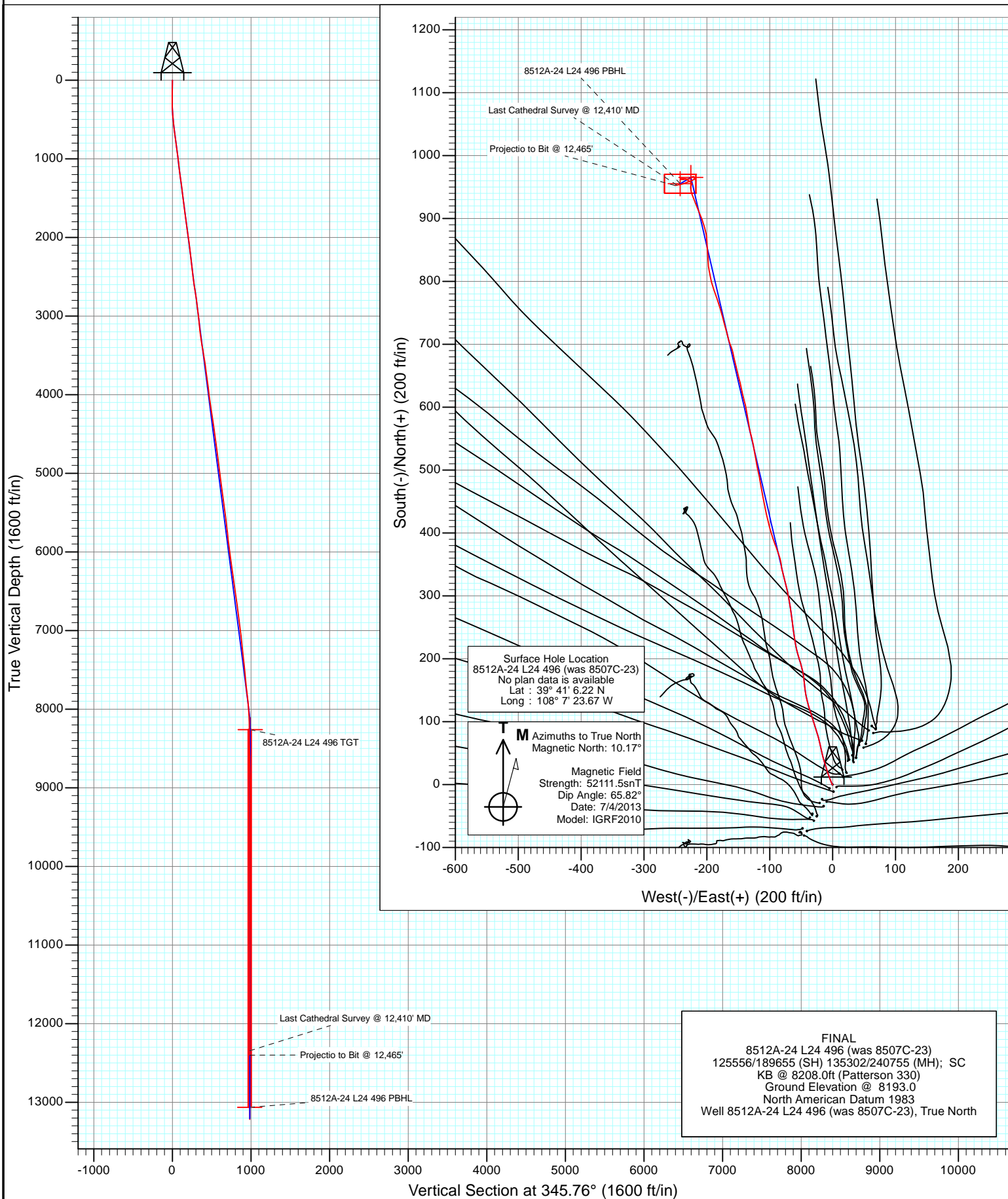


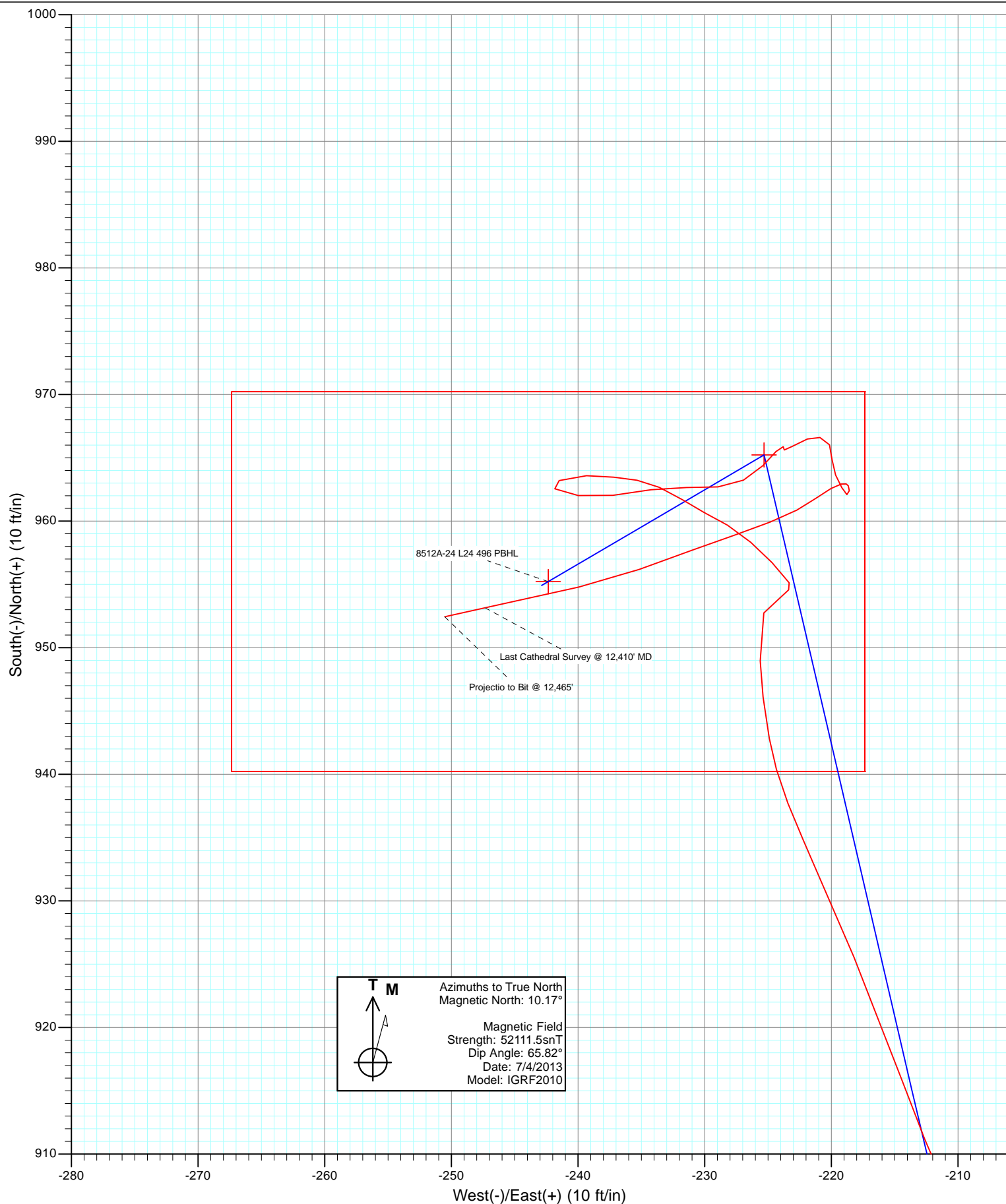


Project: Story Gulch  
Site: L24 496  
Well: 8512A-24 L24 496 (was 8507C-23)  
Wellbore: DD  
Design: FINAL





Project: Story Gulch  
Site: L24 496  
Well: 8512A-24 L24 496 (was 8507C-23)  
Wellbore: DD  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8512A-24 L24 496 (was 8507C-23)
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	KB @ 8208.0ft (Patterson 330)
<b>Site:</b>	L24 496	<b>MD Reference:</b>	KB @ 8208.0ft (Patterson 330)
<b>Well:</b>	8512A-24 L24 496 (was 8507C-23)	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

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

<b>Site</b>	L24 496			
<b>Site Position:</b>		<b>Northing:</b>	1,685,024.52 ft	<b>Latitude:</b> 39° 41' 5.72 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,261,789.15 ft	<b>Longitude:</b> 108° 7' 23.99 W
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.65 °

<b>Well</b>	8512A-24 L24 496 (was 8507C-23)			
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,685,074.33 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,261,815.62 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b> 8,193.0 ft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/4/2013	10.17	65.82	52,112

<b>Design</b>	FINAL			
<b>Audit Notes:</b>				
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b> 0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	345.76

<b>Survey Program</b>	<b>Date</b>	7/17/2013		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
206.0	12,465.0	Survey #1 (DD)	MWD	Geolink MWD

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
206.0	0.30	161.80	206.0	-0.5	0.2	-0.5	0.15	0.15	
236.0	0.20	351.10	236.0	-0.5	0.2	-0.6	1.66	-0.33	
267.0	0.10	209.30	267.0	-0.5	0.2	-0.5	0.92	-0.32	
298.0	0.60	304.30	298.0	-0.4	0.0	-0.4	1.99	1.61	
329.0	0.80	317.40	329.0	-0.2	-0.3	-0.1	0.82	0.65	
