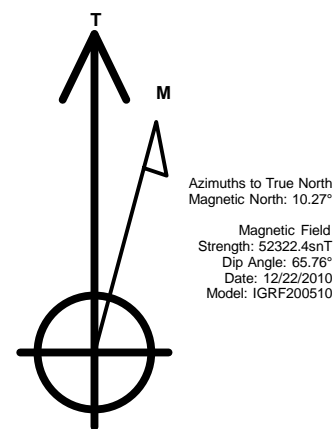
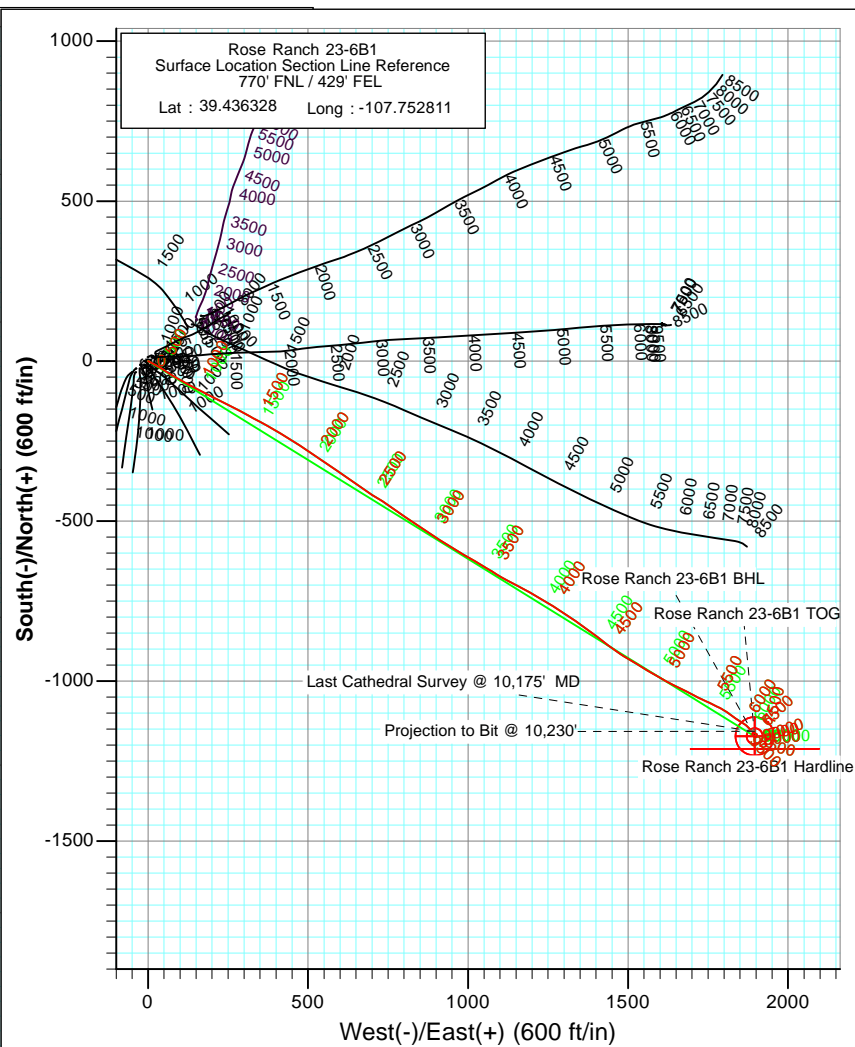
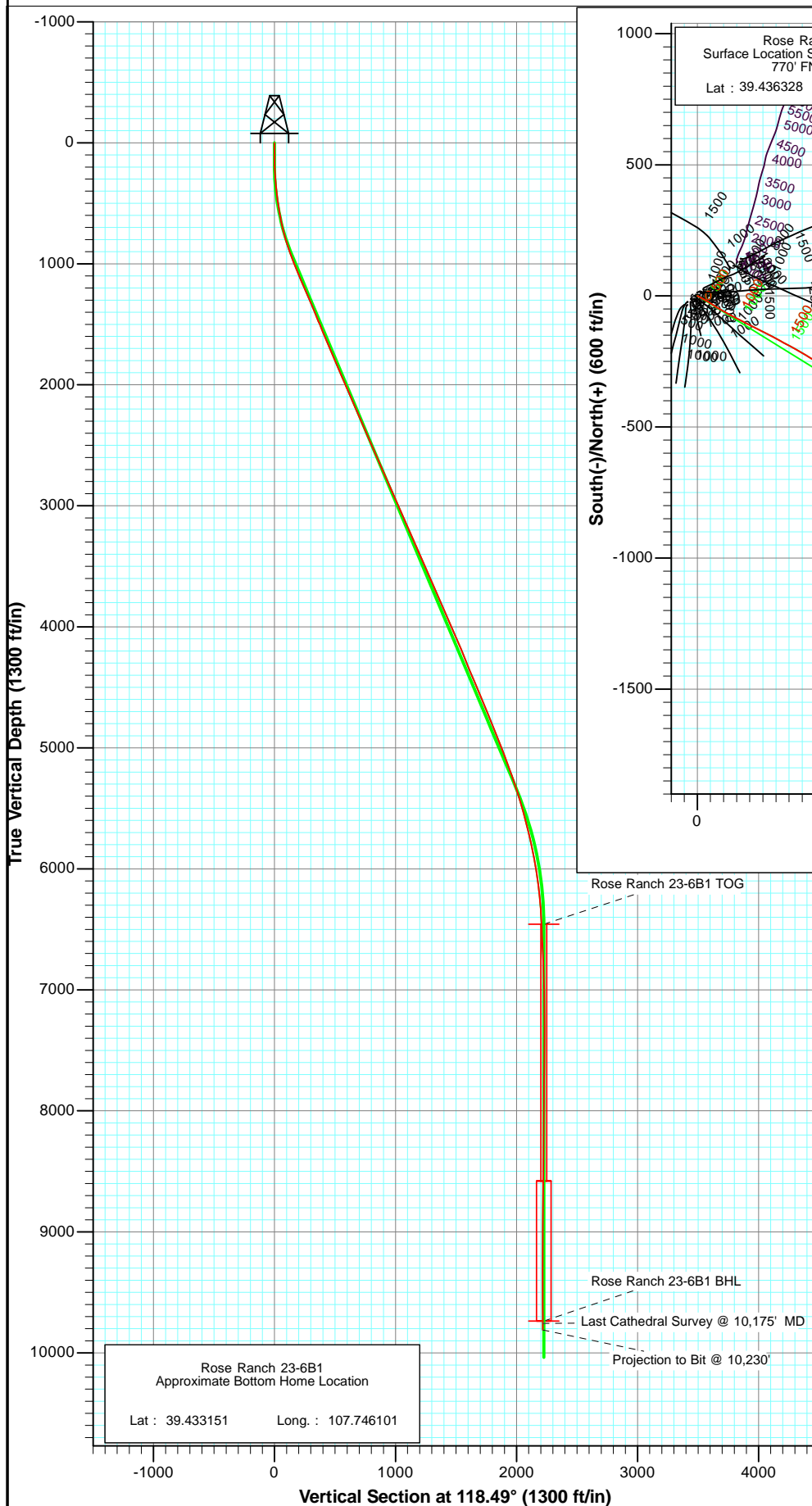




