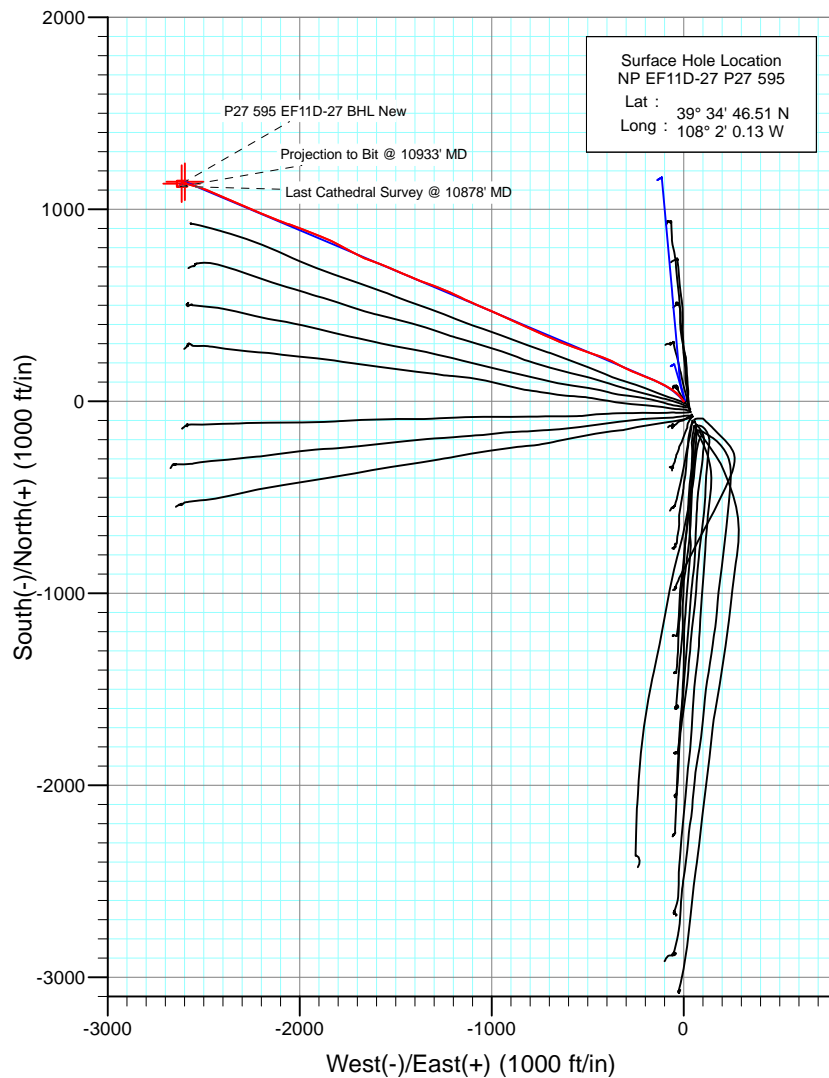
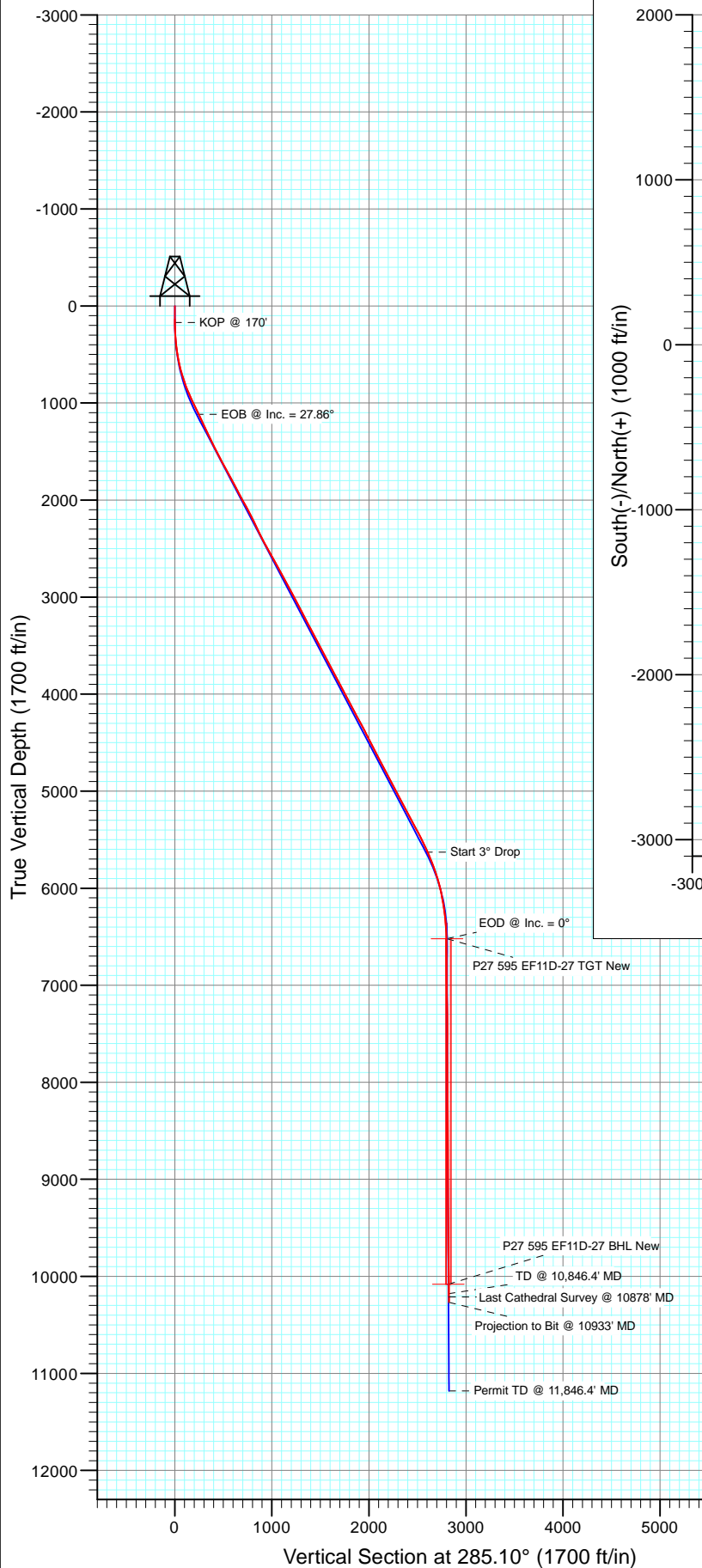




Project: North Piceance  
 Site: P27 595 (S27-T5S-R95W)  
 Well: NP EF11D-27 P27 595  
 Wellbore: DD  
 Design: FINAL



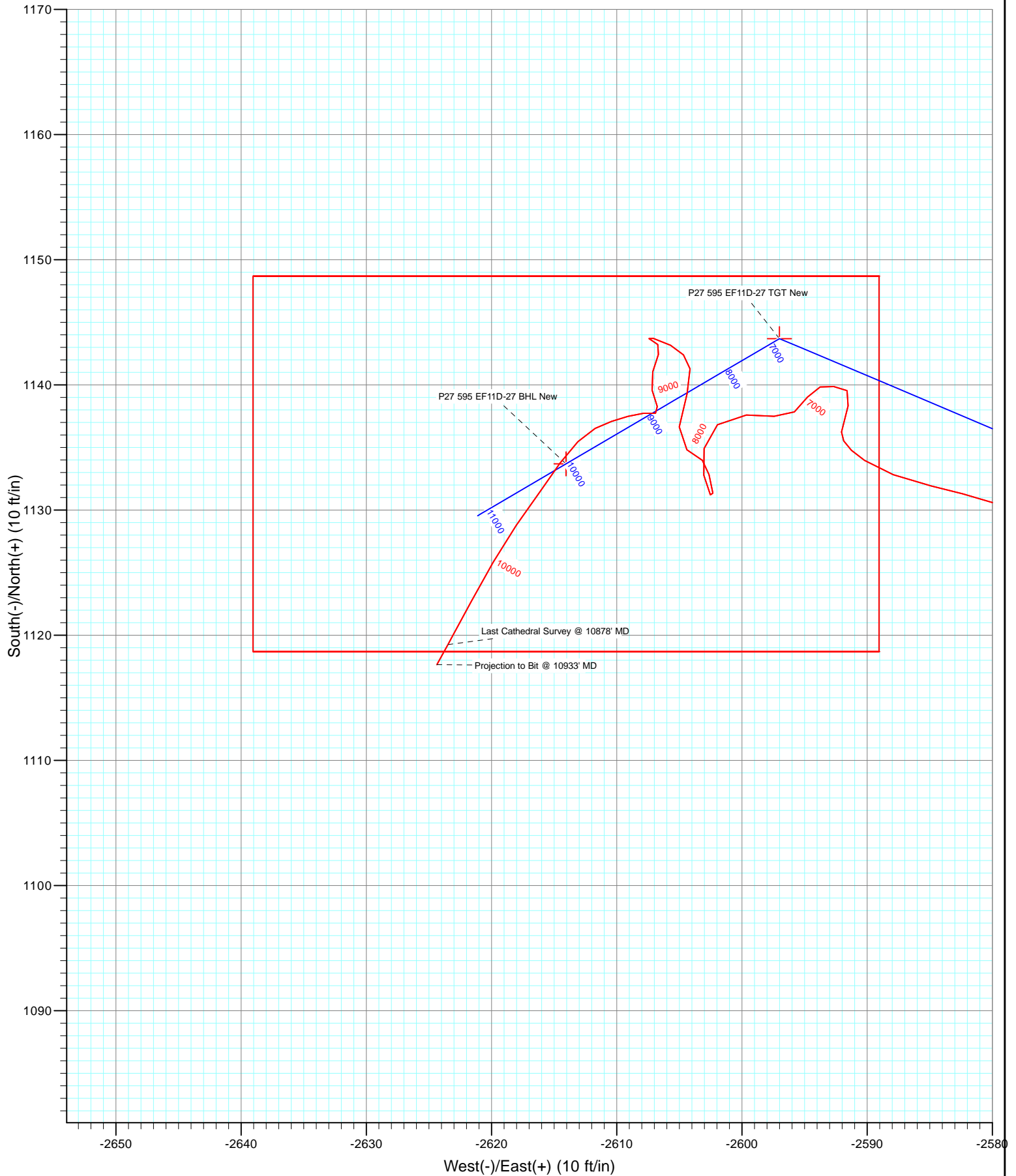
Azimuths to True North  
 Magnetic North: 10.24°

Magnetic Field  
 Strength: 52172.6nT  
 Dip Angle: 65.77°  
 Date: 7/27/2012  
 Model: IGRF2010

FINAL NP EF11D-27 P27 595 125304/161555 (SH) 125468/179755 (MH): SC EF11D-27 P27 @ 6671.0ft (Original Well Elev) North American Datum 1983 Well NP EF11D-27 P27 595, True North						
Type	Target	Azimuth	Origin	Type	N/S	E/W
Target	P27 595 EF11D-27 BHL	285.10	Slot		0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
P27 595 EF11D-27 TGT New	6520.0	1143.7	-2597.0	39° 34' 57.81 N	108° 2' 33.30 W	
P27 595 EF11D-27 BHL New	10080.0	1133.7	-2614.0	39° 34' 57.71 N	108° 2' 33.52 W	



Project: North Piceance  
Site: P27 595 (S27-T5S-R95W)  
Well: NP EF11D-27 P27 595  
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 EF11D-27 P27 595
<b>Project:</b>	North Piceance	<b>TVD Reference:</b>	EF11D-27 P27 @ 6671.0ft (Original Well Elev)
<b>Site:</b>	P27 595 (S27-T5S-R95W)	<b>MD Reference:</b>	EF11D-27 P27 @ 6671.0ft (Original Well Elev)
<b>Well:</b>	NP EF11D-27 P27 595	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 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		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 EF11D-27 P27 595					
Well Position	+N/-S	0.0 ft	Northing:	1,645,951.25 ft	Latitude:	39° 34' 46.51 N
	+E/-W	0.0 ft	Easting:	2,286,028.01 ft	Longitude:	108° 2' 0.13 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,649.0 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>
	IGRF2010	7/27/2012	10.24	65.77	52,173

