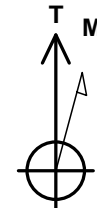
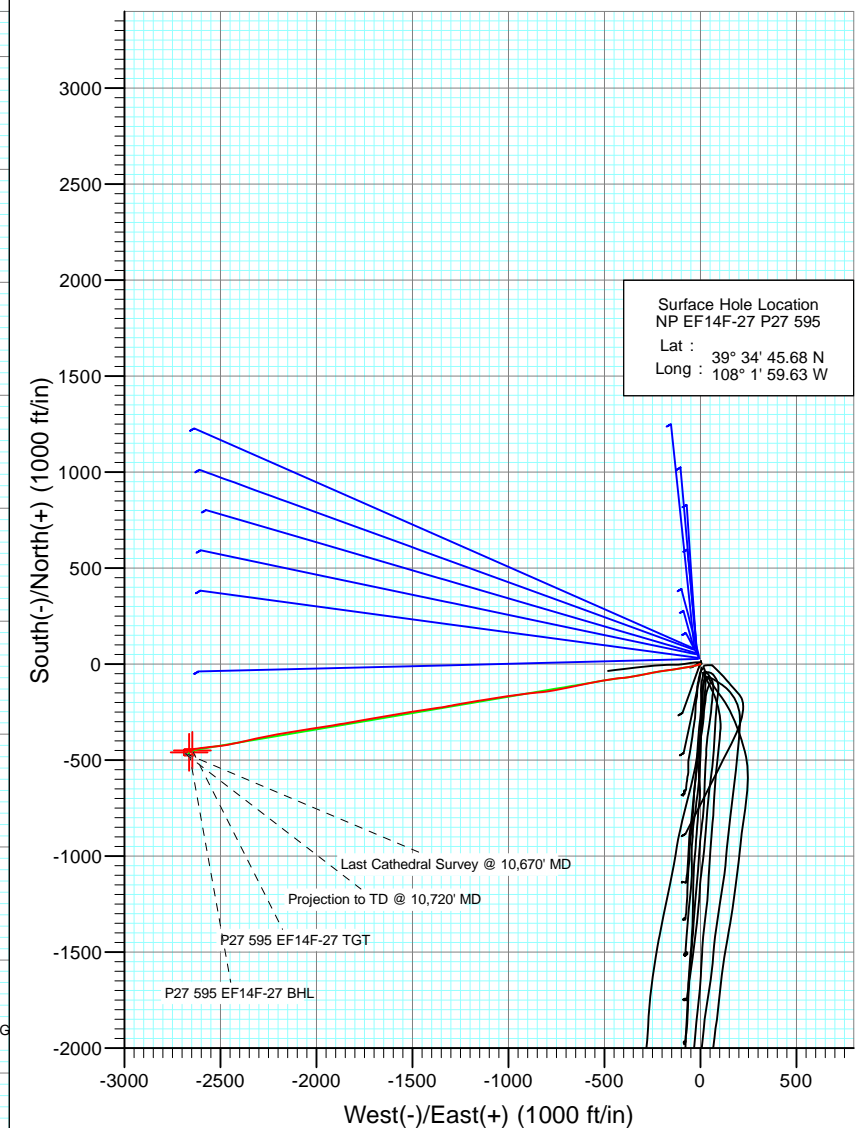
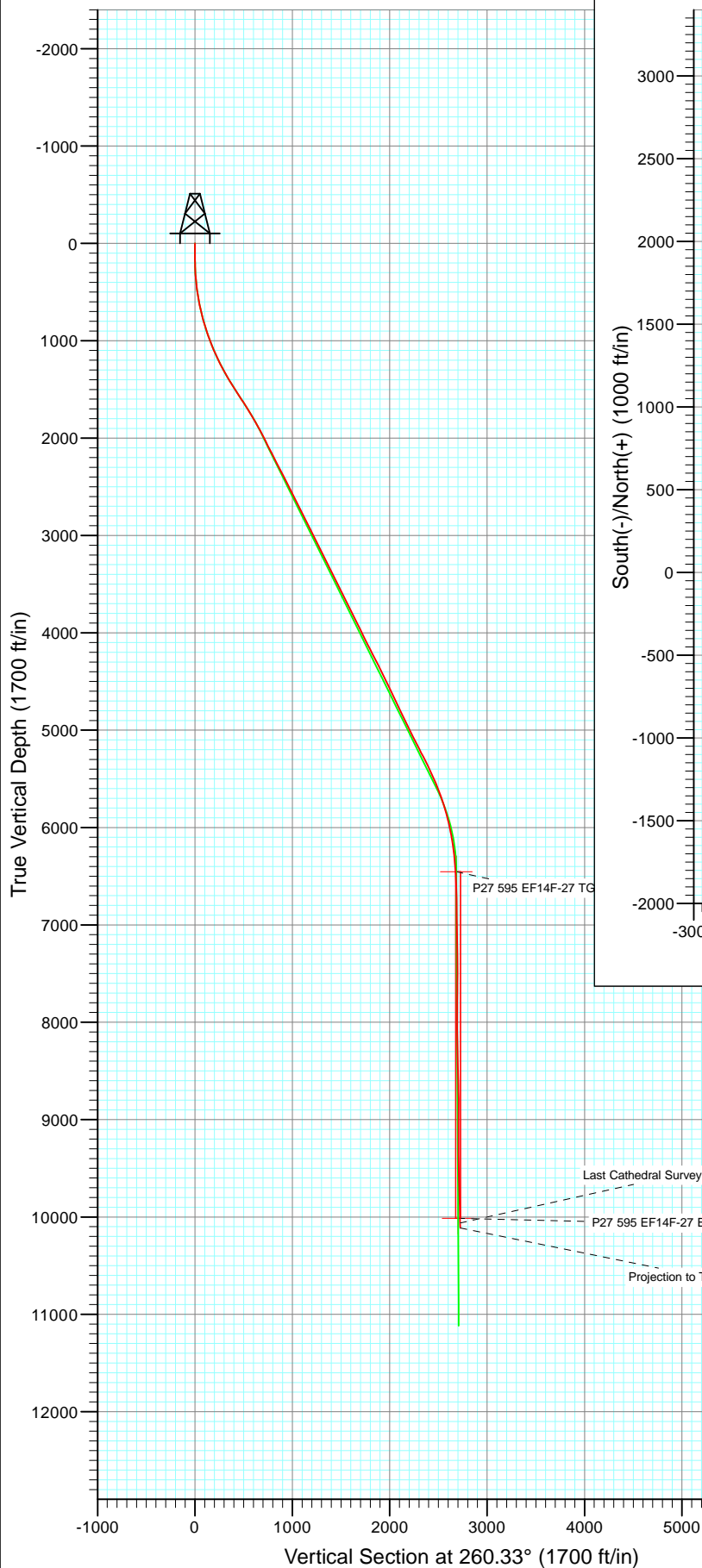




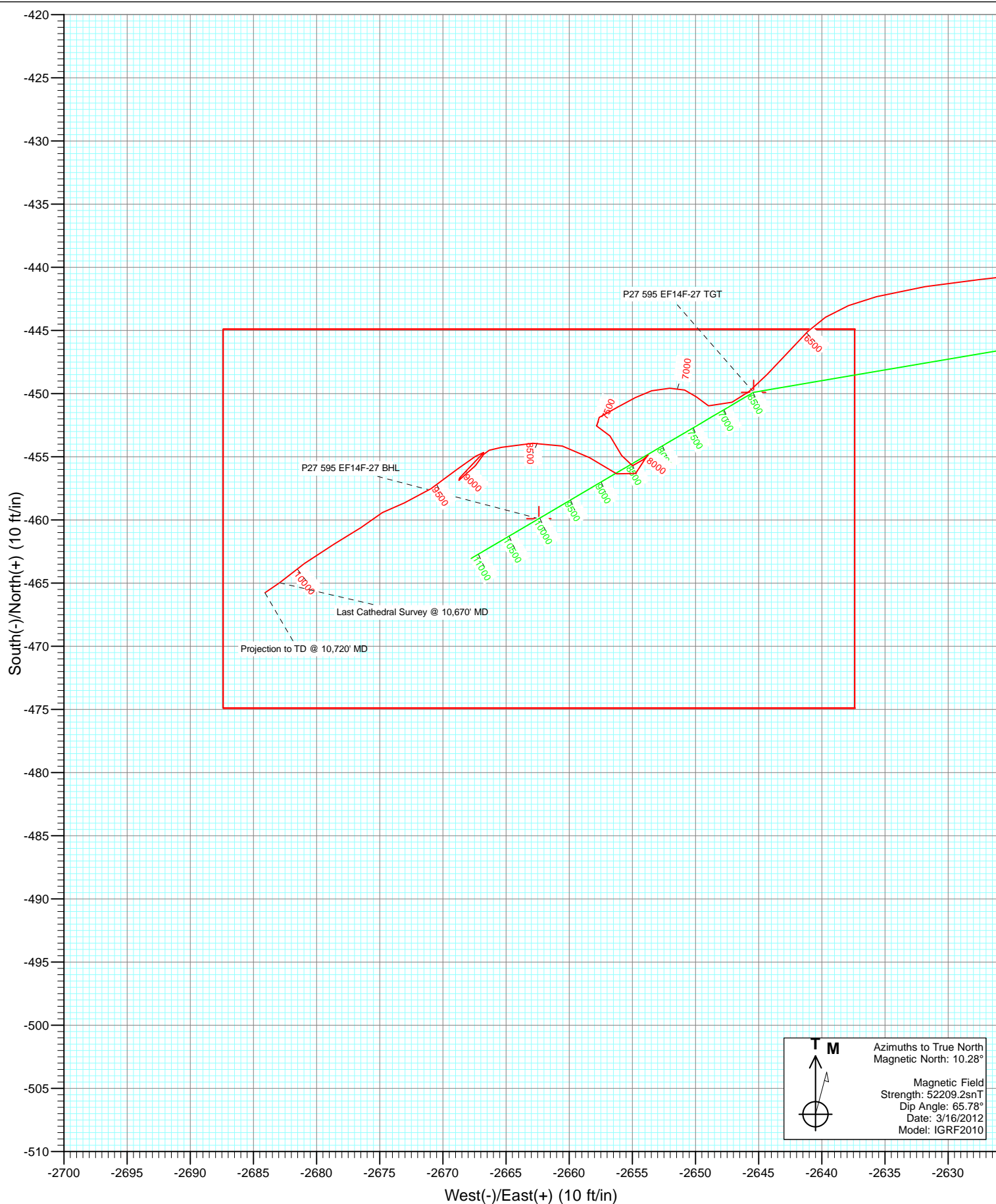
Project: North Piceance
 Site: P27 595 (S27-T5S-R95W)
 Well: NP EF14F-27 P27 595
 Wellbore: DD
 Design: Final Survey



Azimuths to True North
 Magnetic North: 10.28°

Magnetic Field
 Strength: 52209.2snT
 Dip Angle: 65.78°
 Date: 3/16/2012
 Model: IGRF2010

DD NP EF14F-27 P27 595 125115/141755 (SH) 125189/145455 (MH); LR well @ 6671.0ft (Patterson 303) North American Datum 1983 Well NP EF14F-27 P27 595, True North						
Type User	Target	Azimuth	Origin	Type	N/S	E/W
	No Target (Freehand)	260.33	Slot		0.0	0.0
Name		TVD	+N/-S	+E/-W	Latitude	Longitude
P27 595 EF14F-27 TGT		6454.0	-449.9	-2645.4	39° 34' 41.23 N	108° 2' 33.42 W
P27 595 EF14F-27 BHL		10014.0	-459.9	-2662.4	39° 34' 41.13 N	108° 2' 33.63 W



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF14F-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 EF14F-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 EF14F-27 P27 595					
Well Position	+N/-S	0.0 ft	Northing:	1,645,866.41 ft	Latitude:	39° 34' 45.68 N
	+E/-W	0.0 ft	Easting:	2,286,064.83 ft	Longitude:	108° 1' 59.63 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	3/16/2012	10.28	65.78	52,209

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	260.33	

Survey Program	Date	3/25/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
173.0	10,720.0	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	0.80	234.00	173.0	-0.7	-1.0	1.1	0.46	0.46		
203.0	0.70	252.10	203.0	-0.9	-1.3	1.5	0.85	-0.33		
