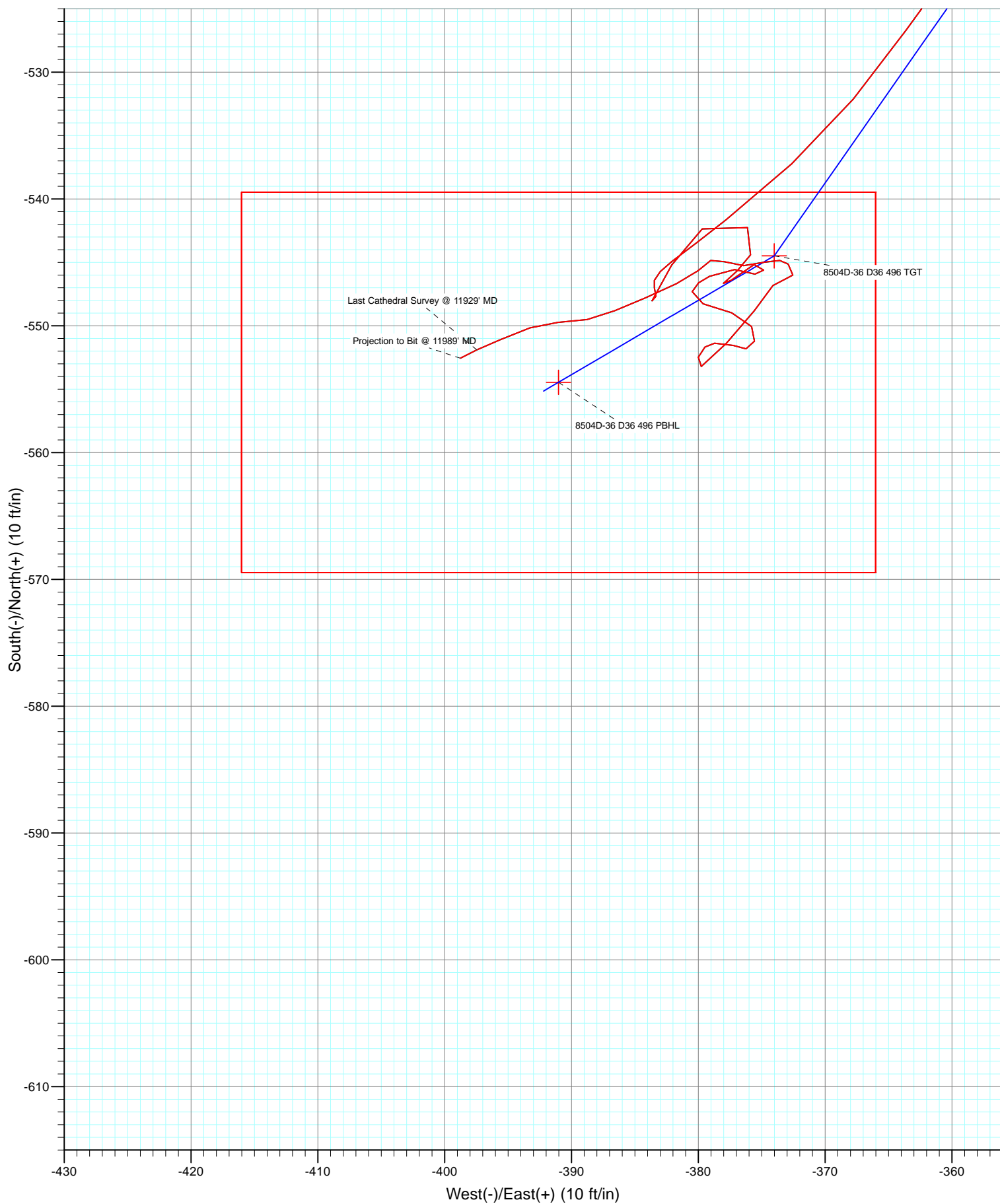


FORMATION TOP DETAILS

No formation data is available

Type	Target	Azimuth	Origin	Type	N/S	E/W	From
User	No Target (Freehand)	214.54	Slot		0.0	0.0	TVD
8504D-36 D36 496 TGT		7982.0	-544.5	-374.0	39° 39'	48.77 N	108° 7' 26.82 W
8504D-36 D36 496 PBHL		12677.0	-554.5	-391.0	39° 39'	48.67 N	108° 7' 27.04 W

Vertical Section at 214.54° (170°)



