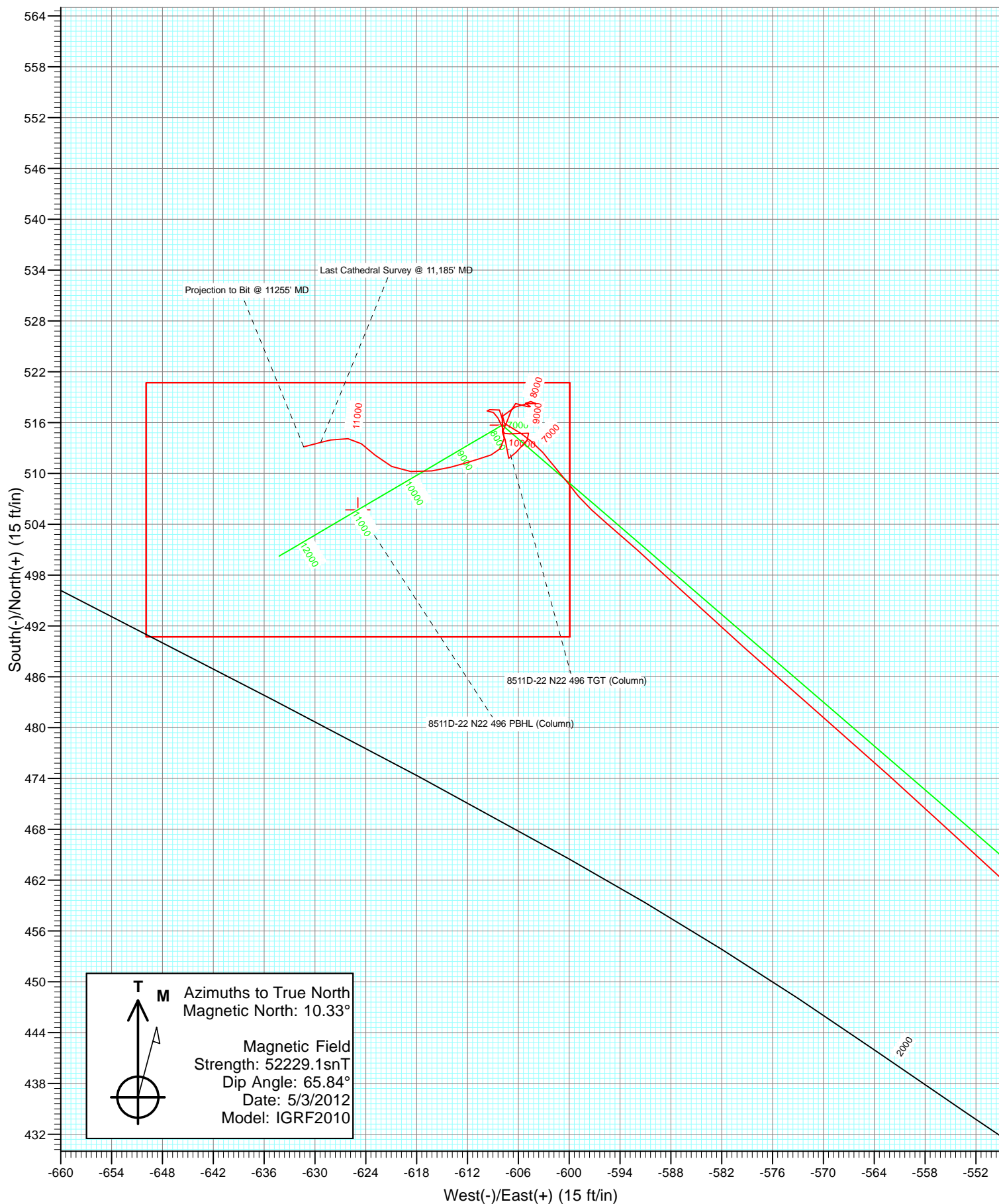


Azimuths to True North
 Magnetic North: 10.33°

Magnetic Field
 Strength: 52229.1nT
 Dip Angle: 65.84°
 Date: 5/3/2012
 Model: IGRF2010