359.0	1.70	333.60	359.0	0.4	-0.6	0.5	3.19	3.00	
390.0	2.60	334.30	390.0	1.4	-1.1	1.6	2.90	2.90	
420.0	3.40	339.70	419.9	2.9	-1.7	3.2	2.83	2.67	
465.0	4.80	338.90	464.8	5.9	-2.9	6.4	3.11	3.11	
512.0	6.40	338.90	511.6	10.1	-4.5	10.9	3.40	3.40	
606.0	7.60	341.40	604.9	20.9	-8.4	22.3	1.32	1.28	
698.0	7.50	343.90	696.1	32.5	-12.0	34.4	0.37	-0.11	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8512A-24 L24 496 (was 8507C-23)
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	KB @ 8208.0ft (Patterson 330)
<b>Site:</b>	L24 496	<b>MD Reference:</b>	KB @ 8208.0ft (Patterson 330)
<b>Well:</b>	8512A-24 L24 496 (was 8507C-23)	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
790.0	7.30	344.30	787.3	43.9	-15.2	46.3	0.22	-0.22	
881.0	7.00	347.50	877.6	54.8	-18.0	57.6	0.55	-0.33	
973.0	6.40	349.00	969.0	65.3	-20.2	68.3	0.68	-0.65	
1,064.0	7.10	343.60	1,059.4	75.7	-22.7	79.0	1.04	0.77	
1,156.0	8.10	342.30	1,150.5	87.3	-26.3	91.1	1.10	1.09	
1,248.0	7.90	343.00	1,241.6	99.6	-30.1	103.9	0.24	-0.22	
1,339.0	7.30	341.60	1,331.8	111.0	-33.8	115.9	0.69	-0.66	
1,431.0	7.30	343.60	1,423.1	122.2	-37.3	127.6	0.28	0.00	
1,522.0	7.00	345.00	1,513.4	133.1	-40.4	138.9	0.38	-0.33	
1,614.0	6.60	351.30	1,604.7	143.7	-42.6	149.8	0.92	-0.43	
1,797.0	8.40	354.50	1,786.2	167.4	-45.5	173.5	1.01	0.98	
1,889.0	8.50	346.50	1,877.2	180.7	-47.7	186.9	1.28	0.11	
1,980.0	7.60	343.80	1,967.3	193.1	-51.0	199.7	1.07	-0.99	
2,072.0	7.10	343.00	2,058.5	204.3	-54.3	211.4	0.55	-0.54	
2,164.0	6.70	345.90	2,149.9	215.0	-57.3	222.5	0.58	-0.43	
2,255.0	6.50	351.10	2,240.3	225.2	-59.4	232.9	0.69	-0.22	
2,347.0	6.80	351.60	2,331.6	235.7	-61.0	243.5	0.33	0.33	
2,438.0	6.90	352.80	2,422.0	246.5	-62.4	254.3	0.19	0.11	
2,530.0	7.40	352.20	2,513.3	257.8	-63.9	265.7	0.55	0.54	
2,622.0	8.60	352.40	2,604.4	270.5	-65.7	278.4	1.30	1.30	
2,713.0	8.30	351.20	2,694.4	283.8	-67.6	291.7	0.38	-0.33	
2,805.0	7.60	349.80	2,785.5	296.3	-69.7	304.4	0.79	-0.76	
