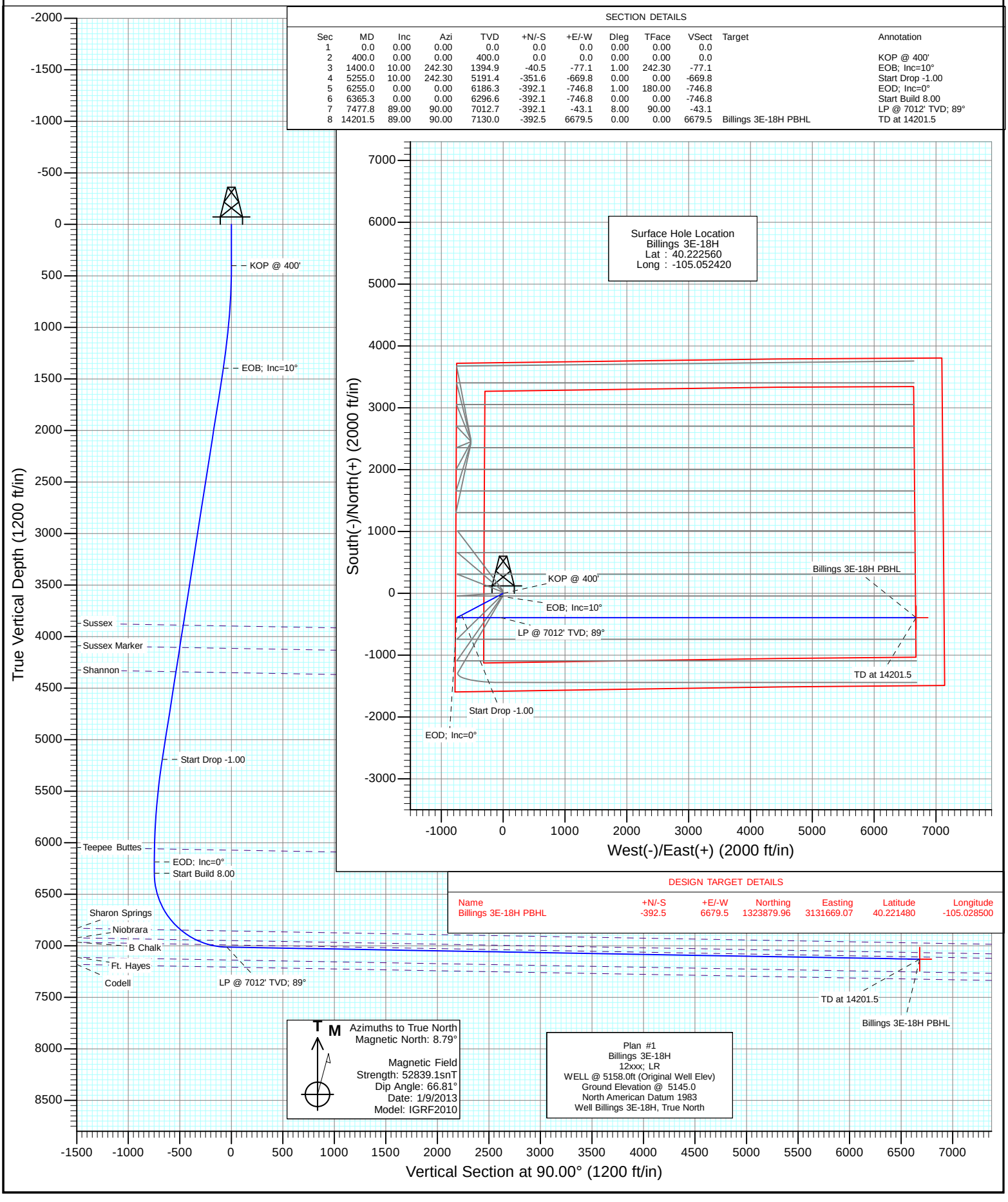
encana

Project: DJ Wattenberg
Site: S18-T3N-R68W (Billings)
Well: Billings 3E-18H
Wellbore: Hz
Design: Plan #1

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0		KOP @ 400'
3	1400.0	10.00	242.30	1394.9	-40.5	-77.1	1.00	242.30	-77.1		EOB; Inc=10°
4	5255.0	10.00	242.30	5191.4	-351.6	-669.8	0.00	0.00	-669.8		Start Drop -1.00
5	6255.0	0.00	0.00	6186.3	-392.1	-746.8	1.00	180.00	-746.8		EOD; Inc=0°
6	6365.3	0.00	0.00	6296.6	-392.1	-746.8	0.00	0.00	-746.8		Start Build 8.00
7	7477.8	89.00	90.00	7012.7	-392.1	-43.1	8.00	90.00	-43.1		LP @ 7012' TVD; 89°
8	14201.5	89.00	90.00	7130.0	-392.5	6679.5	0.00	0.00	6679.5	Billings 3E-18H PBHL	TD at 14201.5



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Billings 3E-18H PBHL	-392.5	6679.5	1323879.96	3131669.07	40.221480	-105.028500

T M
Azimuths to True North
Magnetic North: 8.79°

Magnetic Field
Strength: 52839.1snT
Dip Angle: 66.81°
Date: 1/9/2013
Model: IGRF2010

Plan #1
Billings 3E-18H
12xxx; LR
WELL @ 5158.0ft (Original Well Elev)
Ground Elevation @ 5145.0
North American Datum 1983
Well Billings 3E-18H, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Project DJ Wattenberg

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site S18-T3N-R68W (Billings)

Site Position:		**Northing:**	1,326,724.18 ft	**Latitude:**	40.229390
From:	Lat/Long	**Easting:**	3,124,452.97 ft	**Longitude:**	-105.054290
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.29 °

Well Billings 3E-18H

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,324,238.76 ft	**Latitude:**	40.222560
	+E/-W	0.0 ft	**Easting:**	3,124,987.65 ft	**Longitude:**	-105.052420
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	5,145.0 ft

