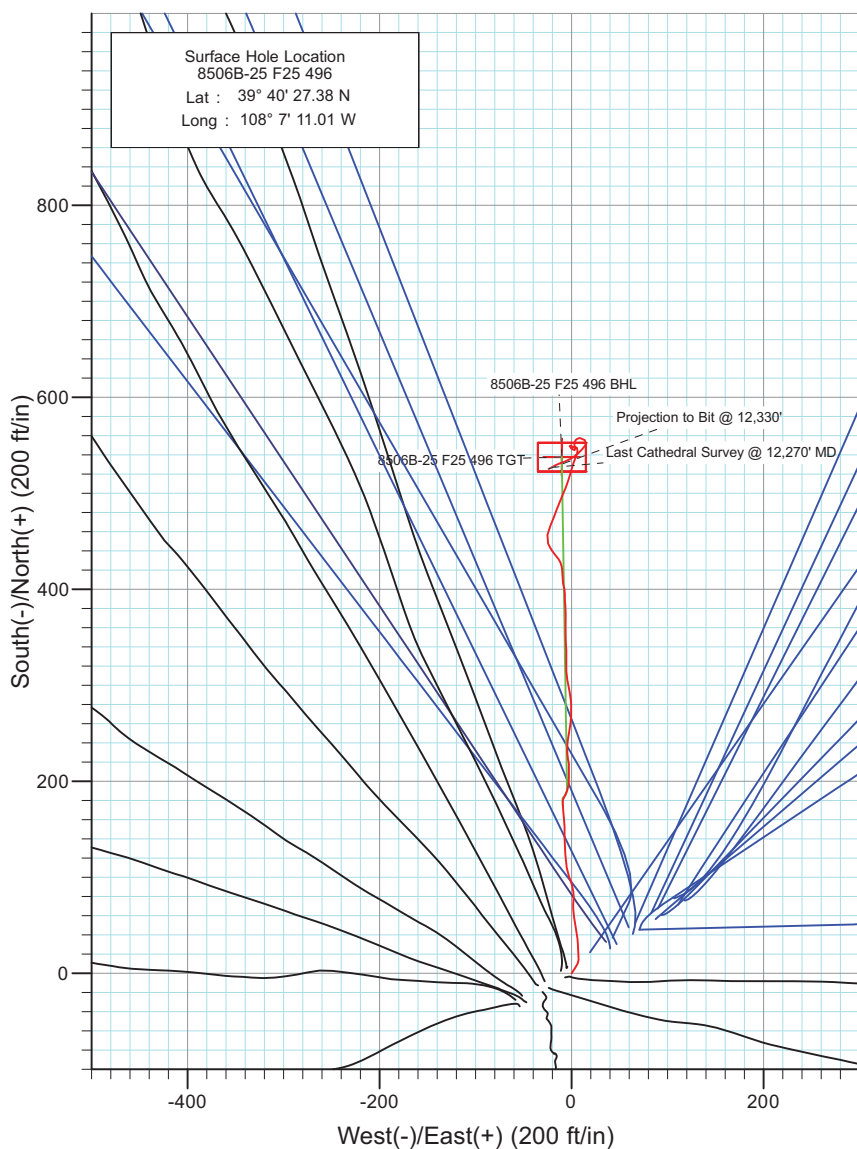
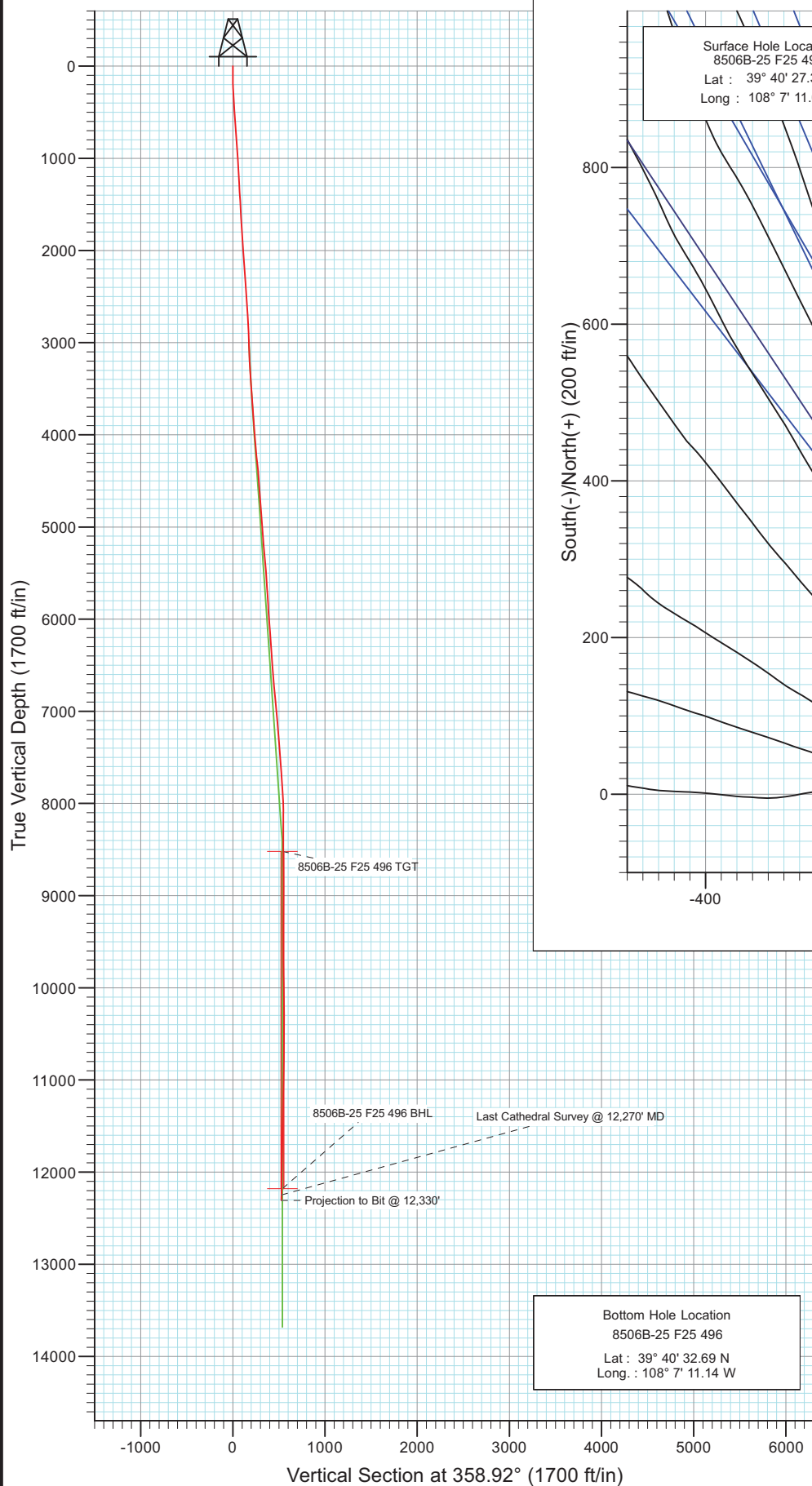




Project: Story Gulch  
 Site: F25 496  
 Well: 8506B-25 F25 496  
 Wellbore: DD  
 Design: FINAL



Azimuths to True North  
 Magnetic North: 10.48°

Magnetic Field  
 Strength: 52404.9snT  
 Dip Angle: 65.89°  
 Date: 11/4/2010  
 Model: IGRF200510

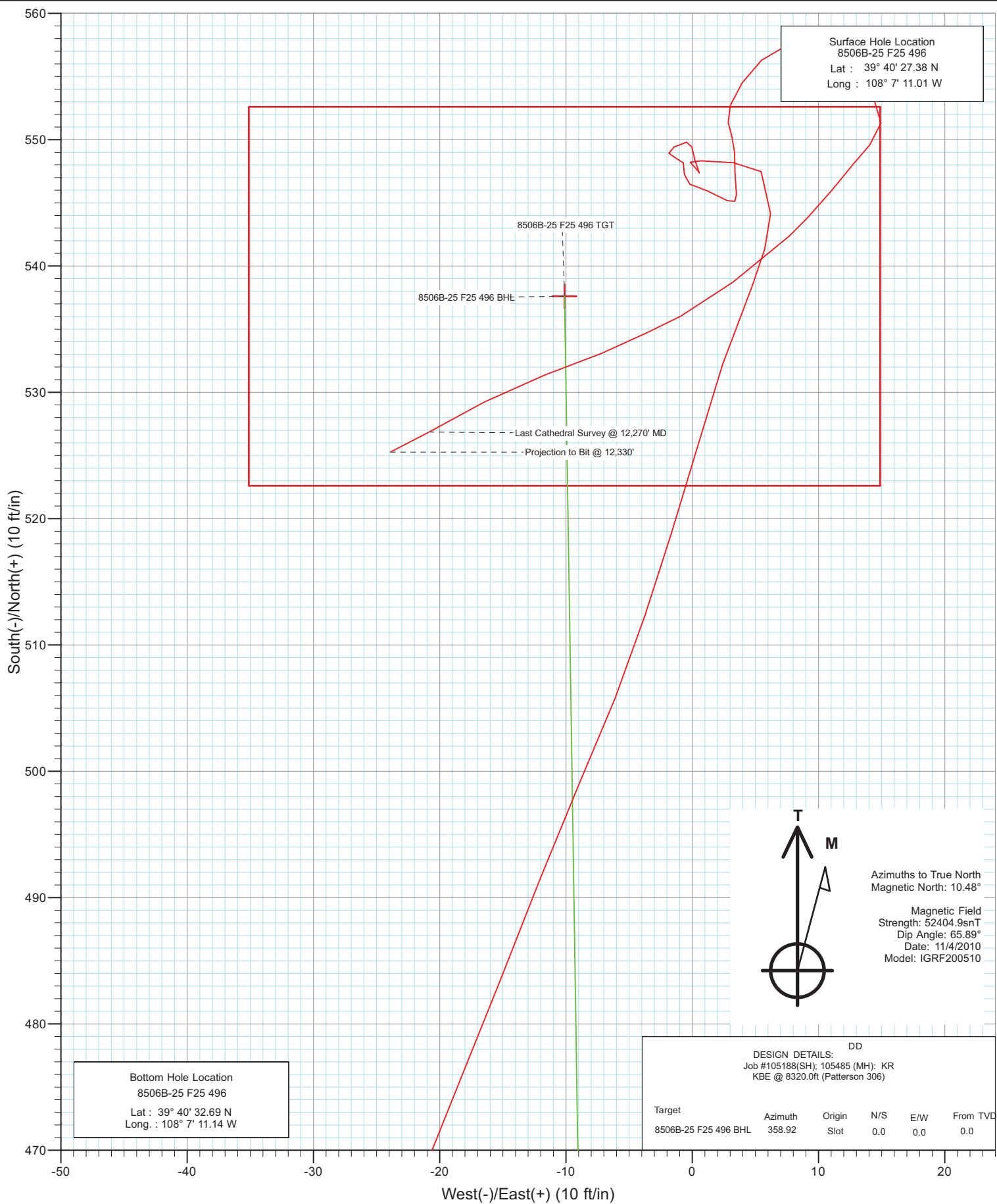
DD

DESIGN DETAILS:  
 Job #105188(SH); 105485 (MH): KR  
 KBE @ 8320.0ft (Patterson 306)

Target	Azimuth	Origin	N/S	E/W	From TVD
8506B-25 F25 496 BHL	358.92	Slot	0.0	0.0	0.0



Project: Story Gulch  
Site: F25 496  
Well: 8506B-25 F25 496  
Wellbore: DD  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8506B-25 F25 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	KBE @ 8320.0ft (Patterson 306)
<b>Site:</b>	F25 496	<b>MD Reference:</b>	KBE @ 8320.0ft (Patterson 306)
<b>Well:</b>	8506B-25 F25 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	EDM 5000.1 US 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		F25 496			
Site Position:		Northing:	1,681,091.06 ft	Latitude:	39° 40' 27.10 N
From:	Lat/Long	Easting:	2,262,632.54 ft	Longitude:	108° 7' 11.76 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.65 °

Well	8506B-25 F25 496					
Well Position	+N/-S	0.0 ft	Northing:	1,681,117.15 ft	Latitude:	39° 40' 27.38 N
	+E/-W	0.0 ft	Easting:	2,262,691.57 ft	Longitude:	108° 7' 11.01 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,298.0 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>
	IGRF200510	11/4/2010	10.48	65.89	52,405

