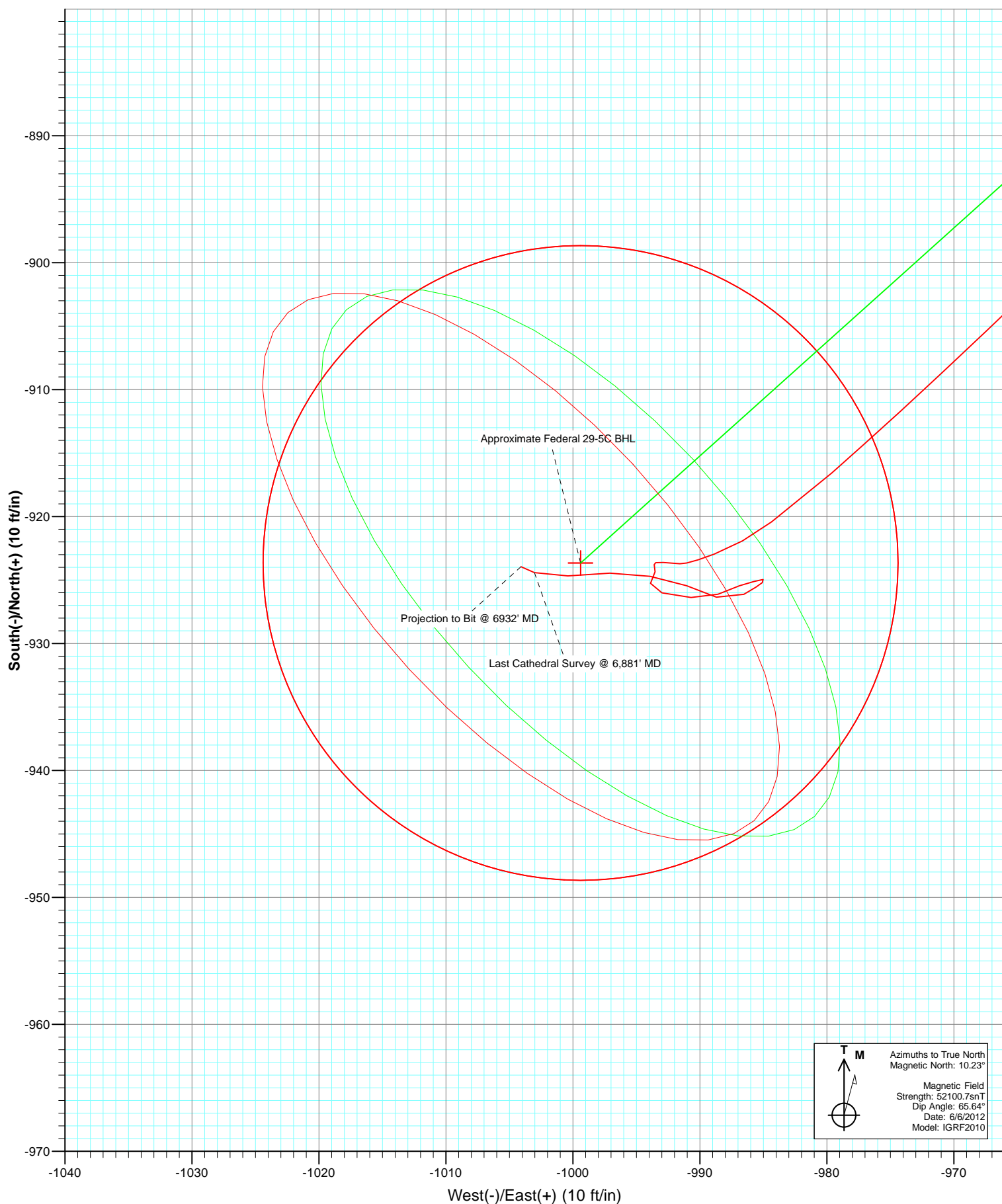


Azimuths to True North
 Magnetic North: 10.23°

Magnetic Field
 Strength: 52100.7snT
 Dip Angle: 65.64°
 Date: 6/6/2012
 Model: IGRF2010

DESIGN DETAILS: FINAL
 125361; 170655; DN
 WELL @ 6058.0ft (Nabors M11)