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/9/2013	8.79	66.81	52,839

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	90.00

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	10.00	242.30	1,394.9	-40.5	-77.1	1.00	1.00	0.00	242.30	
5,255.0	10.00	242.30	5,191.4	-351.6	-669.8	0.00	0.00	0.00	0.00	
6,255.0	0.00	0.00	6,186.3	-392.1	-746.8	1.00	-1.00	0.00	180.00	
6,365.3	0.00	0.00	6,296.6	-392.1	-746.8	0.00	0.00	0.00	0.00	
7,477.8	89.00	90.00	7,012.7	-392.1	-43.1	8.00	8.00	0.00	90.00	
14,201.5	89.00	90.00	7,130.0	-392.5	6,679.5	0.00	0.00	0.00	0.00	Billings 3E-18H PBHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 400'
500.0	1.00	242.30	500.0	-0.4	-0.8	-0.8	1.00	1.00	
600.0	2.00	242.30	600.0	-1.6	-3.1	-3.1	1.00	1.00	
700.0	3.00	242.30	699.9	-3.7	-7.0	-7.0	1.00	1.00	
800.0	4.00	242.30	799.7	-6.5	-12.4	-12.4	1.00	1.00	
900.0	5.00	242.30	899.4	-10.1	-19.3	-19.3	1.00	1.00	
1,000.0	6.00	242.30	998.9	-14.6	-27.8	-27.8	1.00	1.00	
1,100.0	7.00	242.30	1,098.3	-19.9	-37.8	-37.8	1.00	1.00	
1,200.0	8.00	242.30	1,197.4	-25.9	-49.4	-49.4	1.00	1.00	
1,300.0	9.00	242.30	1,296.3	-32.8	-62.5	-62.5	1.00	1.00	
1,400.0	10.00	242.30	1,394.9	-40.5	-77.1	-77.1	1.00	1.00	EOB; Inc=10°
1,500.0	10.00	242.30	1,493.4	-48.5	-92.4	-92.4	0.00	0.00	
1,600.0	10.00	242.30	1,591.9	-56.6	-107.8	-107.8	0.00	0.00	
1,700.0	10.00	242.30	1,690.4	-64.7	-123.2	-123.2	0.00	0.00	
1,800.0	10.00	242.30	1,788.9	-72.7	-138.6	-138.6	0.00	0.00	
1,900.0	10.00	242.30	1,887.3	-80.8	-153.9	-153.9	0.00	0.00	
2,000.0	10.00	242.30	1,985.8	-88.9	-169.3	-169.3	0.00	0.00	
2,100.0	10.00	242.30	2,084.3	-97.0	-184.7	-184.7	0.00	0.00	
2,200.0	10.00	242.30	2,182.8	-105.0	-200.1	-200.1	0.00	0.00	
2,300.0	10.00	242.30	2,281.3	-113.1	-215.4	-215.4	0.00	0.00	
2,400.0	10.00	242.30	2,379.7	-121.2	-230.8	-230.8	0.00	0.00	
2,500.0	10.00	242.30	2,478.2	-129.3	-246.2	-246.2	0.00	0.00	
2,600.0	10.00	242.30	2,576.7	-137.3	-261.6	-261.6	0.00	0.00	
2,700.0	10.00	242.30	2,675.2	-145.4	-276.9	-276.9	0.00	0.00	
2,800.0	10.00	242.30	2,773.7	-153.5	-292.3	-292.3	0.00	0.00	
2,900.0	10.00	242.30	2,872.1	-161.5	-307.7	-307.7	0.00	0.00	
3,000.0	10.00	242.30	2,970.6	-169.6	-323.1	-323.1	0.00	0.00	
3,100.0	10.00	242.30	3,069.1	-177.7	-338.4	-338.4	0.00	0.00	
3,200.0	10.00	242.30	3,167.6	-185.8	-353.8	-353.8	0.00	0.00	
3,300.0	10.00	242.30	3,266.1	-193.8	-369.2	-369.2	0.00	0.00	
3,400.0	10.00	242.30	3,364.5	-201.9	-384.6	-384.6	0.00	0.00	
3,500.0	10.00	242.30	3,463.0	-210.0	-399.9	-399.9	0.00	0.00	
3,600.0	10.00	242.30	3,561.5	-218.0	-415.3	-415.3	0.00	0.00	
3,700.0	10.00	242.30	3,660.0	-226.1	-430.7	-430.7	0.00	0.00	
3,800.0	10.00	242.30	3,758.5	-234.2	-446.1	-446.1	0.00	0.00	
3,900.0	10.00	242.30	3,857.0	-242.3	-461.4	-461.4	0.00	0.00	
3,932.4	10.00	242.30	3,888.9	-244.9	-466.4	-466.4	0.00	0.00	Sussex
4,000.0	10.00	242.30	3,955.4	-250.3	-476.8	-476.8	0.00	0.00	
4,100.0	10.00	242.30	4,053.9	-258.4	-492.2	-492.2	0.00	0.00	
4,152.1	10.00	242.30	4,105.3	-262.6	-500.2	-500.2	0.00	0.00	Sussex Marker
4,200.0	10.00	242.30	4,152.4	-266.5	-507.6	-507.6	0.00	0.00	
4,300.0	10.00	242.30	4,250.9	-274.5	-522.9	-522.9	0.00	0.00	
4,391.1	10.00	242.30	4,340.6	-281.9	-536.9	-536.9	0.00	0.00	Shannon
4,400.0	10.00	242.30	4,349.4	-282.6	-538.3	-538.3	0.00	0.00	
4,500.0	10.00	242.30	4,447.8	-290.7	-553.7	-553.7	0.00	0.00	
4,600.0	10.00	242.30	4,546.3	-298.8	-569.1	-569.1	0.00	0.00	
4,700.0	10.00	242.30	4,644.8	-306.8	-584.4	-584.4	0.00	0.00	
4,800.0	10.00	242.30	4,743.3	-314.9	-599.8	-599.8	0.00	0.00	