<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</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	358.92	

<b>Survey Program</b>	<b>Date</b>	11/20/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
163.0	2,975.0	Survey #1 (DD)	MWD	Geolink MWD	
3,104.0	12,330.0	Survey #2 (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		
163.0	0.50	35.00	163.0	0.6	0.4	0.6	0.31	0.31		
194.0	1.30	43.00	194.0	1.0	0.7	0.9	2.61	2.58		
225.0	2.80	33.00	225.0	1.8	1.4	1.8	4.96	4.84		
255.0	3.00	27.00	254.9	3.2	2.1	3.1	1.21	0.67		
286.0	3.00	37.00	285.9	4.5	3.0	4.5	1.69	0.00		
316.0	3.50	37.00	315.8	5.9	4.0	5.8	1.67	1.67		
397.0	4.00	20.10	396.7	10.5	6.5	10.4	1.49	0.62		
488.0	4.30	356.70	487.4	16.9	7.4	16.8	1.88	0.33		
580.0	4.50	357.00	579.2	23.9	7.0	23.8	0.22	0.22		
671.0	4.30	355.60	669.9	30.9	6.5	30.8	0.25	-0.22		
767.0	3.90	353.40	765.7	37.7	5.9	37.6	0.45	-0.42		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8506B-25 F25 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	KBE @ 8320.0ft (Patterson 306)
<b>Site:</b>	F25 496	<b>MD Reference:</b>	KBE @ 8320.0ft (Patterson 306)
<b>Well:</b>	8506B-25 F25 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	EDM 5000.1 US 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
862.0	3.70	349.40	860.4	44.0	4.9	43.9	0.35	-0.21	
892.0	3.90	352.90	890.4	45.9	4.6	45.8	1.02	0.67	
987.0	3.10	349.60	985.2	51.7	3.8	51.6	0.87	-0.84	
1,082.0	3.70	353.10	1,080.0	57.2	2.9	57.2	0.67	0.63	
1,177.0	3.70	350.50	1,174.8	63.3	2.1	63.3	0.18	0.00	
1,272.0	3.30	358.40	1,269.7	69.1	1.5	69.0	0.66	-0.42	
1,367.0	3.00	9.20	1,364.5	74.2	1.8	74.2	0.70	-0.32	
1,462.0	3.50	0.60	1,459.4	79.6	2.2	79.5	0.73	0.53	
