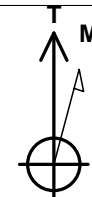


FORMATION TOP DETAILS

No formation data is available

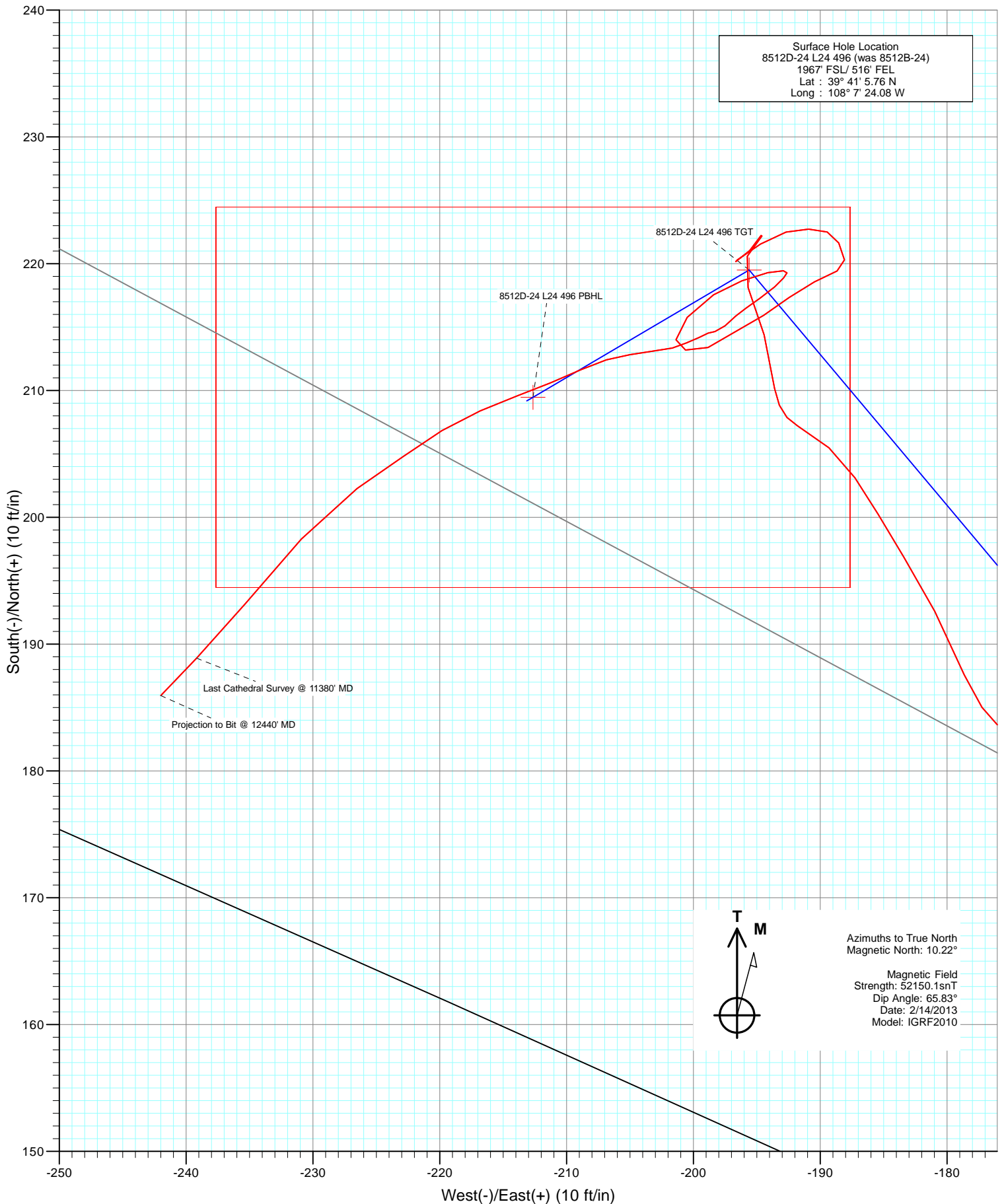


Azimuths to True North
Magnetic North: 10.22°

Magnetic Field
Strength: 52150.1nT
Dip Angle: 65.83°
Date: 2/14/2013
Model: IGRF2010

