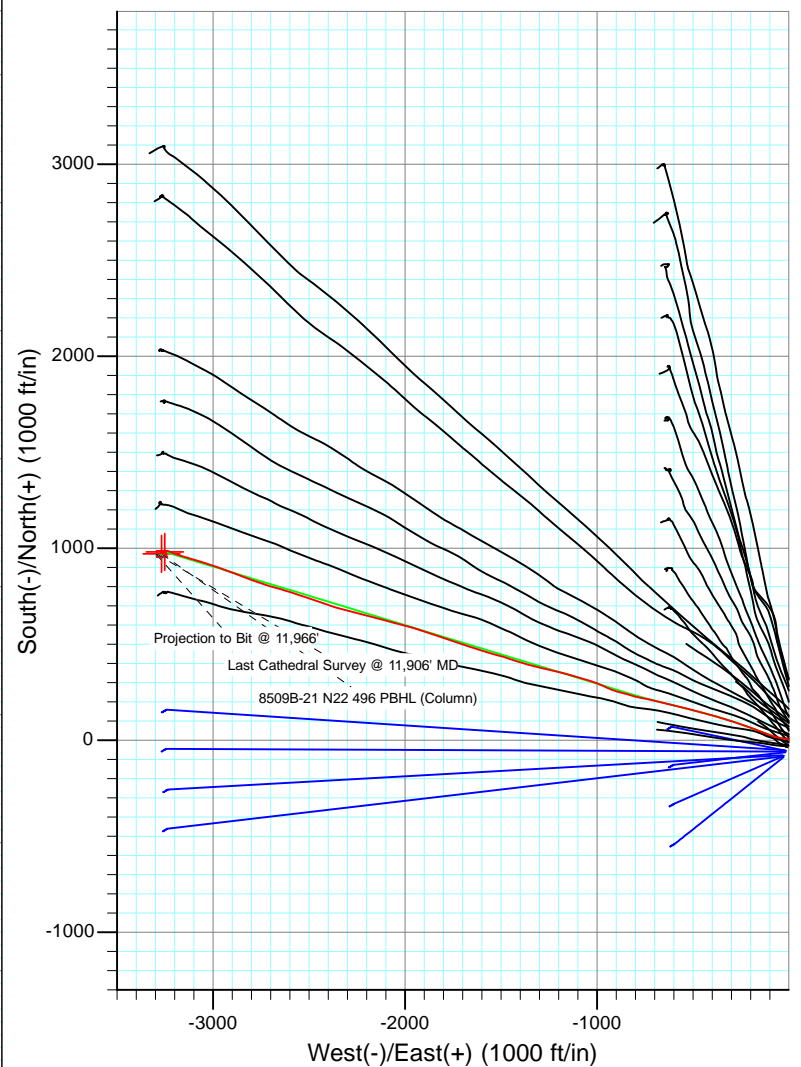
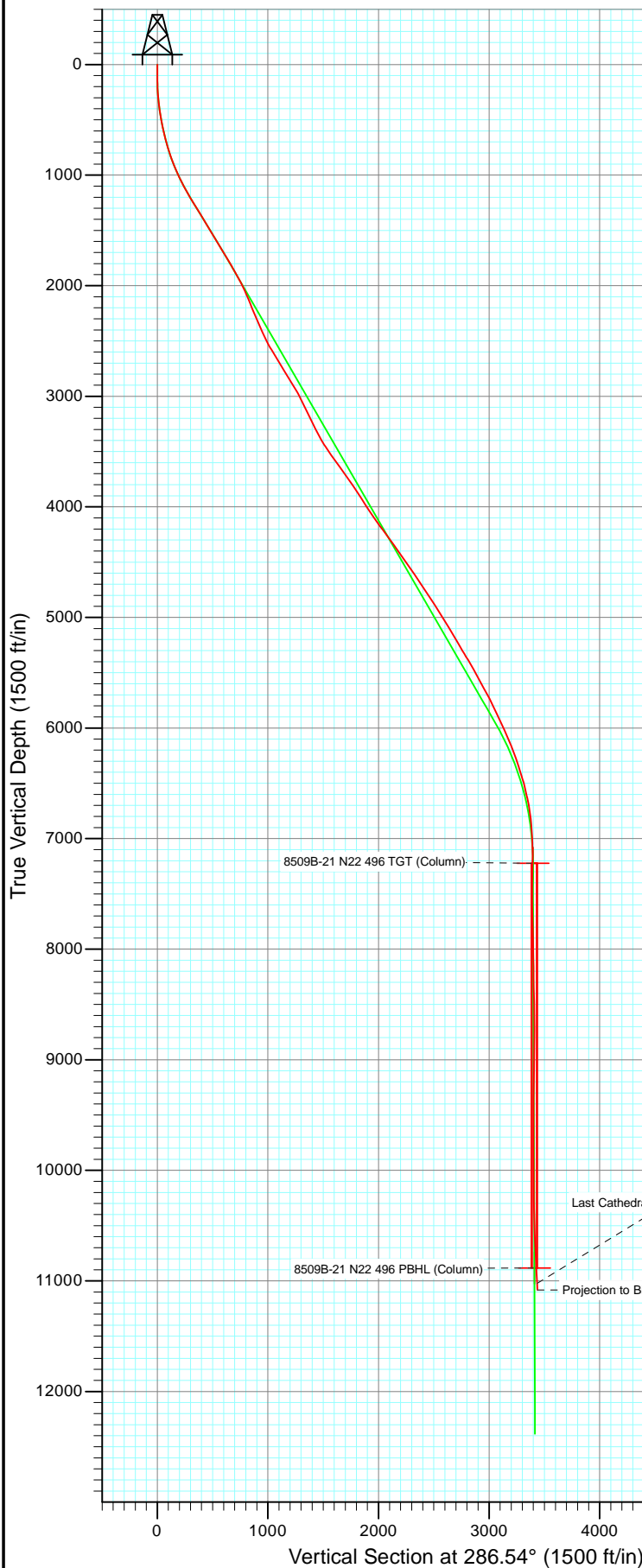




Project: Story Gulch
 Site: S22-T4S-R96W (N22 496) (Column Pattern)
 Well: 8509B-21 N22 496
 Wellbore: DD
 Design: FINAL



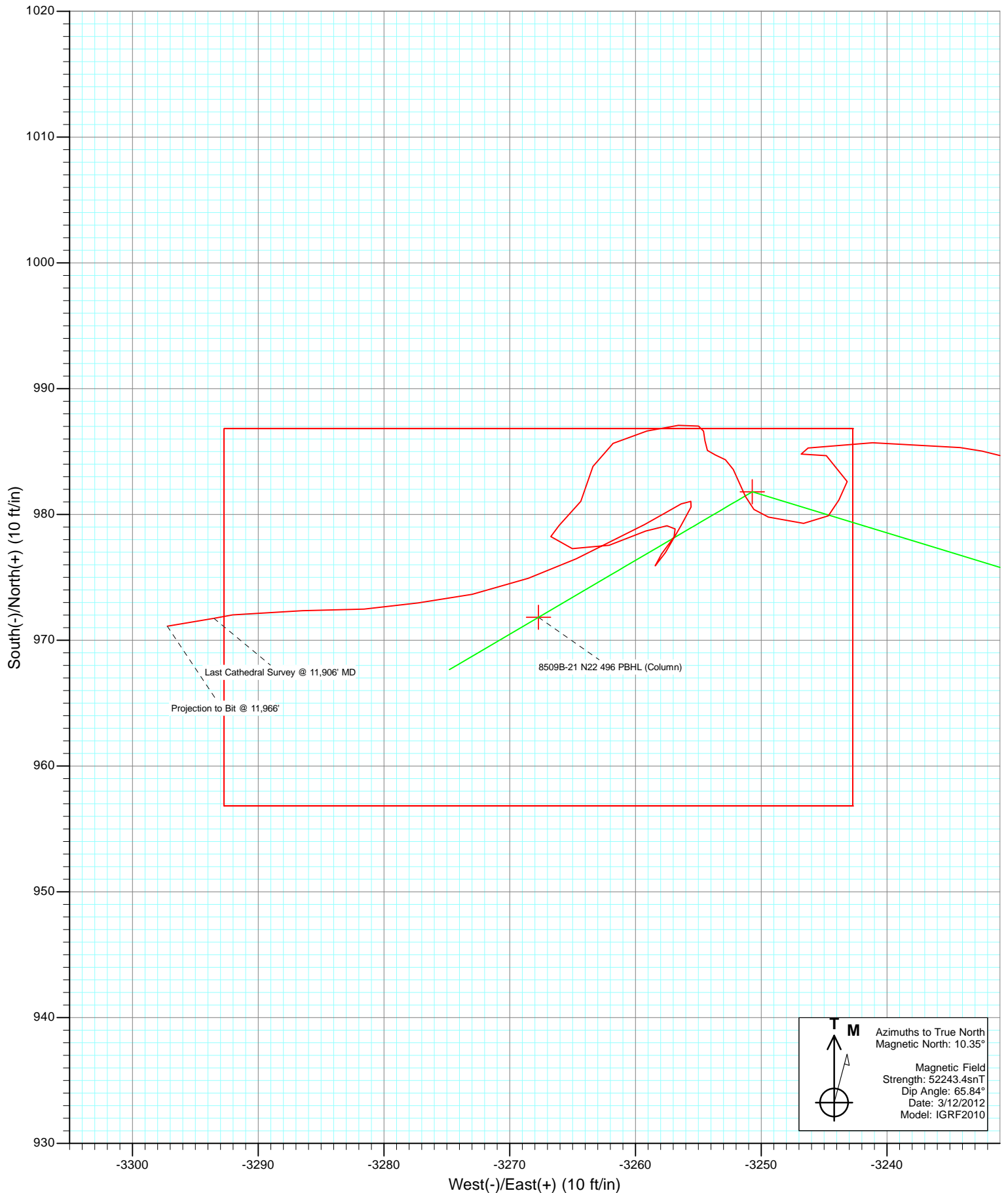
Azimuths to True North
 Magnetic North: 10.35°

Magnetic Field
 Strength: 52243.4nT
 Dip Angle: 65.84°
 Date: 3/12/2012
 Model: IGRF2010

DD 8509B-21 N22 496 135155/125170 (SH) 125230/153155 (MH); LR							
WELL @ 7602.0ft (Patterson 306) North American Datum 1983 Well 8509B-21 N22 496, True North							
Type	Target	Azimuth		Origin	Type	N/S	E/W
User	No Target (Freehand)	286.54		Slot		0.0	0.0
						From TVD	
						0.0	
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
8509B-21 N22 496 TGT (Column)		7222.0	981.8	-3250.7	39° 41' 11.95 N	108° 10' 7.35 W	
8509B-21 N22 496 PBHL (Column)		10882.0	971.8	-3267.7	39° 41' 11.85 N	108° 10' 7.56 W	



Project: Story Gulch
Site: S22-T4S-R96W (N22 496) (Column Pattern)
Well: 8509B-21 N22 496
Wellbore: DD
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8509B-21 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson 306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson 306)
Well:	8509B-21 N22 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		S22-T4S-R96W (N22 496) (Column Pattern)			
Site Position:		Northing:	1,685,048.56 ft	Latitude:	39° 41' 3.24 N
From:	Lat/Long	Easting:	2,252,316.79 ft	Longitude:	108° 9' 25.11 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.68 °

Well	8509B-21 N22 496					
Well Position	+N/-S	0.0 ft	Northing:	1,684,950.05 ft	Latitude:	39° 41' 2.25 N
	+E/-W	0.0 ft	Easting:	2,252,262.73 ft	Longitude:	108° 9' 25.76 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,569.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/12/2012	10.35	65.84	52,243