2,896.0	7.40	347.50	2,875.7	308.0	-72.0	316.2	0.40	-0.22	
3,020.0	6.60	345.50	2,998.8	322.7	-75.5	331.3	0.67	-0.65	
3,179.0	5.50	344.90	3,156.9	338.9	-79.8	348.1	0.69	-0.69	
3,271.0	8.10	354.30	3,248.3	349.6	-81.6	358.9	3.06	2.83	
3,363.0	9.40	340.90	3,339.2	363.1	-84.7	372.8	2.62	1.41	
3,455.0	9.40	340.70	3,430.0	377.3	-89.6	387.8	0.04	0.00	
3,547.0	8.90	339.50	3,520.8	391.1	-94.6	402.3	0.58	-0.54	
3,638.0	8.80	346.00	3,610.7	404.4	-98.7	416.3	1.10	-0.11	
3,730.0	7.40	341.40	3,701.8	416.9	-102.3	429.2	1.68	-1.52	
3,822.0	8.00	351.40	3,793.0	428.8	-105.2	441.5	1.59	0.65	
3,914.0	6.90	350.30	3,884.2	440.6	-107.1	453.4	1.21	-1.20	
4,006.0	6.50	347.20	3,975.6	451.1	-109.2	464.1	0.59	-0.43	
4,097.0	8.20	347.80	4,065.8	462.5	-111.7	475.7	1.87	1.87	
4,189.0	9.10	351.40	4,156.8	476.1	-114.1	489.5	1.14	0.98	
4,281.0	8.40	348.60	4,247.7	489.9	-116.6	503.5	0.89	-0.76	
4,373.0	7.70	347.20	4,338.8	502.5	-119.2	516.4	0.79	-0.76	
4,465.0	8.90	350.60	4,429.8	515.5	-121.8	529.6	1.41	1.30	
4,557.0	8.10	350.10	4,520.8	528.9	-124.1	543.2	0.87	-0.87	
4,649.0	7.00	349.40	4,612.0	540.8	-126.2	555.2	1.20	-1.20	
4,741.0	6.30	344.40	4,703.4	551.2	-128.6	565.9	0.99	-0.76	
4,833.0	7.10	348.60	4,794.8	561.6	-131.1	576.6	1.02	0.87	
4,925.0	8.30	350.00	4,885.9	573.7	-133.3	588.9	1.32	1.30	
5,016.0	7.50	350.00	4,976.1	586.0	-135.5	601.4	0.88	-0.88	
5,108.0	7.20	350.00	5,067.3	597.6	-137.6	613.1	0.33	-0.33	
5,200.0	8.20	345.50	5,158.5	609.7	-140.2	625.4	1.27	1.09	
5,292.0	7.30	346.60	5,249.6	621.7	-143.2	637.8	0.99	-0.98	
5,384.0	6.90	348.10	5,340.9	632.8	-145.7	649.2	0.48	-0.43	
5,476.0	7.90	345.50	5,432.2	644.3	-148.4	661.0	1.15	1.09	
5,568.0	7.70	346.70	5,523.3	656.4	-151.4	673.5	0.28	-0.22	
5,660.0	6.80	346.40	5,614.6	667.7	-154.1	685.1	0.98	-0.98	
5,752.0	6.60	346.50	5,705.9	678.2	-156.6	695.9	0.22	-0.22	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8512A-24 L24 496 (was 8507C-23)
