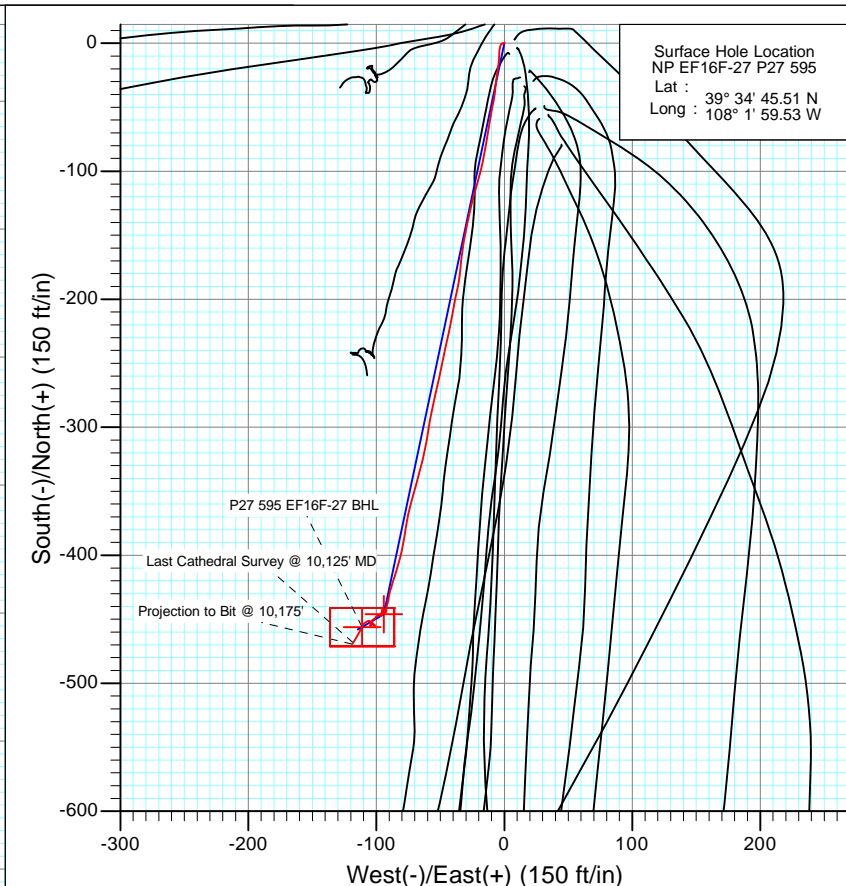
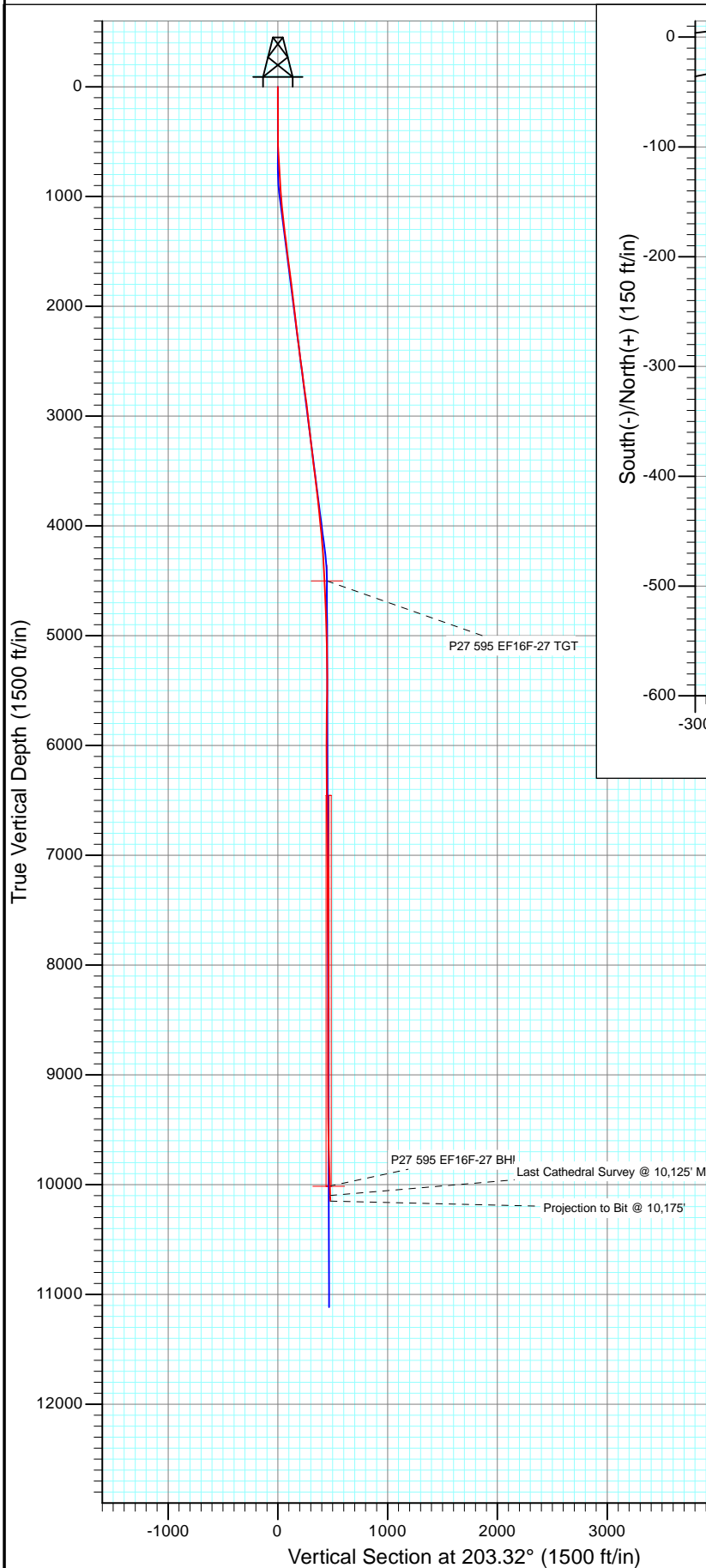




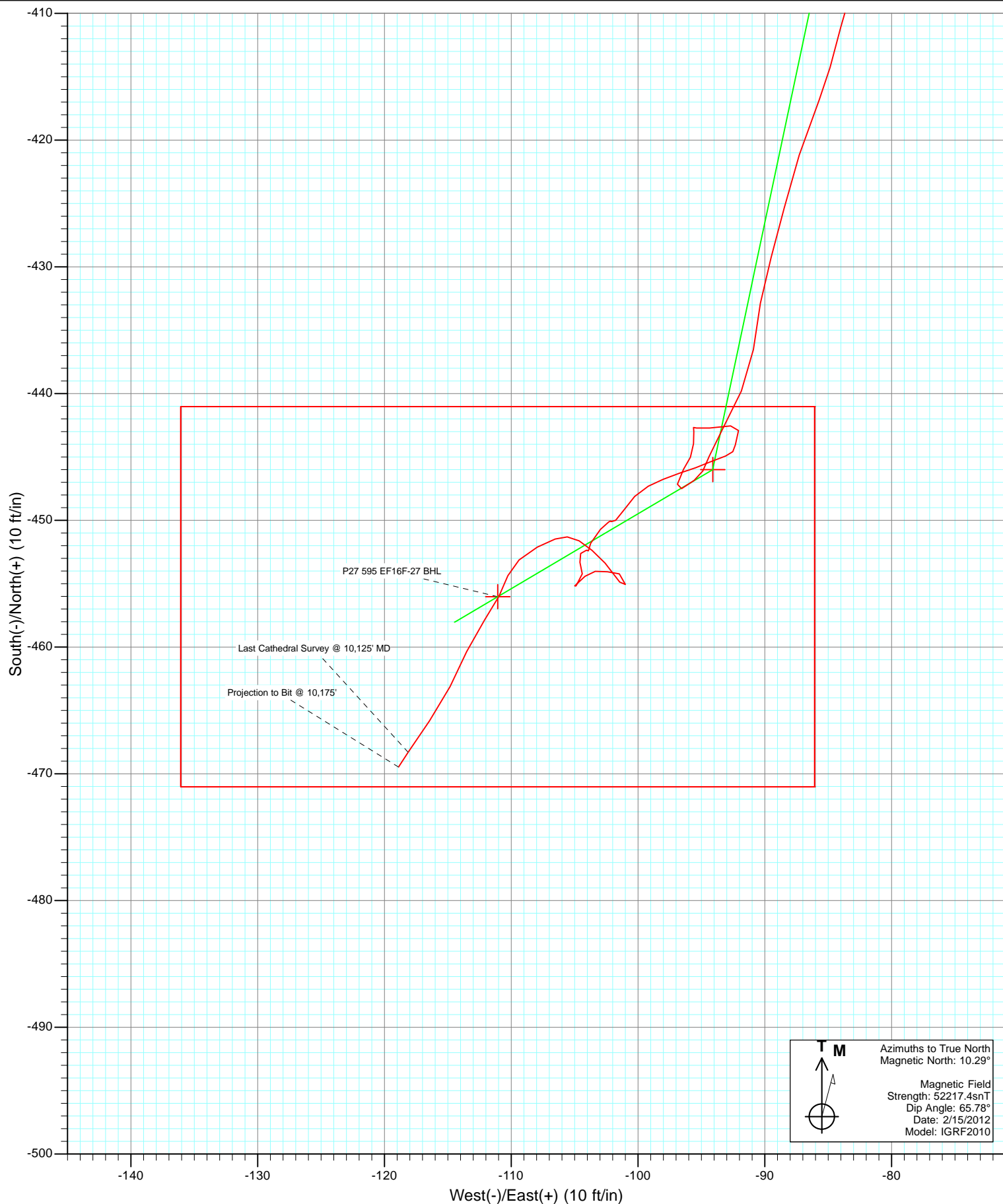
Project: North Piceance
 Site: P27 595 (S27-T5S-R95W)
 Well: NP EF16F-27 P27 595
 Wellbore: DD
 Design: FINAL



Azimuths to True North
 Magnetic North: 10.29°

Magnetic Field
 Strength: 52217.4snT
 Dip Angle: 65.78°
 Date: 2/15/2012
 Model: IGRF2010

DD NP EF16F-27 P27 595 125118/142055 (SH-TD); LR well @ 6671.0ft North American Datum 1983 Well NP EF16F-27 P27 595, True North						
Type User	Target No Target (Freehand)	Azimuth 203.32	Origin Type Slot	N/S 0.0	E/W 0.0	From TVD 0.0
Name	TVD		+N/-S	+E/-W	Latitude	Longitude
P27 595 EF16F-27 TGT	4500.0	-446.0	-94.1		39° 34' 41.10 N	108° 2' 0.73 W
P27 595 EF16F-27 BHL	10015.0	-456.0	-111.1		39° 34' 41.00 N	108° 2' 0.95 W



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF16F-27 P27 595
Project:	North Piceance	TVD Reference:	well @ 6671.0ft
Site:	P27 595 (S27-T5S-R95W)	MD Reference:	well @ 6671.0ft
Well:	NP EF16F-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 EF16F-27 P27 595					
Well Position	+N/-S	0.0 ft	Northing:	1,645,849.08 ft	Latitude:	39° 34' 45.51 N
	+E/-W	0.0 ft	Easting:	2,286,072.25 ft	Longitude:	108° 1' 59.53 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	2/15/2012	10.29	65.78	52,217

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	203.32	

Survey Program	Date	10/22/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
50.0	350.0	Survey #1 (DD)	Gyro	Gyro	