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	286.54	

Survey Program	Date	4/19/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
148.0	2,062.0	Survey #1 (DD)	MWD	Geolink MWD	
2,177.0	11,966.0	Survey #2 (DD)	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		
148.0	0.70	333.40	148.0	0.8	-0.4	0.6	0.47	0.47		
178.0	1.60	328.30	178.0	1.3	-0.7	1.1	3.02	3.00		
209.0	2.90	318.00	209.0	2.3	-1.5	2.0	4.38	4.19		
239.0	3.60	321.40	238.9	3.6	-2.6	3.5	2.42	2.33		
270.0	3.80	302.20	269.9	4.9	-4.0	5.3	4.03	0.65		
300.0	5.10	298.60	299.8	6.1	-6.0	7.5	4.43	4.33		
330.0	5.40	288.70	329.6	7.1	-8.6	10.2	3.18	1.00		
421.0	9.00	277.40	419.9	9.4	-19.7	21.5	4.23	3.96		
514.0	10.80	272.00	511.5	10.7	-35.6	37.2	2.18	1.94		
609.0	12.50	283.30	604.6	13.4	-54.5	56.0	2.99	1.79		
700.0	15.10	288.50	692.9	19.4	-75.3	77.7	3.16	2.86		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8509B-21 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson 306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson 306)
Well:	8509B-21 N22 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
791.0	17.30	288.80	780.3	27.5	-99.4	103.1	2.42	2.42	
883.0	21.40	291.70	867.1	38.1	-127.9	133.5	4.58	4.46	
975.0	23.20	290.80	952.2	50.8	-160.5	168.3	1.99	1.96	
1,067.0	25.70	289.10	1,036.0	63.7	-196.3	206.3	2.82	2.72	
1,158.0	28.70	290.00	1,116.9	77.7	-235.5	247.8	3.33	3.30	
1,247.0	30.70	289.50	1,194.2	92.6	-277.0	291.8	2.26	2.25	
1,341.0	31.80	287.50	1,274.6	108.0	-323.2	340.6	1.61	1.17	
1,432.0	31.60	285.70	1,352.0	121.7	-369.0	388.4	1.06	-0.22	
1,524.0	31.10	285.60	1,430.6	134.6	-415.1	436.2	0.55	-0.54	