Target	227.26	Origin Type	N/S	E/W
Federal 29-5C BHL	227.26	Slot	0.0	0.0



Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 29-5C
Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 6058.0ft (Nabors M11)
Site:	S29-T7S-R95W (PF-29 Pad)	MD Reference:	WELL @ 6058.0ft (Nabors M11)
Well:	Federal 29-5C	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	S. Piceance (Parachute), Garfield County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	S29-T7S-R95W (PF-29 Pad)			
Site Position:		Northing:	1,584,347.66 ft	Latitude: 39.410580
From:	Lat/Long	Easting:	2,286,791.27 ft	Longitude: -108.024590
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.59 °

Well	Federal 29-5C			
Well Position	+N/-S	0.0 ft	Northing:	1,584,328.95 ft
	+E/-W	0.0 ft	Easting:	2,286,755.99 ft
Position Uncertainty	0.0 ft		Wellhead Elevation:	ft
			Ground Level:	6,036.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/6/2012	10.23	65.64	52,101

Design	FINAL			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	227.26

Survey Program	Date	6/19/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
143.0	1,033.0	Survey #1 (DD)	MWD	Geolink MWD	
1,164.0	6,932.0	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	
143.0	0.10	85.30	143.0	0.0	0.1	-0.1	0.07	0.07	
173.0	0.20	38.90	173.0	0.1	0.2	-0.2	0.50	0.33	
204.0	0.10	87.20	204.0	0.1	0.2	-0.2	0.49	-0.32	
235.0	0.40	184.30	235.0	0.0	0.3	-0.2	1.37	0.97	
266.0	0.80	204.40	266.0	-0.3	0.2	0.1	1.44	1.29	
296.0	1.60	192.30	296.0	-0.9	0.0	0.6	2.78	2.67	
327.0	2.40	189.60	327.0	-2.0	-0.2	1.5	2.60	2.58	
358.0	3.00	191.30	357.9	-3.4	-0.5	2.7	1.95	1.94	
388.0	3.60	189.90	387.9	-5.1	-0.8	4.1	2.02	2.00	
419.0	4.40	194.50	418.8	-7.2	-1.3	5.8	2.78	2.58	
449.0	5.00	196.40	448.7	-9.6	-1.9	7.9	2.07	2.00	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 29-5C
Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 6058.0ft (Nabors M11)
Site:	S29-T7S-R95W (PF-29 Pad)	MD Reference:	WELL @ 6058.0ft (Nabors M11)
Well:	Federal 29-5C	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	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
480.0	5.60	193.60	479.6	-12.4	-2.7	10.3	2.11	1.94	
511.0	6.40	194.60	510.4	-15.5	-3.4	13.0	2.60	2.58	
541.0	6.70	197.10	540.2	-18.8	-4.4	16.0	1.38	1.00	
572.0	6.90	203.20	571.0	-22.2	-5.6	19.2	2.42	0.65	
603.0	7.40	209.70	601.8	-25.7	-7.4	22.8	3.07	1.61	
633.0	8.00	219.20	631.5	-29.0	-9.6	26.7	4.68	2.00	
664.0	8.70	223.50	662.2	-32.3	-12.6	31.2	3.02	2.26	
695.0	9.80	225.60	692.8	-35.9	-16.1	36.2	3.71	3.55	
726.0	10.80	225.70	723.3	-39.8	-20.1	41.7	3.23	3.23	
757.0	11.90	225.90	753.6	-44.0	-24.5	47.8	3.55	3.55	
787.0	13.10	226.80	782.9	-48.5	-29.2	54.3	4.05	4.00	
