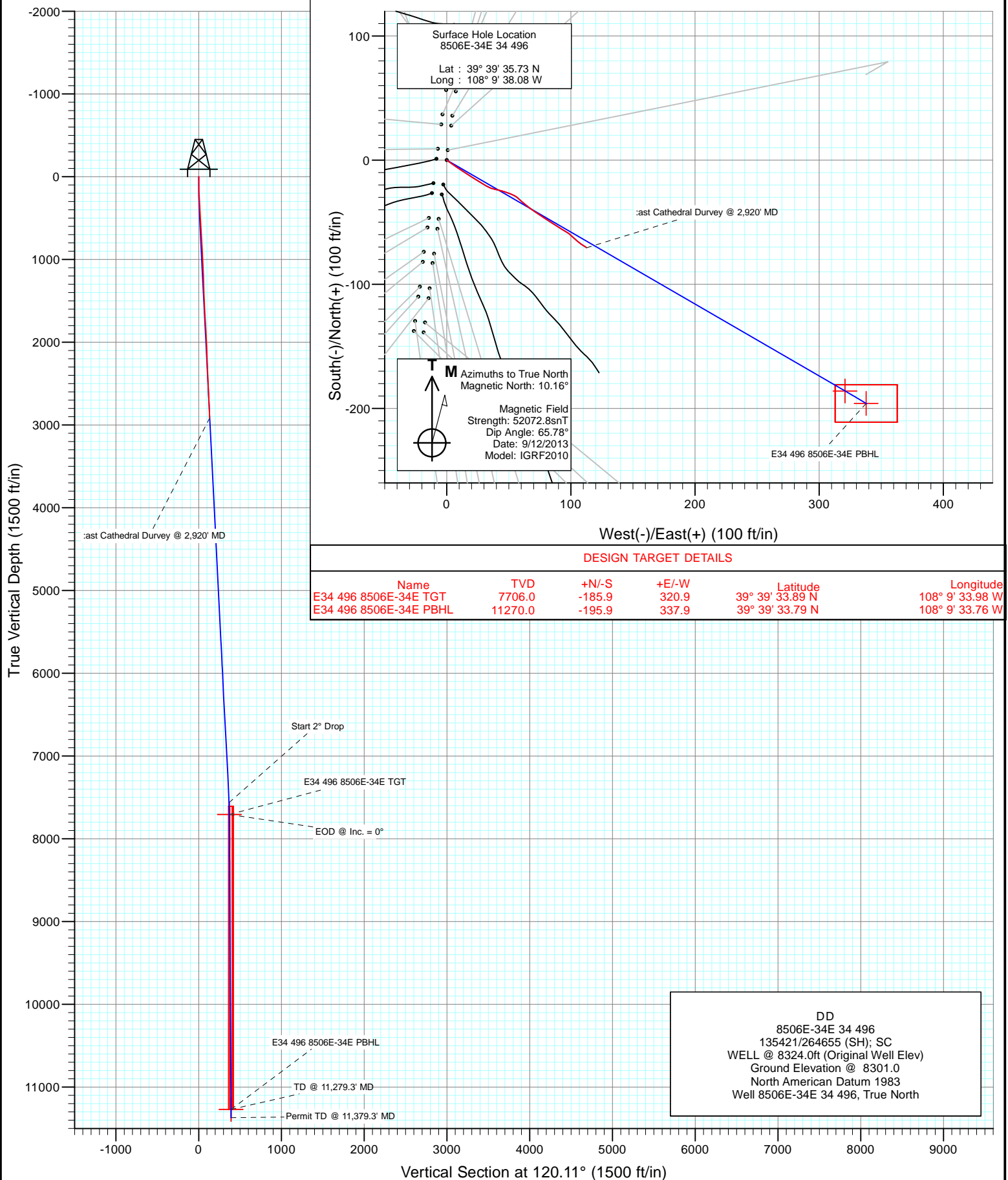




Project: Story Gulch  
Site: E34 496 S33-T4S-R96W  
Well: 8506E-34E 34 496  
Wellbore: DD  
Design: DD



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8506E-34E 34 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 8324.0ft (Original Well Elev)
<b>Site:</b>	E34 496 S33-T4S-R96W	<b>MD Reference:</b>	WELL @ 8324.0ft (Original Well Elev)
<b>Well:</b>	8506E-34E 34 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<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		

Site		E34 496 S33-T4S-R96W			
Site Position:		Northing:	1,676,257.20 ft	Latitude:	39° 39' 36.02 N
From:	Lat/Long	Easting:	2,251,040.13 ft	Longitude:	108° 9' 38.14 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.68 °

