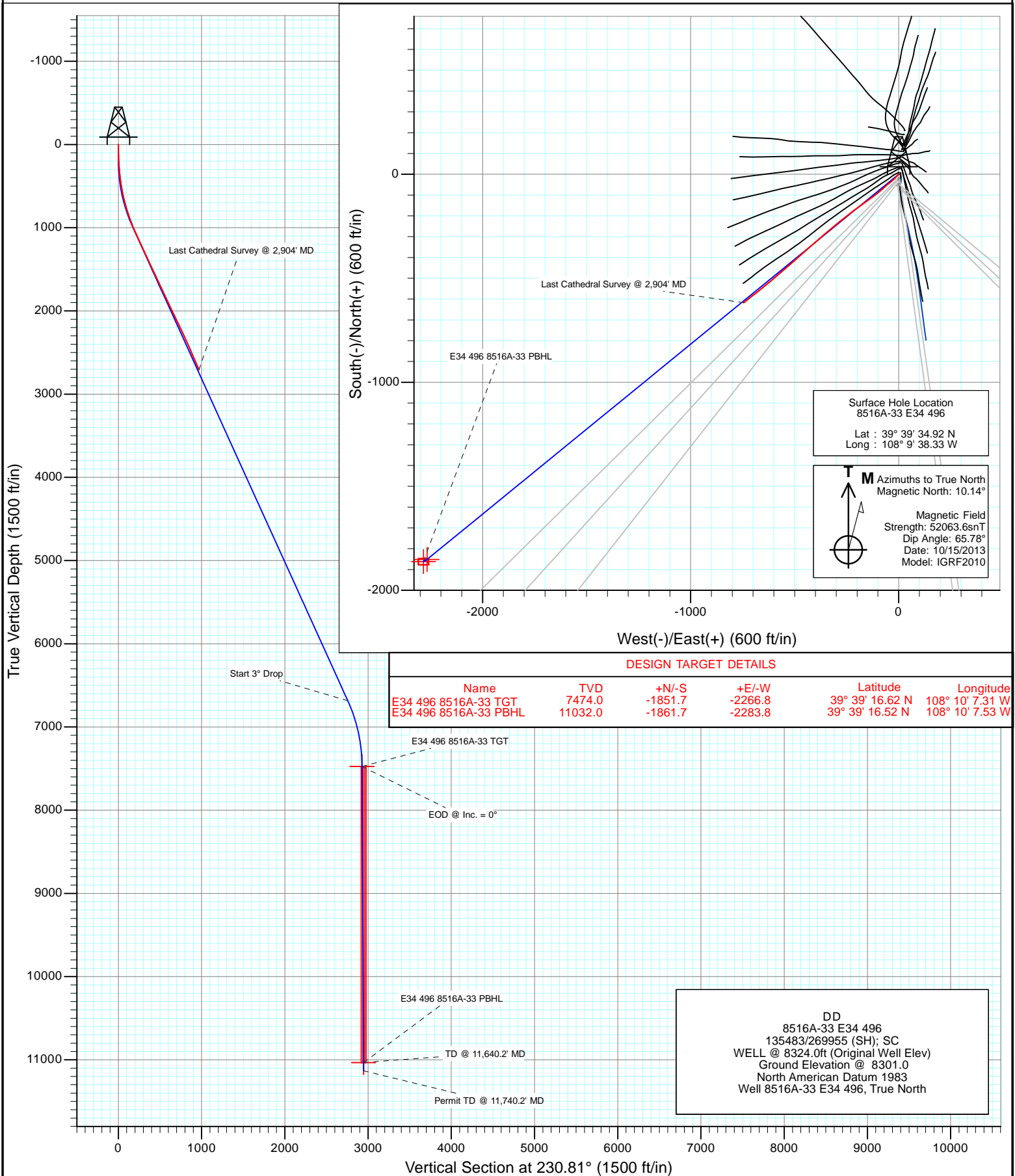




Project: Story Gulch
 Site: E34 496 S33-T4S-R96W
 Well: 8516A-33 E34 496
 Wellbore: DD
 Design: DD



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516A-33 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:	8516A-33 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	8516A-33 E34 496					
Well Position	+N/-S	0.0 ft	Northing:	1,676,146.37 ft	Latitude:	39° 39' 34.92 N
	+E/-W	0.0 ft	Easting:	2,251,022.02 ft	Longitude:	108° 9' 38.33 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	10/15/2013	10.14	65.78	52,064