DD							
8511D-22 N22 496							
125313; 162455; DN							
WELL @ 7602.0ft (Patterson #306)							
North American Datum 1983							
Well 8511D-22 N22 496, True North							
Type	Target		Azimuth	Origin Type	N/S	E/W	From TVD
User	No Target (Freehand)		309.05	Slot	0.0	0.0	0.0
Name		TVD	+N/-S	+E/-W	Latitude		Longitude
8511D-22 N22 496 TGT (Column)		7347.0	515.7	-607.9	39° 41' 7.06 N		108° 9' 33.58 W
8511D-22 N22 496 PBHL (Column)		1007.0	505.7	-624.9	39° 41' 6.96 N		108° 9' 33.80 W



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8511D-22 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson #306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson #306)
Well:	8511D-22 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Project	Story Gulch		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		S22-T4S-R96W (N22 496) (Column Pattern)			
Site Position:		Northing:	1,685,048.56 ft	Latitude:	39° 41' 3.24 N
From:	Lat/Long	Easting:	2,252,316.79 ft	Longitude:	108° 9' 25.11 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.68 °

Well	8511D-22 N22 496					
Well Position	+N/-S	0.0 ft	Northing:	1,684,921.32 ft	Latitude:	39° 41' 1.96 N
	+E/-W	0.0 ft	Easting:	2,252,258.46 ft	Longitude:	108° 9' 25.81 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,569.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/3/2012	10.33	65.84	52,229

