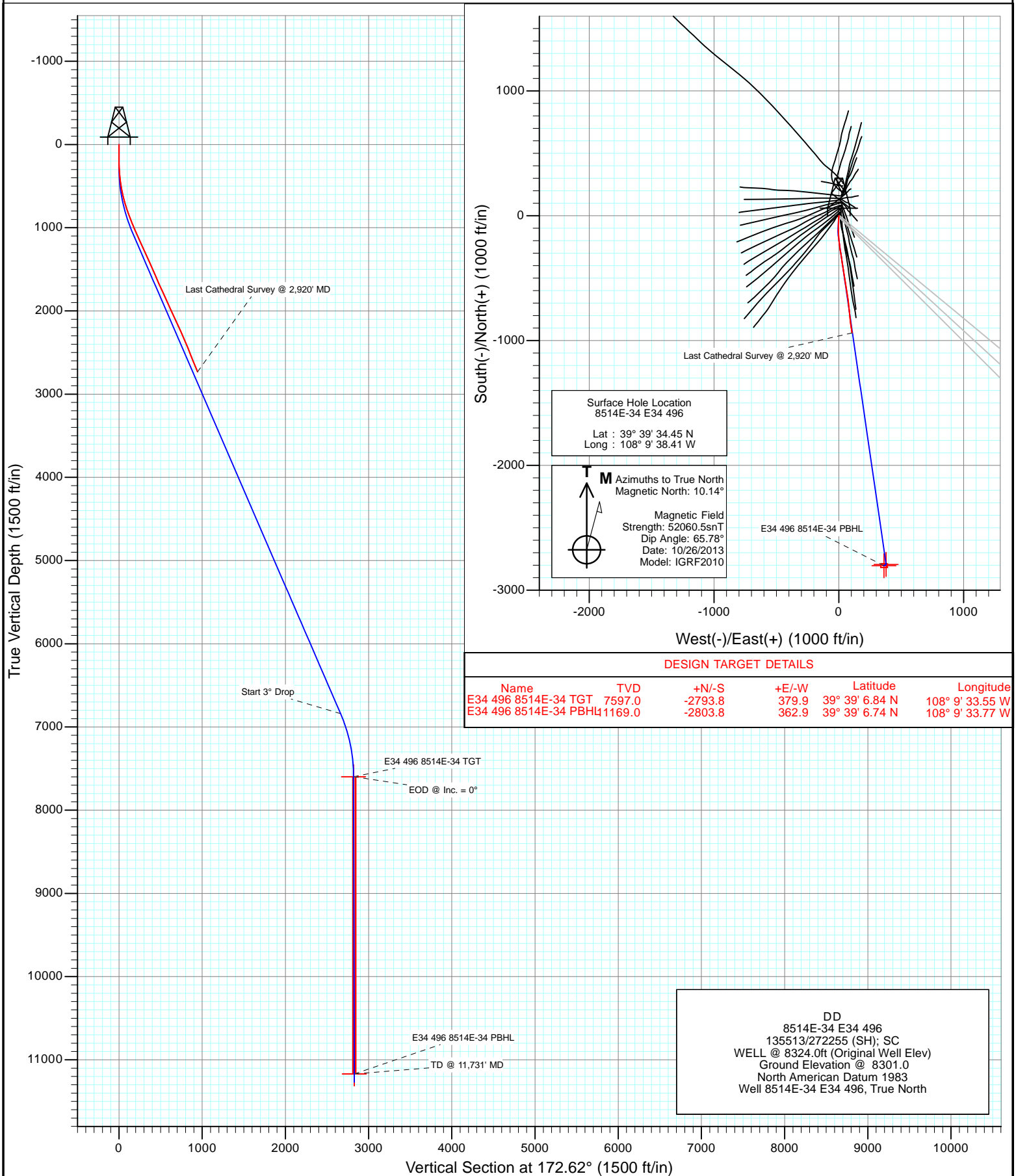




Project: Story Gulch
 Site: E34 496 S33-T4S-R96W
 Well: 8514E-34 E34 496
 Wellbore: DD
 Design: DD



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8514E-34 E34 496
Project:	Story Gulch	TVD Reference:	WELL @ 8324.0ft (Original Well Elev)
Site:	E34 496 S33-T4S-R96W	MD Reference:	WELL @ 8324.0ft (Original Well Elev)
Well:	8514E-34 E34 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		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	8514E-34 E34 496					
Well Position	+N/-S	0.0 ft	Northing:	1,676,099.01 ft	Latitude:	39° 39' 34.45 N
	+E/-W	0.0 ft	Easting:	2,251,014.37 ft	Longitude:	108° 9' 38.41 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,301.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/26/2013	10.14	65.78	52,060

