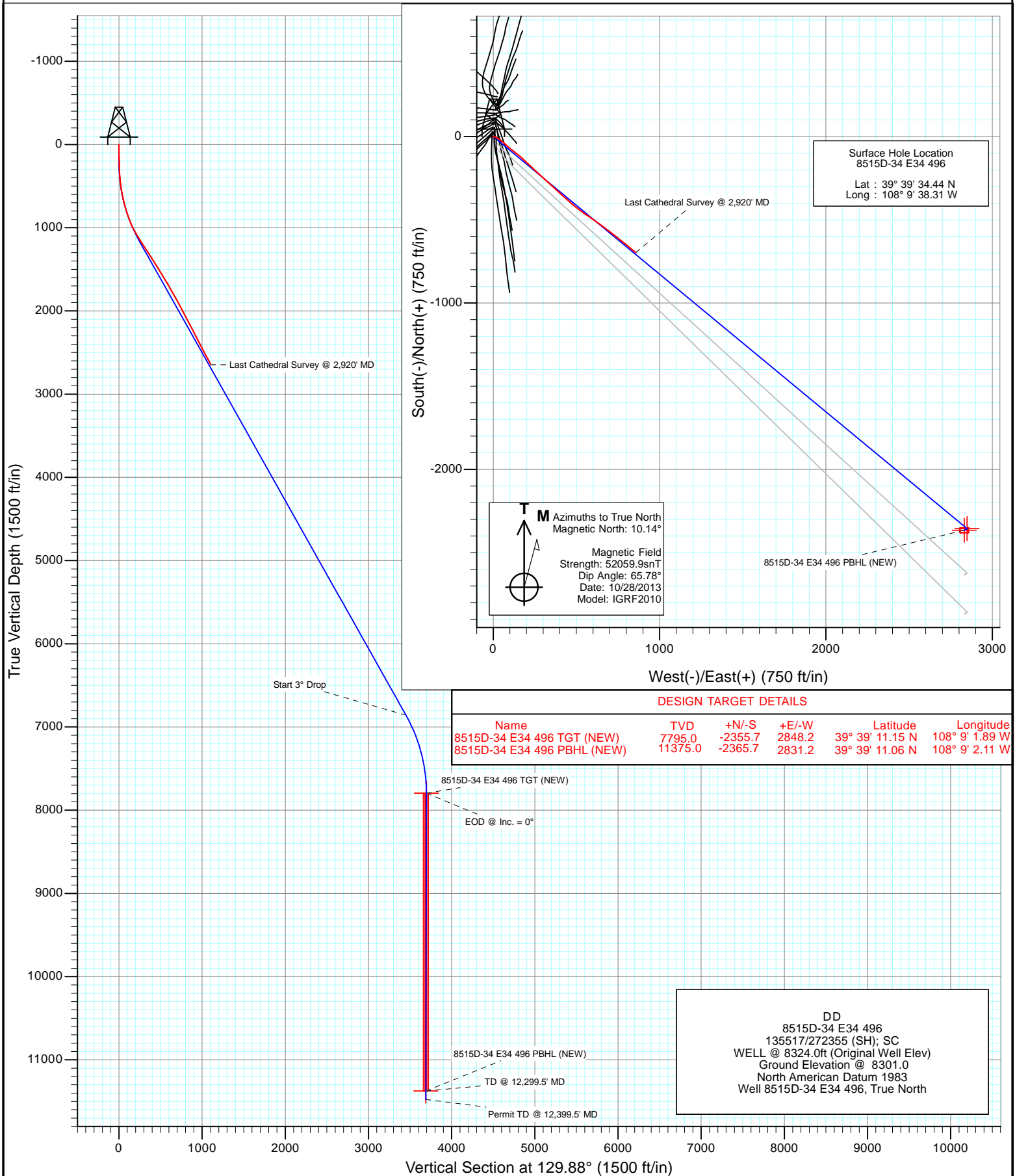




Project: Story Gulch
 Site: E34 496 S33-T4S-R96W
 Well: 8515D-34 E34 496
 Wellbore: DD
 Design: DD