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8504D-36 (was 8515B-25)
Project:	Story Gulch	TVD Reference:	KB=32' @ 8323.0ft (Patterson #326)
Site:	S36-T4S-R96W (D36 496)	MD Reference:	KB=32' @ 8323.0ft (Patterson #326)
Well:	8504D-36 (was 8515B-25)	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		S36-T4S-R96W (D36 496)			
Site Position:		Northing:	1,590,537.44 ft	Latitude:	39° 25' 42.24 N
From:	Lat/Long	Easting:	2,297,786.47 ft	Longitude:	107° 59' 10.64 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.57 °

Well	8504D-36 (was 8515B-25)					
Well Position	+N/-S	0.0 ft	Northing:	1,677,781.39 ft	Latitude:	39° 39' 54.15 N
	+E/-W	0.0 ft	Easting:	2,261,732.49 ft	Longitude:	108° 7' 22.04 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,291.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/30/2013	10.22	65.81	52,143

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	214.54	

Survey Program	Date	2/11/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
179.0	11,989.0	Survey #1 (DD)	MWD	Geolink MWD	

Survey									
Measured	Vertical	Vertical	Dogleg	Build	Formations /				
Depth	Inclination	Azimuth	Rate	Rate	Comments	Depth	+N/-S	+E/-W	Section
(ft)	(°)	(°)	(°/100ft)	(°/100ft)		(ft)	(ft)	(ft)	(ft)
0.0	0.00	0.00	0.0	0.00		0.0	0.0	0.0	0.0
179.0	0.70	166.40	179.0	0.39		179.0	-1.1	0.3	0.7
209.0	0.50	177.20	209.0	-0.67		209.0	-1.4	0.3	1.0
239.0	0.40	198.30	239.0	-0.33		239.0	-1.6	0.3	1.2
269.0	0.50	271.80	269.0	0.33		269.0	-1.7	0.1	1.3
300.0	0.50	280.30	300.0	0.00		300.0	-1.7	-0.2	1.5
329.0	0.50	280.30	329.0	0.00		329.0	-1.6	-0.4	1.6
420.0	2.00	225.70	420.0	1.65		420.0	-2.7	-1.9	3.3
512.0	3.60	212.70	511.9	1.74		511.9	-6.2	-4.6	7.7
606.0	5.70	208.60	605.5	2.23		605.5	-12.8	-8.5	15.3
697.0	6.50	206.50	696.0	0.88		696.0	-21.4	-12.9	24.9
789.0	5.50	213.70	787.5	-1.09		787.5	-29.7	-17.7	34.5
881.0	5.20	217.60	879.1	-0.33		879.1	-36.7	-22.7	43.1

