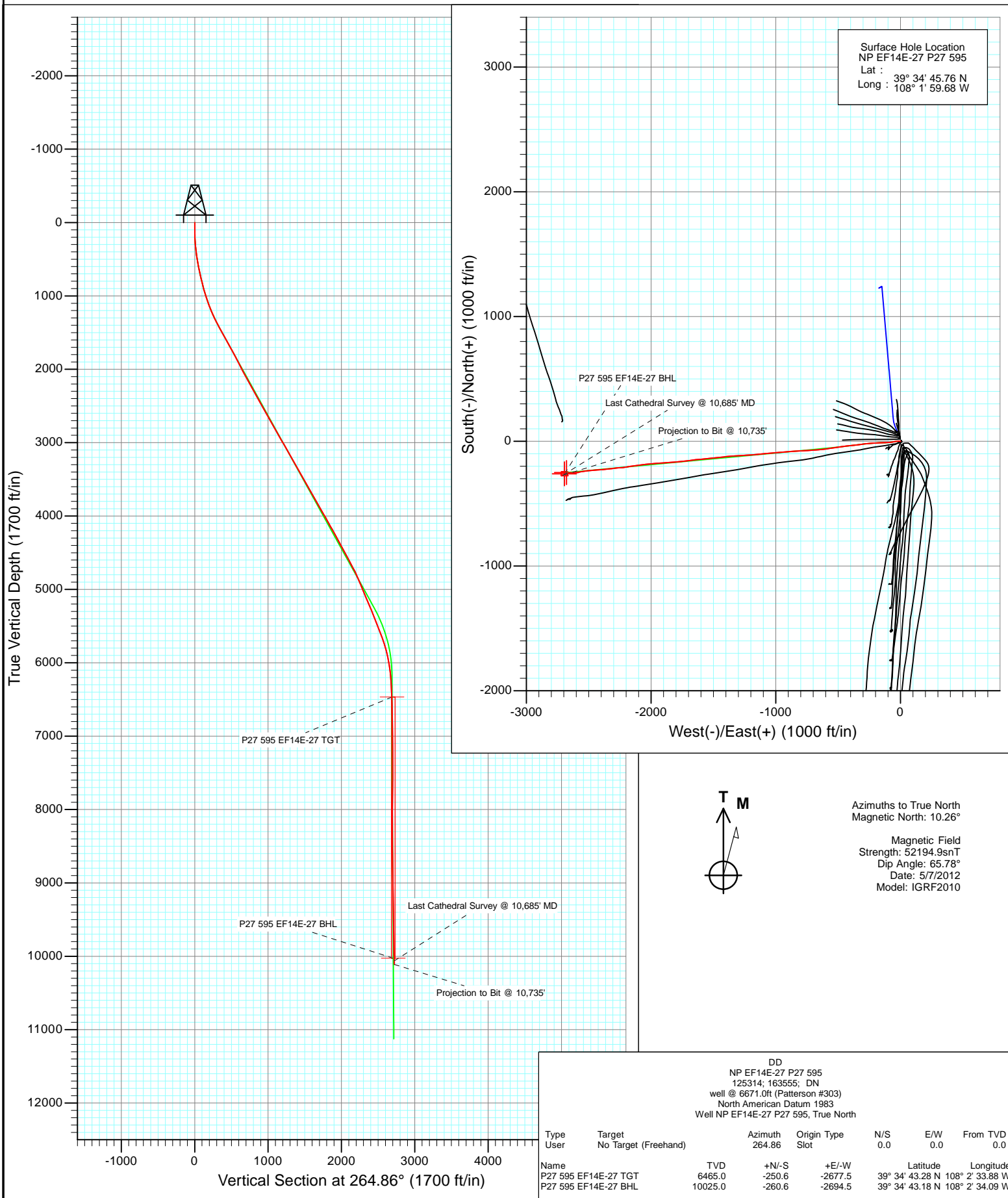
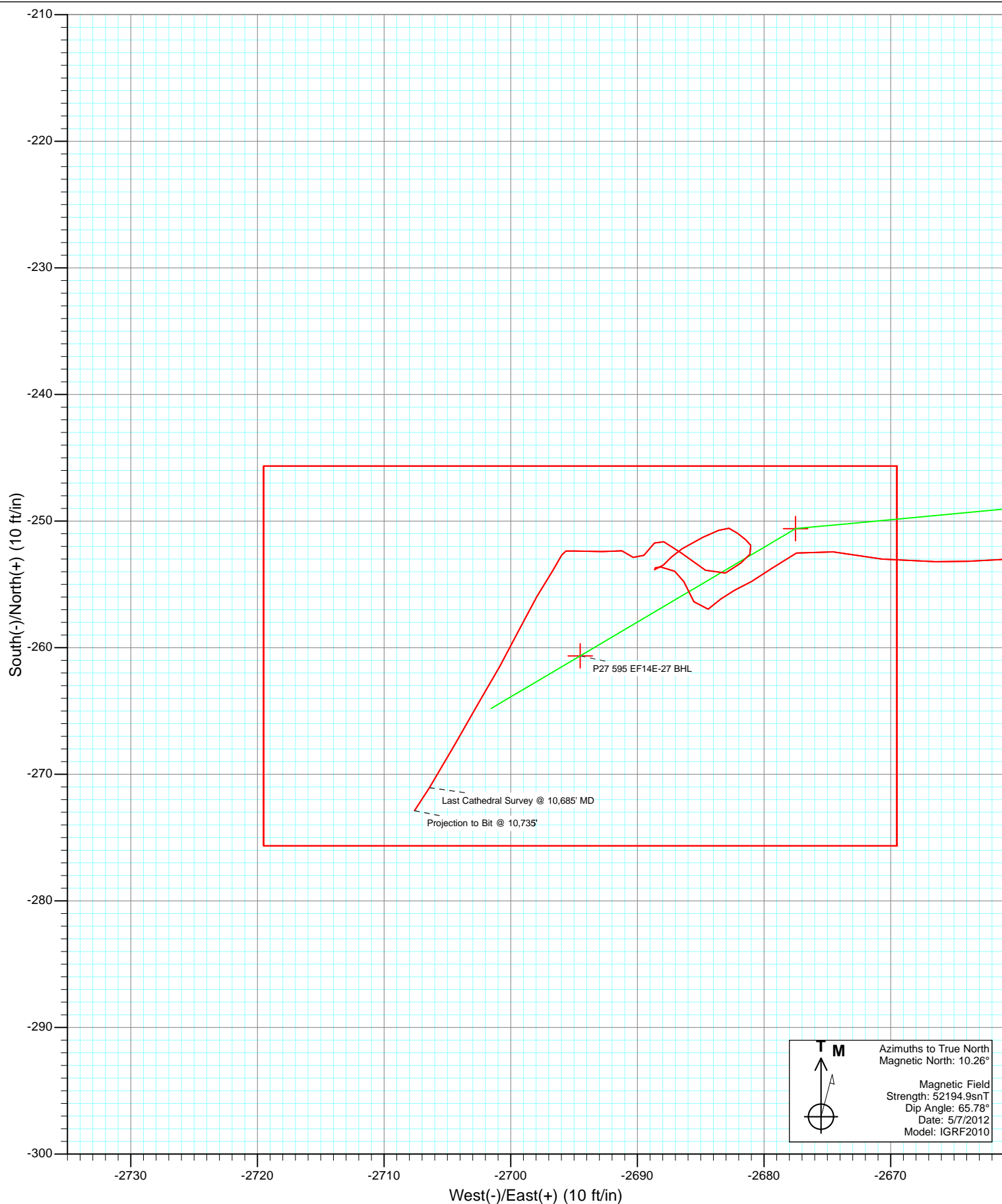




Project: North Piceance
 Site: P27 595 (S27-T5S-R95W)
 Well: NP EF14E-27 P27 595
 Wellbore: DD
 Design: FINAL





Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF14E-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 EF14E-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 EF14E-27 P27 595					
Well Position	+N/-S	0.0 ft	Northing:	1,645,874.53 ft	Latitude:	39° 34' 45.76 N
	+E/-W	0.0 ft	Easting:	2,286,061.11 ft	Longitude:	108° 1' 59.68 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	5/7/2012	10.26	65.78	52,195

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	264.86	

Survey Program	Date	5/15/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
173.0	10,735.0	Survey #1 (DD)	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		
173.0	1.50	285.40	173.0	0.6	-2.2	2.1	0.87	0.87		
203.0	1.90	281.90	203.0	0.8	-3.0	3.0	1.38	1.33		
234.0	2.30	275.70	233.9	1.0	-4.2	4.1	1.48	1.29		
265.0	3.80	276.90	264.9	1.2	-5.8	5.7	4.84	4.84		
296.0	4.90	274.60	295.8	1.4	-8.1	8.0	3.59	3.55		
326.0	5.20	271.80	325.7	1.5	-10.8	10.6	1.29	1.00		
357.0	6.30	271.00	356.5	1.6	-13.9	13.7	3.56	3.55		
388.0	7.00	269.80	387.3	1.6	-17.5	17.3	2.30	2.26		
418.0	7.90	266.80	417.1	1.5	-21.4	21.1	3.27	3.00		
449.0	8.70	262.10	447.8	1.1	-25.8	25.6	3.38	2.58		
479.0	8.70	258.00	477.4	0.3	-30.3	30.1	2.07	0.00		
510.0	9.10	259.30	508.0	-0.7	-35.0	34.9	1.44	1.29		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF14E-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 EF14E-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
559.0	10.20	258.20	556.3	-2.3	-43.0	43.1	2.28	2.24	
605.0	11.40	263.20	601.5	-3.6	-51.5	51.7	3.31	2.61	