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Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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)	Comments / Formations
4,900.0	10.00	242.30	4,841.8	-323.0	-615.2	-615.2	0.00	0.00	
5,000.0	10.00	242.30	4,940.2	-331.1	-630.6	-630.6	0.00	0.00	
5,100.0	10.00	242.30	5,038.7	-339.1	-645.9	-645.9	0.00	0.00	
5,200.0	10.00	242.30	5,137.2	-347.2	-661.3	-661.3	0.00	0.00	
5,255.0	10.00	242.30	5,191.4	-351.6	-669.8	-669.8	0.00	0.00	Start Drop -1.00
5,300.0	9.55	242.30	5,235.7	-355.2	-676.5	-676.5	1.00	-1.00	
5,400.0	8.55	242.30	5,334.5	-362.5	-690.5	-690.5	1.00	-1.00	
5,500.0	7.55	242.30	5,433.5	-369.0	-702.9	-702.9	1.00	-1.00	
5,600.0	6.55	242.30	5,532.7	-374.7	-713.7	-713.7	1.00	-1.00	
5,700.0	5.55	242.30	5,632.2	-379.6	-723.1	-723.1	1.00	-1.00	
5,800.0	4.55	242.30	5,731.8	-383.7	-730.8	-730.8	1.00	-1.00	
5,900.0	3.55	242.30	5,831.5	-387.0	-737.1	-737.1	1.00	-1.00	
6,000.0	2.55	242.30	5,931.4	-389.5	-741.8	-741.8	1.00	-1.00	
6,100.0	1.55	242.30	6,031.3	-391.1	-745.0	-745.0	1.00	-1.00	
6,127.7	1.27	242.30	6,059.0	-391.4	-745.6	-745.6	1.00	-1.00	Teepee Buttes
6,200.0	0.55	242.30	6,131.3	-392.0	-746.6	-746.6	1.00	-1.00	
6,255.0	0.00	0.00	6,186.3	-392.1	-746.8	-746.8	1.00	-1.00	EOD; Inc=0°
6,300.0	0.00	0.00	6,231.3	-392.1	-746.8	-746.8	0.00	0.00	
6,365.3	0.00	0.00	6,296.6	-392.1	-746.8	-746.8	0.00	0.00	Start Build 8.00
6,400.0	2.78	90.00	6,331.3	-392.1	-746.0	-746.0	8.00	8.00	
6,500.0	10.78	90.00	6,430.5	-392.1	-734.2	-734.2	8.00	8.00	
6,600.0	18.78	90.00	6,527.1	-392.1	-708.7	-708.7	8.00	8.00	
6,700.0	26.78	90.00	6,619.2	-392.1	-670.0	-670.0	8.00	8.00	
6,800.0	34.78	90.00	6,705.1	-392.1	-618.9	-618.9	8.00	8.00	
6,900.0	42.78	90.00	6,783.0	-392.1	-556.3	-556.3	8.00	8.00	
6,993.8	50.28	90.00	6,847.5	-392.1	-488.3	-488.3	8.00	8.00	Sharon Springs
7,000.0	50.78	90.00	6,851.4	-392.1	-483.5	-483.5	8.00	8.00	
7,100.0	58.78	90.00	6,909.0	-392.1	-401.9	-401.9	8.00	8.00	
7,171.7	64.52	90.00	6,943.1	-392.1	-338.8	-338.8	8.00	8.00	Niobrara
7,200.0	66.78	90.00	6,954.7	-392.1	-313.0	-313.0	8.00	8.00	
7,300.0	74.78	90.00	6,987.6	-392.1	-218.7	-218.7	8.00	8.00	
7,302.2	74.96	90.00	6,988.2	-392.1	-216.5	-216.5	8.00	8.00	B Chalk
7,400.0	82.78	90.00	7,007.1	-392.1	-120.7	-120.7	8.00	8.00	
7,477.8	89.00	90.00	7,012.7	-392.1	-43.1	-43.1	8.00	8.00	LP @ 7012' TVD; 89°
7,500.0	89.00	90.00	7,013.0	-392.1	-20.9	-20.9	0.00	0.00	
7,600.0	89.00	90.00	7,014.8	-392.1	79.1	79.1	0.00	0.00	
7,700.0	89.00	90.00	7,016.5	-392.1	179.1	179.1	0.00	0.00	
7,800.0	89.00	90.00	7,018.3	-392.2	279.0	279.0	0.00	0.00	
7,900.0	89.00	90.00	7,020.0	-392.2	379.0	379.0	0.00	0.00	
8,000.0	89.00	90.00	7,021.8	-392.2	479.0	479.0	0.00	0.00	
8,100.0	89.00	90.00	7,023.5	-392.2	579.0	579.0	0.00	0.00	
8,200.0	89.00	90.00	7,025.3	-392.2	679.0	679.0	0.00	0.00	
8,300.0	89.00	90.00	7,027.0	-392.2	779.0	779.0	0.00	0.00	
8,400.0	89.00	90.00	7,028.8	-392.2	879.0	879.0	0.00	0.00	
8,500.0	89.00	90.00	7,030.5	-392.2	978.9	978.9	0.00	0.00	
8,600.0	89.00	90.00	7,032.2	-392.2	1,078.9	1,078.9	0.00	0.00	
8,700.0	89.00	90.00	7,034.0	-392.2	1,178.9	1,178.9	0.00	0.00	
8,800.0	89.00	90.00	7,035.7	-392.2	1,278.9	1,278.9	0.00	0.00	
8,900.0	89.00	90.00	7,037.5	-392.2	1,378.9	1,378.9	0.00	0.00	
9,000.0	89.00	90.00	7,039.2	-392.2	1,478.9	1,478.9	0.00	0.00	
9,100.0	89.00	90.00	7,041.0	-392.2	1,578.8	1,578.8	0.00	0.00	
9,200.0	89.00	90.00	7,042.7	-392.2	1,678.8	1,678.8	0.00	0.00	

