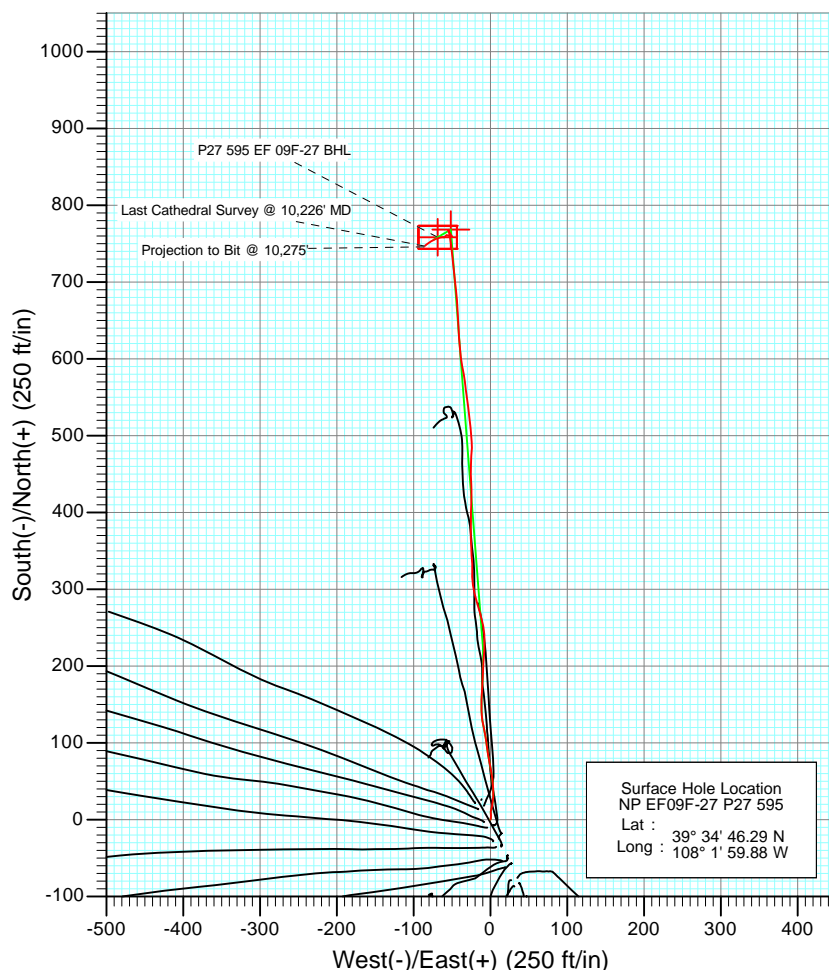
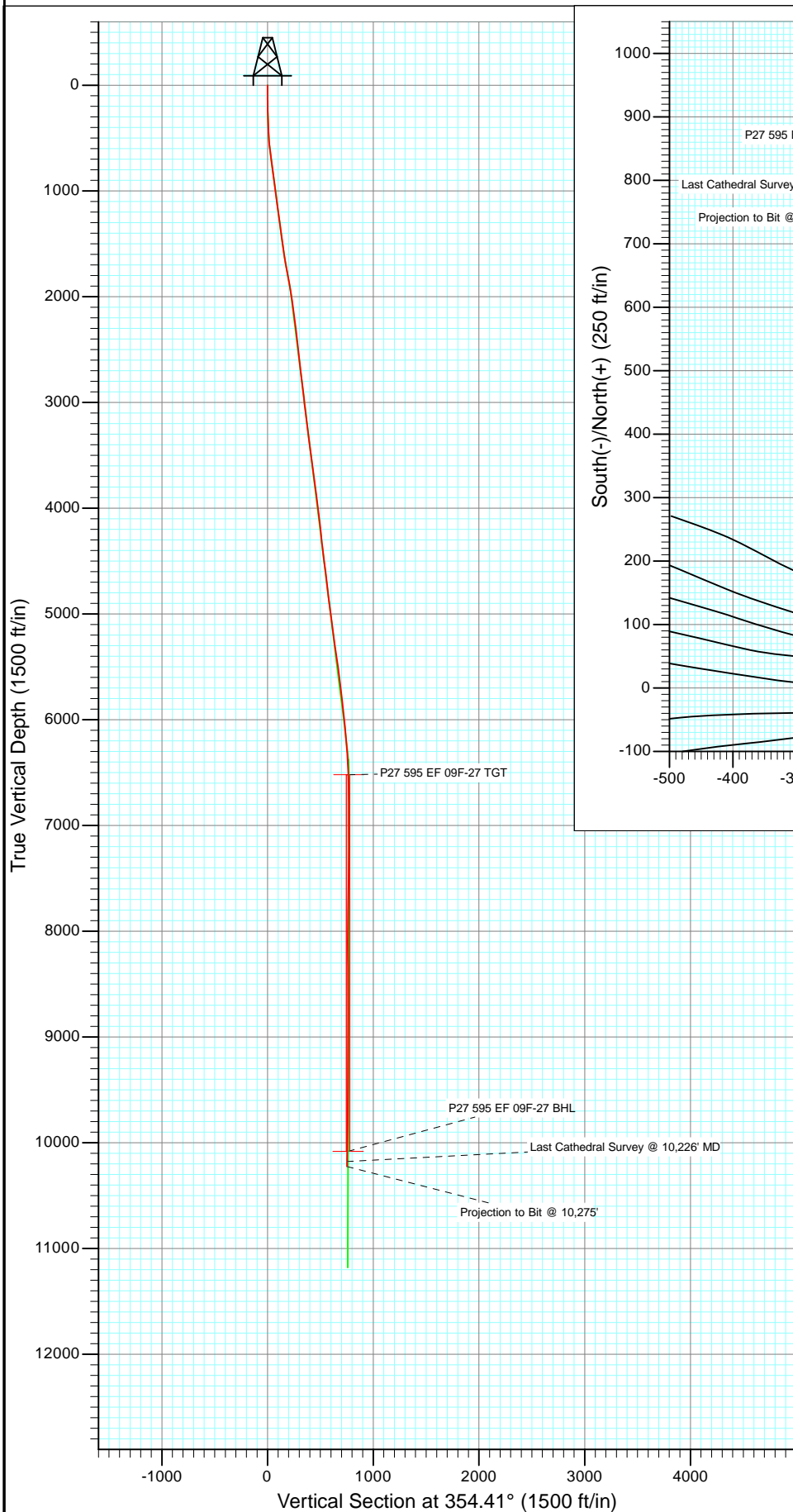




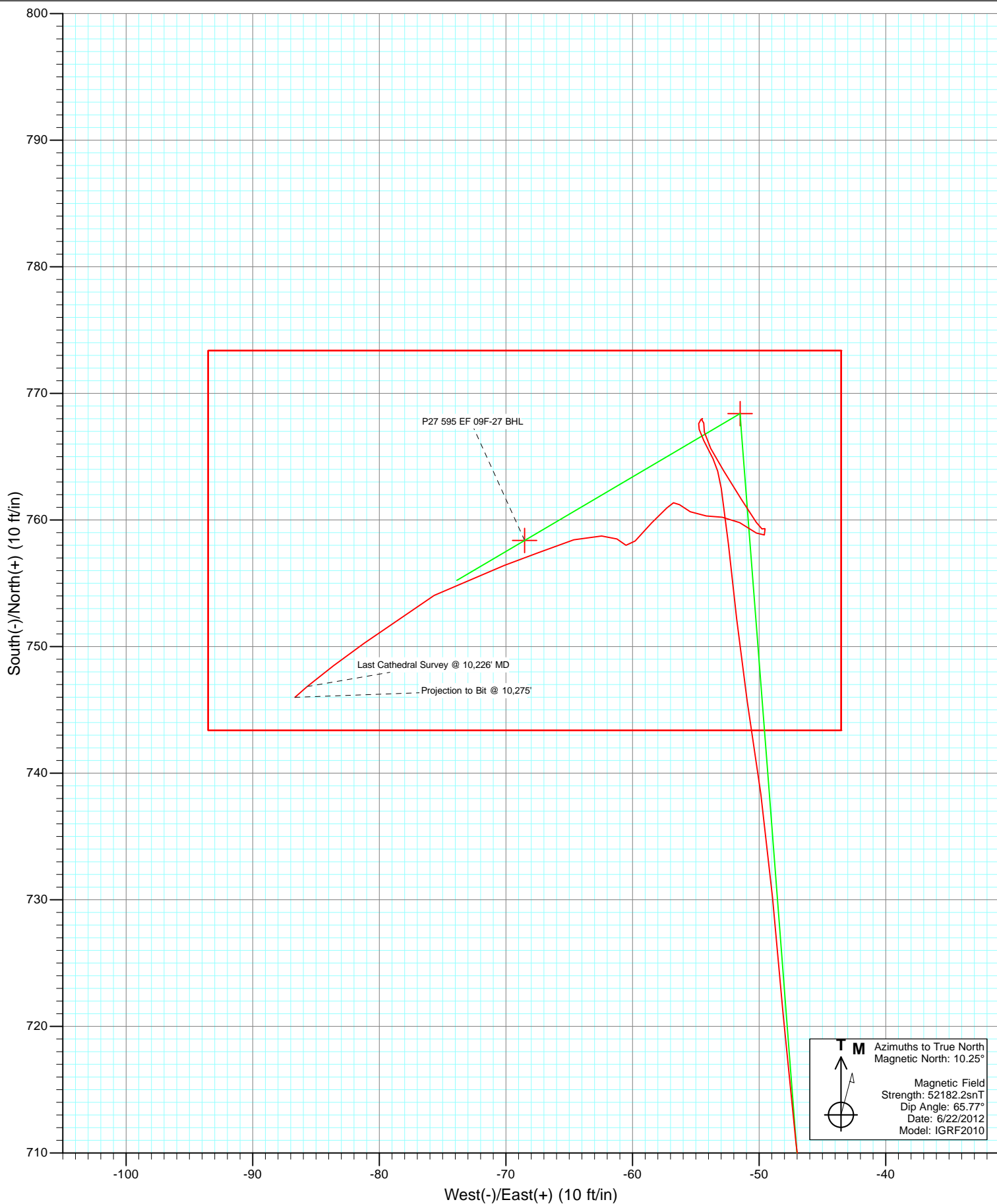
Project: North Piceance
 Site: P27 595 (S27-T5S-R95W)
 Well: NP EF09F-27 P27 595
 Wellbore: DD
 Design: FINAL



Azimuths to True North
 Magnetic North: 10.25°

Magnetic Field
 Strength: 52182.2nT
 Dip Angle: 65.77°
 Date: 6/22/2012
 Model: IGRF2010

Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
User	No Target (Freehand)	354.41	Slot	0.0	0.0	0.0
P27 595 EF 09F-27 TGT		6520.0	+N/-S	-51.5	39° 34' 53.88 N	108° 2' 0.54 W
P27 595 EF 09F-27 BHL		10080.0	+E/-W	-68.5	39° 34' 53.78 N	108° 2' 0.75 W



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF09F-27 P27 595
Project:	North Piceance	TVD Reference:	WELL @ 6671.0ft (Patterson 303)
Site:	P27 595 (S27-T5S-R95W)	MD Reference:	WELL @ 6671.0ft (Patterson 303)
Well:	NP EF09F-27 P27 595	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 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		P27 595 (S27-T5S-R95W)			
Site Position:		Northing:	1,645,842.89 ft	Latitude:	39° 34' 45.45 N
From:	Lat/Long	Easting:	2,286,079.88 ft	Longitude:	108° 1' 59.43 W
Position Uncertainty:	0.0 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.60 °

Well	NP EF09F-27 P27 595					
Well Position	+N/-S	0.0 ft	Northing:	1,645,928.49 ft	Latitude:	39° 34' 46.29 N
	+E/-W	0.0 ft	Easting:	2,286,047.11 ft	Longitude:	108° 1' 59.88 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,649.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/22/2012	10.25	65.77	52,182