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	KB @ 8208.0ft (Patterson 330)
<b>Site:</b>	L24 496	<b>MD Reference:</b>	KB @ 8208.0ft (Patterson 330)
<b>Well:</b>	8512A-24 L24 496 (was 8507C-23)	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
5,843.0	5.40	349.10	5,796.4	687.5	-158.7	705.4	1.35	-1.32	
5,935.0	6.50	336.30	5,888.0	696.5	-161.6	714.8	1.87	1.20	
6,027.0	7.50	344.60	5,979.3	707.0	-165.3	726.0	1.54	1.09	
6,119.0	9.40	345.40	6,070.3	720.1	-168.8	739.5	2.07	2.07	
6,211.0	7.90	345.70	6,161.2	733.5	-172.2	753.3	1.63	-1.63	
6,303.0	7.10	344.20	6,252.4	745.1	-175.3	765.3	0.90	-0.87	
6,395.0	8.10	344.20	6,343.6	756.8	-178.6	777.5	1.09	1.09	
6,487.0	7.70	339.90	6,434.7	768.8	-182.5	790.1	0.78	-0.43	
6,578.0	8.40	341.00	6,524.9	780.8	-186.8	802.8	0.79	0.77	
6,670.0	7.40	342.10	6,616.0	792.8	-190.8	815.4	1.10	-1.09	
6,762.0	8.50	349.50	6,707.1	805.1	-193.8	828.1	1.63	1.20	
6,854.0	7.60	347.80	6,798.2	817.8	-196.4	841.0	1.01	-0.98	
6,946.0	7.20	358.60	6,889.4	829.5	-197.8	852.7	1.57	-0.43	
7,038.0	7.00	355.90	6,980.7	840.8	-198.3	863.8	0.42	-0.22	
7,130.0	6.30	356.50	7,072.1	851.5	-199.0	874.3	0.76	-0.76	
7,222.0	6.40	356.10	7,163.5	861.6	-199.7	884.3	0.12	0.11	
7,313.0	6.00	355.80	7,254.0	871.4	-200.4	894.0	0.44	-0.44	
7,405.0	6.40	343.30	7,345.5	881.1	-202.2	903.8	1.53	0.43	
7,497.0	5.90	343.00	7,436.9	890.6	-205.1	913.7	0.54	-0.54	
7,589.0	5.50	341.70	7,528.5	899.3	-207.8	922.8	0.46	-0.43	
7,681.0	5.10	335.60	7,620.1	907.2	-210.9	931.2	0.75	-0.43	
7,773.0	6.60	339.80	7,711.6	915.9	-214.4	940.5	1.69	1.63	
7,865.0	6.40	337.60	7,803.0	925.6	-218.2	950.8	0.35	-0.22	
7,957.0	6.20	335.50	7,894.5	934.8	-222.2	960.8	0.33	-0.22	
8,049.0	4.40	350.00	7,986.1	942.8	-224.9	969.2	2.42	-1.96	
8,141.0	3.30	357.90	8,077.9	949.0	-225.6	975.3	1.32	-1.20	
8,233.0	1.50	18.60	8,169.8	952.7	-225.3	978.9	2.14	-1.96	
8,416.0	0.80	110.50	8,352.8	954.6	-223.4	980.2	0.94	-0.38	