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	309.05	

Survey Program	Date	5/12/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
181.0	11,255.0	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		
181.0	0.60	0.20	181.0	0.9	0.0	0.6	0.33	0.33		
212.0	0.70	71.50	212.0	1.2	0.2	0.6	2.46	0.32		
243.0	0.50	78.60	243.0	1.3	0.5	0.4	0.69	-0.65		
334.0	2.20	341.90	334.0	3.0	0.3	1.6	2.54	1.87		
426.0	4.00	314.00	425.8	6.9	-2.5	6.3	2.50	1.96		
517.0	5.70	298.40	516.5	11.3	-8.8	13.9	2.35	1.87		
612.0	6.10	297.50	611.0	15.8	-17.4	23.5	0.43	0.42		
703.0	6.60	307.10	701.5	21.2	-25.9	33.5	1.29	0.55		
795.0	7.40	309.60	792.8	28.2	-34.6	44.7	0.93	0.87		
886.0	7.60	307.30	883.0	35.6	-43.9	56.5	0.40	0.22		
973.0	7.50	309.60	969.2	42.7	-52.9	68.0	0.37	-0.11		
1,065.0	6.50	310.10	1,060.5	49.9	-61.5	79.2	1.09	-1.09		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8511D-22 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson #306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson #306)
Well:	8511D-22 N22 496	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
1,156.0	6.50	312.20	1,151.0	56.6	-69.3	89.5	0.26	0.00	
1,249.0	7.60	313.40	1,243.3	64.4	-77.6	100.9	1.19	1.18	
1,342.0	7.90	314.40	1,335.4	73.1	-86.7	113.4	0.35	0.32	
1,436.0	7.20	312.90	1,428.6	81.6	-95.6	125.7	0.77	-0.74	
1,528.0	6.10	312.90	1,520.0	88.9	-103.4	136.3	1.20	-1.20	
1,619.0	5.90	306.10	1,610.5	94.9	-110.7	145.8	0.81	-0.22	
1,715.0	7.30	304.20	1,705.8	101.3	-119.8	156.8	1.48	1.46	
1,801.0	8.10	304.60	1,791.1	107.8	-129.3	168.3	0.93	0.93	
1,893.0	7.30	305.50	1,882.2	114.8	-139.4	180.6	0.88	-0.87	
1,985.0	7.10	303.90	1,973.5	121.4	-148.8	192.1	0.31	-0.22	
2,072.0	7.10	308.60	2,059.8	127.8	-157.5	202.8	0.67	0.00	
2,168.0	5.30	289.00	2,155.3	132.9	-166.3	212.9	2.87	-1.87	
2,259.0	5.90	300.70	2,245.9	136.7	-174.3	221.5	1.41	0.66	
2,351.0	7.00	315.00	2,337.3	143.0	-182.4	231.7	2.11	1.20	
2,443.0	6.40	311.60	2,428.6	150.4	-190.2	242.4	0.78	-0.65	
2,534.0	8.00	321.60	2,518.9	158.7	-197.9	253.7	2.23	1.76	
2,626.0	8.30	321.00	2,610.0	168.9	-206.0	266.4	0.34	0.33	
2,718.0	8.00	318.10	2,701.1	178.8	-214.5	279.2	0.55	-0.33	
2,809.0	7.40	320.10	2,791.2	188.1	-222.5	291.2	0.72	-0.66	
2,901.0	7.50	309.00	2,882.5	196.4	-230.9	303.1	1.57	0.11	
2,992.0	6.30	304.40	2,972.8	202.9	-239.7	314.0	1.45	-1.32	
3,084.0	6.50	314.70	3,064.2	209.5	-247.5	324.2	1.26	0.22	
3,175.0	7.80	323.80	3,154.5	218.1	-254.9	335.3	1.89	1.43	
3,267.0	7.10	306.30	3,245.8	226.5	-263.1	347.0	2.57	-0.76	
3,359.0	9.00	304.70	3,336.9	233.9	-273.6	359.9	2.08	2.07	
3,450.0	9.00	303.80	3,426.7	241.9	-285.4	374.1	0.15	0.00	
3,542.0	8.10	301.50	3,517.7	249.3	-296.9	387.6	1.05	-0.98	
3,634.0	6.90	297.90	3,608.9	255.3	-307.3	399.5	1.40	-1.30	
3,726.0	6.50	310.40	3,700.3	261.3	-316.2	410.1	1.64	-0.43	
3,818.0	8.60	317.20	3,791.5	269.7	-324.8	422.1	2.48	2.28	
3,909.0	8.90	315.20	3,881.4	279.7	-334.4	435.9	0.47	0.33	
4,001.0	8.00	308.80	3,972.5	288.7	-344.4	449.4	1.41	-0.98	
4,092.0	7.00	303.00	4,062.7	295.7	-354.0	461.2	1.38	-1.10	