234.0	0.70	251.90	234.0	-1.0	-1.7	1.8	0.01	0.00		
265.0	1.60	262.80	265.0	-1.1	-2.3	2.4	2.97	2.90		
296.0	2.90	255.00	296.0	-1.4	-3.5	3.7	4.30	4.19		
326.0	3.40	254.50	325.9	-1.8	-5.1	5.3	1.67	1.67		
357.0	4.70	254.30	356.8	-2.4	-7.2	7.5	4.19	4.19		
388.0	5.40	253.70	387.7	-3.2	-9.8	10.2	2.26	2.26		
418.0	6.50	250.10	417.6	-4.1	-12.8	13.3	3.87	3.67		
449.0	7.40	250.60	448.3	-5.4	-16.3	17.0	2.91	2.90		
479.0	8.50	253.40	478.0	-6.7	-20.2	21.1	3.89	3.67		
510.0	9.10	254.90	508.7	-8.0	-24.8	25.8	2.07	1.94		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF14F-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 EF14F-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	10.30	256.00	557.0	-10.0	-32.8	34.0	2.48	2.45	
605.0	11.10	260.90	602.2	-11.7	-41.1	42.5	2.63	1.74	
650.0	12.30	261.10	646.2	-13.1	-50.2	51.7	2.67	2.67	
696.0	13.20	261.10	691.1	-14.7	-60.2	61.8	1.96	1.96	
742.0	13.70	258.20	735.8	-16.6	-70.7	72.5	1.82	1.09	
788.0	14.90	259.90	780.4	-18.8	-81.9	83.9	2.76	2.61	
834.0	16.20	260.30	824.7	-20.9	-94.0	96.2	2.84	2.83	
879.0	17.00	260.80	867.9	-23.0	-106.7	109.0	1.81	1.78	
925.0	18.30	261.70	911.7	-25.1	-120.5	123.0	2.89	2.83	
971.0	19.10	261.80	955.3	-27.3	-135.1	137.7	1.74	1.74	
1,017.0	20.40	261.50	998.5	-29.5	-150.5	153.3	2.83	2.83	
1,063.0	22.10	261.80	1,041.4	-31.9	-167.0	169.9	3.70	3.70	
1,108.0	23.10	262.40	1,083.0	-34.3	-184.1	187.2	2.28	2.22	
1,154.0	24.40	261.30	1,125.1	-36.9	-202.4	205.7	2.99	2.83	
1,200.0	25.90	260.30	1,166.7	-40.1	-221.7	225.3	3.39	3.26	
1,246.0	27.00	260.20	1,207.9	-43.5	-241.9	245.8	2.39	2.39	
