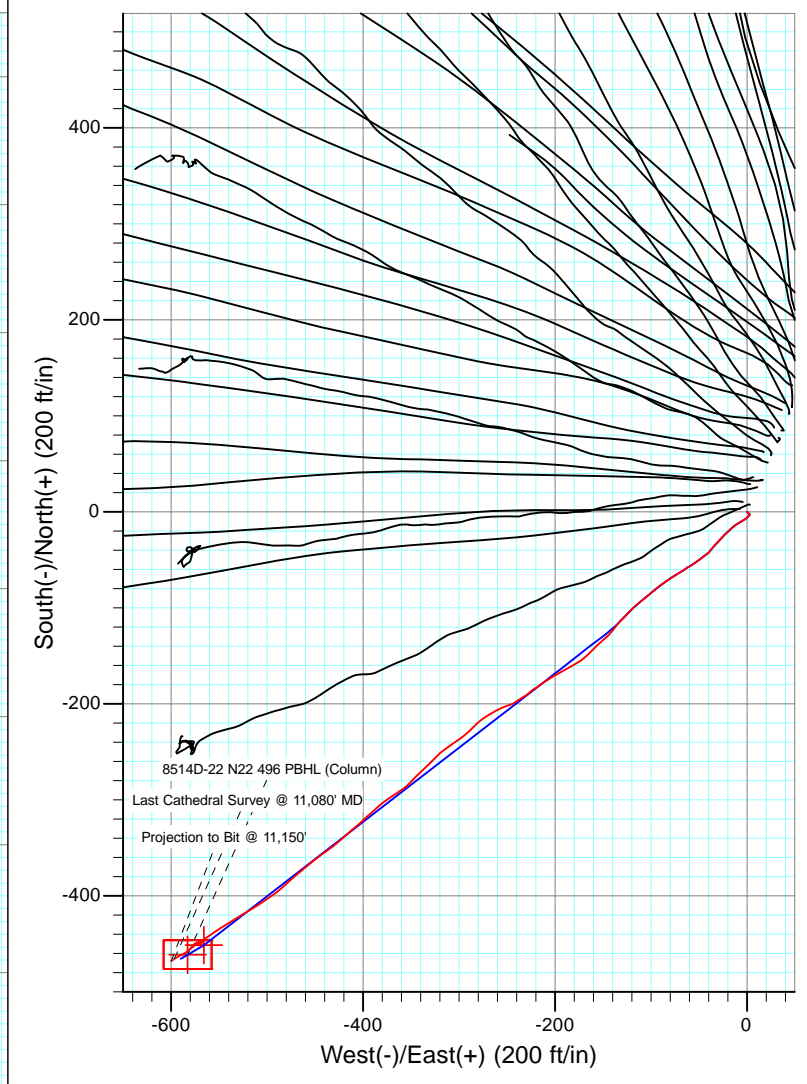
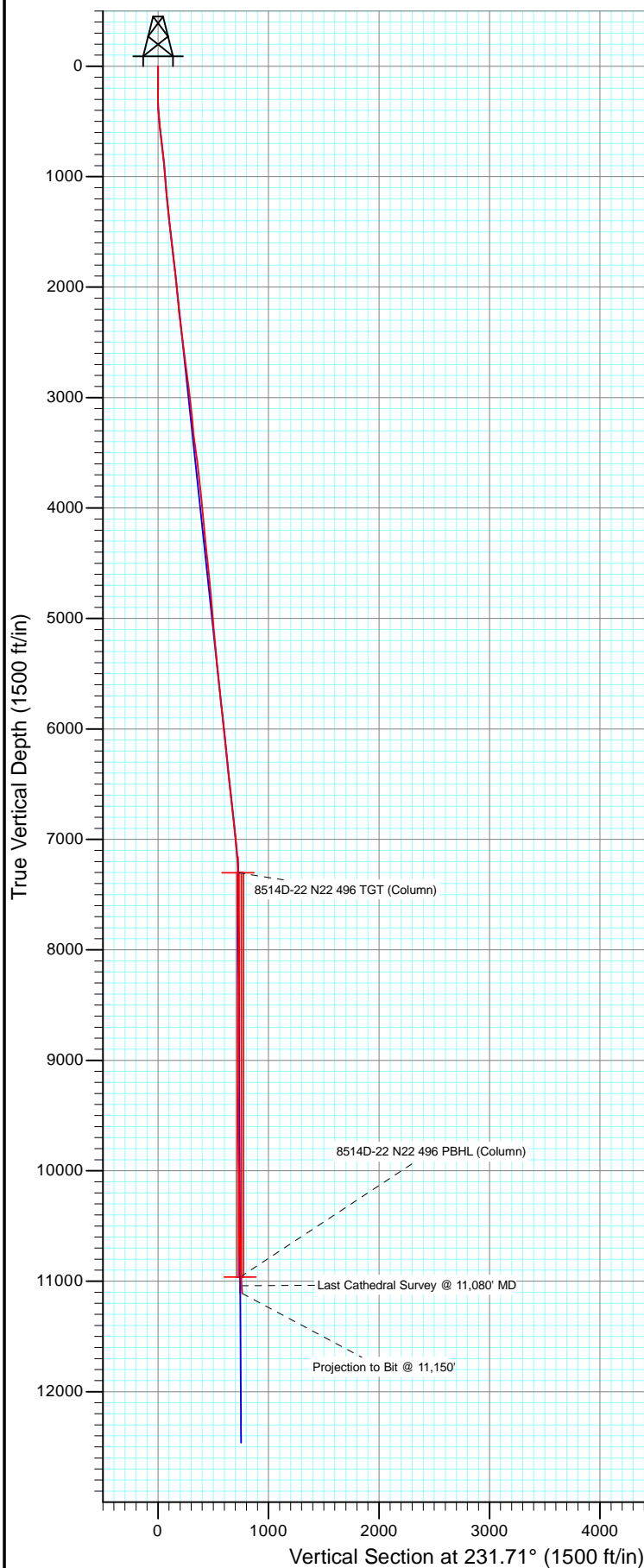




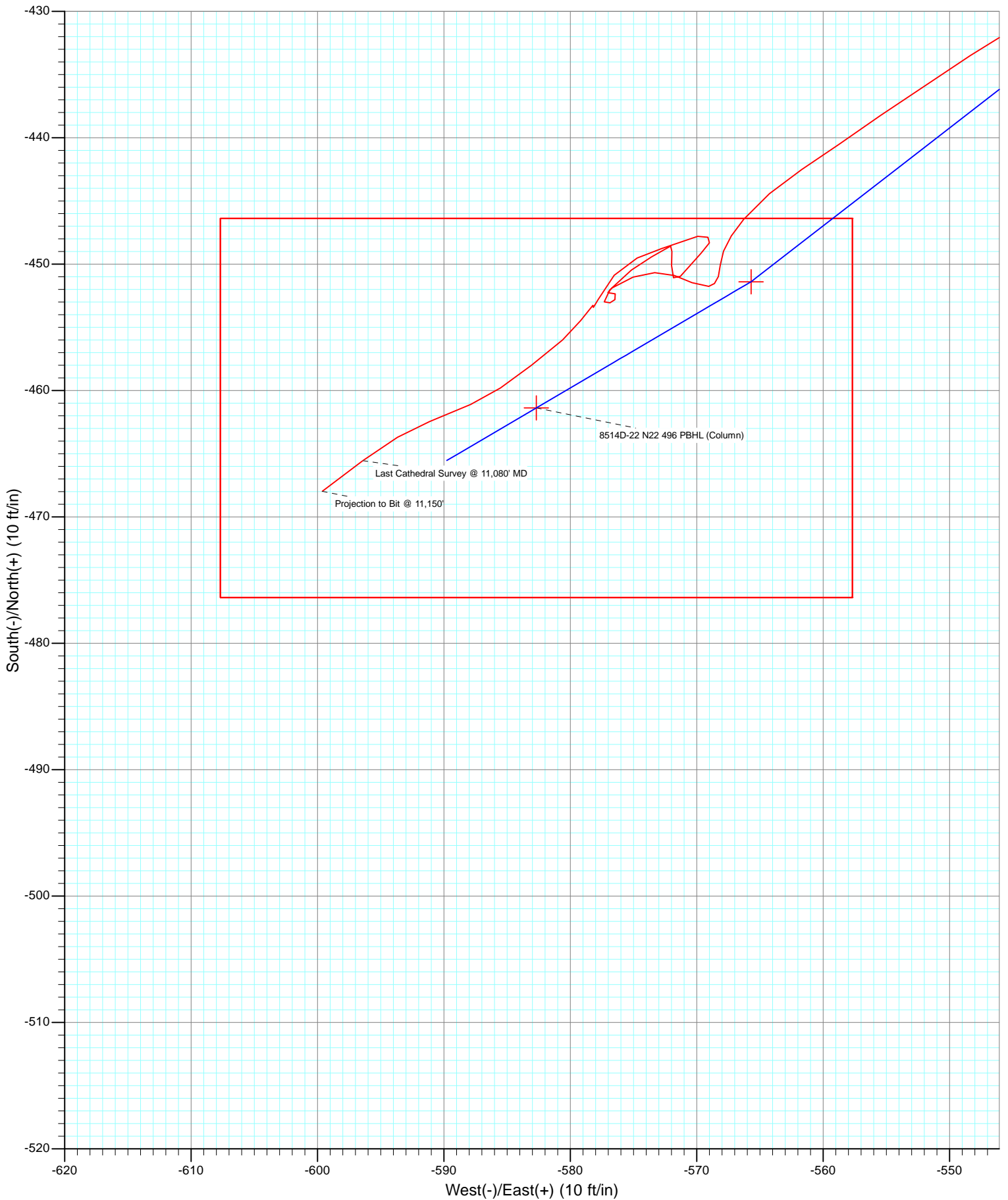
Project: Story Gulch
 Site: S22-T4S-R96W (N22 496) (Column Pattern)
 Well: 8514D-22 N22 496
 Wellbore: DD
 Design: FINAL



Azimuths to True North
 Magnetic North: 10.31°

Magnetic Field
 Strength: 52210.8nT
 Dip Angle: 65.83°
 Date: 7/8/2012
 Model: IGRF2010

		DD		8514D-22 N22 496		125445; 163355; DN	
		WELL @ 7602.0ft (Patterson #306)		North American Datum 1983		Well 8514D-22 N22 496, True North	
Type	Target	Azimuth	Origin Type	N/S	E/W	From	TVD
User	No Target (Freehand)	231.71	Slot	0.0	0.0	0.0	0.0
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
8514D-22 N22 496 TGT (Column)		7302.0	-451.4	-565.7	39° 40' 56.92 N	108° 9' 33.36 W	
8514D-22 N22 496 PBHL (Column)		10962.0	-461.4	-582.7	39° 40' 56.82 N	108° 9' 33.58 W	



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8514D-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:	8514D-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	8514D-22 N22 496					
Well Position	+N/-S	0.0 ft	Northing:	1,684,863.16 ft	Latitude:	39° 41' 1.38 N
	+E/-W	0.0 ft	Easting:	2,252,231.68 ft	Longitude:	108° 9' 26.13 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	7/8/2012	10.31	65.83	52,211

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	231.71	

Survey Program	Date	9/13/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
207.0	2,055.0	Survey #1 (DD)	MWD	Geolink MWD	
2,166.0	11,150.0	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		
207.0	1.00	130.80	207.0	-1.2	1.4	-0.3	0.48	0.48		
237.0	1.20	121.20	237.0	-1.5	1.8	-0.5	0.90	0.67		
268.0	1.40	130.40	268.0	-1.9	2.4	-0.7	0.93	0.65		