<b>Design</b>	FINAL				
<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 (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	285.10	

<b>Survey Program</b>	<b>Date</b>	8/4/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
50.0	135.0	Survey #1 (DD)	Gyro	Gyro	
169.0	10,933.0	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>	
135.0	0.30	136.10	135.0	-0.4	-0.2	0.1	0.00	0.00		
169.0	0.70	359.50	169.0	-0.2	-0.2	0.1	2.77	1.18		
200.0	1.40	325.40	200.0	0.3	-0.4	0.4	2.93	2.26		
231.0	2.90	309.80	231.0	1.1	-1.2	1.4	5.15	4.84		
261.0	3.90	323.20	260.9	2.4	-2.4	2.9	4.24	3.33		
292.0	4.70	327.70	291.8	4.3	-3.7	4.7	2.80	2.58		
323.0	5.70	325.80	322.7	6.6	-5.3	6.8	3.27	3.23		
353.0	6.50	327.10	352.5	9.3	-7.0	9.2	2.71	2.67		
384.0	7.30	327.00	383.3	12.4	-9.0	12.0	2.58	2.58		
414.0	8.30	323.80	413.0	15.8	-11.4	15.1	3.63	3.33		
445.0	9.20	322.10	443.7	19.5	-14.2	18.8	3.02	2.90		
476.0	9.90	320.10	474.2	23.5	-17.4	23.0	2.50	2.26		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP EF11D-27 P27 595
<b>Project:</b>	North Piceance	<b>TVD Reference:</b>	EF11D-27 P27 @ 6671.0ft (Original Well Elev)
<b>Site:</b>	P27 595 (S27-T5S-R95W)	<b>MD Reference:</b>	EF11D-27 P27 @ 6671.0ft (Original Well Elev)
<b>Well:</b>	NP EF11D-27 P27 595	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
506.0	11.00	317.70	503.7	27.6	-21.0	27.5	3.94	3.67	
555.0	12.40	313.50	551.7	34.7	-28.0	36.1	3.34	2.86	
600.0	14.00	310.20	595.5	41.5	-35.6	45.2	3.93	3.56	
646.0	15.40	307.10	640.0	48.8	-44.8	55.9	3.49	3.04	
692.0	16.80	305.70	684.2	56.4	-55.0	67.8	3.16	3.04	
738.0	18.30	303.30	728.1	64.2	-66.5	80.9	3.62	3.26	
783.0	19.40	301.40	770.7	72.0	-78.8	94.8	2.80	2.44	
829.0	20.60	298.70	813.9	79.9	-92.4	110.0	3.29	2.61	