4,184.0	8.70	308.70	4,153.8	303.1	-364.1	473.7	2.03	1.85	
4,276.0	9.60	310.40	4,244.6	312.4	-375.4	488.4	1.02	0.98	
4,367.0	8.50	304.40	4,334.5	321.2	-386.7	502.6	1.59	-1.21	
4,459.0	7.50	304.40	4,425.6	328.4	-397.3	515.4	1.09	-1.09	
4,551.0	7.60	308.50	4,516.8	335.6	-407.0	527.5	0.60	0.11	
4,642.0	7.70	322.30	4,607.0	344.2	-415.4	539.4	2.02	0.11	
4,734.0	7.30	324.00	4,698.2	353.8	-422.6	551.1	0.50	-0.43	
4,825.0	7.80	316.50	4,788.4	362.9	-430.3	562.8	1.21	0.55	
4,917.0	6.90	313.50	4,879.7	371.2	-438.6	574.5	1.06	-0.98	
5,009.0	6.20	309.40	4,971.1	378.2	-446.4	585.0	0.91	-0.76	
5,100.0	5.40	304.30	5,061.6	383.7	-453.8	594.1	1.04	-0.88	
5,192.0	5.40	312.20	5,153.2	389.1	-460.5	602.8	0.81	0.00	
5,283.0	6.70	317.60	5,243.7	395.9	-467.3	612.3	1.56	1.43	
5,375.0	6.70	318.20	5,335.1	403.8	-474.5	622.9	0.08	0.00	
5,466.0	5.80	316.10	5,425.5	411.1	-481.2	632.7	1.02	-0.99	
5,558.0	5.10	306.90	5,517.1	416.9	-487.7	641.4	1.21	-0.76	
5,649.0	4.80	292.80	5,607.8	420.8	-494.5	649.1	1.37	-0.33	
5,741.0	5.10	287.10	5,699.4	423.5	-501.9	656.6	0.63	0.33	
5,832.0	5.90	295.00	5,790.0	426.7	-510.0	664.9	1.21	0.88	
5,923.0	6.80	306.10	5,880.5	431.8	-518.6	674.8	1.67	0.99	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8511D-22 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson #306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson #306)
Well:	8511D-22 N22 496	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
6,015.0	6.10	317.90	5,971.9	438.7	-526.3	685.1	1.63	-0.76	
6,106.0	5.40	323.70	6,062.4	445.7	-532.1	694.0	1.00	-0.77	
6,197.0	5.70	312.10	6,153.0	452.2	-538.0	702.7	1.27	0.33	
6,289.0	7.40	312.10	6,244.4	459.2	-545.7	713.1	1.85	1.85	
6,380.0	7.10	312.90	6,334.7	467.0	-554.2	724.6	0.35	-0.33	
6,472.0	6.60	311.80	6,426.0	474.4	-562.3	735.6	0.56	-0.54	
6,564.0	7.30	311.40	6,517.3	481.8	-570.6	746.7	0.76	0.76	
6,655.0	7.50	311.50	6,607.6	489.5	-579.4	758.4	0.22	0.22	
6,747.0	7.10	313.20	6,698.8	497.4	-588.1	770.1	0.49	-0.43	
6,839.0	5.20	310.00	6,790.3	504.0	-595.4	779.9	2.10	-2.07	
6,930.0	3.40	325.00	6,881.0	508.8	-600.1	786.6	2.32	-1.98	
7,021.0	2.60	315.10	6,971.9	512.5	-603.1	791.3	1.04	-0.88	
7,113.0	1.60	303.90	7,063.9	514.7	-605.7	794.6	1.17	-1.09	
7,204.0	1.30	298.20	7,154.8	515.9	-607.6	796.9	0.37	-0.33	
7,295.0	1.00	60.40	7,245.8	516.8	-607.8	797.6	2.22	-0.33	
7,387.0	1.30	49.80	7,337.8	517.8	-606.3	797.1	0.40	0.33	
7,396.2	1.22	53.53	7,347.0	518.0	-606.2	797.1	1.29	-0.92	8511D-22 N22 496 TGT (Column)
7,479.0	0.90	111.70	7,429.8	518.3	-604.9	796.2	1.29	-0.38	
7,570.0	0.50	51.40	7,520.8	518.2	-603.9	795.5	0.86	-0.44	
7,753.0	0.80	259.00	7,703.8	518.5	-604.5	796.1	0.69	0.16	
7,845.0	0.10	166.70	7,795.8	518.3	-605.1	796.5	0.88	-0.76	
7,936.0	0.80	120.40	7,886.8	517.9	-604.6	795.8	0.81	0.77	
8,028.0	1.10	290.40	7,978.8	517.9	-604.9	796.0	2.06	0.33	
8,120.0	0.80	276.60	8,070.7	518.3	-606.3	797.4	0.41	-0.33	
8,212.0	1.10	171.50	8,162.7	517.5	-606.8	797.3	1.65	0.33	
8,303.0	0.80	242.00	8,253.7	516.3	-607.3	796.9	1.23	-0.33	