299.0	1.10	151.10	299.0	-2.4	2.8	-0.7	1.73	-0.97		
329.0	1.20	190.90	329.0	-3.0	2.9	-0.4	2.63	0.33		
359.0	2.30	222.40	358.9	-3.7	2.4	0.4	4.74	3.67		
390.0	3.60	225.30	389.9	-4.9	1.3	2.0	4.22	4.19		
421.0	4.00	230.10	420.8	-6.3	-0.2	4.0	1.65	1.29		
513.0	6.10	242.50	512.5	-10.6	-7.0	12.0	2.56	2.28		
608.0	6.60	229.00	606.9	-16.5	-15.6	22.5	1.65	0.53		
700.0	6.90	223.60	698.3	-24.0	-23.4	33.2	0.76	0.33		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8514D-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:	8514D-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
791.0	6.60	223.70	788.6	-31.7	-30.8	43.8	0.33	-0.33	
883.0	5.40	216.70	880.1	-39.0	-37.0	53.2	1.53	-1.30	
974.0	5.40	233.40	970.7	-45.0	-43.0	61.6	1.72	0.00	
1,065.0	5.00	233.60	1,061.4	-49.9	-49.6	69.9	0.44	-0.44	
1,157.0	4.20	235.20	1,153.1	-54.2	-55.6	77.2	0.88	-0.87	
1,249.0	5.30	240.70	1,244.7	-58.2	-62.1	84.8	1.29	1.20	
1,340.0	6.30	236.40	1,335.3	-63.0	-69.9	93.9	1.20	1.10	
1,432.0	6.60	238.80	1,426.7	-68.6	-78.6	104.2	0.44	0.33	
1,523.0	7.30	233.60	1,517.0	-74.7	-87.8	115.2	1.03	0.77	
1,614.0	6.20	229.10	1,607.4	-81.3	-96.1	125.9	1.34	-1.21	
1,706.0	5.80	232.00	1,698.9	-87.5	-103.6	135.5	0.55	-0.43	
1,797.0	6.30	230.90	1,789.4	-93.4	-111.1	145.1	0.56	0.55	
1,888.0	6.70	224.60	1,879.8	-100.4	-118.7	155.3	0.90	0.44	
1,980.0	6.60	224.50	1,971.2	-108.0	-126.1	165.9	0.11	-0.11	
2,055.0	5.80	225.10	2,045.7	-113.7	-131.8	173.9	1.07	-1.07	
2,166.0	4.90	213.60	2,156.3	-121.6	-138.4	184.0	1.26	-0.81	
2,257.0	6.60	226.70	2,246.8	-128.4	-144.4	192.9	2.35	1.87	
2,348.0	6.90	228.10	2,337.2	-135.7	-152.3	203.6	0.38	0.33	
2,440.0	5.90	223.60	2,428.6	-142.8	-159.6	213.8	1.22	-1.09	