1,616.0	31.20	284.30	1,509.3	146.9	-461.1	483.8	0.74	0.11	
1,706.0	30.70	283.80	1,586.5	158.1	-506.0	530.1	0.62	-0.56	
1,798.0	31.30	284.50	1,665.3	169.7	-551.9	577.4	0.76	0.65	
1,889.0	30.50	283.80	1,743.4	181.1	-597.2	624.1	0.96	-0.88	
1,981.0	30.50	284.40	1,822.7	192.5	-642.5	670.7	0.33	0.00	
2,062.0	30.00	284.20	1,892.7	202.6	-682.1	711.5	0.63	-0.62	Last Cathedral Survey @ 2,062' MD
2,177.0	26.40	280.60	1,994.0	214.3	-735.1	765.7	3.46	-3.13	
2,269.0	24.00	280.40	2,077.2	221.5	-773.6	804.6	2.61	-2.61	
2,360.0	21.60	286.20	2,161.1	229.5	-807.9	839.8	3.61	-2.64	
2,452.0	23.20	285.70	2,246.2	239.1	-841.6	874.9	1.75	1.74	
2,544.0	23.30	285.70	2,330.7	248.9	-876.6	911.2	0.11	0.11	
2,635.0	23.60	287.60	2,414.2	259.3	-911.3	947.4	0.89	0.33	
2,726.0	26.90	295.80	2,496.5	273.8	-947.2	985.9	5.28	3.63	
2,818.0	31.20	292.90	2,576.9	292.1	-987.9	1,030.2	4.92	4.67	
2,909.0	32.00	287.00	2,654.5	308.4	-1,032.7	1,077.7	3.51	0.88	
3,001.0	30.70	286.30	2,733.0	322.1	-1,078.5	1,125.6	1.47	-1.41	
3,092.0	30.80	286.60	2,811.2	335.3	-1,123.1	1,172.1	0.20	0.11	
3,184.0	32.80	285.10	2,889.4	348.5	-1,169.8	1,220.6	2.34	2.17	
3,275.0	28.70	282.80	2,967.6	359.7	-1,214.9	1,267.1	4.69	-4.51	
3,367.0	25.60	281.70	3,049.5	368.7	-1,255.9	1,308.9	3.41	-3.37	
3,458.0	26.40	284.40	3,131.3	377.7	-1,294.8	1,348.7	1.57	0.88	
3,549.0	26.40	285.40	3,212.8	388.1	-1,333.9	1,389.2	0.49	0.00	
3,641.0	25.80	285.30	3,295.4	398.8	-1,372.9	1,429.6	0.65	-0.65	
3,732.0	29.40	287.60	3,376.0	410.8	-1,413.3	1,471.8	4.13	3.96	
3,824.0	33.60	288.00	3,454.4	425.5	-1,459.1	1,519.8	4.57	4.57	
3,916.0	34.10	285.20	3,530.9	440.1	-1,508.2	1,571.1	1.78	0.54	
4,007.0	36.00	287.30	3,605.4	454.8	-1,558.3	1,623.3	2.47	2.09	
