-3.3	-65.0	65.1	1.90	1.78	
1,202.0	13.60	270.10	1,196.2	-3.4	-75.2	75.3	3.27	3.26	
1,248.0	14.90	269.50	1,240.8	-3.4	-86.5	86.6	2.84	2.83	
1,294.0	16.60	268.10	1,285.1	-3.7	-99.0	99.1	3.79	3.70	
1,340.0	18.30	266.30	1,329.0	-4.4	-112.8	112.8	3.88	3.70	
1,386.0	20.60	266.70	1,372.3	-5.3	-128.1	128.2	5.01	5.00	
1,431.0	22.00	266.50	1,414.3	-6.3	-144.4	144.5	3.12	3.11	
1,477.0	23.30	264.70	1,456.7	-7.6	-162.1	162.2	3.20	2.83	
1,523.0	24.10	264.00	1,498.8	-9.5	-180.5	180.7	1.84	1.74	
1,569.0	25.30	265.10	1,540.6	-11.3	-199.6	199.9	2.79	2.61	
1,615.0	26.00	265.90	1,582.1	-12.8	-219.5	219.8	1.70	1.52	
1,670.0	27.20	266.60	1,631.3	-14.4	-244.0	244.4	2.25	2.18	Last Cathedral Survey @ 1670' MD
1,800.0	27.20	264.00	1,746.9	-19.3	-303.2	303.8	0.91	0.00	
1,892.0	26.60	267.30	1,828.9	-22.5	-344.7	345.5	1.75	-0.65	
1,937.0	28.70	269.10	1,868.8	-23.1	-365.6	366.3	5.02	4.67	
1,983.0	30.10	268.90	1,908.9	-23.5	-388.2	388.9	3.05	3.04	
2,075.0	33.30	270.30	1,987.1	-23.8	-436.5	437.1	3.57	3.48	
2,167.0	36.00	268.40	2,062.8	-24.5	-488.8	489.4	3.16	2.93	
2,258.0	40.20	266.80	2,134.4	-26.8	-544.9	545.5	4.74	4.62	
2,350.0	43.80	266.20	2,202.8	-30.6	-606.3	607.0	3.94	3.91	
2,442.0	45.70	265.60	2,268.1	-35.2	-670.9	671.8	2.12	2.07	
2,533.0	43.30	266.20	2,333.0	-39.8	-734.5	735.6	2.68	-2.64	
2,625.0	45.00	265.10	2,399.0	-44.7	-798.4	799.6	2.03	1.85	
2,717.0	43.20	264.90	2,465.1	-50.3	-862.2	863.6	1.96	-1.96	
2,809.0	43.50	265.10	2,532.0	-55.8	-925.1	926.8	0.36	0.33	
2,900.0	42.80	266.00	2,598.4	-60.6	-987.2	989.0	1.02	-0.77	
2,992.0	45.40	265.50	2,664.4	-65.3	-1,051.0	1,053.0	2.85	2.83	
3,084.0	43.80	265.90	2,729.9	-70.2	-1,115.4	1,117.6	1.77	-1.74	
3,175.0	42.30	266.20	2,796.4	-74.5	-1,177.4	1,179.7	1.66	-1.65	
3,267.0	43.00	267.00	2,864.1	-78.2	-1,239.6	1,242.1	0.96	0.76	
3,359.0	41.10	266.20	2,932.4	-81.8	-1,301.1	1,303.7	2.15	-2.07	
3,450.0	43.60	266.20	2,999.7	-85.9	-1,362.3	1,365.0	2.75	2.75	
3,542.0	44.60	266.80	3,065.7	-89.8	-1,426.2	1,429.0	1.18	1.09	
3,633.0	43.40	265.60	3,131.2	-94.0	-1,489.2	1,492.2	1.61	-1.32	
3,725.0	44.80	265.80	3,197.3	-98.8	-1,553.1	1,556.2	1.53	1.52	
3,816.0	47.00	267.60	3,260.6	-102.5	-1,618.3	1,621.6	2.80	2.42	
3,908.0	45.60	265.60	3,324.1	-106.4	-1,684.7	1,688.1	2.19	-1.52	
4,000.0	44.00	266.00	3,389.4	-111.2	-1,749.4	1,752.9	1.77	-1.74	
4,091.0	45.20	266.40	3,454.2	-115.4	-1,813.1	1,816.8	1.35	1.32	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP WF10B-21 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 WF10B-21 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