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	172.62	

Survey Program	Date	10/28/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
173.0	2,920.0	Survey #1 (DD)	Geolink 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		
173.0	0.30	139.00	173.0	-0.3	0.3	0.4	0.17	0.17		
234.0	0.90	153.20	234.0	-0.9	0.6	1.0	1.01	0.98		
265.0	1.80	170.70	265.0	-1.6	0.8	1.7	3.16	2.90		
326.0	3.70	183.10	325.9	-4.5	0.9	4.6	3.25	3.11		
418.0	7.40	186.50	417.5	-13.4	0.0	13.2	4.04	4.02		
512.0	9.50	184.60	510.4	-27.1	-1.3	26.7	2.25	2.23		
604.0	12.70	179.90	600.7	-44.8	-1.9	44.2	3.61	3.48		
695.0	15.90	182.40	688.9	-67.2	-2.4	66.4	3.58	3.52		
787.0	19.40	179.30	776.5	-95.1	-2.7	94.0	3.94	3.80		
878.0	20.50	179.70	862.1	-126.2	-2.5	124.8	1.22	1.21		
970.0	22.40	178.90	947.7	-159.8	-2.0	158.2	2.09	2.07		
1,061.0	24.20	172.90	1,031.3	-195.7	0.6	194.1	3.27	1.98		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8514E-34 E34 496
Project:	Story Gulch	TVD Reference:	WELL @ 8324.0ft (Original Well Elev)
Site:	E34 496 S33-T4S-R96W	MD Reference:	WELL @ 8324.0ft (Original Well Elev)
Well:	8514E-34 E34 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
1,152.0	24.20	171.20	1,114.3	-232.6	5.8	231.4	0.77	0.00	
1,244.0	23.50	170.40	1,198.4	-269.3	11.7	268.6	0.84	-0.76	
1,335.0	24.70	171.20	1,281.5	-306.0	17.6	305.7	1.37	1.32	
1,427.0	24.70	172.70	1,365.1	-344.1	23.0	344.2	0.68	0.00	
1,518.0	24.40	170.80	1,447.9	-381.5	28.4	382.0	0.93	-0.33	
1,610.0	23.00	171.90	1,532.1	-418.0	34.0	418.9	1.60	-1.52	
1,701.0	22.70	169.90	1,616.0	-452.9	39.6	454.3	0.91	-0.33	
1,792.0	24.50	171.20	1,699.3	-488.9	45.6	490.7	2.06	1.98	
1,884.0	25.40	171.40	1,782.8	-527.2	51.4	529.5	0.98	0.98	
1,976.0	24.40	170.60	1,866.2	-565.5	57.5	568.2	1.15	-1.09	
2,067.0	24.20	170.20	1,949.1	-602.4	63.7	605.6	0.28	-0.22	
2,159.0	24.70	170.70	2,032.9	-640.0	70.1	643.7	0.59	0.54	
2,251.0	25.10	174.10	2,116.3	-678.3	75.2	682.4	1.62	0.43	
2,342.0	25.00	172.40	2,198.8	-716.6	79.7	720.9	0.80	-0.11	
2,434.0	24.10	175.50	2,282.5	-754.6	83.7	759.1	1.71	-0.98	
2,526.0	23.10	173.80	2,366.8	-791.3	87.2	795.9	1.31	-1.09	
2,617.0	21.60	174.80	2,450.9	-825.7	90.6	830.5	1.70	-1.65	
2,709.0	21.30	170.50	2,536.6	-859.0	94.9	864.1	1.74	-0.33	
2,800.0	22.20	172.90	2,621.1	-892.4	99.8	897.8	1.39	0.99	
2,892.0	22.90	170.70	2,706.1	-927.3	104.8	933.1	1.19	0.76	
2,920.0	22.80	170.10	2,731.9	-938.0	106.6	944.0	0.91	-0.36	Last 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
E34 496 8514E-34 TGT	0.00	0.00	7,597.0	-2,793.8	379.9	1,673,295.30	2,251,312.30	39° 39' 6.84 N	108° 9' 33.55 W
- hit/miss target									
- survey misses target center by 5214.2ft at 2920.0ft MD (2731.9 TVD, -938.0 N, 106.6 E)									
- Point									
E34 496 8514E-34 PBH	0.00	0.00	11,169.0	-2,803.8	362.9	1,673,285.83	2,251,295.03	39° 39' 6.74 N	108° 9' 33.77 W
- survey misses target center by 8644.8ft at 2920.0ft MD (2731.9 TVD, -938.0 N, 106.6 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,920.0	2,731.9	-938.0	106.6	Last Cathedral Survey @ 2,920' MD

Checked By: _____ Approved By: _____ Date: _____