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8504D-36 (was 8515B-25)
Project:	Story Gulch	TVD Reference:	KB=32' @ 8323.0ft (Patterson #326)
Site:	S36-T4S-R96W (D36 496)	MD Reference:	KB=32' @ 8323.0ft (Patterson #326)
Well:	8504D-36 (was 8515B-25)	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
973.0	5.00	217.10	970.8	-43.2	-27.7	51.2	0.22	-0.22	
1,064.0	4.40	214.10	1,061.5	-49.2	-32.0	58.7	0.71	-0.66	
1,156.0	5.10	213.90	1,153.1	-55.5	-36.3	66.3	0.76	0.76	
1,248.0	5.20	215.00	1,244.8	-62.4	-40.9	74.6	0.15	0.11	
1,339.0	4.90	207.50	1,335.4	-69.2	-45.1	82.6	0.80	-0.33	
1,431.0	5.10	213.40	1,427.1	-76.1	-49.2	90.5	0.60	0.22	
1,523.0	5.30	220.50	1,518.7	-82.7	-54.2	98.9	0.73	0.22	
1,614.0	5.00	219.40	1,609.3	-89.0	-59.4	107.0	0.35	-0.33	
1,706.0	4.50	222.80	1,701.0	-94.7	-64.4	114.6	0.62	-0.54	
1,797.0	4.40	216.90	1,791.7	-100.1	-68.9	121.6	0.51	-0.11	
1,889.0	5.30	215.00	1,883.4	-106.4	-73.5	129.3	0.99	0.98	
1,981.0	5.40	211.30	1,975.0	-113.6	-78.2	137.9	0.39	0.11	
2,072.0	4.40	210.60	2,065.7	-120.3	-82.2	145.7	1.10	-1.10	
2,164.0	3.50	209.50	2,157.4	-125.8	-85.4	152.0	0.98	-0.98	
2,255.0	3.40	205.30	2,248.3	-130.6	-87.9	157.4	0.30	-0.11	
2,347.0	4.00	206.80	2,340.1	-136.0	-90.5	163.3	0.66	0.65	
2,438.0	4.30	207.60	2,430.8	-141.8	-93.5	169.8	0.34	0.33	
2,530.0	4.70	213.70	2,522.6	-148.0	-97.2	177.0	0.68	0.43	
2,622.0	5.00	215.90	2,614.2	-154.4	-101.6	184.8	0.38	0.33	
2,713.0	5.00	218.00	2,704.9	-160.7	-106.4	192.7	0.20	0.00	
2,804.0	5.00	214.40	2,795.5	-167.1	-111.1	200.6	0.34	0.00	
2,896.0	4.40	214.20	2,887.2	-173.3	-115.3	208.2	0.65	-0.65	
2,966.0	4.20	213.80	2,957.0	-177.7	-118.3	213.4	0.29	-0.29	
3,167.0	7.10	209.00	3,157.0	-194.7	-128.4	233.2	1.46	1.44	
3,258.0	7.30	209.50	3,247.3	-204.6	-134.0	244.5	0.23	0.22	
3,350.0	6.50	210.90	3,338.7	-214.2	-139.5	255.5	0.89	-0.87	
3,441.0	5.90	207.30	3,429.1	-222.8	-144.3	265.3	0.79	-0.66	
3,532.0	5.80	211.60	3,519.6	-230.8	-148.9	274.5	0.49	-0.11	
3,624.0	5.80	224.90	3,611.2	-238.1	-154.6	283.8	1.46	0.00	
3,715.0	4.80	222.00	3,701.8	-244.2	-160.4	292.1	1.14	-1.10	
3,806.0	5.60	215.10	3,792.4	-250.6	-165.5	300.3	1.11	0.88	
3,898.0	4.60	213.90	3,884.1	-257.4	-170.1	308.5	1.09	-1.09	
3,989.0	6.30	212.10	3,974.6	-264.6	-174.8	317.1	1.88	1.87	
4,081.0	6.00	215.20	4,066.1	-272.8	-180.2	326.9	0.49	-0.33	
4,172.0	5.50	215.10	4,156.6	-280.3	-185.5	336.1	0.55	-0.55	
4,264.0	5.10	213.30	4,248.3	-287.3	-190.3	344.6	0.47	-0.43	
4,355.0	4.70	212.70	4,338.9	-293.8	-194.5	352.3	0.44	-0.44	
4,447.0	5.50	215.00	4,430.6	-300.6	-199.1	360.5	0.90	0.87	
4,539.0	4.80	214.90	4,522.2	-307.4	-203.8	368.8	0.76	-0.76	
4,630.0	6.40	224.70	4,612.8	-314.1	-209.6	377.6	2.04	1.76	
4,722.0	6.30	225.80	4,704.2	-321.3	-216.8	387.6	0.17	-0.11	
4,813.0	5.70	225.60	4,794.7	-327.9	-223.6	396.9	0.66	-0.66	
4,905.0	6.60	214.70	4,886.2	-335.5	-229.9	406.7	1.60	0.98	
4,997.0	5.80	214.60	4,977.6	-343.6	-235.5	416.6	0.87	-0.87	
5,089.0	5.40	213.10	5,069.2	-351.1	-240.5	425.6	0.46	-0.43	