Project: Mamm Creek
Site: A22W Pad (S22-T7S-R93W)
Well: Rose Ranch 23-6B1
Wellbore: DD
Plan: FINAL



Azimuths to True North
Magnetic North: 10.27°

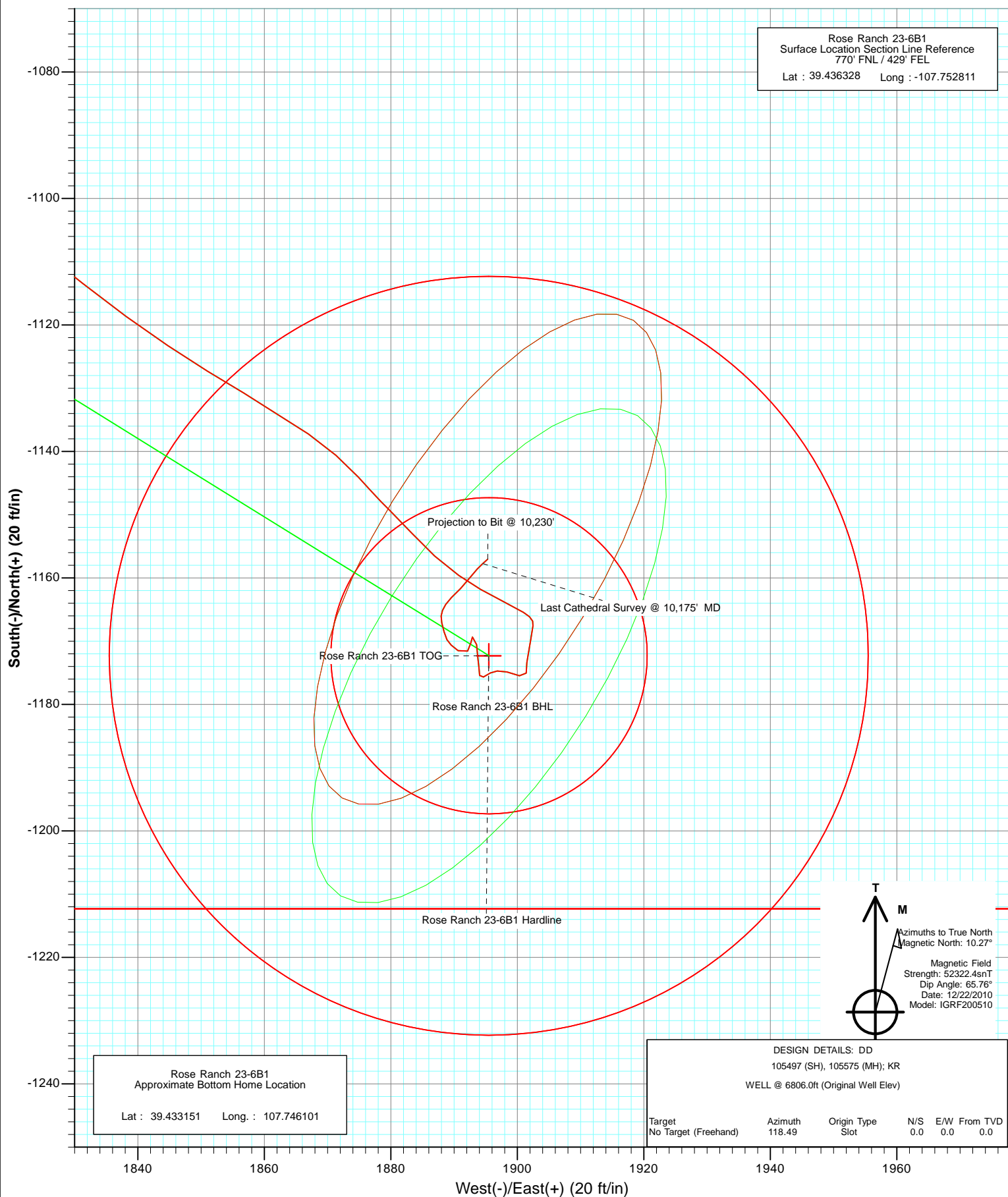
Magnetic Field
Strength: 52322.4snT
Dip Angle: 65.76°
Date: 12/22/2010
Model: IGRF200510

DESIGN DETAILS: DD
105497 (SH), 105575 (MH); KR
WELL @ 6806.0ft (Original Well Elev)

Target	Azimuth	Origin Type	N/S	E/W	From TVD
No Target (Freehand)	118.49	Slot	0.0	0.0	0.0



Project: Mamm Creek
Site: A22W Pad (S22-T7S-R93W)
Well: Rose Ranch 23-6B1
Wellbore: DD
Plan: FINAL



Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Rose Ranch 23-6B1
Project:	Mamm Creek	TVD Reference:	WELL @ 6806.0ft (Original Well Elev)
Site:	A22W Pad (S22-T7S-R93W)	MD Reference:	WELL @ 6806.0ft (Original Well Elev)
Well:	Rose Ranch 23-6B1	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 5000.1 US Multi Users DB