818.0	14.20	224.90	813.1	-53.6	-34.4	61.6	3.83	3.55	
849.0	15.70	224.80	843.0	-59.3	-40.0	69.6	4.84	4.84	
940.0	19.60	225.70	929.7	-78.7	-59.7	97.2	4.30	4.29	
1,033.0	20.70	226.80	1,017.0	-100.8	-82.8	129.2	1.25	1.18	
1,164.0	20.80	228.60	1,139.5	-132.0	-117.1	175.6	0.49	0.08	
1,259.0	20.80	228.40	1,228.3	-154.4	-142.4	209.4	0.07	0.00	
1,354.0	20.40	228.60	1,317.3	-176.5	-167.4	242.8	0.43	-0.42	
1,448.0	20.20	228.90	1,405.4	-198.1	-191.9	275.4	0.24	-0.21	
1,544.0	21.60	229.70	1,495.1	-220.4	-217.9	309.6	1.49	1.46	
1,639.0	21.10	229.50	1,583.6	-242.8	-244.2	344.2	0.53	-0.53	
1,735.0	20.90	229.70	1,673.2	-265.1	-270.4	378.5	0.22	-0.21	
1,830.0	22.80	228.60	1,761.4	-288.2	-297.2	413.9	2.05	2.00	
1,925.0	22.20	228.50	1,849.1	-312.3	-324.4	450.2	0.63	-0.63	
2,021.0	21.50	226.30	1,938.2	-336.5	-350.7	485.9	1.12	-0.73	
2,116.0	20.70	225.70	2,026.9	-360.2	-375.3	520.1	0.87	-0.84	
2,211.0	20.10	225.10	2,115.9	-383.5	-398.9	553.2	0.67	-0.63	
2,307.0	21.60	228.10	2,205.6	-406.9	-423.8	587.4	1.92	1.56	
2,402.0	21.00	227.90	2,294.1	-430.0	-449.4	621.9	0.64	-0.63	
2,498.0	20.60	227.70	2,383.9	-452.9	-474.7	656.0	0.42	-0.42	
2,593.0	21.20	230.70	2,472.6	-475.0	-500.3	689.8	1.29	0.63	
2,689.0	20.80	230.00	2,562.3	-497.0	-526.8	724.2	0.49	-0.42	
2,784.0	20.40	229.60	2,651.2	-518.6	-552.3	757.6	0.45	-0.42	
2,880.0	21.50	230.00	2,740.8	-540.7	-578.5	791.9	1.16	1.15	
2,975.0	21.10	229.50	2,829.3	-563.0	-604.9	826.3	0.46	-0.42	
3,071.0	20.40	228.60	2,919.1	-585.3	-630.6	860.3	0.80	-0.73	
3,167.0	21.20	227.70	3,008.9	-608.0	-656.0	894.4	0.90	0.83	
3,262.0	20.90	228.50	3,097.5	-630.8	-681.4	928.5	0.44	-0.32	
3,357.0	21.80	225.90	3,186.0	-654.3	-706.7	963.1	1.37	0.95	
3,453.0	21.50	225.70	3,275.2	-679.0	-732.1	998.5	0.32	-0.31	
3,548.0	21.10	226.30	3,363.7	-703.0	-756.9	1,033.0	0.48	-0.42	
3,643.0	20.70	226.40	3,452.5	-726.4	-781.5	1,066.9	0.42	-0.42	
3,738.0	20.40	226.20	3,541.4	-749.4	-805.6	1,100.3	0.32	-0.32	
3,834.0	20.00	225.00	3,631.5	-772.6	-829.2	1,133.4	0.60	-0.42	
3,929.0	19.00	226.30	3,721.1	-794.8	-851.9	1,165.1	1.15	-1.05	
4,025.0	17.10	226.80	3,812.4	-815.2	-873.5	1,194.8	1.99	-1.98	
4,118.0	15.20	226.00	3,901.7	-833.1	-892.2	1,220.7	2.06	-2.04	
4,214.0	13.20	227.10	3,994.8	-849.3	-909.3	1,244.2	2.10	-2.08	
4,309.0	11.80	224.50	4,087.5	-863.6	-924.1	1,264.8	1.59	-1.47	
4,404.0	10.40	225.60	4,180.7	-876.5	-937.0	1,283.1	1.49	-1.47	
4,499.0	9.10	227.10	4,274.3	-887.6	-948.6	1,299.1	1.39	-1.37	
4,594.0	7.80	226.40	4,368.3	-897.2	-958.8	1,313.1	1.37	-1.37	
4,690.0	6.30	226.50	4,463.6	-905.3	-967.4	1,324.9	1.56	-1.56	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Federal 29-5C
Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 6058.0ft (Nabors M11)