875.0	21.80	296.40	856.8	87.5	-107.1	126.2	3.17	2.61	
921.0	23.20	294.90	899.3	95.2	-123.0	143.5	3.29	3.04	
966.0	24.10	294.10	940.5	102.6	-139.4	161.3	2.12	2.00	
1,012.0	25.80	294.30	982.2	110.6	-157.1	180.5	3.70	3.70	
1,058.0	26.10	293.70	1,023.6	118.8	-175.5	200.4	0.87	0.65	
1,150.0	26.10	292.20	1,106.2	134.6	-212.8	240.5	0.72	0.00	
1,241.0	25.60	289.90	1,188.1	148.8	-249.8	279.9	1.23	-0.55	
1,333.0	25.50	295.20	1,271.1	164.0	-286.4	319.2	2.49	-0.11	
1,424.0	25.70	297.80	1,353.2	181.6	-321.6	357.8	1.25	0.22	
1,470.0	26.10	298.10	1,394.5	191.0	-339.3	377.4	0.92	0.87	
1,516.0	27.80	297.80	1,435.5	200.8	-357.8	397.7	3.71	3.70	
1,607.0	28.30	292.20	1,515.9	218.8	-396.5	439.8	2.94	0.55	
1,699.0	27.80	289.90	1,597.1	234.3	-436.9	482.8	1.30	-0.54	
1,790.0	28.10	289.50	1,677.5	248.7	-477.0	525.3	0.39	0.33	
1,896.0	28.30	288.00	1,770.9	264.8	-524.5	575.3	0.69	0.19	
1,987.0	28.40	290.50	1,851.0	279.1	-565.2	618.4	1.31	0.11	
2,079.0	27.90	290.20	1,932.1	294.2	-605.9	661.6	0.56	-0.54	
2,170.0	28.20	293.00	2,012.4	309.9	-645.7	704.1	1.48	0.33	
2,262.0	29.00	294.00	2,093.2	327.5	-686.1	747.7	1.01	0.87	
2,354.0	27.50	293.20	2,174.2	344.9	-726.0	790.8	1.68	-1.63	
2,445.0	25.70	293.40	2,255.6	361.0	-763.4	831.1	1.98	-1.98	
2,537.0	26.40	295.70	2,338.2	377.8	-800.2	870.9	1.34	0.76	
2,628.0	27.50	296.20	2,419.3	395.9	-837.2	911.4	1.23	1.21	
2,720.0	30.20	292.30	2,499.9	414.0	-877.7	955.3	3.58	2.93	
2,811.0	29.50	295.80	2,578.9	432.5	-919.1	1,000.0	2.06	-0.77	
2,903.0	29.10	294.10	2,659.1	451.5	-959.9	1,044.3	1.00	-0.43	
2,994.0	28.20	292.80	2,738.9	468.8	-999.9	1,087.5	1.20	-0.99	
3,086.0	28.70	292.50	2,819.8	485.7	-1,040.3	1,131.0	0.57	0.54	
3,177.0	29.30	295.10	2,899.4	503.5	-1,080.7	1,174.5	1.53	0.66	