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Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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)	Comments / Formations
9,300.0	89.00	90.00	7,044.5	-392.2	1,778.8	1,778.8	0.00	0.00	
9,400.0	89.00	90.00	7,046.2	-392.2	1,878.8	1,878.8	0.00	0.00	
9,500.0	89.00	90.00	7,047.9	-392.3	1,978.8	1,978.8	0.00	0.00	
9,600.0	89.00	90.00	7,049.7	-392.3	2,078.8	2,078.8	0.00	0.00	
9,700.0	89.00	90.00	7,051.4	-392.3	2,178.8	2,178.8	0.00	0.00	
9,800.0	89.00	90.00	7,053.2	-392.3	2,278.7	2,278.7	0.00	0.00	
9,900.0	89.00	90.00	7,054.9	-392.3	2,378.7	2,378.7	0.00	0.00	
10,000.0	89.00	90.00	7,056.7	-392.3	2,478.7	2,478.7	0.00	0.00	
10,100.0	89.00	90.00	7,058.4	-392.3	2,578.7	2,578.7	0.00	0.00	
10,200.0	89.00	90.00	7,060.2	-392.3	2,678.7	2,678.7	0.00	0.00	
10,300.0	89.00	90.00	7,061.9	-392.3	2,778.7	2,778.7	0.00	0.00	
10,400.0	89.00	90.00	7,063.7	-392.3	2,878.6	2,878.6	0.00	0.00	
10,500.0	89.00	90.00	7,065.4	-392.3	2,978.6	2,978.6	0.00	0.00	
10,600.0	89.00	90.00	7,067.1	-392.3	3,078.6	3,078.6	0.00	0.00	
10,700.0	89.00	90.00	7,068.9	-392.3	3,178.6	3,178.6	0.00	0.00	
10,800.0	89.00	90.00	7,070.6	-392.3	3,278.6	3,278.6	0.00	0.00	
10,900.0	89.00	90.00	7,072.4	-392.3	3,378.6	3,378.6	0.00	0.00	
11,000.0	89.00	90.00	7,074.1	-392.3	3,478.6	3,478.6	0.00	0.00	
11,100.0	89.00	90.00	7,075.9	-392.3	3,578.5	3,578.5	0.00	0.00	
11,200.0	89.00	90.00	7,077.6	-392.3	3,678.5	3,678.5	0.00	0.00	
11,300.0	89.00	90.00	7,079.4	-392.4	3,778.5	3,778.5	0.00	0.00	
11,400.0	89.00	90.00	7,081.1	-392.4	3,878.5	3,878.5	0.00	0.00	
11,500.0	89.00	90.00	7,082.9	-392.4	3,978.5	3,978.5	0.00	0.00	
11,600.0	89.00	90.00	7,084.6	-392.4	4,078.5	4,078.5	0.00	0.00	
11,700.0	89.00	90.00	7,086.3	-392.4	4,178.4	4,178.4	0.00	0.00	
11,800.0	89.00	90.00	7,088.1	-392.4	4,278.4	4,278.4	0.00	0.00	
11,900.0	89.00	90.00	7,089.8	-392.4	4,378.4	4,378.4	0.00	0.00	
12,000.0	89.00	90.00	7,091.6	-392.4	4,478.4	4,478.4	0.00	0.00	
12,100.0	89.00	90.00	7,093.3	-392.4	4,578.4	4,578.4	0.00	0.00	
12,200.0	89.00	90.00	7,095.1	-392.4	4,678.4	4,678.4	0.00	0.00	
12,300.0	89.00	90.00	7,096.8	-392.4	4,778.4	4,778.4	0.00	0.00	
12,400.0	89.00	90.00	7,098.6	-392.4	4,878.3	4,878.3	0.00	0.00	
12,500.0	89.00	90.00	7,100.3	-392.4	4,978.3	4,978.3	0.00	0.00	
12,600.0	89.00	90.00	7,102.1	-392.4	5,078.3	5,078.3	0.00	0.00	
12,700.0	89.00	90.00	7,103.8	-392.4	5,178.3	5,178.3	0.00	0.00	
12,800.0	89.00	90.00	7,105.5	-392.4	5,278.3	5,278.3	0.00	0.00	
12,900.0	89.00	90.00	7,107.3	-392.4	5,378.3	5,378.3	0.00	0.00	
13,000.0	89.00	90.00	7,109.0	-392.5	5,478.3	5,478.3	0.00	0.00	
13,100.0	89.00	90.00	7,110.8	-392.5	5,578.2	5,578.2	0.00	0.00	
13,200.0	89.00	90.00	7,112.5	-392.5	5,678.2	5,678.2	0.00	0.00	
13,300.0	89.00	90.00	7,114.3	-392.5	5,778.2	5,778.2	0.00	0.00	
13,400.0	89.00	90.00	7,116.0	-392.5	5,878.2	5,878.2	0.00	0.00	
13,500.0	89.00	90.00	7,117.8	-392.5	5,978.2	5,978.2	0.00	0.00	
13,600.0	89.00	90.00	7,119.5	-392.5	6,078.2	6,078.2	0.00	0.00	
13,700.0	89.00	90.00	7,121.2	-392.5	6,178.1	6,178.1	0.00	0.00	
13,800.0	89.00	90.00	7,123.0	-392.5	6,278.1	6,278.1	0.00	0.00	
13,900.0	89.00	90.00	7,124.7	-392.5	6,378.1	6,378.1	0.00	0.00	
14,000.0	89.00	90.00	7,126.5	-392.5	6,478.1	6,478.1	0.00	0.00	
14,100.0	89.00	90.00	7,128.2	-392.5	6,578.1	6,578.1	0.00	0.00	
14,200.0	89.00	90.00	7,130.0	-392.5	6,678.1	6,678.1	0.00	0.00	
14,201.5	89.00	90.00	7,130.0	-392.5	6,679.5	6,679.5	0.00	0.00	TD at 14201.5 - Billings 3E-18H PBHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Billings 3E-18H PBHL - plan hits target center - Point	0.00	0.00	7,130.0	-392.5	6,679.5	1,323,879.96	3,131,669.07	40.221480	-105.028500