8,508.0	1.20	324.20	8,444.7	955.1	-223.3	980.7	2.08	0.43	
8,600.0	1.40	315.80	8,536.7	956.7	-224.7	982.6	0.30	0.22	
8,692.0	1.50	311.90	8,628.7	958.3	-226.4	984.6	0.15	0.11	
8,783.0	1.40	300.00	8,719.7	959.7	-228.2	986.3	0.35	-0.11	
8,875.0	1.20	297.10	8,811.6	960.7	-230.0	987.7	0.23	-0.22	
8,967.0	1.30	304.20	8,903.6	961.7	-231.8	989.2	0.20	0.11	
9,059.0	1.30	291.40	8,995.6	962.7	-233.6	990.5	0.31	0.00	
9,151.0	1.00	283.10	9,087.6	963.2	-235.3	991.5	0.37	-0.33	
9,243.0	1.30	273.00	9,179.6	963.5	-237.2	992.2	0.39	0.33	
9,335.0	1.40	273.10	9,271.5	963.6	-239.3	992.8	0.11	0.11	
9,427.0	1.40	247.00	9,363.5	963.2	-241.5	993.0	0.69	0.00	
9,518.0	0.90	107.60	9,454.5	962.6	-241.8	992.5	2.38	-0.55	
9,610.0	1.50	105.30	9,546.5	962.0	-240.0	991.5	0.65	0.65	
9,702.0	2.00	78.00	9,638.4	962.0	-237.2	990.8	1.04	0.54	
9,794.0	1.80	85.60	9,730.4	962.5	-234.2	990.5	0.35	-0.22	
9,886.0	1.70	87.30	9,822.3	962.7	-231.4	990.0	0.12	-0.11	
9,978.0	1.40	90.80	9,914.3	962.7	-228.9	989.4	0.34	-0.33	
10,070.0	1.30	58.30	10,006.3	963.2	-226.9	989.5	0.83	-0.11	
10,162.0	1.10	47.30	10,098.3	964.4	-225.4	990.2	0.33	-0.22	
10,254.0	0.80	36.40	10,190.3	965.5	-224.4	991.0	0.38	-0.33	
10,346.0	0.30	126.40	10,282.2	965.9	-223.8	991.2	0.93	-0.54	
10,437.0	0.20	221.70	10,373.2	965.6	-223.7	991.0	0.41	-0.11	
10,529.0	1.00	60.50	10,465.2	965.9	-223.1	991.1	1.29	0.87	
10,621.0	0.70	68.80	10,557.2	966.5	-221.9	991.4	0.35	-0.33	
10,713.0	0.60	100.50	10,649.2	966.6	-220.9	991.2	0.40	-0.11	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8512A-24 L24 496 (was 8507C-23)
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	KB @ 8208.0ft (Patterson 330)
<b>Site:</b>	L24 496	<b>MD Reference:</b>	KB @ 8208.0ft (Patterson 330)
<b>Well:</b>	8512A-24 L24 496 (was 8507C-23)	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
10,805.0	0.70	151.20	10,741.2	966.0	-220.1	990.5	0.61	0.11	