4,099.0	36.80	288.50	3,679.4	471.6	-1,610.3	1,677.9	1.16	0.87	
4,191.0	34.70	286.90	3,754.1	487.9	-1,661.5	1,731.6	2.50	-2.28	
4,283.0	33.00	286.90	3,830.5	502.8	-1,710.5	1,782.9	1.85	-1.85	
4,375.0	33.30	288.40	3,907.5	518.1	-1,758.4	1,833.2	0.95	0.33	
4,466.0	32.30	290.60	3,984.0	534.5	-1,804.9	1,882.4	1.71	-1.10	
4,557.0	34.50	289.40	4,060.0	551.6	-1,852.0	1,932.4	2.52	2.42	
4,649.0	35.60	287.80	4,135.3	568.5	-1,902.0	1,985.2	1.56	1.20	
4,741.0	36.80	286.10	4,209.5	584.3	-1,954.0	2,039.5	1.70	1.30	
4,832.0	36.30	284.90	4,282.6	598.8	-2,006.2	2,093.7	0.96	-0.55	
4,924.0	36.20	285.20	4,356.8	612.9	-2,058.8	2,148.1	0.22	-0.11	
5,016.0	34.10	284.20	4,432.0	626.4	-2,110.0	2,201.0	2.37	-2.28	
5,107.0	35.10	285.60	4,506.9	639.6	-2,159.9	2,252.6	1.40	1.10	
5,199.0	33.60	284.00	4,582.9	652.9	-2,210.1	2,304.5	1.90	-1.63	
5,290.0	34.80	284.70	4,658.2	665.6	-2,259.7	2,355.6	1.39	1.32	
5,382.0	33.40	284.00	4,734.3	678.4	-2,309.6	2,407.2	1.58	-1.52	
5,473.0	33.50	286.40	4,810.3	691.5	-2,358.0	2,457.3	1.46	0.11	
5,565.0	34.20	289.80	4,886.7	707.5	-2,406.7	2,508.5	2.19	0.76	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8509B-21 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson 306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson 306)
Well:	8509B-21 N22 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
5,657.0	31.40	289.10	4,964.0	724.1	-2,453.7	2,558.3	3.07	-3.04	
5,748.0	29.80	287.20	5,042.3	738.5	-2,497.7	2,604.6	2.05	-1.76	
5,840.0	32.60	288.40	5,121.0	753.1	-2,543.1	2,652.2	3.12	3.04	
5,931.0	30.10	289.20	5,198.7	768.3	-2,587.9	2,699.5	2.79	-2.75	
6,022.0	30.00	287.30	5,277.5	782.6	-2,631.2	2,745.1	1.05	-0.11	
6,114.0	31.90	285.80	5,356.4	796.1	-2,676.5	2,792.4	2.23	2.07	
