

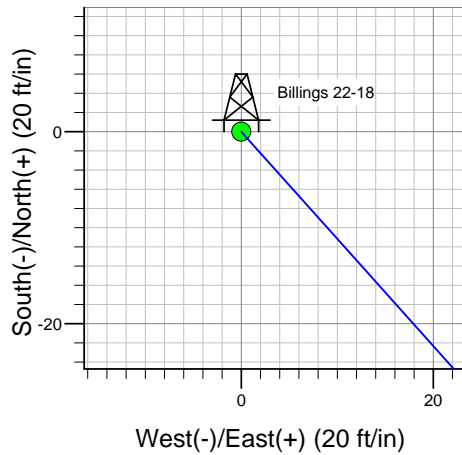
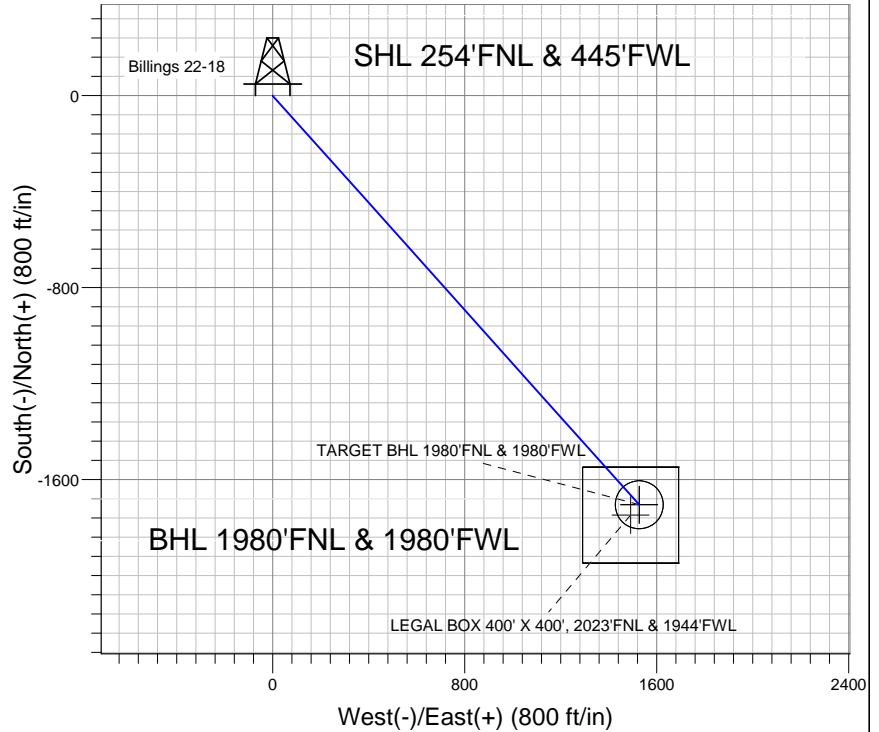
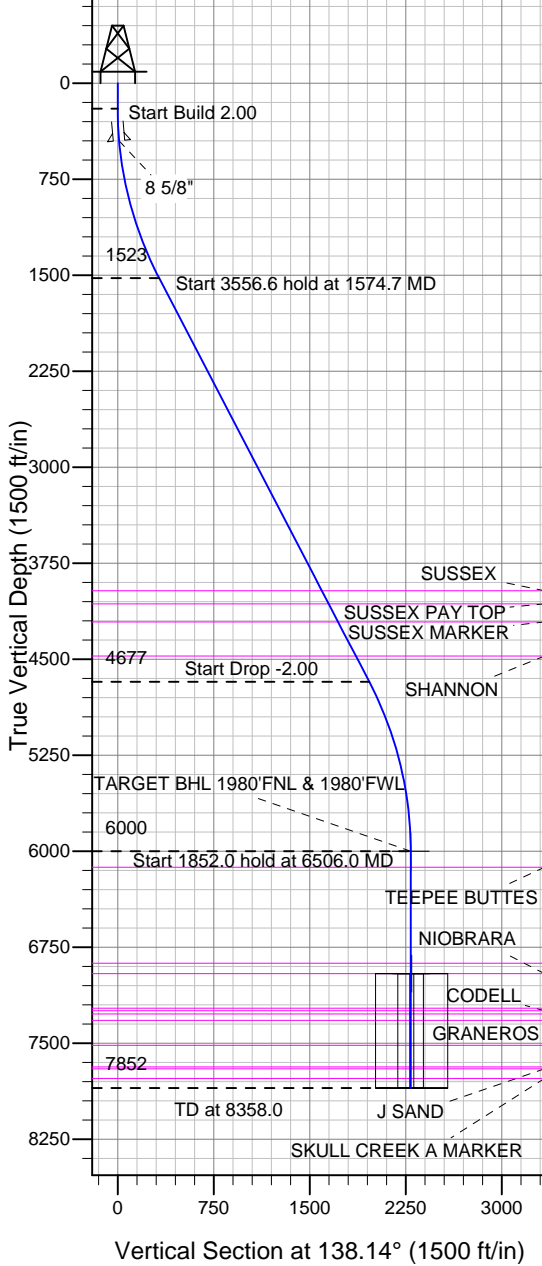
Well Name: **Billings 22-18**