5,180.0	4.90	210.60	5,159.8	-358.0	-244.8	433.7	0.60	-0.55	
5,272.0	4.10	209.70	5,251.5	-364.3	-248.5	440.9	0.87	-0.87	
5,363.0	5.20	204.50	5,342.2	-370.8	-251.8	448.2	1.29	1.21	
5,455.0	4.10	217.00	5,433.9	-377.3	-255.5	455.6	1.62	-1.20	
5,547.0	5.30	215.20	5,525.6	-383.4	-259.9	463.2	1.31	1.30	
5,639.0	6.80	215.90	5,617.1	-391.2	-265.6	472.9	1.63	1.63	
5,730.0	6.20	213.10	5,707.5	-399.7	-271.4	483.2	0.75	-0.66	
5,822.0	5.80	214.30	5,799.0	-407.7	-276.7	492.8	0.46	-0.43	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8504D-36 (was 8515B-25)
Project:	Story Gulch	TVD Reference:	KB=32' @ 8323.0ft (Patterson #326)
Site:	S36-T4S-R96W (D36 496)	MD Reference:	KB=32' @ 8323.0ft (Patterson #326)
Well:	8504D-36 (was 8515B-25)	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
5,913.0	5.20	212.30	5,889.6	-415.0	-281.5	501.5	0.69	-0.66	
6,004.0	4.60	213.60	5,980.3	-421.5	-285.8	509.3	0.67	-0.66	
6,096.0	5.80	220.90	6,071.9	-428.1	-290.8	517.6	1.49	1.30	
6,188.0	5.70	223.10	6,163.4	-435.0	-297.0	526.7	0.26	-0.11	
6,279.0	4.70	221.40	6,254.0	-441.1	-302.6	534.9	1.11	-1.10	
6,371.0	6.30	217.50	6,345.6	-447.9	-308.1	543.7	1.78	1.74	
6,462.0	5.60	211.90	6,436.1	-455.6	-313.5	553.1	1.00	-0.77	
6,554.0	4.80	205.40	6,527.7	-462.9	-317.5	561.4	1.08	-0.87	
6,646.0	5.90	208.70	6,619.3	-470.5	-321.5	569.9	1.24	1.20	
6,737.0	6.90	220.80	6,709.8	-478.8	-327.3	580.0	1.84	1.10	
6,829.0	6.50	218.80	6,801.2	-487.0	-334.2	590.6	0.50	-0.43	
6,921.0	5.70	218.30	6,892.6	-494.7	-340.2	600.4	0.87	-0.87	
7,012.0	5.50	214.10	6,983.2	-501.8	-345.5	609.3	0.50	-0.22	
7,104.0	5.00	218.40	7,074.8	-508.6	-350.5	617.7	0.69	-0.54	
7,196.0	4.80	215.40	7,166.5	-514.9	-355.2	625.5	0.35	-0.22	
7,287.0	4.50	215.50	7,257.2	-520.9	-359.5	632.9	0.33	-0.33	
7,379.0	4.40	216.00	7,348.9	-526.7	-363.6	640.0	0.12	-0.11	
7,470.0	4.20	219.00	7,439.6	-532.1	-367.8	646.8	0.33	-0.22	
7,562.0	4.60	227.70	7,531.4	-537.2	-372.6	653.8	0.84	0.43	
7,653.0	4.00	231.80	7,622.1	-541.6	-377.8	660.4	0.74	-0.66	
7,745.0	2.70	233.30	7,714.0	-544.9	-382.1	665.5	1.42	-1.41	
7,836.0	1.10	157.70	7,804.9	-547.0	-383.5	668.0	2.91	-1.76	
7,928.0	0.70	248.30	7,896.9	-548.0	-383.6	669.0	1.42	-0.43	
8,111.0	2.60	38.60	8,079.9	-545.2	-382.1	665.7	1.76	1.04	
8,202.0	2.10	42.40	8,170.8	-542.4	-379.7	662.0	0.58	-0.55	
8,385.0	1.70	151.10	8,353.7	-542.3	-376.1	659.9	1.69	-0.22	
8,477.0	1.30	204.10	8,445.7	-544.4	-375.9	661.6	1.51	-0.43	
8,568.0	0.90	243.30	8,536.7	-545.7	-376.9	663.2	0.91	-0.44	
8,658.0	1.00	213.70	8,626.7	-546.6	-378.0	664.6	0.55	0.11	
8,750.0	1.70	49.20	8,718.7	-546.4	-377.4	664.1	2.91	0.76	
8,841.0	1.10	65.60	8,809.6	-545.2	-375.6	662.0	0.79	-0.66	
8,932.0	1.00	182.80	8,900.6	-545.6	-374.8	662.0	1.97	-0.11	
9,024.0	1.00	306.70	8,992.6	-545.9	-375.5	662.6	1.92	0.00	
9,116.0	1.20	263.10	9,084.6	-545.6	-377.1	663.2	0.91	0.22	
9,207.0	1.40	248.30	9,175.6	-546.1	-379.1	664.8	0.43	0.22	
9,298.0	1.10	202.70	9,266.6	-547.3	-380.5	666.6	1.11	-0.33	