6,206.0	29.70	285.80	5,435.4	808.9	-2,721.8	2,839.5	2.39	-2.39	
6,297.0	28.00	289.30	5,515.1	822.1	-2,763.7	2,883.4	2.63	-1.87	
6,388.0	29.40	291.40	5,594.9	837.3	-2,804.6	2,927.0	1.90	1.54	
6,480.0	29.30	291.70	5,675.1	853.9	-2,846.6	2,971.9	0.19	-0.11	
6,571.0	26.00	290.10	5,755.7	869.0	-2,886.0	3,014.0	3.72	-3.63	
6,663.0	24.90	288.70	5,838.8	882.1	-2,923.3	3,053.5	1.36	-1.20	
6,754.0	25.40	290.00	5,921.2	894.9	-2,959.8	3,092.1	0.82	0.55	
6,846.0	25.50	289.50	6,004.3	908.3	-2,997.0	3,131.6	0.26	0.11	
6,937.0	22.80	287.60	6,087.3	920.2	-3,032.3	3,168.8	3.09	-2.97	
7,029.0	20.90	286.90	6,172.7	930.3	-3,065.0	3,203.0	2.08	-2.07	
7,121.0	19.90	286.90	6,258.9	939.6	-3,095.7	3,235.1	1.09	-1.09	
7,212.0	18.60	287.00	6,344.8	948.4	-3,124.4	3,265.1	1.43	-1.43	
7,304.0	17.00	285.70	6,432.4	956.3	-3,151.3	3,293.2	1.79	-1.74	
7,396.0	14.20	289.20	6,521.0	963.7	-3,174.9	3,317.9	3.21	-3.04	
7,488.0	13.40	289.10	6,610.3	970.9	-3,195.7	3,339.8	0.87	-0.87	
7,579.0	10.10	293.50	6,699.4	977.5	-3,213.0	3,358.3	3.76	-3.63	
7,671.0	7.10	292.10	6,790.4	982.9	-3,225.6	3,372.0	3.27	-3.26	
7,763.0	4.10	275.50	6,881.9	985.3	-3,234.2	3,380.9	3.67	-3.26	
7,854.0	4.70	271.20	6,972.7	985.7	-3,241.1	3,387.6	0.75	0.66	
7,946.0	1.80	250.00	7,064.5	985.3	-3,246.3	3,392.4	3.36	-3.15	
8,037.0	1.00	89.30	7,155.5	984.8	-3,246.8	3,392.8	3.04	-0.88	
8,129.0	1.50	96.70	7,247.5	984.7	-3,244.8	3,390.9	0.57	0.54	
8,312.0	1.20	201.90	7,430.5	982.6	-3,243.2	3,388.7	1.18	-0.16	
8,404.0	0.80	208.40	7,522.4	981.2	-3,243.8	3,388.9	0.45	-0.43	
8,496.0	1.10	217.10	7,614.4	979.9	-3,244.7	3,389.4	0.36	0.33	
8,588.0	1.80	274.20	7,706.4	979.3	-3,246.6	3,391.1	1.65	0.76	
8,679.0	1.80	286.30	7,797.4	979.8	-3,249.4	3,393.9	0.42	0.00	