DD
8512D-24 L24 496 (was 8512B-24)
125585/193155(SH) 135078/220555(MH); SC
KB @ 8208.0ft (Original Well Elev)
North American Datum 1983
Well 8512D-24 L24 496 (was 8512B-24), True North

Target	Target	TVD	+N/-S	+E/-W	Latitude	Longitude
8512D-24 L24 496 PBHL	314.57	8220.0	219.5	-195.6	39° 41' 7.93 N	108° 7' 26.58 W
8512D-24 L24 496 TGT	314.57	13034.0	209.5	-212.6	39° 41' 7.83 N	108° 7' 26.80 W



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8512D-24 L24 496 (was 8512B-24)
Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8512D-24 L24 496 (was 8512B-24)	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	L24 496			
Site Position:		Northing:	1,685,024.52 ft	Latitude: 39° 41' 5.72 N
From:	Lat/Long	Easting:	2,261,789.15 ft	Longitude: 108° 7' 23.99 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.65 °

Well	8512D-24 L24 496 (was 8512B-24)			
Well Position	+N/-S	0.0 ft	Northing:	1,685,028.75 ft
	+E/-W	0.0 ft	Easting:	2,261,782.24 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft
			Ground Level:	8,193.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/14/2013	10.22	65.83	52,150

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	314.57

Survey Program	Date	3/18/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
178.0	12,440.0	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	
178.0	0.30	171.80	178.0	-0.5	0.1	-0.4	0.17	0.17	
209.0	0.20	199.50	209.0	-0.6	0.1	-0.5	0.50	-0.32	
239.0	0.10	14.90	239.0	-0.6	0.0	-0.5	1.00	-0.33	
269.0	0.40	183.90	269.0	-0.7	0.0	-0.5	1.66	1.00	
300.0	0.30	140.30	300.0	-0.9	0.1	-0.7	0.89	-0.32	
330.0	0.40	195.00	330.0	-1.0	0.1	-0.8	1.11	0.33	
361.0	0.40	162.60	361.0	-1.2	0.1	-1.0	0.72	0.00	
392.0	0.20	189.00	392.0	-1.4	0.1	-1.1	0.77	-0.65	
422.0	0.50	183.10	422.0	-1.6	0.1	-1.2	1.01	1.00	
452.0	0.30	170.00	452.0	-1.8	0.1	-1.3	0.73	-0.67	
483.0	0.50	197.30	483.0	-2.0	0.1	-1.5	0.87	0.65	
513.0	0.40	194.00	513.0	-2.2	0.0	-1.6	0.34	-0.33	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8512D-24 L24 496 (was 8512B-24)
Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8512D-24 L24 496 (was 8512B-24)	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
543.0	0.50	193.80	543.0	-2.4	0.0	-1.7	0.33	0.33	
574.0	0.40	180.90	574.0	-2.7	0.0	-1.9	0.46	-0.32	
608.0	0.20	185.00	608.0	-2.9	-0.1	-2.0	0.59	-0.59	
639.0	0.20	296.90	639.0	-2.9	-0.1	-2.0	1.07	0.00	
669.0	0.70	294.10	669.0	-2.8	-0.3	-1.7	1.67	1.67	