Surface Location: Billings 22-18 Pad Sec.18-T3N-R68W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

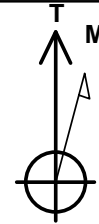
Ground Elevation: 5214.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1327709.81	3124662.33	40.232100	-105.053500	
RKB - 13' WELL @ 5227.0ft (RKB - 13')						

EnCana Oil & Gas Weld County CO



Billings 22-18
Plan #1 (11-27-12)
11:16, November 27 2012



Azimuths to True North
Magnetic North: 8.81°
Magnetic Field
Strength: 52855.8snT
Dip Angle: 66.82°
Date: 11/27/2012
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1980'FNL & 1980'FWL	6000.0	-1704.9	1527.4	40.227420	-105.048030	Point
LEGAL BOX 400' X 400', 2023'FNL & 1944'FWL	6957.0	-1747.9	1491.4	40.227302	-105.048159	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 1980'FNL & 1980'FWL	6957.0	-1704.9	1527.4	40.227420	-105.048030	Circle (Radius: 100.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1574.7	27.49	138.14	1522.5	-241.0	215.9	2.00	138.14	323.5	
4	5131.3	27.49	138.14	4677.5	-1463.9	1311.5	0.00	0.00	1965.5	
5	6506.0	0.00	0.00	6000.0	-1704.9	1527.4	2.00	180.00	2289.0	TARGET BHL 1980'FNL & 1980'FWL
6	8358.0	0.00	0.00	7852.0	-1704.9	1527.4	0.00	0.00	2289.0	



EnCana Oil & Gas Weld County CO

SEC.18-T3N-R68W

Billings 22-18 Pad Sec.18-T3N-R68W

Billings 22-18

Wellbore #1

Plan: Plan #1 (11-27-12)