9,390.0	1.50	96.70	9,358.5	-548.3	-379.6	666.9	2.27	0.43	
9,482.0	1.50	118.20	9,450.5	-549.0	-377.4	666.2	0.61	0.00	
9,574.0	0.90	135.20	9,542.5	-550.1	-375.8	666.2	0.75	-0.65	
9,665.0	0.90	203.10	9,633.5	-551.2	-375.6	667.0	1.10	0.00	
9,755.0	0.50	277.20	9,723.5	-551.8	-376.2	667.9	1.00	-0.44	
9,847.0	0.80	290.50	9,815.5	-551.5	-377.2	668.2	0.36	0.33	
9,938.0	1.10	266.40	9,906.5	-551.4	-378.7	668.9	0.54	0.33	
10,030.0	1.40	201.60	9,998.4	-552.5	-380.0	670.5	1.48	0.33	
10,121.0	0.90	64.70	10,089.4	-553.2	-379.8	671.0	2.36	-0.55	
10,213.0	2.50	41.10	10,181.4	-551.4	-377.8	668.4	1.86	1.74	
10,304.0	1.80	40.10	10,272.3	-548.8	-375.6	665.0	0.77	-0.77	
10,395.0	1.30	31.50	10,363.3	-546.8	-374.1	662.5	0.60	-0.55	
10,486.0	0.80	118.10	10,454.3	-546.2	-373.0	661.4	1.63	-0.55	
10,578.0	0.70	349.30	10,546.3	-546.0	-372.5	661.0	1.47	-0.11	
10,670.0	0.50	319.20	10,638.3	-545.1	-372.9	660.5	0.40	-0.22	
10,762.0	0.50	268.50	10,730.3	-544.8	-373.6	660.6	0.47	0.00	
10,853.0	1.00	260.70	10,821.3	-545.0	-374.8	661.4	0.56	0.55	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8504D-36 (was 8515B-25)
Project:	Story Gulch	TVD Reference:	KB=32' @ 8323.0ft (Patterson #326)
Site:	S36-T4S-R96W (D36 496)	MD Reference:	KB=32' @ 8323.0ft (Patterson #326)
Well:	8504D-36 (was 8515B-25)	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
10,945.0	1.10	260.40	10,913.2	-545.3	-376.4	662.6	0.11	0.11	
11,036.0	1.00	305.00	11,004.2	-544.9	-377.9	663.2	0.88	-0.11	
11,128.0	0.70	230.30	11,096.2	-544.8	-379.0	663.7	1.15	-0.33	
11,220.0	0.90	231.10	11,188.2	-545.7	-380.0	664.9	0.22	0.22	
11,311.0	1.60	243.50	11,279.2	-546.7	-381.7	666.7	0.82	0.77	
11,402.0	1.80	247.40	11,370.1	-547.8	-384.2	669.0	0.25	0.22	
11,493.0	1.50	247.00	11,461.1	-548.8	-386.6	671.2	0.33	-0.33	
11,584.0	1.40	258.00	11,552.1	-549.5	-388.8	673.1	0.32	-0.11	
11,676.0	1.50	270.20	11,644.1	-549.7	-391.1	674.6	0.35	0.11	
11,767.0	1.40	247.10	11,735.0	-550.2	-393.3	676.2	0.65	-0.11	
11,858.0	1.80	249.10	11,826.0	-551.1	-395.6	678.3	0.44	0.44	
11,929.0	1.40	243.00	11,897.0	-551.9	-397.5	680.0	0.61	-0.56	Last Cathedral Survey @ 11929' MD
11,989.0	1.40	243.00	11,956.9	-552.6	-398.8	681.2	0.00	0.00	Projection to Bit @ 11989' 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									
8504D-36 D36 496 TGT	0.00	0.00	7,982.0	-544.5	-374.0	1,677,247.93	2,261,342.93	39° 39' 48.77 N	108° 7' 26.82 W
- survey misses target center by 10.3ft at 8013.2ft MD (7982.1 TVD, -547.6 N, -383.8 E)									
- Point									
8504D-36 D36 496 PBH	0.00	0.00	12,677.0	-554.5	-391.0	1,677,238.46	2,261,325.64	39° 39' 48.67 N	108° 7' 27.04 W
- survey misses target center by 720.1ft at 11989.0ft MD (11956.9 TVD, -552.6 N, -398.8 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	
11,929.0	11,897.0	-551.9	-397.5	Last Cathedral Survey @ 11929' MD	
11,989.0	11,956.9	-552.6	-398.8	Projection to Bit @ 11989' MD	

Checked By: _____ Approved By: _____ Date: _____