3,269.0	27.80	294.40	2,980.2	521.9	-1,120.6	1,217.9	1.67	-1.63	
3,360.0	28.60	296.10	3,060.4	540.3	-1,159.5	1,260.2	1.25	0.88	
3,452.0	27.00	295.30	3,141.8	558.9	-1,198.2	1,302.4	1.79	-1.74	
3,544.0	27.60	291.80	3,223.6	575.7	-1,236.8	1,344.1	1.86	0.65	
3,635.0	28.60	291.10	3,303.8	591.4	-1,276.7	1,386.7	1.16	1.10	
3,726.0	27.30	290.30	3,384.2	606.5	-1,316.6	1,429.2	1.49	-1.43	
3,818.0	28.90	289.60	3,465.4	621.3	-1,357.4	1,472.3	1.78	1.74	
3,909.0	28.50	294.50	3,545.2	637.7	-1,397.8	1,515.7	2.62	-0.44	
4,001.0	26.50	292.60	3,626.8	654.6	-1,436.8	1,557.7	2.37	-2.17	
4,093.0	28.20	292.50	3,708.5	670.9	-1,475.8	1,599.6	1.85	1.85	
4,184.0	28.80	294.00	3,788.5	688.0	-1,515.7	1,642.6	1.03	0.66	
4,276.0	27.30	292.10	3,869.7	704.9	-1,555.5	1,685.4	1.90	-1.63	
4,368.0	28.00	289.80	3,951.2	720.2	-1,595.4	1,727.9	1.39	0.76	
4,459.0	28.90	290.20	4,031.2	735.0	-1,636.1	1,771.1	1.01	0.99	
4,551.0	27.30	294.90	4,112.4	751.6	-1,676.1	1,814.0	2.97	-1.74	
4,642.0	28.70	298.60	4,192.7	770.8	-1,714.2	1,855.8	2.45	1.54	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP EF11D-27 P27 595
<b>Project:</b>	North Piceance	<b>TVD Reference:</b>	EF11D-27 P27 @ 6671.0ft (Original Well Elev)
<b>Site:</b>	P27 595 (S27-T5S-R95W)	<b>MD Reference:</b>	EF11D-27 P27 @ 6671.0ft (Original Well Elev)
<b>Well:</b>	NP EF11D-27 P27 595	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
4,733.0	30.10	298.10	4,272.0	792.1	-1,753.5	1,899.3	1.56	1.54	
4,825.0	28.40	298.00	4,352.3	813.2	-1,793.2	1,943.1	1.85	-1.85	
4,917.0	26.20	297.20	4,434.0	832.7	-1,830.6	1,984.3	2.42	-2.39	
5,008.0	27.20	291.70	4,515.3	849.6	-1,867.8	2,024.6	2.93	1.10	
5,100.0	28.00	291.20	4,596.9	865.2	-1,907.5	2,067.0	0.91	0.87	
5,191.0	27.40	292.10	4,677.4	880.8	-1,946.8	2,109.0	0.80	-0.66	