390.0	10,175.0	Survey #2 (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		
50.0	0.46	263.95	50.0	0.0	-0.2	0.1	0.92	0.92		
100.0	0.34	278.53	100.0	0.0	-0.5	0.2	0.31	-0.24		
137.0	0.13	276.06	137.0	0.0	-0.7	0.3	0.57	-0.57		
173.0	0.24	253.50	173.0	0.0	-0.8	0.3	0.36	0.31		
203.0	0.28	251.23	203.0	-0.1	-0.9	0.4	0.14	0.13		
233.0	0.38	267.20	233.0	-0.1	-1.1	0.5	0.45	0.33		
255.0	0.38	250.39	255.0	-0.1	-1.2	0.6	0.50	0.00		
296.0	0.23	260.39	296.0	-0.2	-1.5	0.7	0.39	-0.37		
327.0	0.27	266.42	327.0	-0.2	-1.6	0.8	0.15	0.13		
350.0	0.16	269.44	350.0	-0.2	-1.7	0.8	0.48	-0.48	Last Gyro Survey @ 530' MD	
390.0	0.10	351.30	390.0	-0.2	-1.7	0.8	0.44	-0.15		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF16F-27 P27 595
Project:	North Piceance	TVD Reference:	well @ 6671.0ft
Site:	P27 595 (S27-T5S-R95W)	MD Reference:	well @ 6671.0ft
Well:	NP EF16F-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
420.0	0.20	280.30	420.0	-0.1	-1.8	0.8	0.64	0.33	
451.0	0.00	222.60	451.0	-0.1	-1.8	0.8	0.65	-0.65	
481.0	0.80	236.70	481.0	-0.2	-2.0	1.0	2.67	2.67	
512.0	1.00	212.70	512.0	-0.6	-2.4	1.5	1.36	0.65	
561.0	2.00	205.70	561.0	-1.7	-3.0	2.7	2.07	2.04	
607.0	3.10	188.80	606.9	-3.7	-3.5	4.7	2.87	2.39	
653.0	3.70	187.70	652.8	-6.4	-3.9	7.4	1.31	1.30	
699.0	3.80	178.20	698.7	-9.4	-4.0	10.2	1.37	0.22	
744.0	3.80	184.10	743.6	-12.3	-4.1	12.9	0.87	0.00	
790.0	3.60	187.70	789.6	-15.3	-4.4	15.8	0.67	-0.43	
836.0	3.60	188.80	835.5	-18.1	-4.8	18.6	0.15	0.00	
