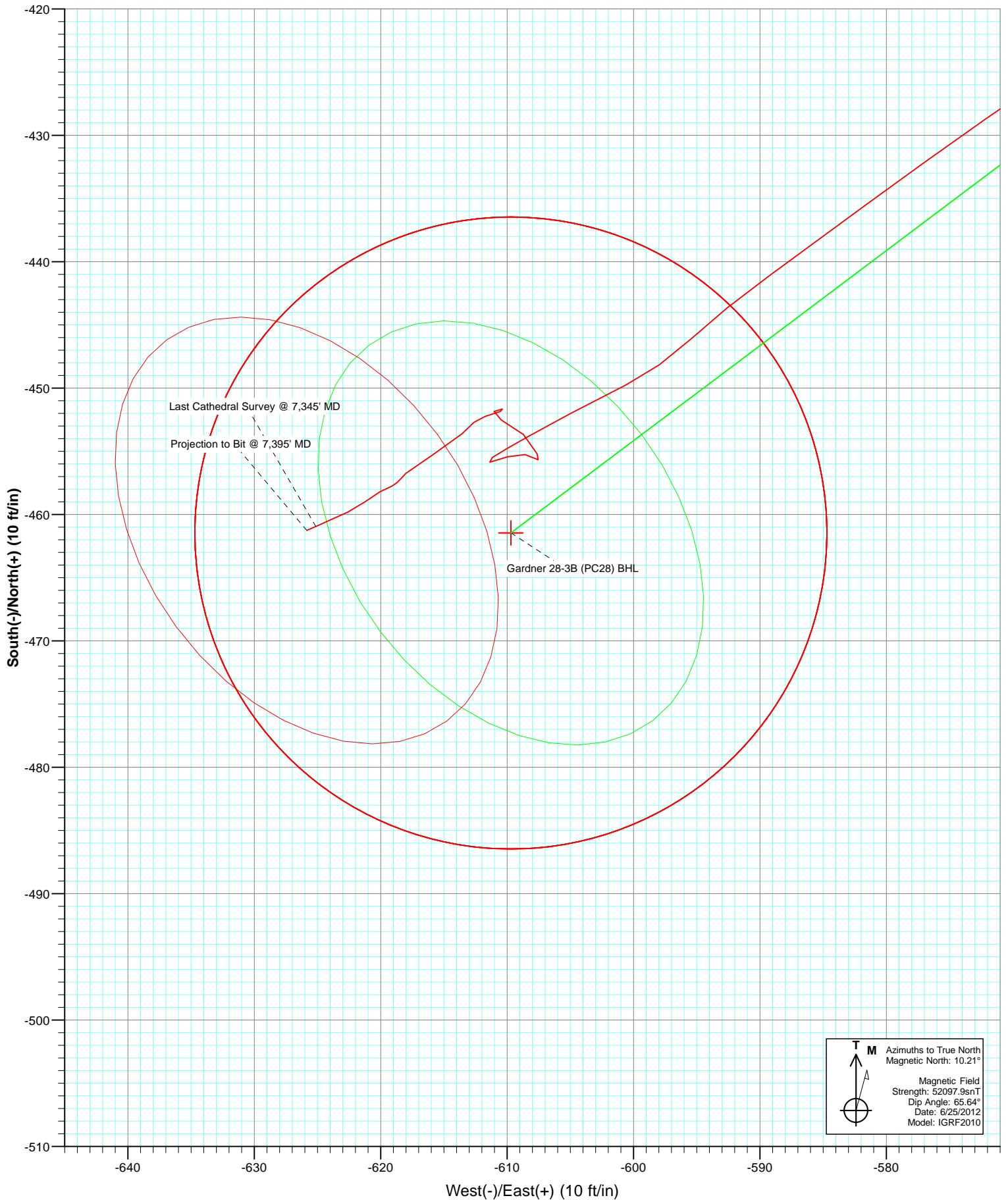


Azimuths to True North
 Magnetic North: 10.21°

Magnetic Field
 Strength: 52097.9snT
 Dip Angle: 65.64°
 Date: 6/25/2012
 Model: IGRF2010