2,532.0	8.20	228.60	2,519.9	-150.6	-167.8	225.0	2.59	2.50	
2,624.0	8.20	239.70	2,611.0	-158.2	-178.4	238.1	1.72	0.00	
2,715.0	8.10	242.30	2,701.0	-164.5	-189.7	250.8	0.42	-0.11	
2,806.0	7.40	239.30	2,791.2	-170.4	-200.4	262.9	0.89	-0.77	
2,898.0	6.90	236.40	2,882.5	-176.5	-210.1	274.3	0.67	-0.54	
2,990.0	6.20	235.10	2,973.9	-182.4	-218.8	284.8	0.78	-0.76	
3,081.0	5.30	229.90	3,064.4	-187.9	-226.0	293.9	1.14	-0.99	
3,173.0	6.10	239.00	3,156.0	-193.2	-233.5	303.0	1.31	0.87	
3,265.0	5.30	235.70	3,247.5	-198.1	-241.2	312.0	0.94	-0.87	
3,356.0	7.20	252.80	3,338.0	-202.2	-250.1	321.6	2.90	2.09	
3,448.0	8.10	240.40	3,429.2	-207.1	-261.2	333.3	2.04	0.98	
3,539.0	7.40	239.50	3,519.3	-213.2	-271.9	345.5	0.78	-0.77	
3,631.0	7.60	226.40	3,610.6	-220.4	-281.4	357.4	1.87	0.22	
3,723.0	7.00	224.40	3,701.8	-228.6	-289.7	369.0	0.71	-0.65	
3,814.0	6.10	235.40	3,792.2	-235.3	-297.6	379.4	1.69	-0.99	
3,906.0	5.80	234.60	3,883.7	-240.8	-305.4	388.9	0.34	-0.33	
3,998.0	5.40	236.90	3,975.3	-245.8	-312.8	397.8	0.50	-0.43	
4,089.0	5.30	227.10	4,065.9	-251.0	-319.5	406.3	1.01	-0.11	
4,181.0	5.70	223.40	4,157.5	-257.3	-325.7	415.0	0.58	0.43	
4,273.0	4.70	226.60	4,249.1	-263.2	-331.6	423.3	1.13	-1.09	
4,364.0	6.30	226.60	4,339.7	-269.2	-337.9	432.0	1.76	1.76	
4,456.0	6.20	225.80	4,431.1	-276.1	-345.1	442.0	0.14	-0.11	
4,548.0	5.60	222.60	4,522.6	-282.9	-351.7	451.4	0.74	-0.65	
4,639.0	5.80	234.80	4,613.2	-288.8	-358.5	460.3	1.35	0.22	
4,730.0	5.80	237.10	4,703.7	-293.9	-366.1	469.5	0.26	0.00	
4,822.0	5.50	235.80	4,795.3	-298.9	-373.7	478.5	0.35	-0.33	
4,913.0	4.90	231.70	4,885.9	-303.8	-380.3	486.8	0.78	-0.66	
5,004.0	4.20	226.60	4,976.6	-308.5	-385.8	494.0	0.89	-0.77	