1,338.0	28.10	259.10	1,289.5	-51.2	-283.8	288.3	1.32	1.20	
1,429.0	29.00	257.30	1,369.4	-60.1	-326.3	331.8	1.37	0.99	
1,521.0	32.20	262.80	1,448.6	-68.1	-372.4	378.6	4.62	3.48	
1,612.0	33.00	264.00	1,525.2	-73.7	-421.1	427.5	1.13	0.88	
1,704.0	33.70	260.70	1,602.1	-80.4	-471.2	478.0	2.11	0.76	
1,780.0	31.90	260.40	1,666.0	-87.2	-511.8	519.2	2.38	-2.37	
1,889.0	31.10	259.20	1,758.9	-97.3	-567.9	576.2	0.93	-0.73	
1,981.0	29.80	257.30	1,838.2	-106.8	-613.5	622.8	1.76	-1.41	
2,072.0	28.40	259.90	1,917.7	-115.5	-656.9	667.0	2.07	-1.54	
2,164.0	26.50	256.60	1,999.4	-124.1	-698.4	709.3	2.64	-2.07	
2,256.0	27.30	259.20	2,081.4	-132.8	-739.1	750.9	1.55	0.87	
2,347.0	26.90	260.50	2,162.5	-140.1	-779.9	792.4	0.79	-0.44	
2,439.0	26.70	264.00	2,244.6	-145.7	-821.0	833.8	1.73	-0.22	
2,530.0	27.70	265.50	2,325.5	-149.5	-862.4	875.3	1.33	1.10	
2,622.0	27.10	263.00	2,407.2	-153.8	-904.5	917.5	1.41	-0.65	
2,713.0	26.50	261.50	2,488.4	-159.3	-945.2	958.5	0.99	-0.66	
2,805.0	27.40	262.80	2,570.4	-165.0	-986.5	1,000.2	1.17	0.98	
2,896.0	26.90	262.00	2,651.4	-170.5	-1,027.7	1,041.7	0.68	-0.55	
2,987.0	26.30	261.40	2,732.8	-176.3	-1,068.0	1,082.4	0.72	-0.66	
3,079.0	26.80	260.20	2,815.1	-182.9	-1,108.6	1,123.5	0.80	0.54	
3,171.0	26.00	260.20	2,897.5	-189.9	-1,148.9	1,164.4	0.87	-0.87	
3,262.0	27.20	259.80	2,978.8	-197.0	-1,189.0	1,205.2	1.33	1.32	
3,354.0	26.20	259.10	3,061.0	-204.5	-1,229.6	1,246.5	1.14	-1.09	
3,446.0	27.30	261.10	3,143.2	-211.6	-1,270.4	1,287.9	1.54	1.20	
3,537.0	25.10	259.30	3,224.8	-218.4	-1,310.0	1,328.1	2.57	-2.42	
3,629.0	26.50	260.60	3,307.7	-225.4	-1,349.4	1,368.1	1.64	1.52	