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Gardner 28-3B
Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 6442.0ft (Nabors M13)
Site:	NENW Sec28-T7S-R95W (PC-28)	MD Reference:	WELL @ 6442.0ft (Nabors M13)
Well:	Gardner 28-3B	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	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	NENW Sec28-T7S-R95W (PC-28)			
Site Position:		Northing:	1,585,994.78 ft	Latitude: 39.415560
From:	Lat/Long	Easting:	2,292,840.18 ft	Longitude: -108.003350
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.58 °

Well	Gardner 28-3B			
Well Position	+N/-S	0.0 ft	Northing:	1,585,999.41 ft
	+E/-W	0.0 ft	Easting:	2,292,791.13 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level: 6,420.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/25/2012	10.21	65.64	52,098

Design	DD			
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	232.88

Survey Program	Date	8/6/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
143.0	1,120.0	Survey #1 (DD)	MWD	Geolink MWD	
1,262.0	7,395.0	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	0.60	340.20	143.0	0.7	-0.3	-0.2	0.42	0.42	
174.0	0.70	355.00	174.0	1.0	-0.3	-0.4	0.63	0.32	
204.0	0.70	336.60	204.0	1.4	-0.4	-0.5	0.75	0.00	
235.0	0.70	286.60	235.0	1.6	-0.7	-0.4	1.91	0.00	
266.0	1.50	278.30	266.0	1.7	-1.3	0.0	2.62	2.58	
296.0	1.50	264.40	296.0	1.8	-2.0	0.6	1.21	0.00	
327.0	2.10	245.20	327.0	1.5	-3.0	1.5	2.72	1.94	
358.0	2.50	244.60	357.9	0.9	-4.1	2.7	1.29	1.29	
389.0	2.60	243.00	388.9	0.3	-5.3	4.0	0.40	0.32	
420.0	3.50	235.50	419.9	-0.5	-6.7	5.7	3.17	2.90	
451.0	3.90	234.30	450.8	-1.7	-8.4	7.7	1.31	1.29	