650.0	12.10	261.80	645.6	-4.8	-60.6	60.8	1.68	1.56	
696.0	12.90	264.00	690.5	-6.1	-70.5	70.8	2.02	1.74	
742.0	12.90	262.50	735.3	-7.3	-80.7	81.0	0.73	0.00	
788.0	13.20	261.70	780.1	-8.7	-91.0	91.4	0.76	0.65	
834.0	14.10	266.20	824.8	-9.8	-101.8	102.2	3.02	1.96	
879.0	14.80	266.90	868.4	-10.5	-113.0	113.5	1.60	1.56	
925.0	15.40	267.90	912.8	-11.0	-125.0	125.4	1.42	1.30	
971.0	16.70	270.10	957.0	-11.3	-137.7	138.1	3.12	2.83	
1,017.0	17.40	269.40	1,001.0	-11.3	-151.2	151.6	1.59	1.52	
1,063.0	18.30	267.70	1,044.8	-11.7	-165.3	165.6	2.26	1.96	
1,108.0	19.40	265.60	1,087.4	-12.5	-179.8	180.2	2.87	2.44	
1,154.0	20.30	266.20	1,130.7	-13.6	-195.3	195.8	2.01	1.96	
1,200.0	22.10	267.90	1,173.5	-14.5	-212.0	212.4	4.13	3.91	
1,246.0	23.40	265.90	1,216.0	-15.5	-229.7	230.2	3.29	2.83	
1,292.0	24.30	264.60	1,258.0	-17.0	-248.2	248.8	2.27	1.96	
1,338.0	25.80	264.40	1,299.7	-18.9	-267.6	268.2	3.27	3.26	
1,429.0	27.30	262.60	1,381.1	-23.5	-308.0	308.9	1.87	1.65	
1,521.0	29.00	262.70	1,462.2	-29.0	-351.1	352.3	1.85	1.85	
1,612.0	29.30	264.70	1,541.7	-33.9	-395.1	396.6	1.12	0.33	
1,704.0	29.30	262.70	1,621.9	-38.8	-439.9	441.6	1.06	0.00	
1,780.0	28.90	261.80	1,688.3	-43.8	-476.5	478.5	0.78	-0.53	
1,890.0	28.50	261.70	1,784.8	-51.4	-528.8	531.3	0.37	-0.36	
1,983.0	27.30	261.30	1,867.0	-57.8	-571.8	574.7	1.31	-1.29	
2,074.0	27.10	263.90	1,948.0	-63.2	-613.1	616.3	1.32	-0.22	
2,166.0	26.90	264.40	2,029.9	-67.5	-654.6	658.0	0.33	-0.22	
2,257.0	28.90	266.90	2,110.3	-70.7	-697.1	700.6	2.55	2.20	
2,349.0	30.10	266.40	2,190.4	-73.3	-742.3	745.9	1.33	1.30	
2,440.0	28.70	265.20	2,269.7	-76.6	-786.8	790.5	1.67	-1.54	
2,532.0	30.30	267.80	2,349.8	-79.3	-832.0	835.8	2.23	1.74	
2,624.0	28.90	267.20	2,429.8	-81.3	-877.4	881.2	1.56	-1.52	