3,720.0	27.40	261.80	3,388.8	-231.7	-1,390.2	1,409.4	1.16	0.99	
3,812.0	26.10	261.10	3,470.9	-237.9	-1,431.1	1,450.8	1.45	-1.41	
3,904.0	27.20	261.40	3,553.2	-244.2	-1,471.9	1,492.0	1.20	1.20	
3,995.0	25.50	260.80	3,634.7	-250.4	-1,511.8	1,532.4	1.89	-1.87	
4,087.0	26.90	262.00	3,717.2	-256.5	-1,552.0	1,573.0	1.63	1.52	
4,178.0	25.60	259.80	3,798.9	-262.8	-1,591.7	1,613.3	1.78	-1.43	
4,270.0	27.30	260.20	3,881.2	-269.9	-1,632.1	1,654.2	1.86	1.85	
4,361.0	25.80	259.50	3,962.6	-277.1	-1,672.1	1,694.9	1.68	-1.65	
4,453.0	27.10	260.20	4,045.0	-284.3	-1,712.5	1,735.9	1.45	1.41	
4,545.0	26.30	259.70	4,127.2	-291.5	-1,753.2	1,777.2	0.90	-0.87	
4,636.0	27.70	260.10	4,208.3	-298.7	-1,793.8	1,818.5	1.55	1.54	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF14F-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 EF14F-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
4,728.0	26.60	259.70	4,290.1	-306.1	-1,835.2	1,860.5	1.21	-1.20	
4,819.0	27.40	261.60	4,371.2	-312.8	-1,875.9	1,901.8	1.29	0.88	
4,911.0	25.30	260.70	4,453.6	-319.1	-1,916.3	1,942.6	2.32	-2.28	
5,002.0	26.20	261.60	4,535.6	-325.2	-1,955.3	1,982.2	1.08	0.99	
5,094.0	25.50	259.80	4,618.4	-331.6	-1,994.9	2,022.3	1.14	-0.76	
5,185.0	24.30	260.80	4,700.9	-338.1	-2,032.7	2,060.6	1.40	-1.32	
5,277.0	25.60	260.70	4,784.4	-344.3	-2,071.0	2,099.4	1.41	1.41	
5,368.0	27.20	261.00	4,865.9	-350.8	-2,110.9	2,139.9	1.76	1.76	
5,459.0	25.20	261.40	4,947.5	-356.9	-2,150.6	2,180.0	2.21	-2.20	
5,550.0	26.80	260.20	5,029.3	-363.3	-2,190.0	2,219.9	1.85	1.76	
5,642.0	27.70	259.30	5,111.1	-370.8	-2,231.4	2,262.0	1.08	0.98	