Project	Mamm Creek		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		A22W Pad (S22-T7S-R93W)			
Site Position:		Northing:	1,591,715.91 ft	Latitude:	39.436361
From:	Lat/Long	Easting:	2,363,798.79 ft	Longitude:	-107.752769
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.42 °

Well	Rose Ranch 23-6B1					
Well Position	+N/-S	0.0 ft	Northing:	1,591,704.18 ft	Latitude:	39.436328
	+E/-W	0.0 ft	Easting:	2,363,786.63 ft	Longitude:	-107.752811
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,784.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/22/2010	10.27	65.76	52,322

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	118.49	

Survey Program	Date	1/4/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
110.0	10,230.0	Survey #1 (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		
110.0	0.30	144.60	110.0	-0.2	0.2	0.3	0.27	0.27		
141.0	0.60	142.10	141.0	-0.4	0.3	0.5	0.97	0.97		
171.0	1.10	127.00	171.0	-0.7	0.6	0.9	1.81	1.67		
201.0	2.20	102.20	201.0	-1.0	1.4	1.7	4.29	3.67		
232.0	2.60	108.40	232.0	-1.4	2.7	3.0	1.54	1.29		
263.0	3.20	116.90	262.9	-2.0	4.1	4.6	2.38	1.94		
294.0	3.70	117.90	293.9	-2.8	5.8	6.4	1.62	1.61		
324.0	4.60	112.70	323.8	-3.8	7.7	8.6	3.25	3.00		
355.0	5.20	120.30	354.7	-4.9	10.1	11.2	2.85	1.94		
386.0	6.00	118.90	385.5	-6.4	12.7	14.3	2.62	2.58		
417.0	6.50	122.40	416.3	-8.2	15.6	17.6	2.03	1.61		
446.0	7.00	121.50	445.1	-10.0	18.5	21.0	1.76	1.72		