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	354.41	

Survey Program	Date	7/3/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
50.0	509.0	Survey #1 (DD)	MWD	Geolink MWD	
558.0	1,790.0	Survey #2 (DD)	MWD	Geolink MWD	
1,892.0	10,275.0	Survey #3 (DD)	MWD	Geolink MWD	

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Formations /
Depth (ft)	(°)	(°)	Depth (ft)	(ft)	(ft)	Section (ft)	Rate (°/100ft)	Rate (°/100ft)	Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
50.0	0.43	44.26	50.0	0.1	0.1	0.1	0.86	0.86	
100.0	0.26	51.53	100.0	0.3	0.4	0.3	0.35	-0.34	
138.0	0.27	359.09	138.0	0.5	0.4	0.4	0.62	0.03	
147.0	0.78	357.38	147.0	0.6	0.4	0.5	5.67	5.67	
172.0	0.68	20.82	172.0	0.9	0.5	0.8	1.25	-0.40	
203.0	1.04	13.22	203.0	1.3	0.6	1.3	1.22	1.16	
233.0	1.08	21.09	233.0	1.8	0.8	1.8	0.50	0.13	
264.0	1.46	13.49	264.0	2.5	0.9	2.4	1.34	1.23	
295.0	1.78	348.17	295.0	3.4	0.9	3.3	2.50	1.03	
325.0	1.93	3.24	325.0	4.3	0.9	4.2	1.70	0.50	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF09F-27 P27 595
Project:	North Piceance	TVD Reference:	WELL @ 6671.0ft (Patterson 303)
Site:	P27 595 (S27-T5S-R95W)	MD Reference:	WELL @ 6671.0ft (Patterson 303)
Well:	NP EF09F-27 P27 595	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 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
356.0	2.13	0.56	355.9	5.4	0.9	5.3	0.71	0.65	
387.0	2.37	358.65	386.9	6.6	0.9	6.5	0.81	0.77	
417.0	2.46	344.63	416.9	7.9	0.7	7.8	1.99	0.30	
448.0	2.76	0.61	447.9	9.3	0.5	9.2	2.53	0.97	
478.0	3.32	4.94	477.8	10.9	0.6	10.7	2.02	1.87	