2,715.0	29.20	266.10	2,509.3	-83.9	-921.6	925.4	0.67	0.33	
2,807.0	27.80	265.20	2,590.2	-87.2	-965.3	969.3	1.59	-1.52	
2,898.0	28.90	263.00	2,670.3	-91.6	-1,008.3	1,012.5	1.67	1.21	
2,990.0	28.60	263.90	2,750.9	-96.7	-1,052.3	1,056.7	0.57	-0.33	
3,081.0	29.90	266.40	2,830.3	-100.4	-1,096.6	1,101.1	1.96	1.43	
3,173.0	31.00	264.50	2,909.6	-104.1	-1,143.0	1,147.8	1.59	1.20	
3,264.0	31.20	265.90	2,987.5	-108.1	-1,189.9	1,194.8	0.82	0.22	
3,356.0	29.80	265.60	3,066.8	-111.5	-1,236.4	1,241.4	1.53	-1.52	
3,447.0	30.40	266.60	3,145.5	-114.6	-1,282.0	1,287.1	0.86	0.66	
3,539.0	28.80	266.40	3,225.5	-117.4	-1,327.3	1,332.5	1.74	-1.74	
3,630.0	29.60	264.90	3,305.0	-120.8	-1,371.6	1,376.9	1.19	0.88	
3,722.0	28.10	263.00	3,385.5	-125.4	-1,415.7	1,421.3	1.91	-1.63	
3,813.0	29.40	265.10	3,465.3	-130.0	-1,459.2	1,465.0	1.81	1.43	
3,905.0	30.50	264.60	3,545.0	-134.1	-1,505.0	1,510.9	1.23	1.20	
3,996.0	29.00	263.70	3,624.0	-138.7	-1,549.9	1,556.1	1.72	-1.65	
4,088.0	30.80	264.50	3,703.8	-143.4	-1,595.5	1,602.0	2.00	1.96	
4,179.0	29.10	263.90	3,782.6	-148.0	-1,640.7	1,647.4	1.90	-1.87	
4,271.0	30.60	263.30	3,862.4	-153.1	-1,686.2	1,693.2	1.66	1.63	
4,362.0	29.00	262.50	3,941.4	-158.7	-1,731.1	1,738.4	1.81	-1.76	
4,454.0	30.10	265.20	4,021.4	-163.5	-1,776.2	1,783.7	1.88	1.20	
4,546.0	28.60	265.40	4,101.6	-167.2	-1,821.1	1,828.8	1.63	-1.63	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF14E-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 EF14E-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
4,637.0	29.80	266.60	4,181.1	-170.3	-1,865.4	1,873.2	1.47	1.32	
4,729.0	28.10	266.00	4,261.6	-173.2	-1,909.9	1,917.7	1.87	-1.85	
4,820.0	28.10	264.90	4,341.8	-176.6	-1,952.6	1,960.6	0.57	0.00	