Cathedral Energy Services

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Site:	NENW Sec28-T7S-R95W (PC-28)	MD Reference:	WELL @ 6442.0ft (Nabors M13)
Well:	Gardner 28-3B	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
482.0	4.20	237.60	481.7	-2.9	-10.2	9.9	1.23	0.97	
513.0	5.10	239.40	512.6	-4.2	-12.3	12.4	2.94	2.90	
543.0	5.20	239.70	542.5	-5.6	-14.6	15.0	0.35	0.33	
574.0	6.00	239.50	573.3	-7.1	-17.2	18.0	2.58	2.58	
605.0	6.80	237.40	604.2	-8.9	-20.2	21.5	2.69	2.58	
636.0	7.30	235.00	634.9	-11.0	-23.3	25.3	1.87	1.61	
667.0	7.90	231.30	665.6	-13.5	-26.6	29.4	2.50	1.94	
697.0	9.20	229.50	695.3	-16.3	-30.1	33.8	4.42	4.33	
759.0	10.30	224.80	756.4	-23.5	-37.7	44.3	2.19	1.77	
850.0	9.60	228.30	846.0	-34.3	-49.1	59.9	1.02	-0.77	
941.0	10.20	229.40	935.7	-44.6	-60.9	75.5	0.69	0.66	
1,035.0	8.80	231.10	1,028.4	-54.5	-72.8	91.0	1.52	-1.49	
1,120.0	9.10	227.90	1,112.4	-63.1	-82.9	104.2	0.68	0.35	
1,262.0	9.20	226.40	1,252.6	-78.5	-99.4	126.6	0.18	0.07	
1,357.0	8.80	225.30	1,346.4	-88.8	-110.1	141.4	0.46	-0.42	
1,452.0	9.70	229.30	1,440.2	-99.2	-121.3	156.6	1.16	0.95	
1,547.0	9.70	230.90	1,533.8	-109.4	-133.6	172.6	0.28	0.00	
1,643.0	9.40	228.90	1,628.5	-119.7	-145.8	188.5	0.47	-0.31	
1,738.0	9.90	231.30	1,722.1	-129.9	-158.0	204.4	0.68	0.53	
1,833.0	10.60	238.10	1,815.6	-139.6	-171.8	221.2	1.47	0.74	
1,928.0	10.50	237.10	1,909.0	-148.9	-186.5	238.6	0.22	-0.11	
2,024.0	9.70	236.30	2,003.5	-158.2	-200.6	255.4	0.85	-0.83	
2,119.0	9.40	236.50	2,097.2	-166.9	-213.7	271.1	0.32	-0.32	
2,214.0	10.60	236.80	2,190.8	-176.0	-227.5	287.6	1.26	1.26	
2,308.0	10.00	237.20	2,283.2	-185.1	-241.6	304.3	0.64	-0.64	
2,403.0	9.60	236.50	2,376.9	-193.9	-255.1	320.5	0.44	-0.42	
2,498.0	8.90	236.50	2,470.6	-202.4	-267.8	335.7	0.74	-0.74	
2,594.0	10.00	232.20	2,565.3	-211.6	-280.6	351.4	1.36	1.15	
2,689.0	9.50	230.90	2,658.9	-221.6	-293.2	367.5	0.58	-0.53	
2,784.0	9.30	230.50	2,752.7	-231.4	-305.2	383.0	0.22	-0.21	
2,879.0	11.00	230.40	2,846.2	-242.1	-318.1	399.8	1.79	1.79	
2,974.0	10.40	229.20	2,939.5	-253.5	-331.6	417.4	0.67	-0.63	
3,070.0	10.10	229.20	3,034.0	-264.6	-344.5	434.4	0.31	-0.31	
3,165.0	9.50	230.90	3,127.6	-275.0	-356.9	450.6	0.70	-0.63	
3,260.0	9.10	230.70	3,221.4	-284.7	-368.8	465.9	0.42	-0.42	
3,356.0	10.60	233.50	3,315.9	-294.8	-381.8	482.3	1.64	1.56	
3,451.0	10.20	233.70	3,409.4	-304.9	-395.6	499.5	0.42	-0.42	
3,544.0	9.80	234.00	3,501.0	-314.5	-408.6	515.6	0.43	-0.43	
3,639.0	9.50	234.20	3,594.6	-323.8	-421.5	531.5	0.32	-0.32	
3,735.0	9.10	234.40	3,689.4	-332.9	-434.1	547.0	0.42	-0.42	
3,830.0	8.70	234.50	3,783.2	-341.4	-446.1	561.7	0.42	-0.42	
3,926.0	10.10	235.90	3,877.9	-350.3	-459.0	577.4	1.48	1.46	
4,021.0	9.50	233.80	3,971.5	-359.6	-472.2	593.6	0.74	-0.63	
4,116.0	9.10	236.10	4,065.3	-368.5	-484.8	608.9	0.57	-0.42	
4,211.0	8.60	233.80	4,159.2	-376.8	-496.7	623.5	0.64	-0.53	
4,306.0	9.20	234.80	4,253.0	-385.4	-508.7	638.2	0.65	0.63	
4,402.0	10.50	235.60	4,347.6	-394.8	-522.2	654.6	1.36	1.35	
4,497.0	9.90	235.40	4,441.1	-404.3	-536.0	671.4	0.63	-0.63	
4,592.0	9.20	236.40	4,534.8	-413.2	-549.1	687.1	0.76	-0.74	
4,687.0	8.30	236.30	4,628.7	-421.2	-561.1	701.6	0.95	-0.95	
4,782.0	7.90	235.00	4,722.7	-428.7	-572.2	714.9	0.46	-0.42	
4,877.0	6.20	233.50	4,817.0	-435.5	-581.6	726.6	1.80	-1.79	
4,971.0	5.40	234.00	4,910.5	-441.1	-589.3	736.1	0.85	-0.85	