1,558.0	3.20	351.00	1,555.2	85.2	1.8	85.1	0.66	-0.31	
1,653.0	3.50	346.80	1,650.0	90.6	0.8	90.6	0.41	0.32	
1,748.0	3.10	340.70	1,744.9	95.9	-0.7	95.9	0.56	-0.42	
1,843.0	3.60	339.40	1,839.7	101.1	-2.6	101.1	0.53	0.53	
1,938.0	4.10	350.80	1,934.5	107.2	-4.2	107.3	0.96	0.53	
2,033.0	3.80	347.10	2,029.3	113.6	-5.5	113.7	0.41	-0.32	
2,128.0	4.50	358.40	2,124.0	120.4	-6.3	120.5	1.13	0.74	
2,223.0	4.10	357.70	2,218.8	127.6	-6.5	127.7	0.42	-0.42	
2,318.0	3.90	354.40	2,313.5	134.2	-7.0	134.3	0.32	-0.21	
2,413.0	4.20	0.40	2,408.3	140.9	-7.3	141.0	0.55	0.32	
2,508.0	3.70	359.00	2,503.1	147.4	-7.3	147.5	0.54	-0.53	
2,603.0	3.50	358.90	2,597.9	153.4	-7.4	153.5	0.21	-0.21	
2,699.0	3.80	356.60	2,693.7	159.5	-7.6	159.6	0.35	0.31	
2,794.0	3.10	354.30	2,788.5	165.2	-8.1	165.3	0.75	-0.74	
2,889.0	2.50	352.30	2,883.4	169.8	-8.6	169.9	0.64	-0.63	
2,975.0	2.40	357.10	2,969.3	173.4	-9.0	173.6	0.27	-0.12	Last Cathedral Survey @ 2975' MD
3,104.0	1.40	351.90	3,098.3	177.7	-9.3	177.8	0.79	-0.78	
3,196.0	2.20	14.20	3,190.2	180.5	-9.0	180.7	1.14	0.87	
3,287.0	3.70	29.50	3,281.1	184.8	-7.2	184.9	1.85	1.65	
3,379.0	4.20	22.40	3,372.9	190.5	-4.4	190.5	0.76	0.54	
3,471.0	4.70	2.60	3,464.6	197.4	-3.0	197.4	1.75	0.54	
3,563.0	4.60	0.10	3,556.3	204.8	-2.8	204.8	0.25	-0.11	
3,654.0	4.40	2.80	3,647.0	211.9	-2.6	212.0	0.32	-0.22	
3,746.0	3.70	355.70	3,738.8	218.4	-2.7	218.4	0.93	-0.76	
3,838.0	3.90	346.70	3,830.6	224.4	-3.6	224.5	0.68	0.22	
3,929.0	4.00	356.30	3,921.4	230.6	-4.5	230.7	0.73	0.11	
4,021.0	3.90	2.70	4,013.1	236.9	-4.6	237.0	0.49	-0.11	
4,113.0	5.50	10.30	4,104.8	244.4	-3.7	244.4	1.86	1.74	