5,097.0	5.10	228.70	5,069.3	-313.5	-391.4	501.5	0.98	0.97	
5,189.0	5.10	227.70	5,160.9	-319.0	-397.5	509.6	0.10	0.00	
5,281.0	5.00	225.80	5,252.6	-324.5	-403.4	517.7	0.21	-0.11	
5,371.0	6.30	232.40	5,342.2	-330.3	-410.1	526.6	1.61	1.44	
5,463.0	5.90	226.10	5,433.6	-336.7	-417.5	536.3	0.85	-0.43	
5,554.0	6.10	230.50	5,524.1	-343.0	-424.6	545.8	0.55	0.22	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8514D-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:	8514D-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
5,646.0	5.30	231.40	5,615.7	-348.7	-431.7	554.9	0.87	-0.87	
5,738.0	5.30	235.70	5,707.3	-353.8	-438.5	563.4	0.43	0.00	
5,829.0	6.60	232.80	5,797.8	-359.3	-446.2	572.8	1.47	1.43	
5,921.0	6.40	231.00	5,889.2	-365.7	-454.4	583.3	0.31	-0.22	
6,012.0	6.20	228.70	5,979.7	-372.2	-462.0	593.2	0.35	-0.22	
6,104.0	5.70	231.30	6,071.2	-378.3	-469.3	602.8	0.62	-0.54	
6,195.0	5.90	227.80	6,161.7	-384.3	-476.3	611.9	0.45	0.22	
6,287.0	5.40	227.10	6,253.2	-390.4	-483.0	621.0	0.55	-0.54	
6,378.0	6.50	233.00	6,343.8	-396.4	-490.2	630.4	1.38	1.21	
6,470.0	6.30	236.20	6,435.2	-402.3	-498.6	640.6	0.44	-0.22	
6,561.0	5.80	236.20	6,525.7	-407.7	-506.5	650.2	0.55	-0.55	
6,653.0	6.60	238.00	6,617.1	-413.1	-514.9	660.1	0.89	0.87	
6,746.0	6.60	240.20	6,709.5	-418.6	-524.1	670.7	0.27	0.00	
6,836.0	6.10	237.10	6,799.0	-423.7	-532.6	680.6	0.67	-0.56	
6,927.0	5.80	239.10	6,889.5	-428.7	-540.6	689.9	0.40	-0.33	
7,019.0	5.60	237.80	6,981.0	-433.5	-548.4	699.0	0.26	-0.22	
7,110.0	5.20	234.70	7,071.6	-438.2	-555.5	707.5	0.54	-0.44	
7,202.0	4.20	236.50	7,163.3	-442.5	-561.7	715.1	1.10	-1.09	
7,294.0	3.40	220.50	7,255.1	-446.4	-566.3	721.1	1.44	-0.87	