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8515D-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:	8515D-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	8515D-34 E34 496					
Well Position	+N/-S	0.0 ft	Northing:	1,676,097.52 ft	Latitude:	39° 39' 34.44 N
	+E/-W	0.0 ft	Easting:	2,251,022.34 ft	Longitude:	108° 9' 38.31 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	10/28/2013	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	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	129.88	

Survey Program	Date	10/30/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
326.0	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		
326.0	2.60	104.90	325.9	-1.9	7.1	6.7	0.80	0.80		
418.0	5.70	107.40	417.6	-3.8	13.5	12.8	3.37	3.37		
512.0	8.30	119.20	510.9	-8.5	23.9	23.8	3.15	2.77		
601.0	11.10	125.20	598.7	-16.6	36.5	38.7	3.34	3.15		
692.0	13.90	127.30	687.5	-28.3	52.4	58.3	3.12	3.08		
784.0	16.50	134.50	776.3	-44.1	70.5	82.4	3.49	2.83		
875.0	19.30	131.30	862.9	-63.1	91.0	110.3	3.26	3.08		
970.0	23.50	127.80	951.3	-85.1	117.8	144.9	4.62	4.42		
1,061.0	28.20	128.20	1,033.2	-109.5	149.0	184.6	5.17	5.16		
1,152.0	31.78	133.80	1,112.0	-139.4	183.2	230.0	4.99	3.93		
1,244.0	33.40	133.70	1,189.5	-173.7	219.0	279.4	1.76	1.76		
1,335.0	32.80	132.40	1,265.7	-207.6	255.3	329.1	1.02	-0.66		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8515D-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:	8515D-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
1,427.0	32.90	132.40	1,343.0	-241.3	292.2	378.9	0.11	0.11	
1,518.0	32.20	131.90	1,419.7	-274.1	328.5	427.8	0.82	-0.77	
1,610.0	31.60	132.00	1,497.8	-306.6	364.7	476.4	0.65	-0.65	
1,701.0	30.80	133.30	1,575.7	-338.5	399.3	523.5	1.15	-0.88	
1,792.0	30.10	132.70	1,654.1	-370.0	433.1	569.6	0.84	-0.77	
1,884.0	30.80	130.50	1,733.4	-400.9	467.9	616.2	1.43	0.76	
1,976.0	30.50	126.90	1,812.6	-430.3	504.5	663.0	2.02	-0.33	
2,067.0	28.80	126.20	1,891.7	-457.1	540.7	708.0	1.91	-1.87	
2,159.0	28.30	123.70	1,972.5	-482.3	576.7	751.8	1.41	-0.54	
2,251.0	27.50	125.10	2,053.8	-506.6	612.2	794.6	1.12	-0.87	
2,342.0	27.20	125.60	2,134.6	-530.8	646.3	836.3	0.42	-0.33	
2,434.0	27.50	127.30	2,216.3	-555.9	680.3	878.5	0.91	0.33	
2,526.0	27.40	129.10	2,298.0	-582.1	713.6	920.9	0.91	-0.11	
2,617.0	27.60	126.80	2,378.7	-607.9	746.8	962.8	1.19	0.22	
2,709.0	27.80	130.40	2,460.2	-634.6	780.2	1,005.6	1.83	0.22	
2,800.0	28.20	128.20	2,540.5	-661.7	813.2	1,048.3	1.22	0.44	
2,892.0	28.00	129.60	2,621.7	-688.9	846.9	1,091.6	0.75	-0.22	
2,920.0	28.10	128.50	2,646.4	-697.2	857.2	1,104.8	1.88	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
8515D-34 E34 496 TGT	0.00	0.00	7,795.0	-2,355.7	2,848.2	1,673,659.43	2,253,800.34	39° 39' 11.15 N	108° 9' 1.89 W
- hit/miss target									
- Shape									
- survey misses target center by 5764.0ft at 2920.0ft MD (2646.4 TVD, -697.2 N, 857.2 E)									
- Point									
8515D-34 E34 496 PBH	0.00	0.00	11,375.0	-2,365.7	2,831.2	1,673,649.95	2,253,783.02	39° 39' 11.06 N	108° 9' 2.11 W
- survey misses target center by 9103.3ft at 2920.0ft MD (2646.4 TVD, -697.2 N, 857.2 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	2,646.4	-697.2	857.2	Last Cathedral Survey @ 2,920' MD

Checked By: _____ Approved By: _____ Date: _____