Standard Planning Report

27 November, 2012

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,574.7	27.49	138.14	1,522.5	-241.0	215.9	2.00	2.00	0.00	138.14	
5,131.3	27.49	138.14	4,677.5	-1,463.9	1,311.5	0.00	0.00	0.00	0.00	
6,506.0	0.00	0.00	6,000.0	-1,704.9	1,527.4	2.00	-2.00	0.00	180.00	TARGET BHL 1980
8,358.0	0.00	0.00	7,852.0	-1,704.9	1,527.4	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Billings 22-18
Company:	EnCana Oil & Gas Weld County CO	TVD Reference:	WELL @ 5227.0ft (RKB - 13')
Project:	SEC.18-T3N-R68W	MD Reference:	WELL @ 5227.0ft (RKB - 13')
Site:	Billings 22-18 Pad Sec.18-T3N-R68W	North Reference:	True
Well:	Billings 22-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-27-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.80	138.14	240.0	-0.2	0.2	0.3	2.00	2.00	0.00
280.0	1.60	138.14	280.0	-0.8	0.7	1.1	2.00	2.00	0.00
320.0	2.40	138.14	320.0	-1.9	1.7	2.5	2.00	2.00	0.00
360.0	3.20	138.14	359.9	-3.3	3.0	4.5	2.00	2.00	0.00
400.0	4.00	138.14	399.8	-5.2	4.7	7.0	2.00	2.00	0.00
440.0	4.80	138.14	439.7	-7.5	6.7	10.0	2.00	2.00	0.00
450.3	5.01	138.14	450.0	-8.1	7.3	10.9	2.00	2.00	0.00
8 5/8"									
480.0	5.60	138.14	479.6	-10.2	9.1	13.7	2.00	2.00	0.00
520.0	6.40	138.14	519.3	-13.3	11.9	17.9	2.00	2.00	0.00
560.0	7.20	138.14	559.1	-16.8	15.1	22.6	2.00	2.00	0.00
600.0	8.00	138.14	598.7	-20.8	18.6	27.9	2.00	2.00	0.00
640.0	8.80	138.14	638.3	-25.1	22.5	33.7	2.00	2.00	0.00
680.0	9.60	138.14	677.8	-29.9	26.8	40.1	2.00	2.00	0.00
720.0	10.40	138.14	717.1	-35.1	31.4	47.1	2.00	2.00	0.00
760.0	11.20	138.14	756.4	-40.6	36.4	54.6	2.00	2.00	0.00
800.0	12.00	138.14	795.6	-46.6	41.8	62.6	2.00	2.00	0.00
840.0	12.80	138.14	834.7	-53.0	47.5	71.2	2.00	2.00	0.00
880.0	13.60	138.14	873.6	-59.8	53.6	80.3	2.00	2.00	0.00
920.0	14.40	138.14	912.4	-67.0	60.1	90.0	2.00	2.00	0.00
960.0	15.20	138.14	951.1	-74.6	66.9	100.2	2.00	2.00	0.00
1,000.0	16.00	138.14	989.6	-82.7	74.1	111.0	2.00	2.00	0.00
1,040.0	16.80	138.14	1,028.0	-91.1	81.6	122.3	2.00	2.00	0.00
1,080.0	17.60	138.14	1,066.2	-99.9	89.5	134.1	2.00	2.00	0.00
1,120.0	18.40	138.14	1,104.3	-109.1	97.7	146.5	2.00	2.00	0.00
1,160.0	19.20	138.14	1,142.1	-118.7	106.3	159.3	2.00	2.00	0.00
1,200.0	20.00	138.14	1,179.8	-128.7	115.3	172.8	2.00	2.00	0.00
1,240.0	20.80	138.14	1,217.3	-139.1	124.6	186.7	2.00	2.00	0.00
1,280.0	21.60	138.14	1,254.6	-149.8	134.2	201.2	2.00	2.00	0.00
1,320.0	22.40	138.14	1,291.7	-161.0	144.2	216.2	2.00	2.00	0.00
1,360.0	23.20	138.14	1,328.6	-172.5	154.6	231.7	2.00	2.00	0.00
1,400.0	24.00	138.14	1,365.2	-184.5	165.3	247.7	2.00	2.00	0.00
1,440.0	24.80	138.14	1,401.6	-196.8	176.3	264.2	2.00	2.00	0.00
1,480.0	25.60	138.14	1,437.8	-209.5	187.7	281.2	2.00	2.00	0.00
1,520.0	26.40	138.14	1,473.8	-222.5	199.4	298.8	2.00	2.00	0.00
1,560.0	27.20	138.14	1,509.5	-236.0	211.4	316.8	2.00	2.00	0.00
1,574.7	27.49	138.14	1,522.5	-241.0	215.9	323.5	2.00	2.00	0.00
1,600.0	27.49	138.14	1,545.0	-249.7	223.7	335.2	0.00	0.00	0.00
1,640.0	27.49	138.14	1,580.5	-263.4	236.0	353.7	0.00	0.00	0.00
1,680.0	27.49	138.14	1,616.0	-277.2	248.3	372.2	0.00	0.00	0.00
1,720.0	27.49	138.14	1,651.4	-290.9	260.7	390.6	0.00	0.00	0.00
1,760.0	27.49	138.14	1,686.9	-304.7	273.0	409.1	0.00	0.00	0.00
1,800.0	27.49	138.14	1,722.4	-318.5	285.3	427.6	0.00	0.00	0.00
1,840.0	27.49	138.14	1,757.9	-332.2	297.6	446.0	0.00	0.00	0.00
1,880.0	27.49	138.14	1,793.4	-346.0	309.9	464.5	0.00	0.00	0.00
1,920.0	27.49	138.14	1,828.8	-359.7	322.3	483.0	0.00	0.00	0.00
1,960.0	27.49	138.14	1,864.3	-373.5	334.6	501.4	0.00	0.00	0.00