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Rose Ranch 23-6B1
Project:	Mamm Creek	TVD Reference:	WELL @ 6806.0ft (Original Well Elev)
Site:	A22W Pad (S22-T7S-R93W)	MD Reference:	WELL @ 6806.0ft (Original Well Elev)
Well:	Rose Ranch 23-6B1	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 5000.1 US 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
477.0	8.00	119.70	475.9	-12.0	22.0	25.1	3.31	3.23	
507.0	8.70	117.40	505.6	-14.1	25.8	29.4	2.58	2.33	
599.0	10.20	121.30	596.3	-21.5	39.0	44.5	1.77	1.63	
690.0	13.40	122.30	685.4	-31.4	54.8	63.1	3.52	3.52	
782.0	15.30	122.40	774.5	-43.6	74.0	85.9	2.07	2.07	
874.0	17.80	120.30	862.7	-57.2	96.4	112.0	2.79	2.72	
970.0	21.60	117.50	953.0	-72.7	124.8	144.4	4.08	3.96	
1,065.0	22.50	117.40	1,041.1	-89.2	156.4	180.0	0.95	0.95	
1,161.0	23.00	117.60	1,129.6	-106.3	189.4	217.1	0.53	0.52	
1,253.0	22.80	116.80	1,214.4	-122.7	221.2	252.9	0.40	-0.22	
1,349.0	23.10	116.70	1,302.8	-139.5	254.6	290.3	0.32	0.31	
1,443.0	22.90	118.00	1,389.3	-156.4	287.3	327.1	0.58	-0.21	
1,539.0	22.50	117.90	1,477.9	-173.8	320.0	364.1	0.42	-0.42	
1,560.0	22.60	117.80	1,497.3	-177.5	327.1	372.2	0.51	0.48	
1,634.0	22.50	118.00	1,565.6	-190.8	352.2	400.5	0.17	-0.14	
1,730.0	22.50	120.50	1,654.3	-208.7	384.2	437.3	1.00	0.00	
1,825.0	24.30	121.50	1,741.5	-228.2	416.6	475.0	1.94	1.89	
1,920.0	23.60	121.80	1,828.3	-248.4	449.4	513.5	0.75	-0.74	
2,016.0	22.50	122.10	1,916.6	-268.3	481.3	551.0	1.15	-1.15	
2,110.0	22.60	124.90	2,003.4	-288.2	511.3	586.9	1.15	0.11	
2,206.0	23.50	124.10	2,091.8	-309.5	542.3	624.3	0.99	0.94	
2,301.0	24.30	124.90	2,178.6	-331.3	574.0	662.5	0.91	0.84	
2,396.0	23.90	124.20	2,265.4	-353.3	606.0	701.1	0.52	-0.42	
2,491.0	23.20	124.90	2,352.4	-374.8	637.2	738.9	0.79	-0.74	
2,587.0	23.90	124.80	2,440.4	-396.7	668.7	777.0	0.73	0.73	
2,682.0	23.40	123.10	2,527.5	-418.0	700.3	814.9	0.89	-0.53	
2,777.0	23.60	122.00	2,614.6	-438.4	732.2	852.7	0.51	0.21	
2,872.0	24.40	124.60	2,701.4	-459.6	764.5	891.2	1.40	0.84	
2,968.0	23.50	125.40	2,789.1	-482.0	796.5	929.9	1.00	-0.94	
3,063.0	24.40	124.40	2,875.9	-504.0	828.1	968.2	1.04	0.95	
3,159.0	23.20	124.10	2,963.8	-525.8	860.1	1,006.8	1.26	-1.25	
3,254.0	24.50	122.20	3,050.7	-546.8	892.3	1,045.1	1.59	1.37	
3,349.0	23.90	123.00	3,137.3	-567.8	925.1	1,083.9	0.72	-0.63	
3,445.0	23.00	120.70	3,225.4	-588.0	957.5	1,122.0	1.34	-0.94	
3,540.0	23.60	119.70	3,312.6	-606.9	990.0	1,159.6	0.76	0.63	
3,636.0	24.50	121.10	3,400.3	-626.7	1,023.7	1,198.7	1.11	0.94	
