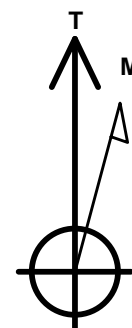
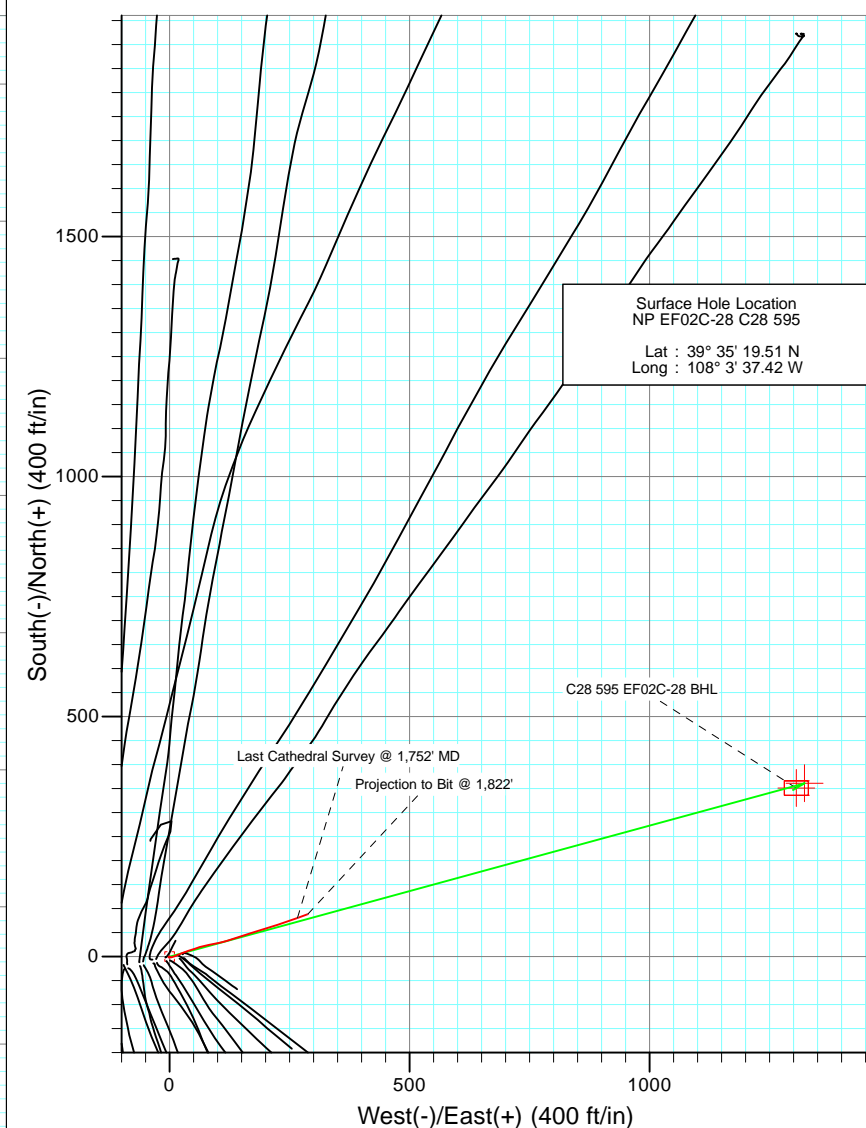
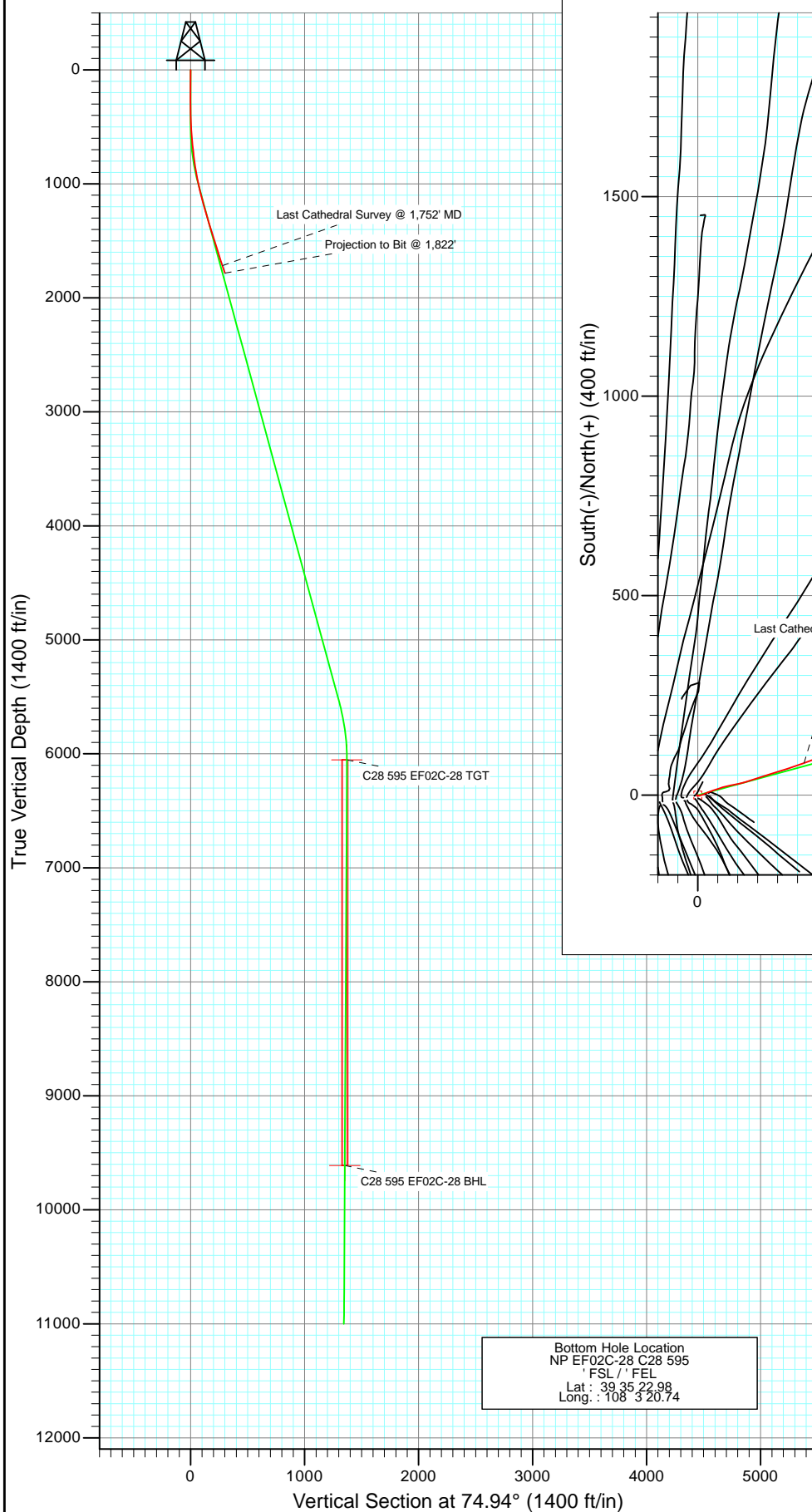