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,932.4	3,897.0	Sussex		1.00	90.00
4,152.1	4,114.0	Sussex Marker		1.00	90.00
4,391.1	4,350.0	Shannon		1.00	90.00
6,127.7	6,072.0	Teepee Buttes		1.00	90.00
6,993.8	6,856.0	Sharon Springs		1.00	90.00
7,171.7	6,949.0	Niobrara		1.00	90.00
7,302.2	6,992.0	B Chalk		1.00	90.00

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP @ 400'
1,400.0	1,394.9	-40.5	-77.1	EOB; Inc=10°
5,255.0	5,191.4	-351.6	-669.8	Start Drop -1.00
6,255.0	6,186.3	-392.1	-746.8	EOD; Inc=0°
6,365.3	6,296.6	-392.1	-746.8	Start Build 8.00
7,477.8	7,012.7	-392.1	-43.1	LP @ 7012' TVD; 89°
14,201.5	7,130.0	-392.5	6,679.5	TD at 14201.5

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S18-T3N-R68W (Billings)
Billings 3E-18H
Hz
Plan #1

Anticollision Report

09 January, 2013

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 1/9/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,201.5	Plan #1 (Hz)	MWD	Geolink MWD

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S18-T3N-R68W (Billings)						
Billings 2A-18H - Hz - Plan #1						Out of range
Billings 2B-18H - HZ - Plan #1						Out of range
Billings 2C-18H - HZ - Plan #1						Out of range
Billings 2D-18H - Hz - Plan #1						Out of range
Billings 2E-18H - HZ - Plan #1						Out of range
Billings 2F-18H - HZ - Plan #1						Out of range
Billings 2G-18H - Hz - Plan #1						Out of range
Billings 2H-18H - Hz - Plan #1						Out of range
Billings 3A-18H - Hz - Plan #1	166.3	167.3	40.1	39.5	74.625	CC
Billings 3A-18H - Hz - Plan #1	200.0	201.0	40.1	39.4	61.225	ES
Billings 3A-18H - Hz - Plan #1	700.0	697.0	61.3	58.9	25.273	SF
Billings 3B-18H - Hz - Plan #1	300.0	300.0	29.1	28.1	29.090	CC, ES
Billings 3B-18H - Hz - Plan #1	700.0	698.1	42.0	39.5	17.311	SF
Billings 3C-18H - Hz - Plan #1	400.0	400.0	18.2	16.9	13.483	CC, ES
Billings 3C-18H - Hz - Plan #1	700.0	699.5	24.7	22.3	10.225	SF
Billings 3D-18H - Hz - Plan #1	400.0	400.0	7.3	5.9	5.390	CC, ES
Billings 3D-18H - Hz - Plan #1	14,201.5	14,386.3	402.9	101.2	1.336	Level 3, SF
Billings 3F-18H - Hz - Plan #1	400.0	400.0	10.9	9.6	8.090	CC, ES
Billings 3F-18H - Hz - Plan #1	14,201.5	14,442.9	402.8	101.0	1.334	Level 3, SF
Billings 3G-18H - Hz - Plan #1	332.4	333.4	21.9	20.7	19.575	CC, ES
Billings 3G-18H - Hz - Plan #1	500.0	499.3	26.4	24.7	15.516	SF
Billings 3H-18H - Hz - Plan #1	200.0	200.0	32.8	32.1	50.227	CC, ES
Billings 3H-18H - Hz - Plan #1	4,000.0	3,956.0	497.9	475.4	22.188	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3A-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	0.00	40.1	0.0	40.1				
100.0	100.0	101.0	101.0	0.2	0.2	0.00	40.1	0.0	40.1	39.8	0.31	131.195	
166.3	166.3	167.3	167.3	0.3	0.3	0.00	40.1	0.0	40.1	39.5	0.54	74.625	CC
200.0	200.0	201.0	201.0	0.3	0.3	0.00	40.1	0.0	40.1	39.4	0.65	61.225	ES
300.0	300.0	300.4	300.4	0.5	0.5	-0.75	40.8	-0.5	40.8	39.8	1.00	40.667	
400.0	400.0	400.0	400.0	0.7	0.7	-2.82	42.8	-2.1	42.9	41.6	1.35	31.736	
500.0	500.0	499.1	498.9	0.9	0.9	112.82	46.3	-4.7	46.9	45.2	1.70	27.519	
600.0	600.0	598.1	597.8	1.0	1.1	111.86	51.1	-8.4	53.1	51.0	2.06	25.742	
700.0	699.9	697.0	696.3	1.2	1.3	111.76	57.2	-13.0	61.3	58.9	2.43	25.273	SF
800.0	799.7	795.4	794.4	1.4	1.5	112.22	64.7	-18.7	71.7	68.9	2.81	25.559	
900.0	899.4	893.5	891.8	1.6	1.8	113.00	73.4	-25.4	84.2	81.0	3.20	26.294	
1,000.0	998.9	991.1	988.6	1.8	2.0	113.91	83.5	-33.0	98.9	95.2	3.62	27.293	
1,100.0	1,098.3	1,088.2	1,084.6	2.1	2.3	114.84	94.8	-41.6	115.6	111.5	4.07	28.437	
1,200.0	1,197.4	1,184.7	1,179.8	2.3	2.6	115.73	107.3	-51.1	134.5	129.9	4.54	29.647	
1,300.0	1,296.3	1,280.5	1,274.1	2.6	2.9	116.55	120.9	-61.5	155.5	150.4	5.04	30.871	