4,912.0	29.60	264.30	4,422.4	-180.7	-1,996.8	2,004.9	1.66	1.63	
5,003.0	27.90	264.90	4,502.2	-184.9	-2,040.4	2,048.7	1.89	-1.87	
5,094.0	27.60	263.00	4,582.7	-189.3	-2,082.5	2,091.1	1.03	-0.33	
5,186.0	29.20	262.10	4,663.7	-195.0	-2,125.9	2,134.8	1.80	1.74	
5,278.0	27.40	261.30	4,744.7	-201.3	-2,169.0	2,178.3	2.00	-1.96	
5,368.0	22.90	259.60	4,826.1	-207.6	-2,206.7	2,216.5	5.06	-5.00	
5,461.0	22.10	268.10	4,912.0	-211.4	-2,242.0	2,252.0	3.60	-0.86	
5,552.0	22.30	263.70	4,996.3	-213.9	-2,276.3	2,286.3	1.84	0.22	
5,644.0	23.70	263.10	5,081.0	-218.0	-2,312.0	2,322.3	1.54	1.52	
5,736.0	22.70	263.90	5,165.6	-222.1	-2,348.0	2,358.5	1.14	-1.09	
5,827.0	23.40	263.20	5,249.3	-226.1	-2,383.4	2,394.1	0.83	0.77	
5,919.0	21.00	267.50	5,334.5	-229.0	-2,418.0	2,428.8	3.15	-2.61	
6,010.0	20.90	266.60	5,419.4	-230.7	-2,450.5	2,461.4	0.37	-0.11	
6,102.0	22.80	263.70	5,504.8	-233.6	-2,484.6	2,495.6	2.37	2.07	
6,193.0	21.70	262.50	5,589.1	-237.8	-2,518.8	2,530.0	1.31	-1.21	
6,285.0	19.20	260.60	5,675.3	-242.5	-2,550.6	2,562.1	2.81	-2.72	
6,376.0	16.70	261.10	5,761.8	-246.9	-2,578.3	2,590.1	2.75	-2.75	
6,468.0	14.50	264.40	5,850.4	-250.1	-2,602.8	2,614.8	2.58	-2.39	
6,560.0	11.40	264.60	5,940.1	-252.1	-2,623.4	2,635.4	3.37	-3.37	
6,651.0	8.80	270.40	6,029.7	-252.9	-2,639.3	2,651.3	3.06	-2.86	
6,743.0	6.70	270.20	6,120.8	-252.8	-2,651.7	2,663.7	2.28	-2.28	
6,835.0	4.50	266.40	6,212.4	-253.0	-2,660.7	2,672.6	2.42	-2.39	
6,926.0	2.80	270.80	6,303.2	-253.2	-2,666.4	2,678.4	1.89	-1.87	
7,018.0	2.50	275.00	6,395.1	-253.0	-2,670.7	2,682.6	0.39	-0.33	
7,109.0	2.40	281.80	6,486.0	-252.4	-2,674.5	2,686.4	0.34	-0.11	
7,201.0	1.40	244.60	6,578.0	-252.5	-2,677.4	2,689.3	1.67	-1.09	
7,292.0	1.50	232.20	6,668.9	-253.7	-2,679.4	2,691.3	0.36	0.11	