700.0	1.20	320.50	700.0	-2.5	-0.7	-1.2	2.10	1.61	
730.0	1.60	321.50	730.0	-1.9	-1.2	-0.5	1.34	1.33	
760.0	1.90	325.70	760.0	-1.2	-1.7	0.4	1.09	1.00	
791.0	1.80	327.80	790.9	-0.3	-2.2	1.4	0.39	-0.32	
822.0	2.00	325.10	821.9	0.5	-2.8	2.4	0.71	0.65	
853.0	2.30	322.00	852.9	1.5	-3.5	3.5	1.04	0.97	
883.0	2.50	324.50	882.9	2.5	-4.3	4.8	0.75	0.67	
914.0	2.40	323.90	913.9	3.5	-5.0	6.1	0.33	-0.32	
944.0	2.80	317.30	943.8	4.6	-5.9	7.4	1.66	1.33	
975.0	2.90	324.40	974.8	5.8	-6.9	9.0	1.18	0.32	
1,020.0	2.70	316.40	1,019.7	7.5	-8.3	11.1	0.97	-0.44	
1,066.0	2.50	316.60	1,065.7	9.0	-9.7	13.2	0.44	-0.43	
1,112.0	2.30	312.10	1,111.6	10.3	-11.1	15.2	0.60	-0.43	
1,158.0	2.50	314.40	1,157.6	11.7	-12.5	17.1	0.48	0.43	
1,203.0	2.30	315.10	1,202.6	13.0	-13.8	19.0	0.45	-0.44	
1,249.0	2.10	310.40	1,248.5	14.2	-15.1	20.7	0.59	-0.43	
1,295.0	2.20	301.20	1,294.5	15.2	-16.5	22.4	0.78	0.22	
1,341.0	1.70	300.30	1,340.5	16.0	-17.9	23.9	1.09	-1.09	
1,387.0	1.60	317.80	1,386.5	16.8	-18.9	25.2	1.11	-0.22	
1,433.0	1.80	317.80	1,432.4	17.8	-19.8	26.6	0.43	0.43	
1,478.0	1.80	329.00	1,477.4	19.0	-20.6	28.0	0.78	0.00	
1,524.0	1.70	342.80	1,523.4	20.2	-21.2	29.3	0.94	-0.22	
1,570.0	1.70	334.80	1,569.4	21.5	-21.7	30.5	0.52	0.00	
1,616.0	2.00	332.60	1,615.3	22.8	-22.4	31.9	0.67	0.65	
1,662.0	2.40	335.60	1,661.3	24.4	-23.1	33.6	0.90	0.87	
1,707.0	2.80	331.10	1,706.3	26.2	-24.0	35.5	1.00	0.89	
1,753.0	3.10	332.70	1,752.2	28.3	-25.2	37.8	0.68	0.65	
1,845.0	3.30	330.00	1,844.1	32.8	-27.6	42.7	0.27	0.22	
1,891.0	3.10	327.70	1,890.0	35.0	-28.9	45.2	0.52	-0.43	
1,982.0	2.90	324.00	1,980.9	39.0	-31.6	49.9	0.31	-0.22	
2,074.0	2.40	319.90	2,072.8	42.3	-34.2	54.1	0.58	-0.54	
2,165.0	2.40	317.90	2,163.7	45.2	-36.7	57.9	0.09	0.00	
2,257.0	2.00	312.00	2,255.6	47.7	-39.2	61.4	0.50	-0.43	
2,349.0	2.20	310.40	2,347.6	49.9	-41.8	64.8	0.23	0.22	
2,440.0	2.10	305.70	2,438.5	52.0	-44.4	68.2	0.22	-0.11	
2,532.0	1.90	300.60	2,530.4	53.8	-47.1	71.3	0.29	-0.22	
2,623.0	1.80	294.40	2,621.4	55.1	-49.7	74.1	0.25	-0.11	
2,715.0	1.90	294.50	2,713.3	56.4	-52.4	76.9	0.11	0.11	
2,807.0	2.10	302.80	2,805.3	57.9	-55.2	80.0	0.38	0.22	
2,898.0	1.80	299.50	2,896.2	59.5	-57.9	83.0	0.35	-0.33	
2,975.0	1.70	298.20	2,973.2	60.7	-59.9	85.3	0.14	-0.13	
3,084.0	2.00	300.40	3,082.1	62.4	-63.0	88.7	0.28	0.28	
3,179.0	2.00	287.40	3,177.1	63.7	-66.0	91.7	0.48	0.00	
3,274.0	3.40	323.00	3,272.0	66.5	-69.3	96.0	2.23	1.47	