5,283.0	27.80	290.40	4,759.0	896.3	-1,986.5	2,151.4	0.96	0.43	
5,374.0	29.00	290.50	4,839.0	911.4	-2,027.0	2,194.5	1.32	1.32	
5,466.0	26.40	289.00	4,920.5	925.8	-2,067.3	2,237.1	2.93	-2.83	
5,557.0	28.00	291.30	5,001.4	940.2	-2,106.3	2,278.5	2.10	1.76	
5,649.0	29.40	292.30	5,082.1	956.6	-2,147.3	2,322.4	1.61	1.52	
5,740.0	27.80	292.20	5,162.0	973.1	-2,187.6	2,365.6	1.76	-1.76	
5,832.0	29.10	293.50	5,242.9	990.1	-2,228.0	2,409.0	1.57	1.41	
5,924.0	26.90	292.60	5,324.1	1,007.1	-2,267.8	2,451.8	2.43	-2.39	
6,015.0	29.40	293.40	5,404.3	1,023.8	-2,307.3	2,494.3	2.78	2.75	
6,107.0	28.00	292.50	5,485.0	1,041.1	-2,348.0	2,538.1	1.59	-1.52	
6,198.0	24.50	294.30	5,566.6	1,057.0	-2,384.9	2,577.9	3.94	-3.85	
6,290.0	22.60	294.00	5,651.0	1,072.1	-2,418.4	2,614.2	2.07	-2.07	
6,382.0	22.00	293.30	5,736.1	1,086.1	-2,450.4	2,648.7	0.71	-0.65	
6,473.0	19.50	292.60	5,821.2	1,098.6	-2,480.1	2,680.6	2.76	-2.75	
6,564.0	17.10	289.60	5,907.6	1,109.0	-2,506.7	2,709.0	2.83	-2.64	
6,656.0	13.50	285.60	5,996.3	1,116.4	-2,529.8	2,733.3	4.08	-3.91	
6,747.0	10.80	283.80	6,085.2	1,121.3	-2,548.3	2,752.4	3.00	-2.97	
6,839.0	9.40	287.00	6,175.8	1,125.5	-2,563.9	2,768.6	1.64	-1.52	
6,930.0	6.90	288.20	6,265.9	1,129.4	-2,576.2	2,781.4	2.75	-2.75	
7,022.0	4.40	282.80	6,357.4	1,131.9	-2,584.9	2,790.5	2.78	-2.72	
7,113.0	2.90	303.30	6,448.2	1,134.0	-2,590.2	2,796.2	2.16	-1.65	
7,203.0	1.30	3.90	6,538.2	1,136.2	-2,592.0	2,798.5	2.81	-1.78	
7,296.0	1.40	23.40	6,631.2	1,138.3	-2,591.5	2,798.6	0.50	0.11	
7,388.0	0.70	289.60	6,723.2	1,139.5	-2,591.6	2,799.0	1.75	-0.76	
7,479.0	0.70	283.60	6,814.2	1,139.9	-2,592.7	2,800.1	0.08	0.00	
7,571.0	0.70	252.90	6,906.1	1,139.8	-2,593.8	2,801.1	0.40	0.00	
7,663.0	1.00	216.10	6,998.1	1,139.0	-2,594.8	2,801.9	0.66	0.33	