4,204.0	5.30	11.50	4,195.4	252.8	-2.0	252.8	0.25	-0.22	
4,296.0	6.40	3.70	4,287.0	262.1	-0.9	262.1	1.47	1.20	
4,388.0	5.50	0.70	4,378.5	271.6	-0.5	271.6	1.03	-0.98	
4,479.0	5.60	358.60	4,469.0	280.4	-0.5	280.4	0.25	0.11	
4,571.0	4.40	349.80	4,560.7	288.4	-1.3	288.4	1.54	-1.30	
4,663.0	3.60	350.00	4,652.5	294.7	-2.4	294.7	0.87	-0.87	
4,754.0	3.20	345.80	4,743.3	300.0	-3.5	300.0	0.52	-0.44	
4,846.0	3.30	355.60	4,835.1	305.1	-4.3	305.1	0.61	0.11	
4,938.0	4.30	352.20	4,926.9	311.2	-5.0	311.2	1.11	1.09	
5,029.0	5.60	0.10	5,017.6	319.0	-5.5	319.0	1.61	1.43	
5,121.0	5.40	0.10	5,109.2	327.8	-5.5	327.8	0.22	-0.22	
5,213.0	5.20	358.40	5,200.8	336.3	-5.6	336.3	0.28	-0.22	
5,304.0	4.80	357.40	5,291.4	344.2	-5.8	344.3	0.45	-0.44	
5,396.0	4.20	358.90	5,383.2	351.4	-6.1	351.5	0.66	-0.65	
5,488.0	4.20	359.10	5,474.9	358.2	-6.2	358.2	0.02	0.00	
5,579.0	4.20	1.80	5,565.7	364.8	-6.2	364.9	0.22	0.00	
5,671.0	4.00	0.00	5,657.4	371.4	-6.0	371.5	0.26	-0.22	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8506B-25 F25 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	KBE @ 8320.0ft (Patterson 306)
<b>Site:</b>	F25 496	<b>MD Reference:</b>	KBE @ 8320.0ft (Patterson 306)
<b>Well:</b>	8506B-25 F25 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	EDM 5000.1 US 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
5,763.0	3.50	359.10	5,749.2	377.4	-6.1	377.5	0.55	-0.54	
5,854.0	2.90	351.50	5,840.1	382.5	-6.5	382.5	0.81	-0.66	
5,946.0	4.30	0.00	5,931.9	388.2	-6.8	388.3	1.62	1.52	
6,038.0	3.90	359.00	6,023.7	394.8	-6.9	394.9	0.44	-0.43	
6,129.0	3.70	348.10	6,114.5	400.8	-7.5	400.8	0.82	-0.22	