2,000.0	27.49	138.14	1,899.8	-387.2	346.9	519.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Billings 22-18
Company:	EnCana Oil & Gas Weld County CO	TVD Reference:	WELL @ 5227.0ft (RKB - 13')
Project:	SEC.18-T3N-R68W	MD Reference:	WELL @ 5227.0ft (RKB - 13')
Site:	Billings 22-18 Pad Sec.18-T3N-R68W	North Reference:	True
Well:	Billings 22-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-27-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,040.0	27.49	138.14	1,935.3	-401.0	359.2	538.4	0.00	0.00	0.00
2,080.0	27.49	138.14	1,970.8	-414.7	371.6	556.8	0.00	0.00	0.00
2,120.0	27.49	138.14	2,006.3	-428.5	383.9	575.3	0.00	0.00	0.00
2,160.0	27.49	138.14	2,041.7	-442.2	396.2	593.8	0.00	0.00	0.00
2,200.0	27.49	138.14	2,077.2	-456.0	408.5	612.2	0.00	0.00	0.00
2,240.0	27.49	138.14	2,112.7	-469.7	420.8	630.7	0.00	0.00	0.00
2,280.0	27.49	138.14	2,148.2	-483.5	433.2	649.2	0.00	0.00	0.00
2,320.0	27.49	138.14	2,183.7	-497.2	445.5	667.6	0.00	0.00	0.00
2,360.0	27.49	138.14	2,219.2	-511.0	457.8	686.1	0.00	0.00	0.00
2,400.0	27.49	138.14	2,254.6	-524.8	470.1	704.6	0.00	0.00	0.00
2,440.0	27.49	138.14	2,290.1	-538.5	482.5	723.0	0.00	0.00	0.00
2,480.0	27.49	138.14	2,325.6	-552.3	494.8	741.5	0.00	0.00	0.00
2,520.0	27.49	138.14	2,361.1	-566.0	507.1	759.9	0.00	0.00	0.00
2,560.0	27.49	138.14	2,396.6	-579.8	519.4	778.4	0.00	0.00	0.00
2,600.0	27.49	138.14	2,432.1	-593.5	531.7	796.9	0.00	0.00	0.00
2,640.0	27.49	138.14	2,467.5	-607.3	544.1	815.3	0.00	0.00	0.00
2,680.0	27.49	138.14	2,503.0	-621.0	556.4	833.8	0.00	0.00	0.00
2,720.0	27.49	138.14	2,538.5	-634.8	568.7	852.3	0.00	0.00	0.00
2,760.0	27.49	138.14	2,574.0	-648.5	581.0	870.7	0.00	0.00	0.00
2,800.0	27.49	138.14	2,609.5	-662.3	593.4	889.2	0.00	0.00	0.00
2,840.0	27.49	138.14	2,644.9	-676.0	605.7	907.7	0.00	0.00	0.00
2,880.0	27.49	138.14	2,680.4	-689.8	618.0	926.1	0.00	0.00	0.00
2,920.0	27.49	138.14	2,715.9	-703.6	630.3	944.6	0.00	0.00	0.00
2,960.0	27.49	138.14	2,751.4	-717.3	642.6	963.1	0.00	0.00	0.00
3,000.0	27.49	138.14	2,786.9	-731.1	655.0	981.5	0.00	0.00	0.00
3,040.0	27.49	138.14	2,822.4	-744.8	667.3	1,000.0	0.00	0.00	0.00
3,080.0	27.49	138.14	2,857.8	-758.6	679.6	1,018.5	0.00	0.00	0.00
3,120.0	27.49	138.14	2,893.3	-772.3	691.9	1,036.9	0.00	0.00	0.00
3,160.0	27.49	138.14	2,928.8	-786.1	704.2	1,055.4	0.00	0.00	0.00
3,200.0	27.49	138.14	2,964.3	-799.8	716.6	1,073.9	0.00	0.00	0.00
3,240.0	27.49	138.14	2,999.8	-813.6	728.9	1,092.3	0.00	0.00	0.00
3,280.0	27.49	138.14	3,035.3	-827.3	741.2	1,110.8	0.00	0.00	0.00
3,320.0	27.49	138.14	3,070.7	-841.1	753.5	1,129.3	0.00	0.00	0.00
3,360.0	27.49	138.14	3,106.2	-854.8	765.9	1,147.7	0.00	0.00	0.00
3,400.0	27.49	138.14	3,141.7	-868.6	778.2	1,166.2	0.00	0.00	0.00
3,440.0	27.49	138.14	3,177.2	-882.3	790.5	1,184.7	0.00	0.00	0.00
3,480.0	27.49	138.14	3,212.7	-896.1	802.8	1,203.1	0.00	0.00	0.00
3,520.0	27.49	138.14	3,248.1	-909.9	815.1	1,221.6	0.00	0.00	0.00
3,560.0	27.49	138.14	3,283.6	-923.6	827.5	1,240.1	0.00	0.00	0.00
3,600.0	27.49	138.14	3,319.1	-937.4	839.8	1,258.5	0.00	0.00	0.00
3,640.0	27.49	138.14	3,354.6	-951.1	852.1	1,277.0	0.00	0.00	0.00
3,680.0	27.49	138.14	3,390.1	-964.9	864.4	1,295.5	0.00	0.00	0.00
3,720.0	27.49	138.14	3,425.6	-978.6	876.8	1,313.9	0.00	0.00	0.00
3,760.0	27.49	138.14	3,461.0	-992.4	889.1	1,332.4	0.00	0.00	0.00
3,800.0	27.49	138.14	3,496.5	-1,006.1	901.4	1,350.9	0.00	0.00	0.00
3,840.0	27.49	138.14	3,532.0	-1,019.9	913.7	1,369.3	0.00	0.00	0.00
3,880.0	27.49	138.14	3,567.5	-1,033.6	926.0	1,387.8	0.00	0.00	0.00
3,920.0	27.49	138.14	3,603.0	-1,047.4	938.4	1,406.3	0.00	0.00	0.00