1,400.0	1,394.9	1,375.5	1,367.3	2.9	3.3	117.30	135.7	-72.7	178.6	173.0	5.57	32.076	
1,500.0	1,493.4	1,469.9	1,459.5	3.3	3.7	117.96	151.6	-84.8	203.3	197.2	6.12	33.230	
1,600.0	1,591.9	1,563.7	1,550.9	3.6	4.1	118.23	168.6	-97.8	229.4	222.7	6.68	34.312	
1,700.0	1,690.4	1,656.9	1,641.2	3.9	4.5	118.23	186.7	-111.5	256.6	249.4	7.26	35.336	
1,800.0	1,788.9	1,751.2	1,732.4	4.3	4.9	118.05	206.0	-126.2	284.9	277.1	7.85	36.291	
1,900.0	1,887.3	1,847.1	1,825.0	4.6	5.4	117.88	225.8	-141.2	313.3	304.9	8.45	37.088	
2,000.0	1,985.8	1,943.0	1,917.6	4.9	5.8	117.73	245.5	-156.2	341.8	332.7	9.05	37.764	
2,100.0	2,084.3	2,038.8	2,010.2	5.3	6.3	117.61	265.3	-171.3	370.2	360.5	9.65	38.342	
2,200.0	2,182.8	2,134.7	2,102.8	5.6	6.7	117.51	285.0	-186.3	398.6	388.4	10.26	38.842	
2,300.0	2,281.3	2,230.6	2,195.4	6.0	7.2	117.42	304.8	-201.3	427.1	416.2	10.87	39.279	
2,400.0	2,379.7	2,326.4	2,288.0	6.3	7.7	117.34	324.5	-216.3	455.5	444.0	11.48	39.662	
2,500.0	2,478.2	2,422.3	2,380.6	6.7	8.1	117.28	344.3	-231.3	483.9	471.8	12.10	40.002	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3B-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.2	0.2	0.00	29.1	0.0	29.1	28.8	0.30	95.963	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.65	44.646	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	29.1	0.0	29.1	28.1	1.00	29.090	CC, ES
400.0	400.0	399.7	399.7	0.7	0.7	-1.27	29.7	-0.7	29.7	28.4	1.35	22.006	
500.0	500.0	499.3	499.2	0.9	0.9	114.32	31.4	-2.6	31.9	30.2	1.70	18.725	
600.0	600.0	598.8	598.6	1.0	1.0	113.10	34.2	-5.9	36.0	33.9	2.06	17.472	
700.0	699.9	698.1	697.8	1.2	1.2	112.66	38.1	-10.5	42.0	39.5	2.42	17.311	SF
800.0	799.7	797.2	796.6	1.4	1.4	112.77	43.1	-16.4	49.9	47.1	2.81	17.780	
900.0	899.4	896.1	895.0	1.6	1.7	113.19	49.3	-23.6	59.7	56.5	3.21	18.617	
1,000.0	998.9	994.6	992.9	1.8	1.9	113.75	56.5	-32.0	71.4	67.8	3.63	19.664	
1,100.0	1,098.3	1,092.7	1,090.2	2.1	2.2	114.34	64.7	-41.6	85.0	80.9	4.08	20.817	
1,200.0	1,197.4	1,190.4	1,186.9	2.3	2.5	114.92	74.0	-52.5	100.5	95.9	4.57	22.006	
1,300.0	1,296.3	1,287.7	1,282.8	2.6	2.8	115.44	84.3	-64.6	117.9	112.8	5.08	23.187	
1,400.0	1,394.9	1,384.4	1,377.9	2.9	3.1	115.91	95.6	-77.8	137.1	131.5	5.64	24.329	
1,500.0	1,493.4	1,480.6	1,472.2	3.3	3.4	116.23	107.9	-92.2	157.8	151.6	6.21	25.405	
1,600.0	1,591.9	1,577.9	1,567.4	3.6	3.8	116.20	121.0	-107.5	179.3	172.5	6.80	26.353	
1,700.0	1,690.4	1,675.6	1,663.0	3.9	4.2	116.17	134.2	-123.0	200.7	193.3	7.40	27.120	
1,800.0	1,788.9	1,773.2	1,758.5	4.3	4.6	116.15	147.3	-138.4	222.2	214.2	8.01	27.751	
1,900.0	1,887.3	1,870.9	1,854.0	4.6	5.0	116.13	160.5	-153.8	243.6	235.0	8.62	28.278	
2,000.0	1,985.8	1,968.6	1,949.6	4.9	5.3	116.11	173.7	-169.3	265.1	255.9	9.23	28.722	
2,100.0	2,084.3	2,066.2	2,045.1	5.3	5.7	116.10	186.9	-184.7	286.6	276.7	9.85	29.102	
2,200.0	2,182.8	2,163.9	2,140.6	5.6	6.1	116.08	200.1	-200.2	308.0	297.6	10.47	29.430	
2,300.0	2,281.3	2,261.6	2,236.2	6.0	6.5	116.07	213.3	-215.6	329.5	318.4	11.09	29.715	
2,400.0	2,379.7	2,359.2	2,331.7	6.3	6.9	116.06	226.5	-231.0	351.0	339.2	11.71	29.965	
2,500.0	2,478.2	2,456.9	2,427.2	6.7	7.3	116.06	239.7	-246.5	372.4	360.1	12.34	30.186	
2,600.0	2,576.7	2,554.6	2,522.8	7.0	7.7	116.05	252.9	-261.9	393.9	380.9	12.96	30.383	
2,700.0	2,675.2	2,652.2	2,618.3	7.4	8.1	116.04	266.0	-277.4	415.4	401.8	13.59	30.559	
2,800.0	2,773.7	2,749.9	2,713.8	7.7	8.5	116.04	279.2	-292.8	436.8	422.6	14.22	30.717	
2,900.0	2,872.1	2,847.6	2,809.4	8.1	8.8	116.03	292.4	-308.3	458.3	443.4	14.85	30.860	
3,000.0	2,970.6	2,945.3	2,904.9	8.4	9.2	116.02	305.6	-323.7	479.7	464.3	15.48	30.990	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3C-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	18.2	0.0	18.2				