7,384.0	0.90	244.90	6,760.9	-254.8	-2,681.0	2,693.0	0.71	-0.65	
7,475.0	1.00	240.90	6,851.9	-255.5	-2,682.3	2,694.4	0.13	0.11	
7,567.0	0.60	231.00	6,943.9	-256.2	-2,683.4	2,695.6	0.46	-0.43	
7,659.0	1.00	231.80	7,035.9	-257.0	-2,684.4	2,696.6	0.43	0.43	
7,750.0	1.50	335.00	7,126.9	-256.4	-2,685.5	2,697.7	2.18	0.55	
7,842.0	0.70	330.50	7,218.8	-254.8	-2,686.3	2,698.3	0.87	-0.87	
7,934.0	0.70	307.00	7,310.8	-254.0	-2,687.0	2,699.0	0.31	0.00	
8,025.0	0.80	269.70	7,401.8	-253.6	-2,688.1	2,700.0	0.54	0.11	
8,117.0	0.30	145.20	7,493.8	-253.8	-2,688.6	2,700.6	1.09	-0.54	
8,208.0	1.00	44.70	7,584.8	-253.5	-2,687.9	2,699.8	1.20	0.77	
8,254.0	1.10	45.40	7,630.8	-252.9	-2,687.3	2,699.2	0.22	0.22	
8,304.0	1.40	56.70	7,680.8	-252.2	-2,686.5	2,698.3	0.77	0.60	
8,395.0	1.00	68.10	7,771.8	-251.3	-2,684.8	2,696.5	0.51	-0.44	
8,487.0	0.70	63.40	7,863.8	-250.7	-2,683.6	2,695.2	0.33	-0.33	
8,579.0	0.40	105.00	7,955.8	-250.6	-2,682.8	2,694.4	0.52	-0.33	
8,670.0	0.60	130.30	8,046.8	-251.0	-2,682.1	2,693.8	0.32	0.22	
8,762.0	0.40	125.00	8,138.8	-251.5	-2,681.5	2,693.2	0.22	-0.22	
8,853.0	0.40	149.90	8,229.8	-251.9	-2,681.0	2,692.8	0.19	0.00	
8,945.0	0.60	208.40	8,321.8	-252.6	-2,681.1	2,693.0	0.56	0.22	
9,036.0	0.70	240.10	8,412.8	-253.3	-2,681.8	2,693.7	0.40	0.11	
9,128.0	1.10	235.40	8,504.7	-254.1	-2,683.0	2,695.0	0.44	0.43	
9,219.0	1.40	309.00	8,595.7	-253.9	-2,684.6	2,696.6	1.67	0.33	
9,311.0	1.50	302.60	8,687.7	-252.5	-2,686.5	2,698.3	0.21	0.11	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF14E-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 EF14E-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
9,402.0	0.60	302.20	8,778.7	-251.6	-2,687.9	2,699.6	0.99	-0.99	