8,486.0	0.60	148.30	8,436.7	514.9	-607.9	796.5	0.56	-0.11	
8,578.0	0.60	169.70	8,528.7	514.0	-607.5	795.6	0.24	0.00	
8,670.0	1.10	169.50	8,620.7	512.7	-607.3	794.6	0.54	0.54	
8,762.0	0.00	61.40	8,712.7	511.8	-607.1	793.9	1.20	-1.20	
8,853.0	1.40	50.80	8,803.7	512.5	-606.3	793.7	1.54	1.54	
8,945.0	1.10	31.50	8,895.7	513.9	-604.9	793.6	0.56	-0.33	
9,037.0	0.40	280.30	8,987.7	514.8	-604.8	794.0	1.41	-0.76	
9,220.0	1.00	263.10	9,170.6	514.7	-607.0	795.7	0.34	0.33	
9,311.0	0.60	354.60	9,261.6	515.1	-607.8	796.5	1.30	-0.44	
9,403.0	1.10	0.40	9,353.6	516.4	-607.9	797.4	0.55	0.54	
9,494.0	0.50	297.60	9,444.6	517.5	-608.2	798.4	1.08	-0.66	
9,586.0	1.00	260.70	9,536.6	517.5	-609.4	799.3	0.73	0.54	
9,677.0	0.60	93.80	9,627.6	517.4	-609.7	799.4	1.75	-0.44	
9,768.0	0.40	119.90	9,718.6	517.2	-608.9	798.7	0.33	-0.22	
9,860.0	0.70	152.00	9,810.6	516.5	-608.4	797.9	0.46	0.33	
9,951.0	0.80	157.00	9,901.6	515.5	-607.9	796.8	0.13	0.11	
10,043.0	0.90	183.50	9,993.6	514.1	-607.7	795.8	0.44	0.11	
10,134.0	0.80	219.10	10,084.6	512.9	-608.1	795.4	0.58	-0.11	
10,226.0	0.90	249.60	10,176.6	512.2	-609.2	795.8	0.50	0.11	
10,318.0	1.00	254.00	10,268.6	511.7	-610.7	796.6	0.13	0.11	
10,409.0	1.10	253.10	10,359.5	511.2	-612.3	797.6	0.11	0.11	
10,501.0	1.20	254.40	10,451.5	510.7	-614.0	798.6	0.11	0.11	
10,592.0	1.60	262.70	10,542.5	510.3	-616.2	800.0	0.49	0.44	
10,684.0	1.50	274.20	10,634.5	510.2	-618.7	801.9	0.35	-0.11	
10,775.0	1.50	295.20	10,725.4	510.8	-620.9	804.0	0.60	0.00	
10,867.0	1.50	313.00	10,817.4	512.2	-622.9	806.4	0.50	0.00	
10,959.0	1.10	305.40	10,909.4	513.5	-624.5	808.5	0.47	-0.43	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8511D-22 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson #306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson #306)
Well:	8511D-22 N22 496	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
11,050.0	1.10	276.50	11,000.4	514.1	-626.1	810.1	0.60	0.00	
11,056.6	1.12	274.71	11,007.0	514.1	-626.2	810.2	0.64	0.36	8511D-22 N22 496 PBHL (Column)
11,141.0	1.50	257.70	11,091.3	513.9	-628.1	811.6	0.64	0.45	
11,185.0	1.70	255.60	11,135.3	513.7	-629.3	812.3	0.47	0.45	Last Cathedral Survey @ 11,185' MD
11,255.0	1.70	255.60	11,205.3	513.1	-631.3	813.6	0.00	0.00	Projection to Bit @ 11255' MD

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									
8511D-22 N22 496 TGT	0.00	0.00	7,347.0	515.7	-607.9	1,685,454.59	2,251,665.91	39° 41' 7.06 N	108° 9' 33.58 W
- actual wellpath misses target center by 2.8ft at 7396.1ft MD (7346.9 TVD, 518.0 N, -606.2 E)									
- Point									
8511D-22 N22 496 PBH	0.00	0.00	11,007.0	505.7	-624.9	1,685,445.08	2,251,648.59	39° 41' 6.96 N	108° 9' 33.80 W
- actual wellpath misses target center by 8.5ft at 11056.6ft MD (11007.0 TVD, 514.1 N, -626.2 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
11,185.0	11,135.3	513.7	-629.3	Last Cathedral Survey @ 11,185' MD	
11,255.0	11,205.3	513.1	-631.3	Projection to Bit @ 11255' MD	

Checked By: _____ Approved By: _____ Date: _____