100.0	100.0	100.0	100.0	0.2	0.2	0.00	18.2	0.0	18.2	17.9	0.30	59.977	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	18.2	0.0	18.2	17.6	0.65	27.904	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	18.2	0.0	18.2	17.2	1.00	18.181	
400.0	400.0	400.0	400.0	0.7	0.7	0.00	18.2	0.0	18.2	16.9	1.35	13.483	CC, ES
500.0	500.0	499.9	499.9	0.9	0.9	117.58	18.5	-0.8	18.9	17.2	1.70	11.137	
600.0	600.0	599.7	599.7	1.0	1.0	117.26	19.5	-3.2	21.1	19.1	2.06	10.274	
700.0	699.9	699.5	699.4	1.2	1.2	116.85	21.1	-7.3	24.7	22.3	2.42	10.225	SF
800.0	799.7	799.2	798.9	1.4	1.4	116.44	23.3	-12.9	29.8	27.0	2.80	10.647	
900.0	899.4	898.8	898.1	1.6	1.6	116.07	26.2	-20.2	36.3	33.1	3.20	11.347	
1,000.0	998.9	998.2	997.1	1.8	1.8	115.75	29.6	-29.0	44.3	40.7	3.63	12.201	
1,100.0	1,098.3	1,097.4	1,095.7	2.1	2.1	115.49	33.8	-39.4	53.7	49.6	4.09	13.127	
1,200.0	1,197.4	1,196.4	1,193.8	2.3	2.3	115.26	38.5	-51.4	64.5	59.9	4.59	14.071	
1,300.0	1,296.3	1,295.2	1,291.5	2.6	2.6	115.06	43.8	-64.9	76.8	71.7	5.12	14.996	
1,400.0	1,394.9	1,393.6	1,388.7	2.9	2.9	114.89	49.7	-80.0	90.4	84.7	5.70	15.880	
1,500.0	1,493.4	1,492.6	1,486.1	3.3	3.2	114.81	56.0	-95.9	104.9	98.6	6.29	16.673	
1,600.0	1,591.9	1,591.5	1,583.5	3.6	3.6	114.74	62.3	-111.9	119.3	112.4	6.89	17.302	
1,700.0	1,690.4	1,690.5	1,681.0	3.9	3.9	114.69	68.6	-127.9	133.7	126.2	7.51	17.810	
1,800.0	1,788.9	1,789.4	1,778.4	4.3	4.2	114.65	74.9	-143.9	148.1	140.0	8.13	18.228	
1,900.0	1,887.3	1,888.4	1,875.9	4.6	4.6	114.62	81.2	-159.9	162.5	153.8	8.75	18.576	
2,000.0	1,985.8	1,987.3	1,973.3	4.9	4.9	114.59	87.5	-175.9	177.0	167.6	9.38	18.870	
2,100.0	2,084.3	2,086.3	2,070.8	5.3	5.2	114.56	93.8	-191.9	191.4	181.4	10.01	19.121	
2,200.0	2,182.8	2,185.2	2,168.2	5.6	5.6	114.54	100.1	-207.9	205.8	195.1	10.64	19.337	
2,300.0	2,281.3	2,284.2	2,265.7	6.0	5.9	114.53	106.4	-223.8	220.2	208.9	11.28	19.525	
2,400.0	2,379.7	2,383.2	2,363.1	6.3	6.3	114.51	112.7	-239.8	234.6	222.7	11.92	19.690	
2,500.0	2,478.2	2,482.1	2,460.6	6.7	6.6	114.50	119.0	-255.8	249.0	236.5	12.56	19.836	
2,600.0	2,576.7	2,581.1	2,558.0	7.0	6.9	114.48	125.3	-271.8	263.5	250.3	13.20	19.965	
2,700.0	2,675.2	2,680.0	2,655.5	7.4	7.3	114.47	131.6	-287.8	277.9	264.0	13.84	20.081	
2,800.0	2,773.7	2,779.0	2,753.0	7.7	7.6	114.46	137.9	-303.8	292.3	277.8	14.48	20.186	
2,900.0	2,872.1	2,877.9	2,850.4	8.1	8.0	114.45	144.2	-319.8	306.7	291.6	15.12	20.280	
3,000.0	2,970.6	2,976.9	2,947.9	8.4	8.3	114.45	150.5	-335.8	321.1	305.4	15.77	20.366	
3,100.0	3,069.1	3,075.8	3,045.3	8.7	8.7	114.44	156.8	-351.7	335.6	319.2	16.41	20.444	
3,200.0	3,167.6	3,174.8	3,142.8	9.1	9.0	114.43	163.1	-367.7	350.0	332.9	17.06	20.515	
3,300.0	3,266.1	3,273.7	3,240.2	9.4	9.4	114.42	169.4	-383.7	364.4	346.7	17.71	20.581	
3,400.0	3,364.5	3,372.7	3,337.7	9.8	9.7	114.42	175.7	-399.7	378.8	360.5	18.35	20.641	
3,500.0	3,463.0	3,471.7	3,435.1	10.1	10.1	114.41	182.0	-415.7	393.2	374.2	19.00	20.697	
3,600.0	3,561.5	3,570.6	3,532.6	10.5	10.4	114.41	188.3	-431.7	407.7	388.0	19.65	20.749	
3,700.0	3,660.0	3,669.6	3,630.0	10.8	10.7	114.40	194.6	-447.7	422.1	401.8	20.30	20.797	
3,800.0	3,758.5	3,768.5	3,727.5	11.2	11.1	114.40	200.9	-463.7	436.5	415.6	20.94	20.842	
3,900.0	3,857.0	3,867.5	3,824.9	11.5	11.4	114.39	207.2	-479.6	450.9	429.3	21.59	20.884	
4,000.0	3,955.4	3,966.4	3,922.4	11.9	11.8	114.39	213.4	-495.6	465.3	443.1	22.24	20.923	
4,100.0	4,053.9	4,065.4	4,019.8	12.2	12.1	114.39	219.7	-511.6	479.8	456.9	22.89	20.959	
4,200.0	4,152.4	4,164.3	4,117.3	12.6	12.5	114.38	226.0	-527.6	494.2	470.6	23.54	20.994	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3D-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	7.3	0.0	7.3				