509.0	3.97	19.44	508.7	12.8	1.1	12.6	3.62	2.10	Last Gyro Survey @ 509' MD
558.0	6.00	10.80	557.6	16.9	2.1	16.6	4.41	4.14	
604.0	6.80	8.70	603.3	21.9	3.0	21.5	1.81	1.74	
695.0	7.60	1.90	693.6	33.3	4.0	32.7	1.28	0.88	
787.0	8.00	353.00	784.7	45.7	3.4	45.2	1.38	0.43	
878.0	8.20	352.30	874.8	58.4	1.8	58.0	0.25	0.22	
970.0	8.10	348.00	965.9	71.3	-0.5	71.0	0.67	-0.11	
1,061.0	7.30	351.90	1,056.1	83.3	-2.6	83.1	1.05	-0.88	
1,153.0	7.50	351.30	1,147.3	95.0	-4.3	94.9	0.23	0.22	
1,245.0	7.40	351.70	1,238.5	106.8	-6.1	106.9	0.12	-0.11	
1,336.0	6.90	348.30	1,328.8	117.9	-8.1	118.2	0.72	-0.55	
1,428.0	7.80	349.00	1,420.0	129.5	-10.4	129.9	0.98	0.98	
1,519.0	8.20	0.90	1,510.2	142.0	-11.4	142.5	1.87	0.44	
1,611.0	9.30	0.50	1,601.1	156.0	-11.3	156.4	1.20	1.20	
1,702.0	10.00	4.20	1,690.8	171.2	-10.6	171.5	1.03	0.77	
1,790.0	10.70	1.48	1,777.4	187.0	-9.9	187.1	0.97	0.80	Last Cathedral Survey @ 1790' MD
1,892.0	11.00	4.60	1,877.5	206.2	-8.8	206.1	0.65	0.29	
1,983.0	8.90	4.10	1,967.2	221.9	-7.6	221.6	2.31	-2.31	
2,075.0	8.30	356.70	2,058.1	235.6	-7.5	235.2	1.37	-0.65	
2,167.0	7.60	352.60	2,149.3	248.3	-8.7	247.9	0.98	-0.76	
2,258.0	7.00	344.80	2,239.5	259.6	-10.9	259.4	1.27	-0.66	
2,350.0	7.00	345.80	2,330.8	270.4	-13.8	270.5	0.13	0.00	
2,441.0	6.60	340.80	2,421.2	280.7	-16.8	281.0	0.78	-0.44	
2,533.0	6.90	348.50	2,512.6	291.2	-19.7	291.7	1.04	0.33	
2,625.0	6.30	347.60	2,604.0	301.5	-21.9	302.2	0.66	-0.65	
2,716.0	6.30	356.50	2,694.4	311.4	-23.2	312.1	1.07	0.00	
2,808.0	7.20	0.10	2,785.8	322.2	-23.5	322.9	1.08	0.98	
2,899.0	6.60	358.00	2,876.1	333.1	-23.7	333.8	0.72	-0.66	