6,221.0	4.00	349.20	6,206.3	406.8	-8.7	406.9	0.34	0.33	
6,313.0	5.30	358.60	6,298.0	414.2	-9.5	414.3	1.63	1.41	
6,404.0	4.50	352.90	6,388.6	422.0	-10.0	422.1	1.03	-0.88	
6,496.0	3.30	334.70	6,480.4	428.0	-11.6	428.1	1.86	-1.30	
6,588.0	4.70	321.30	6,572.2	433.3	-15.1	433.5	1.82	1.52	
6,679.0	5.80	323.70	6,662.8	439.9	-20.1	440.2	1.23	1.21	
6,769.0	5.70	338.30	6,752.4	447.7	-24.5	448.1	1.62	-0.11	
6,861.0	6.00	12.70	6,843.9	456.7	-25.1	457.1	3.77	0.33	
6,953.0	6.40	21.60	6,935.4	466.1	-22.1	466.5	1.13	0.43	
7,044.0	5.80	21.90	7,025.9	475.1	-18.6	475.4	0.66	-0.66	
7,136.0	5.40	21.90	7,117.4	483.4	-15.2	483.6	0.43	-0.43	
7,228.0	5.20	21.10	7,209.0	491.3	-12.1	491.5	0.23	-0.22	
7,319.0	4.90	23.60	7,299.7	498.7	-9.1	498.8	0.41	-0.33	
7,411.0	4.60	21.90	7,391.4	505.8	-6.1	505.8	0.36	-0.33	
7,503.0	4.10	17.50	7,483.1	512.3	-3.7	512.3	0.65	-0.54	
7,594.0	4.40	18.20	7,573.8	518.7	-1.7	518.7	0.33	0.33	
7,686.0	4.50	15.40	7,665.6	525.6	0.4	525.5	0.26	0.11	
7,777.0	4.20	18.60	7,756.3	532.2	2.4	532.0	0.42	-0.33	
7,869.0	4.10	22.90	7,848.1	538.4	4.7	538.2	0.36	-0.11	
7,961.0	3.40	3.70	7,939.9	544.2	6.2	543.9	1.55	-0.76	
8,052.0	1.40	304.50	8,030.8	547.5	5.5	547.3	3.23	-2.20	
8,144.0	1.60	272.80	8,122.8	548.2	3.3	548.0	0.91	0.22	
8,236.0	1.60	273.70	8,214.7	548.3	0.7	548.2	0.03	0.00	
8,328.0	0.60	113.30	8,306.7	548.2	-0.2	548.1	2.36	-1.09	
8,419.0	0.80	157.10	8,397.7	547.4	0.5	547.3	0.61	0.22	
8,511.0	0.70	335.90	8,489.7	547.4	0.6	547.3	1.63	-0.11	
8,603.0	0.70	347.60	8,581.7	548.4	0.2	548.3	0.16	0.00	
8,694.0	0.60	346.40	8,672.7	549.4	0.0	549.3	0.11	-0.11	