3,960.0	27.49	138.14	3,638.5	-1,061.1	950.7	1,424.7	0.00	0.00	0.00
4,000.0	27.49	138.14	3,673.9	-1,074.9	963.0	1,443.2	0.00	0.00	0.00
4,040.0	27.49	138.14	3,709.4	-1,088.7	975.3	1,461.7	0.00	0.00	0.00
4,080.0	27.49	138.14	3,744.9	-1,102.4	987.7	1,480.1	0.00	0.00	0.00
4,120.0	27.49	138.14	3,780.4	-1,116.2	1,000.0	1,498.6	0.00	0.00	0.00
4,160.0	27.49	138.14	3,815.9	-1,129.9	1,012.3	1,517.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Billings 22-18
Company:	EnCana Oil & Gas Weld County CO	TVD Reference:	WELL @ 5227.0ft (RKB - 13')
Project:	SEC.18-T3N-R68W	MD Reference:	WELL @ 5227.0ft (RKB - 13')
Site:	Billings 22-18 Pad Sec.18-T3N-R68W	North Reference:	True
Well:	Billings 22-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-27-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,200.0	27.49	138.14	3,851.4	-1,143.7	1,024.6	1,535.5	0.00	0.00	0.00
4,240.0	27.49	138.14	3,886.8	-1,157.4	1,036.9	1,554.0	0.00	0.00	0.00
4,280.0	27.49	138.14	3,922.3	-1,171.2	1,049.3	1,572.5	0.00	0.00	0.00
4,320.0	27.49	138.14	3,957.8	-1,184.9	1,061.6	1,590.9	0.00	0.00	0.00
4,330.4	27.49	138.14	3,967.0	-1,188.5	1,064.8	1,595.7	0.00	0.00	0.00
SUSSEX									
4,360.0	27.49	138.14	3,993.3	-1,198.7	1,073.9	1,609.4	0.00	0.00	0.00
4,400.0	27.49	138.14	4,028.8	-1,212.4	1,086.2	1,627.9	0.00	0.00	0.00
4,440.0	27.49	138.14	4,064.2	-1,226.2	1,098.6	1,646.3	0.00	0.00	0.00
4,445.4	27.49	138.14	4,069.0	-1,228.0	1,100.2	1,648.8	0.00	0.00	0.00
SUSSEX PAY TOP									
4,480.0	27.49	138.14	4,099.7	-1,239.9	1,110.9	1,664.8	0.00	0.00	0.00
4,520.0	27.49	138.14	4,135.2	-1,253.7	1,123.2	1,683.2	0.00	0.00	0.00
4,560.0	27.49	138.14	4,170.7	-1,267.5	1,135.5	1,701.7	0.00	0.00	0.00
4,600.0	27.49	138.14	4,206.2	-1,281.2	1,147.8	1,720.2	0.00	0.00	0.00
4,603.2	27.49	138.14	4,209.0	-1,282.3	1,148.8	1,721.6	0.00	0.00	0.00
SUSSEX MARKER									
4,640.0	27.49	138.14	4,241.7	-1,295.0	1,160.2	1,738.6	0.00	0.00	0.00
4,680.0	27.49	138.14	4,277.1	-1,308.7	1,172.5	1,757.1	0.00	0.00	0.00
4,720.0	27.49	138.14	4,312.6	-1,322.5	1,184.8	1,775.6	0.00	0.00	0.00
4,760.0	27.49	138.14	4,348.1	-1,336.2	1,197.1	1,794.0	0.00	0.00	0.00
4,800.0	27.49	138.14	4,383.6	-1,350.0	1,209.4	1,812.5	0.00	0.00	0.00
4,840.0	27.49	138.14	4,419.1	-1,363.7	1,221.8	1,831.0	0.00	0.00	0.00
4,880.0	27.49	138.14	4,454.6	-1,377.5	1,234.1	1,849.4	0.00	0.00	0.00
4,905.3	27.49	138.14	4,477.0	-1,386.2	1,241.9	1,861.1	0.00	0.00	0.00
SHANNON									
4,920.0	27.49	138.14	4,490.0	-1,391.2	1,246.4	1,867.9	0.00	0.00	0.00
4,960.0	27.49	138.14	4,525.5	-1,405.0	1,258.7	1,886.4	0.00	0.00	0.00
5,000.0	27.49	138.14	4,561.0	-1,418.7	1,271.1	1,904.8	0.00	0.00	0.00
5,040.0	27.49	138.14	4,596.5	-1,432.5	1,283.4	1,923.3	0.00	0.00	0.00
5,080.0	27.49	138.14	4,632.0	-1,446.2	1,295.7	1,941.8	0.00	0.00	0.00
5,120.0	27.49	138.14	4,667.4	-1,460.0	1,308.0	1,960.2	0.00	0.00	0.00
5,131.3	27.49	138.14	4,677.5	-1,463.9	1,311.5	1,965.5	0.00	0.00	0.00
5,160.0	26.92	138.14	4,703.0	-1,473.7	1,320.3	1,978.6	2.00	-2.00	0.00
5,200.0	26.12	138.14	4,738.8	-1,487.0	1,332.2	1,996.4	2.00	-2.00	0.00
5,240.0	25.32	138.14	4,774.8	-1,499.9	1,343.8	2,013.8	2.00	-2.00	0.00
5,280.0	24.52	138.14	4,811.1	-1,512.4	1,355.0	2,030.6	2.00	-2.00	0.00
5,320.0	23.72	138.14	4,847.6	-1,524.6	1,365.9	2,047.0	2.00	-2.00	0.00
5,360.0	22.92	138.14	4,884.3	-1,536.4	1,376.5	2,062.8	2.00	-2.00	0.00
5,400.0	22.12	138.14	4,921.3	-1,547.8	1,386.7	2,078.1	2.00	-2.00	0.00
5,440.0	21.32	138.14	4,958.4	-1,558.8	1,396.6	2,093.0	2.00	-2.00	0.00
5,480.0	20.52	138.14	4,995.8	-1,569.5	1,406.1	2,107.2	2.00	-2.00	0.00
5,520.0	19.72	138.14	5,033.4	-1,579.7	1,415.3	2,121.0	2.00	-2.00	0.00