882.0	4.00	187.00	881.4	-21.2	-5.2	21.5	0.91	0.87	
927.0	3.90	188.50	926.3	-24.2	-5.6	24.5	0.32	-0.22	
973.0	3.80	188.40	972.2	-27.3	-6.1	27.5	0.22	-0.22	
1,065.0	5.20	186.00	1,063.9	-34.4	-7.0	34.4	1.54	1.52	
1,156.0	6.40	189.00	1,154.4	-43.6	-8.2	43.2	1.36	1.32	
1,248.0	6.50	191.70	1,245.8	-53.7	-10.1	53.3	0.35	0.11	
1,337.0	7.40	188.50	1,334.2	-64.3	-11.9	63.8	1.10	1.01	
1,429.0	7.80	190.00	1,425.4	-76.3	-13.9	75.6	0.49	0.43	
1,521.0	7.10	189.50	1,516.6	-88.1	-15.9	87.2	0.76	-0.76	
1,612.0	7.40	195.90	1,606.8	-99.3	-18.4	98.5	0.95	0.33	
1,704.0	6.90	193.50	1,698.1	-110.3	-21.4	109.8	0.63	-0.54	
1,785.0	7.30	197.30	1,778.5	-120.0	-24.0	119.7	0.76	0.49	
1,895.0	7.20	191.00	1,887.6	-133.4	-27.4	133.4	0.73	-0.09	
1,986.0	6.90	191.20	1,977.9	-144.4	-29.6	144.3	0.33	-0.33	
2,078.0	7.20	190.50	2,069.3	-155.5	-31.7	155.3	0.34	0.33	
2,170.0	6.80	186.60	2,160.6	-166.6	-33.4	166.2	0.67	-0.43	
2,261.0	6.30	184.40	2,251.0	-176.9	-34.4	176.0	0.61	-0.55	
2,353.0	7.90	191.10	2,342.3	-188.1	-36.0	187.0	1.96	1.74	
2,444.0	7.90	191.90	2,432.4	-200.4	-38.5	199.2	0.12	0.00	
2,536.0	7.90	189.30	2,523.5	-212.8	-40.8	211.6	0.39	0.00	
2,627.0	7.70	192.10	2,613.7	-224.9	-43.1	223.6	0.47	-0.22	
2,719.0	7.80	193.30	2,704.8	-237.0	-45.8	235.8	0.21	0.11	
2,810.0	7.80	191.30	2,795.0	-249.1	-48.4	247.9	0.30	0.00	
2,902.0	7.60	192.30	2,886.2	-261.2	-51.0	260.0	0.26	-0.22	
2,993.0	7.10	192.10	2,976.4	-272.6	-53.4	271.4	0.55	-0.55	
3,085.0	6.90	192.50	3,067.7	-283.5	-55.8	282.4	0.22	-0.22	