8,786.0	0.40	253.50	8,764.7	549.8	-0.5	549.7	0.80	-0.22	
8,879.0	0.90	246.20	8,857.7	549.4	-1.4	549.3	0.54	0.54	
8,969.0	0.40	131.60	8,947.7	548.9	-1.8	548.9	1.25	-0.56	
9,061.0	0.40	118.50	9,039.7	548.6	-1.3	548.5	0.10	0.00	
9,153.0	0.50	127.30	9,131.7	548.2	-0.7	548.1	0.13	0.11	
9,245.0	0.90	197.00	9,223.7	547.2	-0.6	547.1	0.94	0.43	
9,336.0	0.80	96.50	9,314.7	546.5	-0.2	546.4	1.44	-0.11	
9,428.0	1.10	121.20	9,406.7	545.9	1.2	545.8	0.54	0.33	
9,520.0	1.10	111.10	9,498.6	545.2	2.8	545.0	0.21	0.00	
9,611.0	1.00	352.80	9,589.6	545.6	3.5	545.5	1.98	-0.11	
9,703.0	1.20	359.20	9,681.6	547.4	3.4	547.2	0.25	0.22	
9,795.0	0.80	358.80	9,773.6	549.0	3.4	548.8	0.43	-0.43	
9,888.0	0.80	340.80	9,866.6	550.3	3.1	550.1	0.27	0.00	
9,979.0	0.60	352.10	9,957.6	551.3	2.9	551.2	0.27	-0.22	
10,071.0	1.10	13.90	10,049.6	552.7	3.0	552.5	0.64	0.54	
10,163.0	1.50	37.30	10,141.5	554.5	3.9	554.3	0.71	0.43	
10,254.0	1.50	44.10	10,232.5	556.3	5.5	556.1	0.20	0.00	
10,346.0	1.10	80.90	10,324.5	557.3	7.2	557.1	0.98	-0.43	
10,438.0	1.00	83.60	10,416.5	557.5	8.9	557.3	0.12	-0.11	
10,714.0	1.50	135.50	10,692.4	555.2	13.8	554.9	0.43	0.18	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8506B-25 F25 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	KBE @ 8320.0ft (Patterson 306)
<b>Site:</b>	F25 496	<b>MD Reference:</b>	KBE @ 8320.0ft (Patterson 306)
<b>Well:</b>	8506B-25 F25 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	EDM 5000.1 US 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
10,898.0	1.40	194.00	10,876.4	551.3	14.9	550.9	0.77	-0.05	
10,990.0	1.10	223.60	10,968.4	549.6	14.1	549.2	0.76	-0.33	