2,991.0	6.30	355.70	2,967.5	343.4	-24.3	344.1	0.43	-0.33	
3,082.0	8.00	357.80	3,057.8	354.7	-24.9	355.5	1.89	1.87	
3,174.0	7.30	358.70	3,149.0	367.0	-25.3	367.7	0.77	-0.76	
3,265.0	6.60	0.20	3,239.3	378.0	-25.4	378.6	0.79	-0.77	
3,357.0	7.40	1.40	3,330.6	389.2	-25.2	389.8	0.88	0.87	
3,448.0	6.40	0.80	3,421.0	400.1	-25.0	400.6	1.10	-1.10	
3,540.0	8.00	0.60	3,512.3	411.6	-24.9	412.1	1.74	1.74	
3,631.0	7.30	1.70	3,602.4	423.7	-24.6	424.1	0.79	-0.77	
3,723.0	8.50	355.90	3,693.6	436.4	-24.9	436.7	1.56	1.30	
3,815.0	8.10	1.20	3,784.6	449.6	-25.3	450.0	0.94	-0.43	
3,906.0	7.70	359.90	3,874.7	462.1	-25.2	462.4	0.48	-0.44	
3,998.0	6.90	3.70	3,966.0	473.8	-24.8	474.0	1.02	-0.87	
4,089.0	6.30	5.50	4,056.4	484.2	-24.0	484.3	0.70	-0.66	
4,181.0	6.90	352.80	4,147.8	494.8	-24.2	494.8	1.71	0.65	
4,272.0	6.30	353.80	4,238.2	505.1	-25.4	505.2	0.67	-0.66	
4,364.0	5.90	354.30	4,329.7	514.9	-26.4	515.0	0.44	-0.43	
4,455.0	7.30	355.40	4,420.1	525.3	-27.4	525.4	1.54	1.54	
4,547.0	7.40	351.60	4,511.3	537.0	-28.7	537.2	0.54	0.11	
4,639.0	6.70	351.40	4,602.6	548.1	-30.4	548.5	0.76	-0.76	
4,730.0	7.70	353.60	4,692.9	559.4	-31.8	559.9	1.14	1.10	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF09F-27 P27 595
Project:	North Piceance	TVD Reference:	WELL @ 6671.0ft (Patterson 303)
Site:	P27 595 (S27-T5S-R95W)	MVD Reference:	WELL @ 6671.0ft (Patterson 303)
Well:	NP EF09F-27 P27 595	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 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
4,821.0	6.10	353.90	4,783.2	570.3	-33.0	570.8	1.76	-1.76	