3,369.0	3.00	322.90	3,366.8	70.7	-72.5	101.2	0.42	-0.42	
3,464.0	2.60	322.80	3,461.7	74.4	-75.3	105.8	0.42	-0.42	
3,559.0	2.30	329.30	3,556.6	77.8	-77.6	109.8	0.43	-0.32	
3,655.0	1.90	322.60	3,652.6	80.7	-79.5	113.3	0.49	-0.42	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8512D-24 L24 496 (was 8512B-24)
Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8512D-24 L24 496 (was 8512B-24)	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
3,750.0	2.60	317.30	3,747.5	83.5	-81.9	117.0	0.77	0.74	
3,845.0	4.40	319.10	3,842.3	87.8	-85.8	122.8	1.90	1.89	
3,940.0	3.40	310.40	3,937.1	92.4	-90.3	129.2	1.22	-1.05	
4,035.0	2.80	304.70	4,032.0	95.6	-94.4	134.3	0.71	-0.63	
4,130.0	3.60	324.70	4,126.8	99.3	-98.0	139.5	1.43	0.84	
4,225.0	3.40	319.70	4,221.6	103.9	-101.5	145.3	0.38	-0.21	
4,320.0	3.00	319.80	4,316.5	108.0	-105.0	150.5	0.42	-0.42	
4,415.0	2.90	317.30	4,411.4	111.6	-108.2	155.4	0.17	-0.11	
4,510.0	2.50	322.70	4,506.2	115.0	-111.1	159.9	0.50	-0.42	
4,605.0	2.50	320.40	4,601.2	118.3	-113.7	164.0	0.11	0.00	
4,701.0	2.00	313.90	4,697.1	121.1	-116.2	167.7	0.58	-0.52	
4,796.0	2.70	342.00	4,792.0	124.3	-118.1	171.4	1.40	0.74	
4,891.0	2.20	340.30	4,886.9	128.2	-119.4	175.0	0.53	-0.53	
4,986.0	1.80	335.30	4,981.9	131.3	-120.6	178.0	0.46	-0.42	
5,081.0	1.30	327.10	5,076.8	133.5	-121.8	180.5	0.57	-0.53	
5,176.0	1.30	315.60	5,171.8	135.2	-123.2	182.6	0.27	0.00	
5,271.0	2.00	325.20	5,266.8	137.3	-124.9	185.3	0.79	0.74	
5,366.0	1.80	318.20	5,361.7	139.8	-126.8	188.4	0.32	-0.21	
5,461.0	1.50	316.30	5,456.7	141.8	-128.7	191.2	0.32	-0.32	
5,556.0	3.30	329.50	5,551.6	145.1	-130.9	195.1	1.97	1.89	
5,652.0	2.70	342.00	5,647.5	149.6	-133.0	199.7	0.92	-0.62	
5,747.0	3.20	326.20	5,742.3	153.9	-135.2	204.3	1.00	0.53	
5,841.0	2.80	316.70	5,836.2	157.8	-138.2	209.2	0.68	-0.43	
5,936.0	2.60	307.70	5,931.1	160.8	-141.5	213.6	0.49	-0.21	
6,031.0	2.40	300.50	6,026.0	163.1	-144.9	217.7	0.39	-0.21	
6,126.0	2.20	295.10	6,120.9	164.9	-148.3	221.4	0.31	-0.21	
6,221.0	2.00	290.70	6,215.9	166.2	-151.5	224.6	0.27	-0.21	
6,317.0	2.90	314.80	6,311.8	168.6	-154.8	228.6	1.41	0.94	
6,412.0	2.80	307.10	6,406.7	171.6	-158.3	233.3	0.42	-0.11	
6,507.0	4.00	304.30	6,501.5	174.9	-162.9	238.8	1.27	1.26	
6,601.0	5.00	297.80	6,595.2	178.7	-169.3	246.0	1.19	1.06	
6,696.0	3.80	312.80	6,689.9	182.7	-175.2	253.1	1.74	-1.26	
6,791.0	3.50	338.00	6,784.7	187.6	-178.6	258.9	1.70	-0.32	