3,731.0	24.00	120.80	3,486.9	-646.7	1,057.2	1,237.7	0.54	-0.53	
3,826.0	23.10	122.10	3,574.0	-666.5	1,089.6	1,275.6	1.09	-0.95	
3,922.0	24.00	117.80	3,662.0	-685.6	1,122.8	1,313.9	2.02	0.94	
4,018.0	23.20	117.90	3,750.0	-703.6	1,156.8	1,352.3	0.83	-0.83	
4,113.0	23.80	119.30	3,837.1	-721.7	1,190.0	1,390.2	0.86	0.63	
4,208.0	23.30	120.00	3,924.2	-740.5	1,223.0	1,428.1	0.60	-0.53	
4,304.0	23.90	123.00	4,012.2	-760.6	1,255.8	1,466.5	1.40	0.62	
4,399.0	23.60	122.50	4,099.1	-781.3	1,288.0	1,504.7	0.38	-0.32	
4,495.0	22.50	121.80	4,187.5	-801.3	1,319.8	1,542.2	1.18	-1.15	
4,590.0	22.00	127.70	4,275.4	-821.8	1,349.3	1,577.9	2.41	-0.53	
4,682.0	23.30	127.00	4,360.3	-843.2	1,377.5	1,612.9	1.44	1.41	
4,778.0	23.00	126.80	4,448.6	-865.9	1,407.7	1,650.2	0.32	-0.31	
4,873.0	22.40	126.90	4,536.2	-887.9	1,437.0	1,686.5	0.63	-0.63	
4,968.0	22.30	124.40	4,624.1	-908.9	1,466.3	1,722.3	1.01	-0.11	
5,062.0	23.70	120.50	4,710.6	-928.6	1,497.3	1,759.0	2.20	1.49	
5,158.0	22.50	121.90	4,798.9	-948.1	1,529.6	1,796.6	1.37	-1.25	
5,253.0	21.30	120.90	4,887.0	-966.6	1,559.8	1,832.0	1.32	-1.26	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Rose Ranch 23-6B1
Project:	Mamm Creek	TVD Reference:	WELL @ 6806.0ft (Original Well Elev)
Site:	A22W Pad (S22-T7S-R93W)	MD Reference:	WELL @ 6806.0ft (Original Well Elev)
Well:	Rose Ranch 23-6B1	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 5000.1 US 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
5,348.0	21.30	119.30	4,975.6	-983.9	1,589.6	1,866.5	0.61	0.00	
5,443.0	19.60	119.30	5,064.6	-1,000.1	1,618.6	1,899.6	1.79	-1.79	
5,539.0	20.50	116.40	5,154.7	-1,015.5	1,647.7	1,932.5	1.40	0.94	
5,634.0	19.50	116.00	5,244.0	-1,029.8	1,676.8	1,965.0	1.06	-1.05	
5,730.0	18.50	117.20	5,334.8	-1,043.8	1,704.8	1,996.2	1.12	-1.04	
5,825.0	16.70	115.40	5,425.3	-1,056.6	1,730.5	2,024.9	1.98	-1.89	
5,921.0	15.10	116.80	5,517.7	-1,068.1	1,754.2	2,051.2	1.71	-1.67	
6,016.0	14.80	116.20	5,609.4	-1,079.1	1,776.1	2,075.7	0.36	-0.32	
6,111.0	13.80	118.30	5,701.5	-1,089.8	1,796.9	2,099.2	1.19	-1.05	
6,206.0	12.90	126.20	5,793.9	-1,101.4	1,815.5	2,121.0	2.14	-0.95	
6,302.0	10.90	128.40	5,887.9	-1,113.4	1,831.2	2,140.6	2.14	-2.08	
6,397.0	9.40	123.60	5,981.4	-1,123.3	1,844.7	2,157.2	1.81	-1.58	
6,493.0	7.60	120.00	6,076.3	-1,130.8	1,856.8	2,171.3	1.95	-1.87	
6,588.0	7.00	124.90	6,170.6	-1,137.2	1,867.0	2,183.3	0.91	-0.63	
6,683.0	5.70	138.10	6,265.0	-1,144.1	1,874.9	2,193.5	2.05	-1.37	
6,778.0	3.10	133.80	6,359.7	-1,149.3	1,879.9	2,200.5	2.76	-2.74	