3,176.0	6.60	190.40	3,158.1	-294.0	-57.9	292.9	0.43	-0.33	
3,268.0	6.80	189.00	3,249.5	-304.6	-59.7	303.3	0.28	0.22	
3,359.0	6.50	191.00	3,339.9	-314.9	-61.6	313.6	0.42	-0.33	
3,451.0	7.20	192.70	3,431.2	-325.7	-63.8	324.3	0.79	0.76	
3,543.0	7.30	196.00	3,522.5	-336.9	-66.7	335.8	0.47	0.11	
3,634.0	6.80	195.80	3,612.8	-347.7	-69.8	346.9	0.55	-0.55	
3,726.0	6.70	194.70	3,704.2	-358.1	-72.6	357.6	0.18	-0.11	
3,817.0	6.40	192.20	3,794.6	-368.2	-75.0	367.8	0.45	-0.33	
3,909.0	5.90	188.50	3,886.0	-377.9	-76.8	377.4	0.69	-0.54	
4,001.0	6.00	190.50	3,977.5	-387.3	-78.4	386.7	0.25	0.11	
4,093.0	5.80	191.00	4,069.0	-396.6	-80.2	395.9	0.22	-0.22	
4,184.0	4.40	197.90	4,159.7	-404.4	-82.1	403.9	1.68	-1.54	
4,275.0	4.40	193.70	4,250.4	-411.1	-84.0	410.8	0.35	0.00	
4,367.0	3.00	200.90	4,342.2	-416.8	-85.7	416.7	1.60	-1.52	
4,459.0	2.80	198.60	4,434.1	-421.2	-87.3	421.3	0.25	-0.22	
4,550.0	2.70	193.10	4,525.0	-425.4	-88.5	425.6	0.31	-0.11	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF16F-27 P27 595
Project:	North Piceance	TVD Reference:	well @ 6671.0ft
Site:	P27 595 (S27-T5S-R95W)	MD Reference:	well @ 6671.0ft
Well:	NP EF16F-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
4,642.0	2.30	196.90	4,616.9	-429.2	-89.5	429.6	0.47	-0.43	
4,733.0	2.40	189.50	4,707.8	-432.9	-90.3	433.3	0.35	0.11	
4,825.0	2.20	187.60	4,799.8	-436.5	-90.9	436.8	0.23	-0.22	
4,917.0	2.10	205.20	4,891.7	-439.8	-91.8	440.2	0.72	-0.11	
5,008.0	2.00	207.60	4,982.6	-442.7	-93.3	443.5	0.14	-0.11	