7,754.0	1.00	227.80	7,089.1	1,137.8	-2,595.8	2,802.6	0.22	0.00	
7,846.0	1.30	280.20	7,181.1	1,137.5	-2,597.4	2,804.1	1.14	0.33	
7,931.0	1.70	267.10	7,266.1	1,137.6	-2,599.6	2,806.2	0.62	0.47	
8,029.0	1.30	230.30	7,364.0	1,136.8	-2,602.0	2,808.2	1.04	-0.41	
8,120.0	1.60	192.40	7,455.0	1,134.9	-2,603.0	2,808.8	1.08	0.33	
8,206.0	1.30	166.30	7,541.0	1,132.8	-2,603.0	2,808.3	0.83	-0.35	
8,297.0	0.80	154.30	7,632.0	1,131.2	-2,602.5	2,807.3	0.60	-0.55	
8,388.0	0.90	354.60	7,723.0	1,131.4	-2,602.3	2,807.2	1.84	0.11	
8,480.0	1.00	341.90	7,815.0	1,132.8	-2,602.6	2,807.9	0.25	0.11	
8,571.0	0.60	324.00	7,906.0	1,134.0	-2,603.2	2,808.7	0.51	-0.44	
8,663.0	1.30	295.30	7,997.9	1,134.8	-2,604.4	2,810.1	0.90	0.76	
8,754.0	1.80	13.10	8,088.9	1,136.6	-2,605.0	2,811.1	2.18	0.55	
8,846.0	1.60	12.90	8,180.9	1,139.3	-2,604.4	2,811.2	0.22	-0.22	
8,938.0	0.90	356.40	8,272.8	1,141.3	-2,604.1	2,811.5	0.85	-0.76	
9,029.0	0.80	310.60	8,363.8	1,142.4	-2,604.7	2,812.3	0.73	-0.11	
9,121.0	0.80	302.40	8,455.8	1,143.2	-2,605.7	2,813.5	0.12	0.00	
9,212.0	1.10	283.80	8,546.8	1,143.7	-2,607.1	2,815.0	0.47	0.33	
9,304.0	0.70	113.10	8,638.8	1,143.7	-2,607.4	2,815.3	1.95	-0.43	
9,396.0	0.40	144.00	8,730.8	1,143.2	-2,606.7	2,814.5	0.45	-0.33	
9,487.0	0.70	195.10	8,821.8	1,142.4	-2,606.7	2,814.3	0.60	0.33	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well NP EF11D-27 P27 595
<b>Project:</b>	North Piceance	<b>TVD Reference:</b>	EF11D-27 P27 @ 6671.0ft (Original Well Elev)
<b>Site:</b>	P27 595 (S27-T5S-R95W)	<b>MD Reference:</b>	EF11D-27 P27 @ 6671.0ft (Original Well Elev)
<b>Well:</b>	NP EF11D-27 P27 595	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
9,579.0	1.10	199.50	8,913.8	1,141.1	-2,607.1	2,814.3	0.44	0.43	