7,385.0	2.00	184.00	7,346.0	-450.1	-568.1	724.8	2.36	-1.54	
7,477.0	1.00	265.00	7,438.0	-451.8	-569.0	726.6	2.27	-1.09	
7,568.0	0.80	303.90	7,529.0	-451.5	-570.4	727.4	0.69	-0.22	
7,660.0	1.10	284.40	7,621.0	-450.9	-571.8	728.2	0.47	0.33	
7,751.0	0.90	269.60	7,711.9	-450.7	-573.3	729.2	0.36	-0.22	
7,843.0	1.30	251.10	7,803.9	-451.0	-575.0	730.8	0.58	0.43	
7,934.0	1.10	232.90	7,894.9	-451.9	-576.7	732.6	0.47	-0.22	
8,025.0	0.50	67.20	7,985.9	-452.3	-577.0	733.1	1.75	-0.66	
8,117.0	0.40	138.60	8,077.9	-452.3	-576.4	732.7	0.58	-0.11	
8,209.0	0.40	225.90	8,169.9	-452.8	-576.5	733.0	0.60	0.00	
8,301.0	0.20	259.60	8,261.9	-453.1	-576.9	733.5	0.28	-0.22	
8,392.0	0.40	289.70	8,352.9	-453.0	-577.3	733.8	0.27	0.22	
8,484.0	1.40	41.60	8,444.9	-452.0	-576.9	732.9	1.73	1.09	
8,576.0	1.50	52.90	8,536.9	-450.5	-575.2	730.6	0.33	0.11	
8,667.0	0.90	63.60	8,627.8	-449.4	-573.6	728.7	0.70	-0.66	
8,759.0	0.60	55.30	8,719.8	-448.8	-572.5	727.5	0.35	-0.33	
8,850.0	0.10	100.30	8,810.8	-448.6	-572.1	727.0	0.59	-0.55	
8,942.0	0.50	177.10	8,902.8	-449.0	-572.0	727.1	0.53	0.43	
9,034.0	0.90	183.90	8,994.8	-450.1	-572.0	727.9	0.44	0.43	
9,125.0	0.40	140.40	9,085.8	-451.1	-571.8	728.3	0.74	-0.55	
9,217.0	0.60	43.20	9,177.8	-451.0	-571.3	727.8	0.83	0.22	
9,309.0	0.80	41.10	9,269.8	-450.1	-570.5	726.7	0.22	0.22	
9,400.0	0.90	42.60	9,360.8	-449.1	-569.6	725.4	0.11	0.11	
9,492.0	0.40	29.90	9,452.8	-448.3	-569.0	724.4	0.56	-0.54	
9,583.0	0.40	302.70	9,543.8	-447.9	-569.1	724.2	0.61	0.00	
9,674.0	0.70	260.50	9,634.8	-447.8	-569.9	724.8	0.53	0.33	
9,857.0	1.20	245.50	9,817.8	-448.8	-572.8	727.6	0.30	0.27	
9,949.0	1.40	251.90	9,909.7	-449.5	-574.7	729.6	0.27	0.22	
10,040.0	1.60	216.50	10,000.7	-450.9	-576.5	731.9	1.02	0.22	