5,560.0	18.92	138.14	5,071.1	-1,589.6	1,424.1	2,134.2	2.00	-2.00	0.00
5,600.0	18.12	138.14	5,109.0	-1,599.1	1,432.6	2,146.9	2.00	-2.00	0.00
5,640.0	17.32	138.14	5,147.1	-1,608.1	1,440.7	2,159.1	2.00	-2.00	0.00
5,680.0	16.52	138.14	5,185.4	-1,616.8	1,448.5	2,170.7	2.00	-2.00	0.00
5,720.0	15.72	138.14	5,223.8	-1,625.1	1,455.9	2,181.9	2.00	-2.00	0.00
5,760.0	14.92	138.14	5,262.4	-1,632.9	1,463.0	2,192.4	2.00	-2.00	0.00
5,800.0	14.12	138.14	5,301.1	-1,640.4	1,469.6	2,202.4	2.00	-2.00	0.00
5,840.0	13.32	138.14	5,340.0	-1,647.5	1,476.0	2,211.9	2.00	-2.00	0.00
5,880.0	12.52	138.14	5,379.0	-1,654.1	1,481.9	2,220.9	2.00	-2.00	0.00
5,920.0	11.72	138.14	5,418.1	-1,660.4	1,487.5	2,229.3	2.00	-2.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Billings 22-18
Company:	EnCana Oil & Gas Weld County CO	TVD Reference:	WELL @ 5227.0ft (RKB - 13')
Project:	SEC.18-T3N-R68W	MD Reference:	WELL @ 5227.0ft (RKB - 13')
Site:	Billings 22-18 Pad Sec.18-T3N-R68W	North Reference:	True
Well:	Billings 22-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-27-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,960.0	10.92	138.14	5,457.3	-1,666.2	1,492.8	2,237.1	2.00	-2.00	0.00
6,000.0	10.12	138.14	5,496.6	-1,671.7	1,497.7	2,244.4	2.00	-2.00	0.00
6,040.0	9.32	138.14	5,536.1	-1,676.7	1,502.2	2,251.2	2.00	-2.00	0.00
6,080.0	8.52	138.14	5,575.6	-1,681.3	1,506.3	2,257.4	2.00	-2.00	0.00
6,120.0	7.72	138.14	5,615.2	-1,685.5	1,510.1	2,263.0	2.00	-2.00	0.00
6,160.0	6.92	138.14	5,654.9	-1,689.3	1,513.5	2,268.1	2.00	-2.00	0.00
6,200.0	6.12	138.14	5,694.6	-1,692.7	1,516.5	2,272.7	2.00	-2.00	0.00
6,240.0	5.32	138.14	5,734.4	-1,695.7	1,519.2	2,276.7	2.00	-2.00	0.00
6,280.0	4.52	138.14	5,774.3	-1,698.2	1,521.5	2,280.1	2.00	-2.00	0.00
6,320.0	3.72	138.14	5,814.2	-1,700.4	1,523.4	2,283.0	2.00	-2.00	0.00
6,360.0	2.92	138.14	5,854.1	-1,702.1	1,524.9	2,285.3	2.00	-2.00	0.00
6,400.0	2.12	138.14	5,894.0	-1,703.4	1,526.1	2,287.0	2.00	-2.00	0.00
6,440.0	1.32	138.14	5,934.0	-1,704.3	1,526.9	2,288.2	2.00	-2.00	0.00
6,480.0	0.52	138.14	5,974.0	-1,704.8	1,527.3	2,288.9	2.00	-2.00	0.00
6,506.0	0.00	0.00	6,000.0	-1,704.9	1,527.4	2,289.0	2.00	-2.00	0.00
TARGET BHL 1980'FNL & 1980'FWL									
6,520.0	0.00	0.00	6,014.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,054.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,094.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,633.0	0.00	0.00	6,127.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
TEEPEE BUTTES									
6,640.0	0.00	0.00	6,134.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,174.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,214.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,254.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,294.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,334.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,374.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,414.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,454.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,494.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,534.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,574.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,120.0	0.00	0.00	6,614.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,160.0	0.00	0.00	6,654.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,200.0	0.00	0.00	6,694.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,240.0	0.00	0.00	6,734.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,280.0	0.00	0.00	6,774.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,320.0	0.00	0.00	6,814.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,360.0	0.00	0.00	6,854.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,383.0	0.00	0.00	6,877.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