6,886.0	3.20	331.80	6,879.6	192.6	-181.0	264.1	0.49	-0.32	
6,981.0	2.70	328.60	6,974.4	196.8	-183.4	268.8	0.55	-0.53	
7,076.0	2.10	329.90	7,069.4	200.3	-185.4	272.6	0.63	-0.63	
7,171.0	2.00	324.60	7,164.3	203.1	-187.3	275.9	0.23	-0.11	
7,266.0	1.80	313.00	7,259.3	205.5	-189.3	279.1	0.46	-0.21	
7,361.0	1.90	297.40	7,354.2	207.2	-191.8	282.1	0.54	0.11	
7,456.0	2.70	350.10	7,449.1	210.2	-193.6	285.4	2.28	0.84	
7,551.0	2.50	347.50	7,544.0	214.4	-194.4	289.0	0.24	-0.21	
7,646.0	2.30	334.70	7,639.0	218.1	-195.7	292.5	0.60	-0.21	
7,740.0	1.30	44.50	7,732.9	220.6	-195.7	294.3	2.36	-1.06	
7,835.0	1.10	25.40	7,827.9	222.2	-194.6	294.6	0.47	-0.21	
7,930.0	1.10	210.30	7,922.9	222.2	-194.7	294.6	2.31	0.00	
8,025.0	0.70	227.70	8,017.9	221.0	-195.6	294.4	0.51	-0.42	
8,120.0	1.00	233.60	8,112.9	220.2	-196.7	294.6	0.33	0.32	
8,215.0	1.20	51.40	8,207.9	220.3	-196.5	294.6	2.32	0.21	
8,310.0	1.50	58.60	8,302.8	221.6	-194.7	294.2	0.36	0.32	
8,405.0	1.20	73.00	8,397.8	222.5	-192.7	293.4	0.47	-0.32	
8,500.0	1.00	94.20	8,492.8	222.7	-190.9	292.3	0.47	-0.21	
8,595.0	0.80	104.40	8,587.8	222.5	-189.4	291.1	0.27	-0.21	
8,690.0	0.90	159.40	8,682.8	221.6	-188.5	289.9	0.83	0.11	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8512D-24 L24 496 (was 8512B-24)
Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8512D-24 L24 496 (was 8512B-24)	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
8,785.0	0.80	162.90	8,777.8	220.3	-188.1	288.6	0.12	-0.11	
8,880.0	1.00	252.70	8,872.8	219.4	-188.7	288.4	1.35	0.21	
8,975.0	1.40	238.20	8,967.7	218.6	-190.5	289.1	0.53	0.42	
9,070.0	1.40	238.40	9,062.7	217.3	-192.4	289.6	0.01	0.00	
9,165.0	1.60	231.90	9,157.7	215.9	-194.5	290.1	0.28	0.21	
9,354.0	1.50	248.80	9,346.6	213.4	-198.8	291.4	0.25	-0.05	
9,449.0	0.80	291.90	9,441.6	213.2	-200.6	292.5	1.12	-0.74	
9,544.0	0.70	346.10	9,536.6	214.0	-201.4	293.6	0.73	-0.11	
9,639.0	1.90	40.70	9,631.6	215.8	-200.5	294.2	1.68	1.26	
9,733.0	1.50	60.30	9,725.5	217.6	-198.4	294.0	0.74	-0.43	
9,828.0	1.50	67.00	9,820.5	218.7	-196.2	293.2	0.18	0.00	
9,923.0	1.10	80.40	9,915.5	219.3	-194.1	292.2	0.53	-0.42	
10,018.0	0.40	91.00	10,010.4	219.4	-192.9	291.4	0.75	-0.74	
10,114.0	0.20	199.20	10,106.4	219.3	-192.6	291.1	0.52	-0.21	
10,209.0	0.40	220.00	10,201.4	218.9	-192.9	291.0	0.24	0.21	
10,303.0	0.80	227.30	10,295.4	218.2	-193.6	291.0	0.43	0.43	
10,398.0	1.00	236.90	10,390.4	217.3	-194.8	291.2	0.26	0.21	