Project: North Piceance
Site: C28 595 (S28-T5S-R95W)
Well: NP EF02C-28 C28 595
Wellbore: DD
Design: DD



Azimuths to True North
Magnetic North: 10.52°

Magnetic Field
Strength: 52389.6snT
Dip Angle: 65.83°
Date: 6/22/2010
Model: IGRF2010

DESIGN DETAILS: DD

105268 (SH); LR
KBE @ 6197.0ft (Nabors M13)

Target	Azimuth	Origin	N/S	E/W	From TVD
C28 595 EF02C-28 BHL	74.94	Slot	0.0	0.0	0.0

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF02C-28 C28 595
Project:	North Piceance	TVD Reference:	KBE @ 6197.0ft (Nabors M13)
Site:	C28 595 (S28-T5S-R95W)	MD Reference:	KBE @ 6197.0ft (Nabors M13)
Well:	NP EF02C-28 C28 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		C28 595 (S28-T5S-R95W)			
Site Position:		Northing:	1,649,466.64 ft	Latitude:	39° 35' 19.10 N
From:	Lat/Long	Easting:	2,278,319.64 ft	Longitude:	108° 3' 39.81 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.62 °

Well	NP EF02C-28 C28 595					
Well Position	+N/-S	0.0 ft	Northing:	1,649,502.66 ft	Latitude:	39° 35' 19.51 N
	+E/-W	0.0 ft	Easting:	2,278,507.67 ft	Longitude:	108° 3' 37.42 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,175.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/22/2010	10.52	65.83	52,390