8,771.0	1.60	340.50	7,889.3	981.4	-3,251.2	3,396.1	1.69	-0.22	
8,862.0	1.40	330.50	7,980.3	983.6	-3,252.2	3,397.7	0.36	-0.22	
8,954.0	1.10	281.20	8,072.3	984.7	-3,253.6	3,399.3	1.17	-0.33	
9,045.0	1.20	1.20	8,163.3	985.9	-3,254.5	3,400.5	1.63	0.11	
9,137.0	0.70	292.00	8,255.2	987.0	-3,255.0	3,401.3	1.26	-0.54	
9,228.0	1.40	262.40	8,346.2	987.1	-3,256.6	3,402.8	0.95	0.77	
9,319.0	1.80	257.90	8,437.2	986.6	-3,259.1	3,405.1	0.46	0.44	
9,411.0	1.80	241.90	8,529.2	985.7	-3,261.8	3,407.4	0.54	0.00	
9,503.0	1.50	195.50	8,621.1	983.8	-3,263.4	3,408.4	1.44	-0.33	
9,594.0	2.20	201.90	8,712.1	981.0	-3,264.3	3,408.6	0.80	0.77	
9,685.0	1.40	254.40	8,803.0	979.1	-3,266.1	3,409.7	1.92	-0.88	
9,776.0	0.90	145.00	8,894.0	978.2	-3,266.7	3,410.0	2.09	-0.55	
9,867.0	1.70	106.10	8,985.0	977.3	-3,265.0	3,408.1	1.26	0.88	
9,958.0	2.20	68.10	9,075.9	977.6	-3,262.1	3,405.4	1.49	0.55	
10,050.0	1.70	69.90	9,167.9	978.7	-3,259.2	3,402.9	0.55	-0.54	
10,142.0	0.50	97.20	9,259.9	979.1	-3,257.5	3,401.4	1.39	-1.30	
10,234.0	0.40	127.70	9,351.9	978.9	-3,256.8	3,400.7	0.28	-0.11	
10,325.0	0.70	216.70	9,442.9	978.2	-3,256.9	3,400.6	0.88	0.33	
10,417.0	1.40	215.90	9,534.9	976.9	-3,257.9	3,401.2	0.76	0.76	
10,508.0	0.20	106.10	9,625.8	975.9	-3,258.4	3,401.4	1.63	-1.32	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8509B-21 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson 306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson 306)
Well:	8509B-21 N22 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
10,600.0	1.60	30.90	9,717.8	977.0	-3,257.6	3,400.9	1.70	1.52	
10,692.0	1.50	28.80	9,809.8	979.1	-3,256.4	3,400.4	0.12	-0.11	
10,783.0	0.60	27.10	9,900.8	980.6	-3,255.6	3,400.0	0.99	-0.99	