4,913.0	6.40	347.80	4,874.7	580.2	-34.6	580.8	0.79	0.33	
5,004.0	6.90	349.60	4,965.1	590.5	-36.7	591.3	0.60	0.55	
5,096.0	7.80	352.40	5,056.3	602.1	-38.5	603.0	1.05	0.98	
5,187.0	8.20	356.50	5,146.4	614.7	-39.7	615.7	0.77	0.44	
5,279.0	7.60	356.20	5,237.6	627.4	-40.5	628.3	0.65	-0.65	
5,370.0	8.80	356.50	5,327.6	640.3	-41.4	641.3	1.32	1.32	
5,462.0	8.10	356.90	5,418.6	653.8	-42.1	654.8	0.76	-0.76	
5,553.0	7.60	356.10	5,508.8	666.2	-42.9	667.2	0.56	-0.55	
5,645.0	7.10	356.40	5,600.0	678.0	-43.7	679.0	0.55	-0.54	
5,736.0	6.20	354.10	5,690.4	688.5	-44.5	689.5	1.03	-0.99	
5,828.0	7.70	353.00	5,781.7	699.5	-45.8	700.6	1.64	1.63	
5,920.0	6.60	353.90	5,873.0	710.9	-47.1	712.1	1.20	-1.20	
6,011.0	6.10	354.80	5,963.4	720.9	-48.1	722.2	0.56	-0.55	
6,103.0	5.50	354.80	6,055.0	730.2	-48.9	731.5	0.65	-0.65	
6,194.0	4.90	352.20	6,145.6	738.4	-49.9	739.7	0.71	-0.66	
6,286.0	4.40	351.00	6,237.3	745.7	-50.9	747.2	0.55	-0.54	
6,377.0	3.80	354.70	6,328.1	752.2	-51.8	753.7	0.72	-0.66	
6,469.0	3.60	352.80	6,419.9	758.1	-52.4	759.6	0.25	-0.22	
6,560.0	2.00	352.00	6,510.8	762.5	-53.0	764.0	1.76	-1.76	
6,651.0	1.10	331.10	6,601.7	764.8	-53.6	766.4	1.15	-0.99	
6,743.0	0.90	336.20	6,693.7	766.3	-54.4	767.9	0.24	-0.22	
6,835.0	0.30	341.30	6,785.7	767.2	-54.7	768.8	0.65	-0.65	
6,926.0	0.30	6.70	6,876.7	767.6	-54.8	769.3	0.14	0.00	
7,018.0	0.20	61.30	6,968.7	767.9	-54.6	769.6	0.27	-0.11	
7,109.0	0.00	100.25	7,059.7	768.0	-54.5	769.7	0.22	-0.22	
7,201.0	0.10	228.90	7,151.7	768.0	-54.5	769.6	0.11	0.11	
7,293.0	0.10	98.60	7,243.7	767.9	-54.5	769.6	0.20	0.00	