9,670.0	0.90	160.60	9,004.8	1,139.6	-2,607.2	2,814.0	0.76	-0.22	
9,761.0	0.80	164.30	9,095.8	1,138.3	-2,606.8	2,813.3	0.13	-0.11	
9,852.0	0.40	282.30	9,186.8	1,137.7	-2,606.9	2,813.3	1.15	-0.44	
9,944.0	0.80	263.80	9,278.8	1,137.7	-2,607.9	2,814.2	0.48	0.43	
10,036.0	0.80	254.10	9,370.8	1,137.5	-2,609.1	2,815.3	0.15	0.00	
10,128.0	0.90	251.50	9,462.7	1,137.1	-2,610.4	2,816.5	0.12	0.11	
10,219.0	0.90	242.10	9,553.7	1,136.5	-2,611.7	2,817.6	0.16	0.00	
10,310.0	1.30	226.00	9,644.7	1,135.5	-2,613.1	2,818.7	0.55	0.44	
10,402.0	1.50	214.40	9,736.7	1,133.8	-2,614.5	2,819.6	0.38	0.22	
10,493.0	2.00	215.50	9,827.6	1,131.5	-2,616.1	2,820.5	0.55	0.55	
10,585.0	2.10	215.10	9,919.6	1,128.8	-2,618.0	2,821.7	0.11	0.11	
10,676.0	2.30	209.10	10,010.5	1,125.8	-2,619.9	2,822.7	0.33	0.22	
10,768.0	2.20	209.30	10,102.5	1,122.7	-2,621.6	2,823.6	0.11	-0.11	
10,860.0	1.90	207.30	10,194.4	1,119.8	-2,623.2	2,824.3	0.34	-0.33	
10,878.0	1.90	208.90	10,212.4	1,119.3	-2,623.5	2,824.5	0.29	0.00	
10,933.0	1.90	208.90	10,267.4	1,117.7	-2,624.4	2,824.9	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 EF11D-27 TGT	0.00	0.00	6,520.0	1,143.7	-2,597.0	1,647,166.92	2,283,463.90	39° 34' 57.81 N	108° 2' 33.30 W
- survey misses target center by 9.3ft at 7185.1ft MD (6520.3 TVD, 1135.8 N, -2592.0 E)									
- Point									
P27 595 EF11D-27 BHL	0.00	0.00	10,080.0	1,133.7	-2,614.0	1,647,157.39	2,283,446.58	39° 34' 57.71 N	108° 2' 33.52 W
- survey misses target center by 12.5ft at 10745.0ft MD (10079.5 TVD, 1123.4 N, -2621.2 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,878.0	10,212.4	1,119.3	-2,623.5	Last Cathedral Survey @ 10878' MD
10,933.0	10,267.4	1,117.7	-2,624.4	Projection to Bit @ 10933' MD

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