SHARON SPRINGS									
7,400.0	0.00	0.00	6,894.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,440.0	0.00	0.00	6,934.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,463.0	0.00	0.00	6,957.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
NIOBRARA - LEGAL BOX 400' X 400', 2023'FNL & 1944'FWL - TARGET CIRCLE 1980'FNL & 1980'FWL									
7,480.0	0.00	0.00	6,974.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,520.0	0.00	0.00	7,014.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,560.0	0.00	0.00	7,054.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,094.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,640.0	0.00	0.00	7,134.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,680.0	0.00	0.00	7,174.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00
7,720.0	0.00	0.00	7,214.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Billings 22-18
Company:	EnCana Oil & Gas Weld County CO	TVD Reference:	WELL @ 5227.0ft (RKB - 13')
Project:	SEC.18-T3N-R68W	MD Reference:	WELL @ 5227.0ft (RKB - 13')
Site:	Billings 22-18 Pad Sec.18-T3N-R68W	North Reference:	True
Well:	Billings 22-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-27-12)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
7,733.0	0.00	0.00	7,227.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
FT HAYES										
7,753.0	0.00	0.00	7,247.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
CODELL										
7,760.0	0.00	0.00	7,254.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
7,778.0	0.00	0.00	7,272.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
FAIRPORT										
7,800.0	0.00	0.00	7,294.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
7,828.0	0.00	0.00	7,322.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
GREENHORN										
7,840.0	0.00	0.00	7,334.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
7,880.0	0.00	0.00	7,374.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
7,920.0	0.00	0.00	7,414.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
7,960.0	0.00	0.00	7,454.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,494.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,023.0	0.00	0.00	7,517.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
GRANEROS										
8,040.0	0.00	0.00	7,534.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,080.0	0.00	0.00	7,574.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,120.0	0.00	0.00	7,614.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,160.0	0.00	0.00	7,654.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,193.0	0.00	0.00	7,687.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
MOWRY										
8,200.0	0.00	0.00	7,694.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,208.0	0.00	0.00	7,702.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
J SAND										
8,240.0	0.00	0.00	7,734.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,280.0	0.00	0.00	7,774.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,283.0	0.00	0.00	7,777.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
SKULL CREEK A MARKER										
8,320.0	0.00	0.00	7,814.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	
8,358.0	0.00	0.00	7,852.0	-1,704.9	1,527.4	2,289.0	0.00	0.00	0.00	