5,733.0	26.10	257.10	5,192.2	-379.2	-2,271.7	2,303.2	2.07	-1.76	
5,824.0	27.90	258.00	5,273.3	-388.1	-2,312.1	2,344.4	2.03	1.98	
5,916.0	26.20	257.00	5,355.2	-397.1	-2,352.9	2,386.2	1.91	-1.85	
6,007.0	24.70	258.80	5,437.4	-405.4	-2,391.2	2,425.3	1.85	-1.65	
6,098.0	23.60	257.20	5,520.5	-413.1	-2,427.6	2,462.5	1.41	-1.21	
6,190.0	21.50	260.10	5,605.4	-420.1	-2,462.1	2,497.7	2.58	-2.28	
6,281.0	19.10	260.30	5,690.8	-425.4	-2,493.3	2,529.3	2.64	-2.64	
6,372.0	16.10	266.00	5,777.5	-428.8	-2,520.5	2,556.7	3.80	-3.30	
6,464.0	15.70	264.90	5,866.0	-430.8	-2,545.7	2,581.8	0.54	-0.43	
6,555.0	13.40	262.30	5,954.1	-433.3	-2,568.4	2,604.7	2.63	-2.53	
6,647.0	11.30	264.50	6,043.9	-435.6	-2,587.9	2,624.3	2.34	-2.28	
6,738.0	9.10	260.90	6,133.5	-437.6	-2,603.9	2,640.4	2.52	-2.42	
6,830.0	7.60	261.60	6,224.5	-439.7	-2,617.1	2,653.8	1.63	-1.63	
6,921.0	5.70	264.40	6,314.9	-441.0	-2,627.5	2,664.3	2.12	-2.09	
7,012.0	4.70	255.90	6,405.5	-442.3	-2,635.7	2,672.5	1.38	-1.10	
7,061.2	3.75	242.07	6,454.6	-443.6	-2,639.0	2,676.0	2.81	-1.92	P27 595 EF14F-27 TGT
7,104.0	3.20	224.30	6,497.3	-445.1	-2,641.1	2,678.3	2.81	-1.29	
7,195.0	2.70	222.40	6,588.2	-448.5	-2,644.3	2,682.1	0.56	-0.55	
7,287.0	1.80	245.40	6,680.1	-450.7	-2,647.1	2,685.2	1.37	-0.98	
7,379.0	0.80	300.40	6,772.1	-451.0	-2,649.0	2,687.1	1.62	-1.09	
7,470.0	0.70	313.50	6,863.1	-450.3	-2,649.9	2,687.9	0.22	-0.11	
7,561.0	0.70	286.30	6,954.1	-449.7	-2,650.9	2,688.7	0.36	0.00	
7,653.0	0.80	268.90	7,046.1	-449.6	-2,652.0	2,689.9	0.27	0.11	
7,745.0	1.00	256.50	7,138.0	-449.8	-2,653.5	2,691.3	0.30	0.22	