10,131.0	1.30	210.20	10,091.7	-452.8	-577.8	734.1	0.37	-0.33	
10,223.0	0.40	27.10	10,183.7	-453.4	-578.2	734.8	1.85	-0.98	
10,498.0	1.00	217.00	10,458.7	-454.5	-579.2	736.2	0.51	0.22	
10,590.0	1.60	227.10	10,550.6	-456.0	-580.6	738.3	0.70	0.65	
10,681.0	2.40	233.40	10,641.6	-458.0	-583.1	741.4	0.91	0.88	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8514D-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:	8514D-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
10,773.0	1.40	234.40	10,733.5	-459.8	-585.5	744.5	1.09	-1.09	
10,864.0	2.00	245.70	10,824.5	-461.1	-587.9	747.1	0.75	0.66	
10,956.0	2.40	248.80	10,916.4	-462.5	-591.1	750.5	0.45	0.43	
11,080.0	3.30	232.90	11,040.3	-465.5	-596.4	756.6	0.96	0.73	Last Cathedral Survey @ 11,080' MD Projection to Bit @ 11,150'
11,150.0	3.30	232.90	11,110.2	-468.0	-599.6	760.6	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
- hit/miss target									
- Shape									
8514D-22 N22 496 PBH	0.00	0.00	10,962.0	-461.4	-582.7	1,684,419.03	2,251,635.76	39° 40' 56.82 N	108° 9' 33.58 W
- actual wellpath misses target center by 10.5ft at 11001.1ft MD (10961.5 TVD, -463.3 N, -593.0 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
8514D-22 N22 496 TGT	0.00	0.00	7,302.0	-451.4	-565.7	1,684,428.51	2,251,653.02	39° 40' 56.92 N	108° 9' 33.36 W
- actual wellpath misses target center by 3.5ft at 7341.0ft MD (7302.1 TVD, -448.4 N, -567.6 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)		
				Comment	
11,080.0	11,040.3	-465.5	-596.4	Last Cathedral Survey @ 11,080' MD	
11,150.0	11,110.2	-468.0	-599.6	Projection to Bit @ 11,150'	

Checked By: _____ Approved By: _____ Date: _____