10,874.0	0.30	274.80	9,991.8	981.0	-3,255.6	3,400.2	0.84	-0.33	
10,966.0	0.70	247.70	10,083.8	980.8	-3,256.4	3,400.8	0.49	0.43	
11,058.0	1.00	235.00	10,175.8	980.2	-3,257.5	3,401.8	0.38	0.33	
11,150.0	1.50	244.50	10,267.7	979.2	-3,259.3	3,403.2	0.59	0.54	
11,333.0	2.30	242.60	10,450.6	976.5	-3,264.7	3,407.6	0.44	0.44	
11,424.0	2.90	252.00	10,541.6	974.9	-3,268.5	3,410.8	0.81	0.66	
11,516.0	2.90	256.40	10,633.4	973.7	-3,273.0	3,414.7	0.24	0.00	
11,607.0	2.60	265.90	10,724.3	973.0	-3,277.3	3,418.7	0.60	-0.33	
11,699.0	2.80	261.30	10,816.2	972.5	-3,281.6	3,422.6	0.32	0.22	
11,790.0	3.40	274.50	10,907.1	972.4	-3,286.5	3,427.3	1.02	0.66	
11,882.0	3.60	259.00	10,998.9	972.0	-3,292.0	3,432.5	1.05	0.22	
11,906.0	3.60	260.40	11,022.9	971.7	-3,293.5	3,433.9	0.37	0.00	Last Cathedral Survey @ 11,906' MD
11,966.0	3.60	260.40	11,082.8	971.1	-3,297.2	3,437.3	0.00	0.00	Projection to Bit @ 11,966'

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									
8509B-21 N22 496 PBH	0.00	0.00	10,882.0	971.8	-3,267.7	1,686,017.02	2,249,024.85	39° 41' 11.85 N	108° 10' 7.56 W
- actual wellpath misses target center by 17.3ft at 11763.9ft MD (10881.1 TVD, 972.3 N, -3285.0 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
8509B-21 N22 496 TGT	0.00	0.00	7,222.0	981.8	-3,250.7	1,686,026.50	2,249,042.14	39° 41' 11.95 N	108° 10' 7.35 W
- actual wellpath misses target center by 6.0ft at 8103.4ft MD (7221.9 TVD, 984.7 N, -3245.5 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,062.0	1,892.7	202.6	-682.1	Last Cathedral Survey @ 2,062' MD
11,906.0	11,022.9	971.7	-3,293.5	Last Cathedral Survey @ 11,906' MD
11,966.0	11,082.8	971.1	-3,297.2	Projection to Bit @ 11,966'

Checked By: _____ Approved By: _____ Date: _____