7,836.0	0.80	235.70	7,229.0	-450.3	-2,654.8	2,692.7	0.42	-0.22	
7,928.0	1.10	246.00	7,321.0	-451.0	-2,656.1	2,694.1	0.37	0.33	
8,019.0	1.10	235.60	7,412.0	-451.9	-2,657.6	2,695.8	0.22	0.00	
8,111.0	0.70	109.20	7,504.0	-452.6	-2,657.8	2,696.1	1.76	-0.43	
8,202.0	1.00	138.50	7,595.0	-453.3	-2,656.8	2,695.2	0.57	0.33	
8,293.0	1.30	157.50	7,686.0	-454.9	-2,655.8	2,694.5	0.53	0.33	
8,385.0	0.60	71.70	7,778.0	-455.7	-2,655.0	2,693.8	1.51	-0.76	
8,476.0	0.60	49.50	7,869.0	-455.2	-2,654.2	2,692.9	0.25	0.00	
8,568.0	0.10	39.60	7,961.0	-454.9	-2,653.8	2,692.5	0.55	-0.54	
8,659.0	0.60	218.10	8,052.0	-455.2	-2,654.0	2,692.7	0.77	0.55	
8,756.0	1.00	210.60	8,148.9	-456.3	-2,654.7	2,693.7	0.43	0.41	
8,847.0	1.60	300.80	8,239.9	-456.3	-2,656.2	2,695.1	2.08	0.66	
8,939.0	1.50	300.80	8,331.9	-455.1	-2,658.4	2,697.0	0.11	-0.11	
9,030.0	1.50	285.60	8,422.9	-454.1	-2,660.5	2,699.0	0.44	0.00	
9,121.0	1.50	264.80	8,513.8	-453.9	-2,662.9	2,701.3	0.60	0.00	
9,213.0	1.60	260.90	8,605.8	-454.2	-2,665.3	2,703.8	0.16	0.11	
9,304.0	0.50	205.40	8,696.8	-454.8	-2,666.8	2,705.3	1.52	-1.21	
9,395.0	0.90	222.30	8,787.8	-455.7	-2,667.4	2,706.1	0.49	0.44	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF14F-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 EF14F-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
9,487.0	1.30	231.90	8,879.8	-456.9	-2,668.7	2,707.6	0.48	0.43	
9,578.0	1.50	46.40	8,970.8	-456.7	-2,668.7	2,707.5	3.07	0.22	
9,669.0	0.70	36.90	9,061.7	-455.4	-2,667.5	2,706.1	0.90	-0.88	
9,761.0	0.40	55.20	9,153.7	-454.8	-2,666.9	2,705.4	0.37	-0.33	