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	230.81	

Survey Program	Date	10/17/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
329.0	2,904.0	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		
329.0	4.80	222.70	328.6	-10.1	-9.3	13.6	1.46	1.46		
421.0	7.40	225.20	420.1	-17.1	-16.2	23.3	2.84	2.83		
512.0	9.60	227.90	510.1	-26.3	-25.9	36.8	2.46	2.42		
604.0	12.20	230.70	600.4	-37.6	-39.2	54.1	2.88	2.83		
695.0	14.70	229.90	688.9	-51.2	-55.4	75.3	2.75	2.75		
790.0	16.70	227.90	780.4	-68.1	-74.8	101.0	2.18	2.11		
881.0	19.00	230.90	867.0	-86.2	-96.0	128.9	2.72	2.53		
973.0	21.50	233.90	953.3	-105.6	-121.2	160.7	2.94	2.72		
1,064.0	24.00	234.10	1,037.2	-126.3	-149.7	195.8	2.75	2.75		
1,155.0	25.20	233.70	1,119.9	-148.6	-180.3	233.6	1.33	1.32		
1,247.0	24.80	232.90	1,203.3	-171.8	-211.5	272.5	0.57	-0.43		
1,338.0	24.20	232.30	1,286.1	-194.7	-241.5	310.2	0.71	-0.66		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516A-33 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:	8516A-33 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
1,430.0	24.50	233.30	1,369.9	-217.7	-271.7	348.1	0.55	0.33	
1,521.0	25.70	229.60	1,452.4	-241.7	-301.8	386.7	2.17	1.32	
1,613.0	25.90	229.40	1,535.2	-267.7	-332.3	426.7	0.24	0.22	
1,704.0	25.10	229.10	1,617.3	-293.3	-362.0	465.9	0.89	-0.88	
1,795.0	24.70	229.80	1,699.9	-318.2	-391.1	504.2	0.55	-0.44	
1,887.0	24.70	228.50	1,783.4	-343.4	-420.2	542.6	0.59	0.00	
1,979.0	25.20	227.20	1,866.9	-369.4	-448.9	581.4	0.81	0.54	
2,070.0	26.30	227.60	1,948.8	-396.2	-478.0	620.8	1.22	1.21	
2,162.0	26.40	229.80	2,031.3	-423.1	-508.7	661.6	1.07	0.11	
2,254.0	25.50	230.80	2,114.0	-448.8	-539.7	701.9	1.09	-0.98	
2,345.0	24.80	229.30	2,196.4	-473.7	-569.3	740.6	1.04	-0.77	
2,437.0	24.90	229.50	2,279.8	-498.8	-598.7	779.2	0.14	0.11	
2,529.0	24.60	230.60	2,363.4	-523.6	-628.2	817.7	0.60	-0.33	
2,620.0	23.60	230.60	2,446.5	-547.1	-656.9	854.9	1.10	-1.10	
2,712.0	23.50	231.00	2,530.8	-570.4	-685.4	891.6	0.20	-0.11	
2,803.0	23.30	232.00	2,614.3	-592.9	-713.7	927.8	0.49	-0.22	
2,895.0	23.10	231.70	2,698.9	-615.3	-742.2	964.0	0.25	-0.22	
2,904.0	23.00	231.40	2,707.2	-617.4	-744.9	967.5	1.71	-1.11	Last Cathedral Survey @ 2,904' 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 8516A-33 TGT	0.00	0.00	7,474.0	-1,851.7	-2,266.8	1,674,361.84	2,248,701.97	39° 39' 16.62 N	108° 10' 7.31 W
- survey misses target center by 5153.9ft at 2904.0ft MD (2707.2 TVD, -617.4 N, -744.9 E)									
- Point									
E34 496 8516A-33 PBH	0.00	0.00	11,032.0	-1,861.7	-2,283.8	1,674,352.39	2,248,684.68	39° 39' 16.52 N	108° 10' 7.53 W
- survey misses target center by 8556.8ft at 2904.0ft MD (2707.2 TVD, -617.4 N, -744.9 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)	
2,904.0	2,707.2	-617.4	-744.9	Last Cathedral Survey @ 2,904' MD

Checked By: _____ Approved By: _____ Date: _____