9,494.0	0.60	223.00	8,870.7	-251.7	-2,688.6	2,700.4	0.83	0.00	
9,586.0	1.00	219.80	8,962.7	-252.7	-2,689.5	2,701.3	0.44	0.43	
9,677.0	0.70	324.00	9,053.7	-252.9	-2,690.3	2,702.2	1.49	-0.33	
9,769.0	0.70	276.20	9,145.7	-252.3	-2,691.2	2,703.0	0.62	0.00	
9,860.0	1.30	263.40	9,236.6	-252.4	-2,692.8	2,704.6	0.70	0.66	
9,951.0	1.30	278.70	9,327.6	-252.4	-2,694.8	2,706.6	0.38	0.00	
10,043.0	0.60	191.20	9,419.6	-252.7	-2,696.0	2,707.8	1.53	-0.76	
10,135.0	1.20	219.30	9,511.6	-253.9	-2,696.7	2,708.6	0.79	0.65	
10,226.0	1.90	206.70	9,602.6	-256.0	-2,697.9	2,710.0	0.85	0.77	
10,318.0	2.00	209.30	9,694.5	-258.7	-2,699.4	2,711.7	0.15	0.11	
10,410.0	1.80	206.40	9,786.5	-261.4	-2,700.8	2,713.4	0.24	-0.22	
10,501.0	2.40	212.50	9,877.4	-264.3	-2,702.5	2,715.3	0.70	0.66	
10,593.0	2.40	207.20	9,969.3	-267.7	-2,704.4	2,717.5	0.24	0.00	
10,685.0	2.50	213.30	10,061.2	-271.1	-2,706.4	2,719.8	0.30	0.11	Last Cathedral Survey @ 10,685' MD Projection to Bit @ 10,735'
10,735.0	2.50	213.30	10,111.2	-272.9	-2,707.6	2,721.2	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 EF14E-27 BHL	0.00	0.00	10,025.0	-260.6	-2,694.5	1,645,689.12	2,283,360.39	39° 34' 43.18 N	108° 2' 34.09 W
- survey misses target center by 14.3ft at 10648.2ft MD (10024.4 TVD, -269.7 N, -2705.6 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
P27 595 EF14E-27 TGT	0.00	0.00	6,465.0	-250.6	-2,677.5	1,645,698.69	2,283,377.67	39° 34' 43.28 N	108° 2' 33.88 W
- survey misses target center by 4.3ft at 7088.2ft MD (6465.2 TVD, -252.6 N, -2673.7 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,685.0	10,061.2	-271.1	-2,706.4	Last Cathedral Survey @ 10,685' MD
10,735.0	10,111.2	-272.9	-2,707.6	Projection to Bit @ 10,735'

Checked By: _____ Approved By: _____ Date: _____