4,183.0	45.90	266.30	3,518.6	-119.6	-1,878.7	1,882.5	0.76	0.76	
4,275.0	44.30	266.30	3,583.6	-123.8	-1,943.7	1,947.6	1.74	-1.74	
4,366.0	42.50	267.10	3,649.7	-127.4	-2,006.1	2,010.1	2.07	-1.98	
4,457.0	44.20	268.00	3,715.9	-130.1	-2,068.5	2,072.6	1.99	1.87	
4,549.0	45.00	267.70	3,781.4	-132.5	-2,133.1	2,137.2	0.90	0.87	
4,641.0	41.20	268.00	3,848.5	-134.9	-2,195.9	2,200.0	4.14	-4.13	
4,732.0	41.50	267.70	3,916.9	-137.1	-2,255.9	2,260.1	0.40	0.33	
4,823.0	42.40	265.50	3,984.5	-140.7	-2,316.7	2,320.9	1.89	0.99	
4,915.0	38.50	264.10	4,054.5	-146.1	-2,376.1	2,380.6	4.35	-4.24	
5,007.0	36.80	264.30	4,127.4	-151.8	-2,432.0	2,436.7	1.85	-1.85	
5,098.0	35.20	263.50	4,201.0	-157.5	-2,485.2	2,490.2	1.83	-1.76	
5,190.0	33.00	261.30	4,277.2	-164.3	-2,536.3	2,541.6	2.74	-2.39	
5,282.0	31.70	263.40	4,354.9	-170.8	-2,585.1	2,590.7	1.87	-1.41	
5,373.0	33.60	264.00	4,431.5	-176.2	-2,633.9	2,639.8	2.12	2.09	
5,465.0	33.70	267.30	4,508.1	-180.1	-2,684.7	2,690.7	1.99	0.11	
5,557.0	32.70	270.70	4,585.1	-181.0	-2,735.0	2,741.0	2.30	-1.09	
5,648.0	34.40	274.30	4,660.9	-178.7	-2,785.3	2,791.0	2.88	1.87	
5,740.0	33.10	274.90	4,737.4	-174.7	-2,836.2	2,841.6	1.46	-1.41	
5,832.0	32.20	274.50	4,814.9	-170.6	-2,885.7	2,890.7	1.01	-0.98	
5,923.0	31.00	270.70	4,892.4	-168.4	-2,933.3	2,938.0	2.55	-1.32	
6,015.0	27.00	269.50	4,972.9	-168.3	-2,977.9	2,982.5	4.39	-4.35	
6,107.0	23.30	265.10	5,056.1	-170.0	-3,016.9	3,021.6	4.50	-4.02	
6,198.0	22.50	260.40	5,140.0	-174.5	-3,052.0	3,056.9	2.19	-0.88	
6,290.0	20.40	258.30	5,225.6	-180.7	-3,085.1	3,090.3	2.43	-2.28	
6,382.0	17.70	252.00	5,312.5	-188.2	-3,114.1	3,119.7	3.69	-2.93	
6,473.0	11.00	253.00	5,400.7	-195.1	-3,135.6	3,141.6	7.37	-7.36	
6,565.0	6.90	249.30	5,491.5	-199.6	-3,149.1	3,155.4	4.50	-4.46	
6,657.0	5.30	243.30	5,583.0	-203.4	-3,158.1	3,164.6	1.87	-1.74	
6,748.0	3.50	244.90	5,673.7	-206.5	-3,164.4	3,171.1	1.98	-1.98	
6,840.0	3.50	225.60	5,765.6	-209.7	-3,168.9	3,175.8	1.27	0.00	
6,932.0	3.50	207.40	5,857.4	-214.1	-3,172.2	3,179.4	1.20	0.00	
7,023.0	2.70	131.40	5,948.3	-218.0	-3,171.9	3,179.4	4.25	-0.88	
7,115.0	2.30	119.40	6,040.2	-220.3	-3,168.7	3,176.3	0.71	-0.43	
7,206.0	0.80	115.60	6,131.2	-221.5	-3,166.5	3,174.2	1.65	-1.65	
7,298.0	1.10	24.80	6,223.2	-221.0	-3,165.5	3,173.2	1.49	0.33	
7,390.0	1.20	19.20	6,315.1	-219.3	-3,164.9	3,172.4	0.16	0.11	
7,481.0	1.30	15.50	6,406.1	-217.4	-3,164.3	3,171.7	0.14	0.11	
7,573.0	1.00	9.30	6,498.1	-215.6	-3,163.9	3,171.2	0.35	-0.33	