5,099.0	1.10	203.00	5,073.6	-444.9	-94.4	445.9	1.00	-0.99	
5,191.0	0.50	205.70	5,165.6	-446.1	-94.9	447.2	0.65	-0.65	
5,282.0	0.80	232.30	5,256.6	-446.8	-95.6	448.2	0.46	0.33	
5,373.0	0.70	241.80	5,347.6	-447.5	-96.6	449.2	0.17	-0.11	
5,465.0	0.80	14.50	5,439.6	-447.1	-96.9	449.0	1.49	0.11	
5,556.0	0.80	31.00	5,530.6	-446.0	-96.4	447.7	0.25	0.00	
5,647.0	0.60	27.00	5,621.6	-445.0	-95.9	446.6	0.23	-0.22	
5,738.0	0.80	2.80	5,712.6	-444.0	-95.6	445.5	0.39	0.22	
5,830.0	0.40	356.90	5,804.6	-443.0	-95.6	444.7	0.44	-0.43	
5,921.0	0.00	9.30	5,895.6	-442.7	-95.6	444.4	0.44	-0.44	
6,013.0	0.30	100.30	5,987.6	-442.7	-95.4	444.3	0.33	0.33	
6,104.0	1.00	87.00	6,078.5	-442.7	-94.3	443.9	0.78	0.77	
6,195.0	1.10	81.10	6,169.5	-442.5	-92.7	443.1	0.16	0.11	
6,287.0	0.70	205.50	6,261.5	-442.9	-92.1	443.2	1.74	-0.43	
6,378.0	0.80	181.40	6,352.5	-444.0	-92.3	444.3	0.36	0.11	
6,469.0	1.00	252.40	6,443.5	-444.9	-93.1	445.4	1.16	0.22	
6,561.0	0.70	244.30	6,535.5	-445.4	-94.4	446.4	0.35	-0.33	
6,652.0	0.80	251.50	6,626.5	-445.9	-95.5	447.2	0.15	0.11	
6,744.0	0.80	251.60	6,718.5	-446.3	-96.7	448.1	0.00	0.00	
6,835.0	1.00	247.40	6,809.5	-446.8	-98.0	449.1	0.23	0.22	
6,927.0	0.60	242.10	6,901.5	-447.3	-99.2	450.0	0.44	-0.43	
7,018.0	1.10	227.50	6,992.4	-448.1	-100.3	451.2	0.59	0.55	
7,109.0	0.80	206.60	7,083.4	-449.3	-101.2	452.6	0.50	-0.33	
7,201.0	0.40	242.10	7,175.4	-450.0	-101.8	453.5	0.57	-0.43	
7,292.0	0.10	304.50	7,266.4	-450.1	-102.1	453.8	0.40	-0.33	
7,384.0	0.00	100.30	7,358.4	-450.1	-102.2	453.7	0.11	-0.11	