6,874.0	2.90	138.50	6,455.6	-1,153.0	1,883.4	2,205.2	0.33	-0.21	
6,969.0	3.20	131.70	6,550.4	-1,156.5	1,886.9	2,210.1	0.49	0.32	
7,066.0	2.60	125.30	6,647.3	-1,159.6	1,890.7	2,214.9	0.70	-0.62	
7,162.0	2.30	119.30	6,743.2	-1,161.8	1,894.2	2,219.0	0.41	-0.31	
7,257.0	2.30	117.20	6,838.1	-1,163.6	1,897.6	2,222.8	0.09	0.00	
7,352.0	2.40	119.40	6,933.1	-1,165.4	1,901.0	2,226.7	0.14	0.11	
7,448.0	1.40	192.10	7,029.0	-1,167.6	1,902.5	2,229.0	2.49	-1.04	
7,544.0	1.10	186.00	7,125.0	-1,169.6	1,902.1	2,229.7	0.34	-0.31	
7,638.0	1.20	193.10	7,219.0	-1,171.5	1,901.8	2,230.3	0.18	0.11	
7,734.0	1.10	185.30	7,315.0	-1,173.4	1,901.5	2,231.0	0.19	-0.10	
7,829.0	0.90	182.40	7,409.9	-1,175.0	1,901.4	2,231.6	0.22	-0.21	
7,924.0	1.30	287.70	7,504.9	-1,175.5	1,900.3	2,230.9	1.86	0.42	
8,019.0	1.20	285.50	7,599.9	-1,174.9	1,898.4	2,228.9	0.12	-0.11	
8,114.0	0.70	260.80	7,694.9	-1,174.7	1,896.8	2,227.5	0.67	-0.53	
8,209.0	0.70	245.30	7,789.9	-1,175.0	1,895.7	2,226.7	0.20	0.00	
8,305.0	0.80	233.80	7,885.9	-1,175.7	1,894.7	2,226.0	0.19	0.10	
8,399.0	0.80	354.10	7,979.9	-1,175.4	1,894.1	2,225.4	1.48	0.00	
8,495.0	0.60	355.40	8,075.9	-1,174.2	1,893.9	2,224.7	0.21	-0.21	
8,590.0	1.20	353.00	8,170.9	-1,172.8	1,893.8	2,223.9	0.63	0.63	
8,685.0	1.50	355.90	8,265.8	-1,170.5	1,893.6	2,222.6	0.32	0.32	
8,780.0	0.70	263.40	8,360.8	-1,169.4	1,892.9	2,221.5	1.77	-0.84	
8,876.0	1.10	160.00	8,456.8	-1,170.3	1,892.6	2,221.7	1.49	0.42	
8,971.0	1.10	243.00	8,551.8	-1,171.6	1,892.1	2,221.8	1.53	0.00	
9,067.0	1.00	305.90	8,647.8	-1,171.5	1,890.6	2,220.5	1.14	-0.10	
9,162.0	0.70	313.90	8,742.8	-1,170.6	1,889.6	2,219.1	0.34	-0.32	
9,257.0	0.60	329.70	8,837.8	-1,169.8	1,888.9	2,218.1	0.22	-0.11	
9,352.0	1.00	345.10	8,932.8	-1,168.5	1,888.4	2,217.1	0.47	0.42	
9,447.0	0.80	347.90	9,027.7	-1,167.1	1,888.1	2,216.1	0.22	-0.21	
9,543.0	0.50	5.40	9,123.7	-1,166.0	1,888.0	2,215.5	0.37	-0.31	
9,639.0	0.60	21.30	9,219.7	-1,165.1	1,888.2	2,215.3	0.19	0.10	
9,734.0	0.70	33.00	9,314.7	-1,164.2	1,888.7	2,215.3	0.17	0.11	
9,829.0	1.00	44.80	9,409.7	-1,163.1	1,889.6	2,215.6	0.36	0.32	
9,925.0	1.40	45.30	9,505.7	-1,161.7	1,891.0	2,216.1	0.42	0.42	
10,020.0	1.10	36.20	9,600.7	-1,160.1	1,892.4	2,216.6	0.38	-0.32	
10,116.0	1.30	43.30	9,696.7	-1,158.6	1,893.7	2,217.0	0.26	0.21	
10,175.0	1.10	48.20	9,755.6	-1,157.7	1,894.5	2,217.4	0.38	-0.34	Last Cathedral Survey @ 10,175' MD
10,230.0	1.10	48.20	9,810.6	-1,157.0	1,895.3	2,217.7	0.00	0.00	Projection to Bit @ 10,230'