10,896.0	0.90	184.20	10,832.2	964.8	-219.9	989.3	0.54	0.22	
10,988.0	0.70	144.60	10,924.2	963.6	-219.7	988.1	0.62	-0.22	
11,080.0	0.70	163.00	11,016.2	962.6	-219.2	987.0	0.24	0.00	
11,172.0	0.30	92.30	11,108.2	962.1	-218.8	986.4	0.72	-0.43	
11,264.0	0.40	351.30	11,200.2	962.4	-218.6	986.6	0.59	0.11	
11,356.0	0.10	338.40	11,292.2	962.8	-218.7	987.0	0.33	-0.33	
11,447.0	0.20	292.10	11,383.2	962.9	-218.8	987.2	0.16	0.11	
11,539.0	0.30	252.90	11,475.2	962.9	-219.2	987.3	0.21	0.11	
11,631.0	0.80	244.20	11,567.2	962.6	-220.0	987.1	0.55	0.54	
11,723.0	1.00	232.10	11,659.2	961.8	-221.2	986.7	0.30	0.22	
11,815.0	1.20	242.60	11,751.2	960.9	-222.7	986.1	0.31	0.22	
11,906.0	1.70	248.40	11,842.1	959.9	-224.8	985.7	0.57	0.55	
11,998.0	2.10	250.80	11,934.1	958.9	-227.7	985.4	0.44	0.43	
12,090.0	2.30	250.30	12,026.0	957.7	-231.0	985.1	0.22	0.22	
12,182.0	3.20	249.90	12,117.9	956.2	-235.2	984.7	0.98	0.98	
12,274.0	3.00	257.70	12,209.8	954.8	-239.9	984.5	0.51	-0.22	
12,410.0	3.40	257.40	12,345.6	953.2	-247.3	984.7	0.29	0.29	Last Cathedral Survey @ 12,410' MD Projectio to Bit @ 12,465'
12,465.0	3.40	257.40	12,400.5	952.4	-250.5	984.8	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
8512A-24 L24 496 PBHI	0.00	0.00	13,065.0	955.2	-242.3	1,686,036.15	2,261,600.95	39° 41' 15.66 N	108° 7' 26.77 W
- hit/miss target									
- Shape									
- actual wellpath misses target center by 664.6ft at 12465.0ft MD (12400.5 TVD, 952.4 N, -250.5 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
8512A-24 L24 496 TGT	0.00	0.00	8,262.0	965.2	-225.3	1,686,045.66	2,261,618.28	39° 41' 15.76 N	108° 7' 26.55 W
- actual wellpath misses target center by 10.9ft at 8325.3ft MD (8262.1 TVD, 954.3 N, -224.4 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
12,410.0	12,345.6	953.2	-247.3	Last Cathedral Survey @ 12,410' MD	
12,465.0	12,400.5	952.4	-250.5	Projectio to Bit @ 12,465'	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_