11,082.0	1.50	218.60	11,060.3	548.0	12.7	547.7	0.45	0.43	
11,174.0	1.80	219.80	11,152.3	546.0	11.0	545.7	0.33	0.33	
11,266.0	1.70	223.30	11,244.2	543.9	9.2	543.6	0.16	-0.11	
11,358.0	0.90	227.80	11,336.2	542.4	7.7	542.1	0.88	-0.87	
11,634.0	1.50	232.50	11,612.2	538.7	3.2	538.6	0.22	0.22	
11,817.0	1.60	241.10	11,795.1	536.0	-0.9	535.9	0.14	0.05	
11,909.0	2.10	245.60	11,887.0	534.7	-3.6	534.7	0.57	0.54	
12,001.0	2.80	246.00	11,979.0	533.1	-7.2	533.1	0.76	0.76	
12,092.0	3.30	251.40	12,069.8	531.4	-11.7	531.5	0.63	0.55	
12,184.0	3.30	240.60	12,161.7	529.2	-16.5	529.4	0.67	0.00	
12,270.0	3.30	242.50	12,247.5	526.9	-20.8	527.2	0.13	0.00	Last Cathedral Survey @ 12,270' MD
12,330.0	3.30	242.50	12,307.4	525.3	-23.9	525.6	0.00	0.00	Projection to Bit @ 12,330'

### Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
8506B-25 F25 496 TGT	0.00	0.00	8,520.0	537.6	-10.1	1,681,654.82	2,262,696.97	39° 40' 32.69 N	108° 7' 11.14 W
- hit/miss target									
- Shape									
- actual wellpath misses target center by 14.6ft at 8541.2ft MD (8519.9 TVD, 547.7 N, 0.4 E)									
- Point									
8506B-25 F25 496 BHL	0.00	0.00	12,180.0	537.6	-10.1	1,681,654.82	2,262,696.97	39° 40' 32.69 N	108° 7' 11.14 W
- actual wellpath misses target center by 11.5ft at 12201.7ft MD (12179.4 TVD, 528.7 N, -17.4 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,975.0	2,969.3	173.4	-9.0	Last Cathedral Survey @ 2975' MD
12,270.0	12,247.5	526.9	-20.8	Last Cathedral Survey @ 12,270' MD
12,330.0	12,307.4	525.3	-23.9	Projection to Bit @ 12,330'

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