7,384.0	0.30	165.20	7,334.7	767.7	-54.4	769.3	0.30	0.22	
7,476.0	0.60	181.20	7,426.7	766.9	-54.3	768.6	0.35	0.33	
7,567.0	1.20	147.80	7,517.7	765.7	-53.8	767.3	0.85	0.66	
7,659.0	1.30	151.90	7,609.7	763.9	-52.8	765.4	0.15	0.11	
7,753.0	2.00	146.00	7,703.6	761.6	-51.4	763.0	0.77	0.74	
7,845.0	0.70	149.60	7,795.6	759.8	-50.2	761.1	1.42	-1.41	
7,936.0	0.20	100.30	7,886.6	759.3	-49.8	760.5	0.65	-0.55	
8,028.0	0.10	43.50	7,978.6	759.3	-49.6	760.5	0.18	-0.11	
8,119.0	0.10	196.20	8,069.6	759.3	-49.5	760.5	0.21	0.00	
8,211.0	0.50	185.00	8,161.6	758.8	-49.6	760.0	0.44	0.43	
8,303.0	1.00	312.60	8,253.6	759.0	-50.2	760.3	1.48	0.54	
8,394.0	1.00	291.10	8,344.6	759.8	-51.5	761.2	0.41	0.00	
8,486.0	0.80	282.70	8,436.6	760.2	-52.9	761.8	0.26	-0.22	
8,577.0	0.80	266.90	8,527.6	760.3	-54.2	762.0	0.24	0.00	
8,669.0	0.90	299.50	8,619.5	760.7	-55.4	762.4	0.53	0.11	
8,760.0	0.40	312.90	8,710.5	761.2	-56.3	763.1	0.57	-0.55	
8,852.0	0.30	253.40	8,802.5	761.4	-56.8	763.3	0.39	-0.11	
8,943.0	0.60	221.80	8,893.5	760.9	-57.3	762.9	0.42	0.33	
9,035.0	1.50	226.70	8,985.5	759.8	-58.5	761.8	0.98	0.98	
9,127.0	0.90	214.80	9,077.5	758.3	-59.8	760.6	0.70	-0.65	
9,218.0	0.50	309.30	9,168.5	758.0	-60.5	760.3	1.17	-0.44	
9,310.0	0.60	301.10	9,260.5	758.5	-61.2	760.9	0.14	0.11	
9,402.0	1.00	268.70	9,352.5	758.7	-62.4	761.2	0.64	0.43	
9,493.0	1.80	258.50	9,443.5	758.4	-64.6	761.1	0.92	0.88	
9,585.0	2.00	242.50	9,535.4	757.4	-67.5	760.4	0.61	0.22	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF09F-27 P27 595