10,494.0	0.60	231.10	10,486.4	216.5	-195.9	291.5	0.42	-0.42	
10,589.0	0.60	232.80	10,581.4	215.9	-196.6	291.6	0.02	0.00	
10,684.0	0.80	224.40	10,676.4	215.1	-197.5	291.7	0.24	0.21	
10,778.0	0.40	272.80	10,770.4	214.7	-198.3	291.9	0.65	-0.43	
10,874.0	0.30	234.90	10,866.4	214.5	-198.8	292.2	0.26	-0.10	
10,968.0	0.70	248.60	10,960.4	214.2	-199.6	292.5	0.44	0.43	
11,063.0	0.60	245.10	11,055.4	213.8	-200.6	292.9	0.11	-0.11	
11,159.0	0.80	253.80	11,151.4	213.4	-201.7	293.4	0.24	0.21	
11,254.0	1.00	266.00	11,246.4	213.1	-203.1	294.3	0.29	0.21	
11,349.0	1.30	257.80	11,341.4	212.8	-205.0	295.4	0.36	0.32	
11,444.0	1.00	257.00	11,436.4	212.4	-206.9	296.4	0.32	-0.32	
11,539.0	1.60	243.90	11,531.3	211.6	-208.9	297.3	0.70	0.63	
11,633.0	1.60	249.60	11,625.3	210.6	-211.3	298.3	0.17	0.00	
11,728.0	1.80	247.70	11,720.3	209.6	-213.9	299.5	0.22	0.21	
11,823.0	2.00	248.10	11,815.2	208.4	-216.8	300.7	0.21	0.21	
11,918.0	2.10	237.80	11,910.1	206.8	-219.8	301.8	0.40	0.11	
12,013.0	2.30	234.60	12,005.0	204.8	-222.8	302.5	0.25	0.21	
12,108.0	3.10	235.60	12,099.9	202.3	-226.5	303.3	0.84	0.84	
12,203.0	4.10	222.00	12,194.8	198.3	-230.9	303.7	1.38	1.05	
12,298.0	4.10	219.90	12,289.5	193.2	-235.4	303.2	0.16	0.00	
12,380.0	3.90	223.70	12,371.3	188.9	-239.2	302.9	0.40	-0.24	Last Cathedral Survey @ 11380' MD Projection to Bit @ 12440' MD
12,440.0	3.90	223.70	12,431.2	185.9	-242.0	302.9	0.00	0.00	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8512D-24 L24 496 (was 8512B-24)
Project:	Story Gulch	TVD Reference:	KB @ 8208.0ft (Original Well Elev)
Site:	L24 496	MD Reference:	KB @ 8208.0ft (Original Well Elev)
Well:	8512D-24 L24 496 (was 8512B-24)	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
8512D-24 L24 496 PBHI	0.00	0.00	13,034.0	209.5	-212.6	1,685,244.27	2,261,575.73	39° 41' 7.83 N	108° 7' 26.80 W
- survey misses target center by 604.0ft at 12440.0ft MD (12431.2 TVD, 185.9 N, -242.0 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
8512D-24 L24 496 TGT	0.00	0.00	8,220.0	219.5	-195.6	1,685,253.81	2,261,593.06	39° 41' 7.93 N	108° 7' 26.58 W
- survey misses target center by 1.2ft at 8227.1ft MD (8220.0 TVD, 220.4 N, -196.3 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
12,380.0	12,371.3	188.9	-239.2	Last Cathedral Survey @ 11380' MD
12,440.0	12,431.2	185.9	-242.0	Projection to Bit @ 12440' MD

Checked By: _____ Approved By: _____ Date: _____