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	74.94	

Survey Program	Date	10/11/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
170.0	1,822.0	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		
170.0	0.70	249.50	170.0	-0.4	-1.0	-1.0	0.41	0.41		
200.0	0.70	218.50	200.0	-0.6	-1.3	-1.4	1.25	0.00		
231.0	0.50	213.70	231.0	-0.8	-1.5	-1.6	0.66	-0.65		
262.0	0.40	226.30	262.0	-1.0	-1.6	-1.8	0.45	-0.32		
292.0	0.50	128.90	292.0	-1.2	-1.6	-1.8	2.26	0.33		
322.0	1.10	114.10	322.0	-1.4	-1.2	-1.5	2.10	2.00		
353.0	1.20	112.60	353.0	-1.6	-0.6	-1.0	0.34	0.32		
383.0	1.30	113.40	383.0	-1.9	0.0	-0.5	0.34	0.33		
414.0	1.50	80.70	414.0	-1.9	0.7	0.2	2.62	0.65		
444.0	2.10	93.50	444.0	-1.9	1.6	1.1	2.40	2.00		
474.0	2.70	73.80	473.9	-1.8	2.8	2.3	3.37	2.00		
505.0	3.40	72.50	504.9	-1.3	4.4	3.9	2.27	2.26		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well NP EF02C-28 C28 595
Project:	North Piceance	TVD Reference:	KBE @ 6197.0ft (Nabors M13)
Site:	C28 595 (S28-T5S-R95W)	MD Reference:	KBE @ 6197.0ft (Nabors M13)
Well:	NP EF02C-28 C28 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
535.0	3.70	69.10	534.8	-0.7	6.2	5.8	1.22	1.00	
566.0	4.30	73.20	565.7	0.0	8.2	7.9	2.14	1.94	
597.0	4.90	69.50	596.6	0.8	10.6	10.4	2.16	1.94	
628.0	5.80	70.60	627.5	1.8	13.3	13.3	2.92	2.90	
660.0	6.10	67.50	659.3	3.0	16.4	16.6	1.37	0.94	
692.0	6.30	65.00	691.2	4.4	19.6	20.0	1.05	0.62	
724.0	6.50	66.60	723.0	5.9	22.8	23.5	0.84	0.62	
755.0	7.10	66.90	753.7	7.3	26.2	27.2	1.94	1.94	
787.0	7.80	70.00	785.5	8.8	30.0	31.3	2.52	2.19	
818.0	8.50	70.50	816.2	10.3	34.2	35.7	2.27	2.26	
850.0	8.90	70.80	847.8	11.9	38.7	40.5	1.26	1.25	
945.0	10.70	71.30	941.4	17.2	54.0	56.6	1.90	1.89	
1,040.0	12.20	77.40	1,034.5	22.2	72.2	75.5	2.03	1.58	
1,136.0	15.10	78.80	1,127.8	26.8	94.4	98.1	3.04	3.02	
1,231.0	16.50	73.40	1,219.2	33.1	119.4	123.9	2.14	1.47	
1,327.0	17.50	71.40	1,311.0	41.6	146.2	152.0	1.21	1.04	
1,422.0	16.70	72.90	1,401.8	50.1	172.8	179.9	0.96	-0.84	
1,518.0	16.80	73.40	1,493.7	58.2	199.2	207.5	0.18	0.10	
1,613.0	17.50	72.00	1,584.5	66.5	226.0	235.5	0.86	0.74	
1,709.0	18.30	70.20	1,675.9	76.1	253.9	264.9	1.01	0.83	
1,752.0	18.90	69.70	1,716.6	80.8	266.8	278.6	1.44	1.40	Last Cathedral Survey @ 1,752' MD
1,822.0	18.90	69.70	1,782.8	88.6	288.0	301.2	0.00	0.00	Projection to Bit @ 1,822'

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									
C28 595 EF02C-28 TGT	0.00	0.00	6,052.0	361.2	1,322.9	1,649,826.46	2,279,840.24	39° 35' 23.08 N	108° 3' 20.52 W
- actual wellpath misses target center by 4401.3ft at 1822.0ft MD (1782.8 TVD, 88.6 N, 288.0 E)									
- Point									
C28 595 EF02C-28 BHL	0.00	0.00	9,612.0	351.3	1,305.9	1,649,816.99	2,279,822.91	39° 35' 22.98 N	108° 3' 20.74 W
- actual wellpath misses target center by 7899.4ft at 1822.0ft MD (1782.8 TVD, 88.6 N, 288.0 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)	
1,752.0	1,716.6	80.8	266.8	Last Cathedral Survey @ 1,752' MD
1,822.0	1,782.8	88.6	288.0	Projection to Bit @ 1,822'

Checked By: _____ Approved By: _____ Date: _____