7,664.0	1.10	348.10	6,589.1	-213.9	-3,163.9	3,171.1	0.44	0.11	
7,756.0	0.80	53.90	6,681.1	-212.7	-3,163.6	3,170.7	1.15	-0.33	
7,848.0	0.20	126.00	6,773.1	-212.4	-3,162.9	3,170.0	0.83	-0.65	
7,939.0	0.30	218.80	6,864.1	-212.7	-3,162.9	3,170.1	0.41	0.11	
8,031.0	0.40	258.80	6,956.1	-212.9	-3,163.4	3,170.6	0.28	0.11	
8,123.0	1.40	241.70	7,048.0	-213.5	-3,164.7	3,171.9	1.11	1.09	
8,215.0	0.60	301.70	7,140.0	-213.8	-3,166.1	3,173.3	1.32	-0.87	
8,306.0	0.80	119.70	7,231.0	-213.9	-3,166.0	3,173.2	1.54	0.22	
8,398.0	0.50	4.40	7,323.0	-213.8	-3,165.4	3,172.6	1.21	-0.33	
8,490.0	0.40	36.40	7,415.0	-213.1	-3,165.2	3,172.3	0.29	-0.11	
8,581.0	0.30	262.00	7,506.0	-212.9	-3,165.2	3,172.4	0.71	-0.11	
8,673.0	0.50	276.70	7,598.0	-212.9	-3,165.8	3,173.0	0.24	0.22	
8,764.0	1.50	264.30	7,689.0	-213.0	-3,167.4	3,174.6	1.12	1.10	
8,856.0	1.40	267.50	7,781.0	-213.2	-3,169.7	3,176.9	0.14	-0.11	
8,948.0	1.80	246.00	7,872.9	-213.8	-3,172.2	3,179.4	0.78	0.43	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP WF10B-21 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 WF10B-21 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
9,039.0	2.10	249.10	7,963.9	-215.0	-3,175.1	3,182.3	0.35	0.33	
9,131.0	1.80	270.70	8,055.8	-215.5	-3,178.1	3,185.4	0.86	-0.33	
9,223.0	1.50	275.90	8,147.8	-215.4	-3,180.7	3,188.0	0.36	-0.33	
9,315.0	0.40	100.60	8,239.8	-215.3	-3,181.6	3,188.9	2.06	-1.20	
9,406.0	0.40	308.60	8,330.8	-215.2	-3,181.5	3,188.8	0.85	0.00	
9,498.0	0.80	329.60	8,422.8	-214.4	-3,182.1	3,189.3	0.49	0.43	
9,543.0	1.10	308.30	8,467.8	-213.9	-3,182.6	3,189.8	1.02	0.67	Last Cathedral Survey @ 9543' MD
9,593.0	1.10	308.30	8,517.8	-213.3	-3,183.4	3,190.5	0.00	0.00	Projection to TD @ 9593' 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 WF10B-21 TG1 - actual wellpath misses target center by 14.3ft at 6730.2ft MD (5655.9 TVD, -206.0 N, -3163.3 E) - Point	0.00	0.00	5,657.0	-198.2	-3,151.4	1,654,026.36	2,247,713.81	39° 35' 55.44 N	108° 10' 12.30 W
K22 596 WF10B-21 BHL - actual wellpath misses target center by 53.0ft at 9593.0ft MD (8517.8 TVD, -213.3 N, -3183.4 E) - Rectangle (sides W30.0 H50.0 D0.0)	0.00	0.00	8,567.0	-205.2	-3,165.4	1,654,019.79	2,247,699.58	39° 35' 55.37 N	108° 10' 12.48 W

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
1,670.0	1,631.3	-14.4	-244.0	Last Cathedral Survey @ 1670' MD
9,543.0	8,467.8	-213.9	-3,182.6	Last Cathedral Survey @ 9543' MD
9,593.0	8,517.8	-213.3	-3,183.4	Projection to TD @ 9593' MD

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