7,475.0	0.20	240.90	7,449.4	-450.1	-102.3	453.9	0.22	0.22	
7,567.0	0.90	225.30	7,541.4	-450.7	-103.0	454.7	0.77	0.76	
7,658.0	0.80	203.90	7,632.4	-451.8	-103.7	456.0	0.36	-0.11	
7,750.0	0.10	100.30	7,724.4	-452.4	-103.9	456.6	0.90	-0.76	
7,842.0	0.30	285.90	7,816.4	-452.4	-104.1	456.6	0.43	0.22	
7,933.0	0.50	214.70	7,907.4	-452.6	-104.5	457.0	0.54	0.22	
8,025.0	0.50	156.00	7,999.4	-453.3	-104.6	457.7	0.53	0.00	
8,116.0	0.70	178.30	8,090.4	-454.2	-104.4	458.5	0.33	0.22	
8,207.0	0.80	232.20	8,181.4	-455.2	-104.9	459.5	0.75	0.11	
8,299.0	0.70	46.10	8,273.4	-455.2	-105.0	459.6	1.63	-0.11	
8,390.0	0.70	47.40	8,364.4	-454.4	-104.2	458.5	0.02	0.00	
8,482.0	0.50	89.00	8,456.4	-454.0	-103.4	457.9	0.51	-0.22	
8,573.0	0.70	94.00	8,547.4	-454.1	-102.4	457.5	0.23	0.22	
8,665.0	0.50	107.80	8,639.4	-454.2	-101.5	457.3	0.27	-0.22	
8,756.0	0.90	172.30	8,730.4	-455.1	-101.0	457.9	0.90	0.44	
8,848.0	1.30	328.60	8,822.4	-454.9	-101.4	457.9	2.34	0.43	
8,939.0	1.10	314.80	8,913.3	-453.4	-102.6	457.0	0.38	-0.22	
9,031.0	0.70	313.80	9,005.3	-452.4	-103.6	456.4	0.44	-0.43	
9,122.0	0.90	300.60	9,096.3	-451.6	-104.6	456.2	0.30	0.22	
9,213.0	0.40	261.20	9,187.3	-451.3	-105.6	456.2	0.71	-0.55	
9,305.0	0.80	258.80	9,279.3	-451.5	-106.5	456.8	0.44	0.43	
9,396.0	1.20	237.30	9,370.3	-452.1	-107.9	457.9	0.60	0.44	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF16F-27 P27 595
Project:	North Piceance	TVD Reference:	well @ 6671.0ft