Site:	S29-T7S-R95W (PF-29 Pad)	MD Reference:	WELL @ 6058.0ft (Nabors M11)
Well:	Federal 29-5C	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	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
4,785.0	5.00	227.60	4,558.1	-911.7	-974.2	1,334.2	1.37	-1.37	
4,880.0	3.80	228.60	4,652.8	-916.6	-979.6	1,341.5	1.27	-1.26	
4,935.3	3.62	231.27	4,708.0	-918.9	-982.4	1,345.1	0.45	-0.32	Federal 29-5C ToG
4,976.0	3.50	233.40	4,748.6	-920.4	-984.4	1,347.6	0.45	-0.30	
5,071.0	2.80	249.70	4,843.5	-923.0	-988.9	1,352.6	1.19	-0.74	
5,167.0	0.60	275.60	4,939.5	-923.7	-991.6	1,355.1	2.37	-2.29	
5,262.0	1.00	273.60	5,034.4	-923.6	-992.9	1,356.0	0.42	0.42	
5,357.0	0.30	153.40	5,129.4	-923.8	-993.6	1,356.7	1.24	-0.74	
5,452.0	0.40	186.20	5,224.4	-924.3	-993.5	1,357.0	0.23	0.11	
5,548.0	0.80	209.50	5,320.4	-925.3	-993.9	1,357.9	0.48	0.42	
5,643.0	1.50	97.90	5,415.4	-926.0	-993.0	1,357.7	2.04	0.74	
5,738.0	1.30	100.60	5,510.4	-926.4	-990.7	1,356.3	0.22	-0.21	
5,833.0	1.40	66.60	5,605.4	-926.1	-988.6	1,354.6	0.84	0.11	
5,928.0	0.80	71.70	5,700.3	-925.4	-986.9	1,352.9	0.64	-0.63	
6,024.0	0.60	76.90	5,796.3	-925.1	-985.7	1,351.8	0.22	-0.21	
6,120.0	0.30	79.40	5,892.3	-925.0	-985.0	1,351.2	0.31	-0.31	
6,215.0	0.50	227.70	5,987.3	-925.2	-985.1	1,351.4	0.81	0.21	
6,310.0	1.60	240.30	6,082.3	-926.1	-986.5	1,353.1	1.18	1.16	
6,406.0	1.30	294.00	6,178.3	-926.3	-988.7	1,354.8	1.39	-0.31	
6,502.0	1.70	288.80	6,274.3	-925.4	-991.0	1,355.9	0.44	0.42	
6,597.0	1.90	280.60	6,369.2	-924.7	-993.9	1,357.5	0.34	0.21	
6,691.0	2.00	268.50	6,463.2	-924.5	-997.1	1,359.7	0.45	0.11	
6,786.0	2.00	264.00	6,558.1	-924.7	-1,000.4	1,362.3	0.17	0.00	
6,877.8	1.31	292.45	6,649.9	-924.4	-1,003.0	1,364.0	1.14	-0.75	Federal 29-5C BHL
6,881.0	1.30	293.90	6,653.1	-924.4	-1,003.0	1,364.0	1.14	-0.47	Last Cathedral Survey @ 6,881' MD
6,932.0	1.30	293.90	6,704.1	-923.9	-1,004.1	1,364.5	0.00	0.00	Projection to Bit @ 6932' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Federal 29-5C ToG	0.00	0.00	4,707.0	-923.7	-999.4	1,583,433.42	2,285,731.31	39.407990	-108.028250
- hit/miss target									
- Shape									
- actual wellpath misses target center by 17.7ft at 4935.3ft MD (4708.0 TVD, -918.9 N, -982.4 E)									
- Point									
Federal 29-5C BHL	0.00	0.00	6,650.0	-923.7	-999.4	1,583,433.42	2,285,731.31	39.407990	-108.028250
- actual wellpath misses target center by 3.7ft at 6877.9ft MD (6649.9 TVD, -924.4 N, -1003.0 E)									
- Circle (radius 25.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
6,881.0	6,653.1	-924.4	-1,003.0	Last Cathedral Survey @ 6,881' MD	
6,932.0	6,704.1	-923.9	-1,004.1	Projection to Bit @ 6932' MD	

Checked By: _____ Approved By: _____ Date: _____