9,852.0	0.20	250.90	9,244.7	-454.7	-2,666.8	2,705.2	0.65	-0.22	
9,943.0	0.70	243.00	9,335.7	-455.0	-2,667.4	2,705.9	0.55	0.55	
10,034.0	1.50	230.80	9,426.7	-456.0	-2,668.8	2,707.5	0.91	0.88	
10,125.0	1.80	235.90	9,517.7	-457.5	-2,670.9	2,709.8	0.37	0.33	
10,217.0	1.20	251.20	9,609.6	-458.6	-2,673.0	2,712.1	0.78	-0.65	
10,308.0	1.20	240.90	9,700.6	-459.4	-2,674.8	2,713.9	0.24	0.00	
10,400.0	1.40	229.90	9,792.6	-460.6	-2,676.5	2,715.8	0.35	0.22	
10,491.0	1.80	245.00	9,883.6	-461.9	-2,678.6	2,718.2	0.64	0.44	
10,583.0	1.70	228.40	9,975.5	-463.4	-2,681.0	2,720.7	0.56	-0.11	
10,621.0	1.65	231.56	10,013.5	-464.2	-2,681.8	2,721.7	0.27	-0.12	P27 595 EF14F-27 BHL
10,670.0	1.60	235.90	10,062.5	-465.0	-2,682.9	2,722.9	0.27	-0.11	Last Cathedral Survey @ 10,670' MD
10,720.0	1.60	235.90	10,112.5	-465.8	-2,684.1	2,724.2	0.00	0.00	Projection to TD @ 10,720' MD

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 EF14F-27 BHL	0.00	0.00	10,014.0	-459.9	-2,662.4	1,645,480.93	2,283,390.65	39° 34' 41.13 N	108° 2' 33.63 W
- actual wellpath misses target center by 19.9ft at 10621.0ft MD (10013.5 TVD, -464.2 N, -2681.8 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
P27 595 EF14F-27 TGT	0.00	0.00	6,454.0	-449.9	-2,645.4	1,645,490.45	2,283,407.92	39° 34' 41.23 N	108° 2' 33.42 W
- actual wellpath misses target center by 9.0ft at 7061.2ft MD (6454.6 TVD, -443.6 N, -2639.0 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,670.0	10,062.5	-465.0	-2,682.9	Last Cathedral Survey @ 10,670' MD
10,720.0	10,112.5	-465.8	-2,684.1	Projection to TD @ 10,720' MD

Checked By: _____ Approved By: _____ Date: _____