Cathedral Energy Services

Survey Report

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Project:	S. Piceance (Parachute)	TVD Reference:	WELL @ 6442.0ft (Nabors M13)
Site:	NENW Sec28-T7S-R95W (PC-28)	MD Reference:	WELL @ 6442.0ft (Nabors M13)
Well:	Gardner 28-3B	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
5,066.0	4.10	227.20	5,005.2	-446.1	-595.4	743.9	1.49	-1.37	
5,162.0	3.60	243.20	5,101.0	-449.8	-600.6	750.3	1.23	-0.52	
5,257.0	2.40	242.40	5,195.8	-452.0	-605.0	755.2	1.26	-1.26	
5,352.0	2.40	240.30	5,290.8	-453.9	-608.5	759.2	0.09	0.00	
5,447.0	1.30	237.90	5,385.7	-455.5	-611.2	762.2	1.16	-1.16	
5,458.3	1.04	236.25	5,397.0	-455.6	-611.4	762.4	2.29	-2.27	Gardner 28-3B (PC28) TGT
5,542.0	0.90	74.20	5,480.7	-455.9	-611.4	762.6	2.29	-0.17	
5,636.0	0.90	72.10	5,574.7	-455.4	-609.9	761.2	0.04	0.00	
5,731.0	0.80	94.90	5,669.7	-455.3	-608.6	760.0	0.37	-0.11	
5,827.0	0.60	134.60	5,765.7	-455.7	-607.5	759.4	0.53	-0.21	
5,922.0	1.10	332.70	5,860.7	-455.2	-607.6	759.2	1.77	0.53	
6,017.0	1.20	317.00	5,955.7	-453.7	-608.7	759.1	0.35	0.11	
6,112.0	1.40	291.40	6,050.6	-452.5	-610.5	759.9	0.64	0.21	
6,207.0	0.70	63.80	6,145.6	-451.8	-611.0	759.9	2.04	-0.74	
6,302.0	0.20	118.80	6,240.6	-451.7	-610.4	759.3	0.64	-0.53	
6,398.0	0.40	251.00	6,336.6	-451.8	-610.5	759.5	0.58	0.21	
6,493.0	1.10	253.10	6,431.6	-452.2	-611.7	760.7	0.74	0.74	
6,588.0	1.80	221.10	6,526.6	-453.6	-613.6	763.0	1.10	0.74	
6,683.0	1.70	248.00	6,621.5	-455.3	-615.9	765.8	0.86	-0.11	
6,779.0	1.50	221.00	6,717.5	-456.7	-618.0	768.4	0.80	-0.21	
6,873.0	0.40	253.20	6,811.5	-457.8	-619.1	769.9	1.26	-1.17	
6,969.0	0.80	241.20	6,907.5	-458.2	-620.0	770.9	0.43	0.42	
7,064.0	1.00	232.20	7,002.5	-459.0	-621.3	772.4	0.26	0.21	
7,159.0	0.90	246.90	7,097.5	-459.8	-622.6	773.9	0.28	-0.11	
7,254.0	0.80	245.10	7,192.4	-460.4	-623.9	775.3	0.11	-0.11	
7,345.0	0.90	246.30	7,283.4	-460.9	-625.1	776.6	0.11	0.11	Last Cathedral Survey @ 7,345' MD - Gardner 28-3B Projection to Bit @ 7,395' MD
7,395.0	0.90	246.30	7,333.4	-461.3	-625.8	777.4	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
Gardner 28-3B (PC28) T	0.00	358.42	5,397.0	-461.5	-609.7	1,585,554.93	2,292,168.95	39.414302	-108.005682
- hit/miss target									
- Shape									
- actual wellpath misses target center by 6.1ft at 5458.3ft MD (5397.0 TVD, -455.6 N, -611.4 E)									
- Circle (radius 25.0)									
Gardner 28-3B (PC28) E	0.00	358.42	7,297.0	-461.5	-609.7	1,585,554.93	2,292,168.95	39.414302	-108.005682
- hit/miss target									
- Shape									
- actual wellpath misses target center by 20.6ft at 7345.0ft MD (7283.4 TVD, -460.9 N, -625.1 E)									
- Circle (radius 25.0)									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
7,345.0	7,283.4	-460.9	-625.1	Last Cathedral Survey @ 7,345' MD
7,395.0	7,333.4	-461.3	-625.8	Projection to Bit @ 7,395' MD

Checked By: _____ Approved By: _____ Date: _____