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										
LEGAL BOX 400' X 400'	0.00	0.00	6,957.0	-1,747.9	1,491.4	1,325,969.53	3,126,162.44	40.227302	-105.048159	
- plan misses target center by 56.1ft at 7463.0ft MD (6957.0 TVD, -1704.9 N, 1527.4 E)										
- Rectangle (sides W400.0 H400.0 D895.0)										
TARGET BHL 1980'F	0.00	0.00	6,000.0	-1,704.9	1,527.4	1,326,012.74	3,126,198.22	40.227420	-105.048030	
- plan hits target center										
- Point										
TARGET CIRCLE 198'	0.00	0.00	6,957.0	-1,704.9	1,527.4	1,326,012.74	3,126,198.22	40.227420	-105.048030	
- plan hits target center										
- Circle (radius 100.0)										

Database:	Landmark	Local Co-ordinate Reference:	Well Billings 22-18
Company:	EnCana Oil & Gas Weld County CO	TVD Reference:	WELL @ 5227.0ft (RKB - 13')
Project:	SEC.18-T3N-R68W	MD Reference:	WELL @ 5227.0ft (RKB - 13')
Site:	Billings 22-18 Pad Sec.18-T3N-R68W	North Reference:	True
Well:	Billings 22-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-27-12)		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
450.3	450.0	8 5/8"	8-5/8	12-1/4

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,330.4	3,967.0	SUSSEX		0.00		
4,445.4	4,069.0	SUSSEX PAY TOP		0.00		
4,603.2	4,209.0	SUSSEX MARKER		0.00		
4,905.3	4,477.0	SHANNON		0.00		
6,633.0	6,127.0	TEEPEE BUTTES		0.00		
7,383.0	6,877.0	SHARON SPRINGS		0.00		
7,463.0	6,957.0	NIOBRARA		0.00		
7,733.0	7,227.0	FT HAYES		0.00		
7,753.0	7,247.0	CODELL		0.00		
7,778.0	7,272.0	FAIRPORT		0.00		
7,828.0	7,322.0	GREENHORN		0.00		
8,023.0	7,517.0	GRANEROS		0.00		
8,193.0	7,687.0	MOWRY		0.00		
8,208.0	7,702.0	J SAND		0.00		
8,283.0	7,777.0	SKULL CREEK A MARKER		0.00		