Well	8506E-34E 34 496					
Well Position	+N/-S	0.0 ft	Northing:	1,676,227.71 ft	Latitude:	39° 39' 35.73 N
	+E/-W	0.0 ft	Easting:	2,251,043.62 ft	Longitude:	108° 9' 38.08 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,301.0 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	9/12/2013	10.16	65.78	52,073

<b>Design</b>	DD				
<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	120.11	

<b>Survey Program</b>	<b>Date</b>	9/14/2013			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
325.0	2,920.0	Survey #1 (DD)	Geolink 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		
325.0	3.20	125.00	324.8	-5.2	7.4	9.0	0.98	0.98		
416.0	4.20	123.20	415.6	-8.5	12.3	14.9	1.11	1.10		
511.0	3.90	123.20	510.4	-12.2	17.9	21.6	0.32	-0.32		
602.0	3.60	122.50	601.2	-15.4	22.9	27.5	0.33	-0.33		
694.0	3.30	120.70	693.0	-18.3	27.6	33.1	0.35	-0.33		
785.0	2.70	120.00	783.9	-20.7	31.7	37.8	0.66	-0.66		
877.0	2.60	111.70	875.8	-22.6	35.6	42.1	0.43	-0.11		
968.0	2.50	101.00	966.7	-23.7	39.4	46.0	0.53	-0.11		
1,059.0	2.60	101.80	1,057.6	-24.5	43.4	49.8	0.12	0.11		
1,151.0	2.60	112.90	1,149.5	-25.7	47.4	53.9	0.55	0.00		
1,242.0	2.50	109.20	1,240.5	-27.2	51.1	57.9	0.21	-0.11		
1,334.0	1.80	113.50	1,332.4	-28.4	54.3	61.3	0.78	-0.76		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8506E-34E 34 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 8324.0ft (Original Well Elev)
<b>Site:</b>	E34 496 S33-T4S-R96W	<b>MD Reference:</b>	WELL @ 8324.0ft (Original Well Elev)
<b>Well:</b>	8506E-34E 34 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<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
1,426.0	2.00	133.80	1,424.3	-30.1	56.8	64.3	0.76	0.22	
1,517.0	2.20	132.10	1,515.3	-32.4	59.3	67.5	0.23	0.22	
1,608.0	3.30	129.00	1,606.2	-35.2	62.6	71.8	1.22	1.21	
1,700.0	3.60	127.50	1,698.0	-38.6	67.0	77.3	0.34	0.33	
1,791.0	3.40	124.00	1,788.8	-41.9	71.5	82.8	0.32	-0.22	
1,882.0	2.90	122.40	1,879.7	-44.6	75.6	87.8	0.56	-0.55	
1,974.0	2.80	125.60	1,971.6	-47.2	79.4	92.4	0.20	-0.11	
2,065.0	2.20	120.60	2,062.5	-49.4	82.7	96.3	0.70	-0.66	
2,156.0	2.30	122.00	2,153.4	-51.2	85.8	99.9	0.13	0.11	
2,248.0	2.40	122.50	2,245.4	-53.2	89.0	103.7	0.11	0.11	
2,340.0	2.20	124.10	2,337.3	-55.3	92.1	107.4	0.23	-0.22	
2,431.0	2.10	117.20	2,428.2	-57.0	95.0	110.8	0.30	-0.11	
2,523.0	2.60	126.10	2,520.1	-59.0	98.2	114.5	0.67	0.54	
2,614.0	3.20	134.90	2,611.0	-62.0	101.7	119.0	0.82	0.66	
2,706.0	2.80	129.90	2,702.9	-65.3	105.2	123.7	0.52	-0.43	
2,797.0	2.50	124.60	2,793.8	-67.8	108.5	127.9	0.43	-0.33	
2,889.0	2.20	122.20	2,885.7	-69.9	111.7	131.7	0.34	-0.33	
2,920.0	2.20	120.90	2,916.7	-70.5	112.7	132.9	0.16	0.00	East Cathedral Survey @ 2,920' 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									
E34 496 8506E-34E PBI	0.00	0.00	11,270.0	-195.9	337.9	1,676,021.96	2,251,375.59	39° 39' 33.79 N	108° 9' 33.76 W
- survey misses target center by 8357.3ft at 2920.0ft MD (2916.7 TVD, -70.5 N, 112.7 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
E34 496 8506E-34E TG	0.00	0.00	7,706.0	-185.9	320.9	1,676,032.50	2,251,358.94	39° 39' 33.89 N	108° 9' 33.98 W
- survey misses target center by 4795.2ft at 2920.0ft MD (2916.7 TVD, -70.5 N, 112.7 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,920.0	2,916.7	-70.5	112.7	East Cathedral Survey @ 2,920' MD

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