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Rose Ranch 23-6B1
Project:	Mamm Creek	TVD Reference:	WELL @ 6806.0ft (Original Well Elev)
Site:	A22W Pad (S22-T7S-R93W)	MD Reference:	WELL @ 6806.0ft (Original Well Elev)
Well:	Rose Ranch 23-6B1	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	Database:	EDM 5000.1 US Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Rose Ranch 23-6B1 TOI	0.00	0.00	6,458.0	-1,172.3	1,895.5	1,590,485.24	2,365,652.52	39.433109	-107.746100
- survey misses target center by 22.7ft at 6877.6ft MD (6459.2 TVD, -1153.1 N, 1883.5 E)									
- Circle (radius 25.0)									
Rose Ranch 23-6B1 BHI	0.00	0.00	9,736.0	-1,172.3	1,895.5	1,590,485.24	2,365,652.48	39.433109	-107.746100
- survey misses target center by 14.4ft at 10155.2ft MD (9735.8 TVD, -1158.0 N, 1894.3 E)									
- Circle (radius 60.0)									
Rose Ranch 23-6B1 Har	0.00	0.00	-9,736.0	-1,172.3	1,895.5	1,590,485.24	2,365,652.48	39.433109	-107.746100
- survey misses target center by 9987.8ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			-9,736.0	-40.0	200.0	1,590,440.29	2,365,851.43		
Point 2			-9,736.0	-40.0	-200.0	1,590,450.21	2,365,451.55		

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
10,175.0	9,755.6	-1,157.7	1,894.5	Last Cathedral Survey @ 10,175' MD
10,230.0	9,810.6	-1,157.0	1,895.3	Projection to Bit @ 10,230'

Checked By: _____ Approved By: _____ Date: _____