Project:	North Piceance	TVD Reference:	WELL @ 6671.0ft (Patterson 303)
Site:	P27 595 (S27-T5S-R95W)	MD Reference:	WELL @ 6671.0ft (Patterson 303)
Well:	NP EF09F-27 P27 595	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 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
9,676.0	1.60	258.10	9,626.4	756.4	-70.1	759.6	0.69	-0.44	
9,860.0	2.20	238.60	9,810.3	754.0	-75.7	757.8	0.47	0.33	
10,043.0	2.00	232.60	9,993.1	750.3	-81.2	754.6	0.16	-0.11	
10,134.0	1.80	234.60	10,084.1	748.5	-83.6	753.1	0.23	-0.22	
10,226.0	1.50	228.60	10,176.0	746.8	-85.7	751.6	0.38	-0.33	Last Cathedral Survey @ 10,226' MD Projection to Bit @ 10,275'
10,275.0	1.50	228.60	10,225.0	746.0	-86.7	750.9	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
- hit/miss target									
- Shape									
P27 595 EF 09F-27 BHL	0.00	0.00	10,080.0	758.4	-68.5	1,646,688.49	2,285,999.76	39° 34' 53.78 N	108° 2' 0.75 W
- actual wellpath misses target center by 17.9ft at 10129.3ft MD (10079.4 TVD, 748.6 N, -83.5 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
P27 595 EF 09F-27 TG1	0.00	0.00	6,520.0	768.4	-51.5	1,646,698.03	2,286,017.05	39° 34' 53.88 N	108° 2' 0.54 W
- actual wellpath misses target center by 5.8ft at 6569.4ft MD (6520.1 TVD, 762.8 N, -53.0 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
509.0	508.7	12.8	1.1	Last Gyro Survey @ 509' MD	
1,790.0	1,777.4	187.0	-9.9	Last Cathedral Survey @ 1790' MD	
10,226.0	10,176.0	746.8	-85.7	Last Cathedral Survey @ 10,226' MD	
10,275.0	10,225.0	746.0	-86.7	Projection to Bit @ 10,275'	

Checked By: _____ Approved By: _____ Date: _____