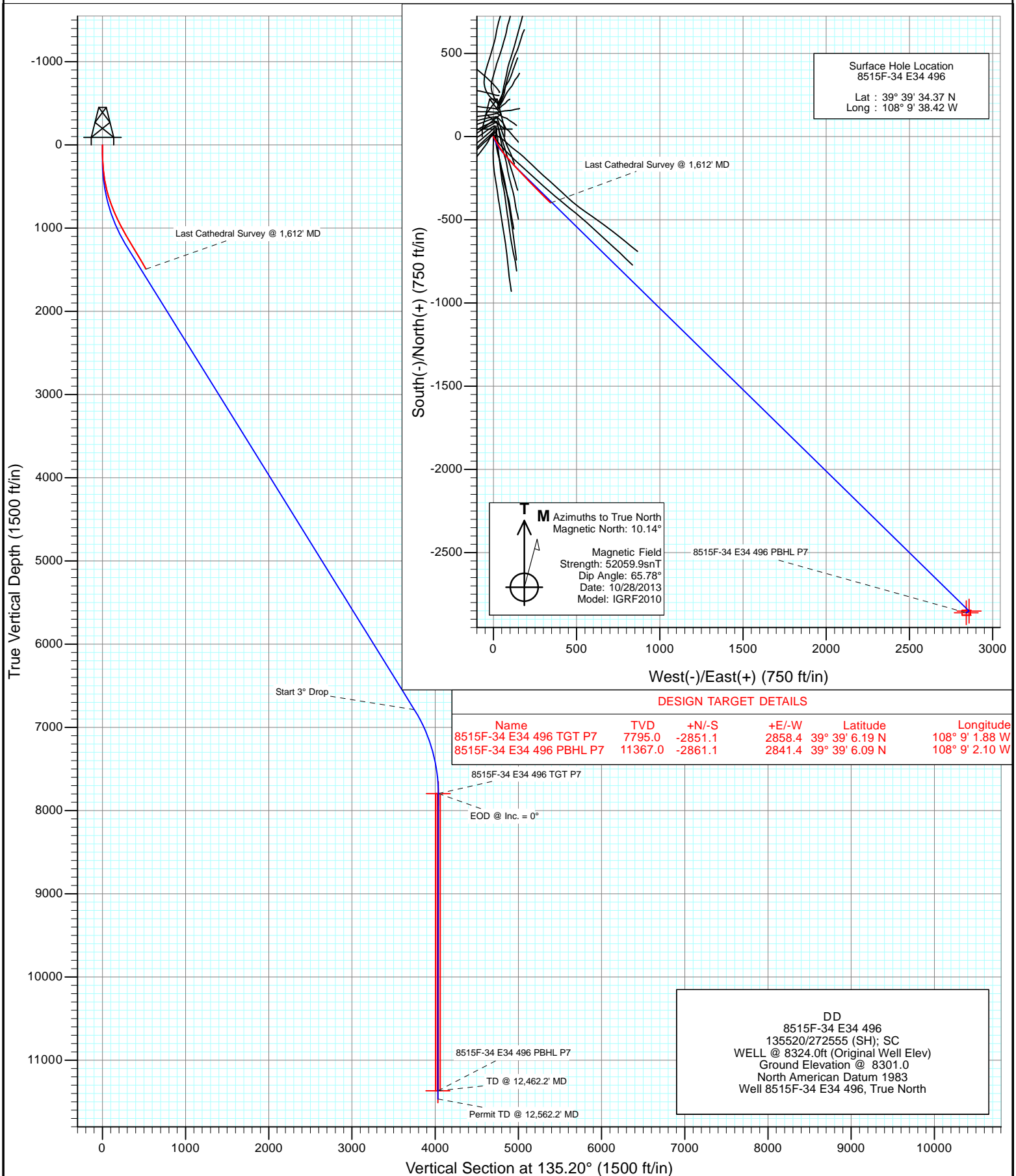




Project: Story Gulch
Site: E34 496 S33-T4S-R96W
Well: 8515F-34 E34 496
Wellbore: DD
Design: DD



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8515F-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:	8515F-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	8515F-34 E34 496					
Well Position	+N/-S	0.0 ft	Northing:	1,676,090.85 ft	Latitude:	39° 39' 34.37 N
	+E/-W	0.0 ft	Easting:	2,251,013.13 ft	Longitude:	108° 9' 38.42 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	135.20	

Survey Program	Date	11/4/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
267.0	1,612.0	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		
267.0	4.10	154.10	266.8	-8.6	4.2	9.0	1.54	1.54		
359.0	7.30	146.00	358.3	-16.4	8.9	17.9	3.58	3.48		
420.0	9.90	151.50	418.6	-24.2	13.5	26.7	4.47	4.26		
512.0	13.30	149.80	508.7	-40.3	22.6	44.6	3.71	3.70		
606.0	16.90	149.30	599.5	-61.4	35.1	68.3	3.83	3.83		
698.0	19.60	145.10	686.8	-85.6	50.7	96.5	3.26	2.93		
789.0	22.10	140.00	771.9	-111.2	70.5	128.6	3.39	2.75		
881.0	24.30	138.30	856.4	-138.6	94.2	164.7	2.50	2.39		
972.0	26.60	139.20	938.6	-168.0	120.0	203.7	2.56	2.53		
1,064.0	29.10	136.30	1,019.9	-199.8	148.9	246.7	3.09	2.72		
1,155.0	30.20	136.50	1,099.0	-232.4	179.9	291.7	1.21	1.21		
1,247.0	30.70	136.50	1,178.3	-266.2	212.0	338.3	0.54	0.54		

Cathedral Energy Services

Survey Report

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Site:	E34 496 S33-T4S-R96W	MD Reference:	WELL @ 8324.0ft (Original Well Elev)
Well:	8515F-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
1,338.0	31.00	135.60	1,256.5	-299.8	244.4	384.9	0.60	0.33	
1,429.0	30.90	134.50	1,334.5	-332.9	277.5	431.7	0.63	-0.11	
1,521.0	30.60	134.80	1,413.6	-366.0	310.9	478.8	0.37	-0.33	
1,612.0	30.20	135.50	1,492.1	-398.6	343.4	524.8	0.59	-0.44	Last Cathedral Survey @ 1,612' MD

Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
8515F-34 E34 496 TGT	0.00	0.00	7,795.0	-2,851.1	2,858.4	1,673,157.30	2,253,786.82	39° 39' 6.19 N	108° 9' 1.88 W
- survey misses target center by 7215.7ft at 1612.0ft MD (1492.1 TVD, -398.6 N, 343.4 E)									
- Point									
8515F-34 E34 496 PBHI	0.00	0.00	11,367.0	-2,861.1	2,841.4	1,673,147.81	2,253,769.52	39° 39' 6.09 N	108° 9' 2.10 W
- survey misses target center by 10479.4ft at 1612.0ft MD (1492.1 TVD, -398.6 N, 343.4 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,612.0	1,492.1	-398.6	343.4	Last Cathedral Survey @ 1,612' MD	

Checked By: _____ Approved By: _____ Date: _____