Site:	P27 595 (S27-T5S-R95W)	MD Reference:	well @ 6671.0ft
Well:	NP EF16F-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	1.00	231.60	9,461.3	-453.1	-109.4	459.4	0.25	-0.22	
9,578.0	1.00	199.50	9,552.3	-454.4	-110.3	460.9	0.61	0.00	
9,670.0	1.20	206.10	9,644.2	-456.0	-111.0	462.7	0.26	0.22	
9,761.0	1.60	215.20	9,735.2	-457.9	-112.1	464.9	0.50	0.44	
9,852.0	2.00	205.00	9,826.2	-460.4	-113.5	467.7	0.56	0.44	
9,944.0	1.80	205.70	9,918.1	-463.1	-114.8	470.7	0.22	-0.22	
10,035.0	2.20	215.30	10,009.1	-465.8	-116.4	473.9	0.57	0.44	
10,125.0	1.60	213.00	10,099.0	-468.3	-118.1	476.8	0.67	-0.67	Last Cathedral Survey @ 10,125' MD Projection to Bit @ 10,175'
10,175.0	1.60	213.00	10,149.0	-469.5	-118.9	478.2	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
P27 595 EF16F-27 TGT	0.00	0.00	4,500.0	-446.0	-94.1	1,645,405.88	2,285,965.75	39° 34' 41.10 N	108° 2' 0.73 W
- hit/miss target									
- actual wellpath misses target center by 22.5ft at 4526.1ft MD (4501.1 TVD, -424.3 N, -88.2 E)									
- Point									
P27 595 EF16F-27 BHL	0.00	0.00	10,015.0	-456.0	-111.1	1,645,396.33	2,285,948.52	39° 34' 41.00 N	108° 2' 0.95 W
- actual wellpath misses target center by 11.4ft at 10040.6ft MD (10014.6 TVD, -466.0 N, -116.6 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
350.0	350.0	-0.2	-1.7	Last Gyro Survey @ 530' MD
10,125.0	10,099.0	-468.3	-118.1	Last Cathedral Survey @ 10,125' MD
10,175.0	10,149.0	-469.5	-118.9	Projection to Bit @ 10,175'

Checked By: _____ Approved By: _____ Date: _____