100.0	100.0	100.0	100.0	0.2	0.2	0.00	7.3	0.0	7.3	7.0	0.30	23.977	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	7.3	0.0	7.3	6.6	0.65	11.155	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	7.3	0.0	7.3	6.3	1.00	7.268	
400.0	400.0	400.0	400.0	0.7	0.7	0.00	7.3	0.0	7.3	5.9	1.35	5.390	CC, ES
500.0	500.0	500.0	500.0	0.9	0.8	123.44	7.3	0.0	7.7	6.0	1.70	4.544	
600.0	600.0	600.0	600.0	1.0	1.0	131.78	7.2	-0.9	9.1	7.1	2.05	4.445	
700.0	699.9	700.0	700.0	1.2	1.2	135.66	7.0	-3.5	11.2	8.8	2.41	4.671	
800.0	799.7	800.1	800.0	1.4	1.4	136.54	6.7	-7.8	14.0	11.2	2.77	5.046	
900.0	899.4	900.1	899.8	1.6	1.6	135.74	6.3	-13.9	17.3	14.2	3.15	5.497	
1,000.0	998.9	1,000.2	999.6	1.8	1.8	134.13	5.8	-21.8	21.3	17.7	3.55	5.983	
1,100.0	1,098.3	1,100.2	1,099.1	2.1	2.0	132.18	5.1	-31.3	25.8	21.8	3.99	6.480	
1,200.0	1,197.4	1,200.2	1,198.5	2.3	2.2	130.17	4.4	-42.6	31.1	26.6	4.46	6.967	
1,300.0	1,296.3	1,300.2	1,297.6	2.6	2.5	128.22	3.5	-55.7	36.9	32.0	4.97	7.431	
1,400.0	1,394.9	1,400.1	1,396.4	2.9	2.8	126.39	2.5	-70.4	43.5	38.0	5.53	7.863	
1,500.0	1,493.4	1,500.1	1,495.0	3.3	3.1	123.95	1.4	-86.9	50.2	44.1	6.14	8.177	
1,600.0	1,591.9	1,599.8	1,593.2	3.6	3.4	121.22	0.2	-104.1	56.9	50.1	6.78	8.391	
1,700.0	1,690.4	1,699.6	1,691.4	3.9	3.7	119.07	-1.0	-121.4	63.7	56.3	7.44	8.568	
1,800.0	1,788.9	1,799.3	1,789.7	4.3	4.1	117.34	-2.2	-138.7	70.6	62.5	8.10	8.717	
1,900.0	1,887.3	1,899.0	1,887.9	4.6	4.4	115.92	-3.4	-156.0	77.5	68.7	8.76	8.844	
2,000.0	1,985.8	1,998.8	1,986.1	4.9	4.7	114.73	-4.5	-173.3	84.5	75.0	9.43	8.952	
2,100.0	2,084.3	2,098.5	2,084.4	5.3	5.1	113.72	-5.7	-190.5	91.4	81.3	10.11	9.046	
2,200.0	2,182.8	2,198.3	2,182.6	5.6	5.4	112.85	-6.9	-207.8	98.5	87.7	10.79	9.129	
2,300.0	2,281.3	2,298.0	2,280.8	6.0	5.7	112.10	-8.1	-225.1	105.5	94.0	11.46	9.201	
2,400.0	2,379.7	2,397.8	2,379.0	6.3	6.1	111.45	-9.2	-242.4	112.5	100.4	12.15	9.266	
2,500.0	2,478.2	2,497.5	2,477.3	6.7	6.4	110.87	-10.4	-259.7	119.6	106.8	12.83	9.323	
2,600.0	2,576.7	2,597.2	2,575.5	7.0	6.8	110.35	-11.6	-276.9	126.7	113.2	13.51	9.375	
2,700.0	2,675.2	2,697.0	2,673.7	7.4	7.1	109.89	-12.8	-294.2	133.7	119.6	14.20	9.421	
2,800.0	2,773.7	2,796.7	2,772.0	7.7	7.5	109.48	-14.0	-311.5	140.8	126.0	14.88	9.464	
2,900.0	2,872.1	2,896.5	2,870.2	8.1	7.8	109.11	-15.1	-328.8	147.9	132.4	15.57	9.502	
3,000.0	2,970.6	2,996.2	2,968.4	8.4	8.2	108.77	-16.3	-346.1	155.0	138.8	16.26	9.537	
3,100.0	3,069.1	3,096.0	3,066.6	8.7	8.5	108.46	-17.5	-363.3	162.1	145.2	16.94	9.570	
3,200.0	3,167.6	3,195.7	3,164.9	9.1	8.9	108.17	-18.7	-380.6	169.2	151.6	17.63	9.599	
3,300.0	3,266.1	3,295.4	3,263.1	9.4	9.2	107.91	-19.8	-397.9	176.4	158.0	18.32	9.627	
3,400.0	3,364.5	3,395.2	3,361.3	9.8	9.6	107.67	-21.0	-415.2	183.5	164.5	19.01	9.652	
3,500.0	3,463.0	3,494.9	3,459.6	10.1	9.9	107.45	-22.2	-432.5	190.6	170.9	19.70	9.676	
3,600.0	3,561.5	3,594.7	3,557.8	10.5	10.3	107.24	-23.4	-449.7	197.7	177.3	20.39	9.698	
3,700.0	3,660.0	3,694.4	3,656.0	10.8	10.6	107.05	-24.6	-467.0	204.8	183.8	21.08	9.719	
3,800.0	3,758.5	3,794.2	3,754.2	11.2	10.9	106.87	-25.7	-484.3	212.0	190.2	21.77	9.738	
3,900.0	3,857.0	3,893.9	3,852.5	11.5	11.3	106.70	-26.9	-501.6	219.1	196.6	22.46	9.756	
4,000.0	3,955.4	3,993.7	3,950.7	11.9	11.6	106.54	-28.1	-518.9	226.2	203.1	23.15	9.773	
4,100.0	4,053.9	4,093.4	4,048.9	12.2	12.0	106.40	-29.3	-536.1	233.4	209.5	23.84	9.789	
4,200.0	4,152.4	4,193.1	4,147.2	12.6	12.4	106.26	-30.4	-553.4	240.5	216.0	24.53	9.804	
4,300.0	4,250.9	4,292.9	4,245.4	13.0	12.7	106.13	-31.6	-570.7	247.6	222.4	25.22	9.819	
4,400.0	4,349.4	4,392.6	4,343.6	13.3	13.1	106.00	-32.8	-588.0	254.8	228.9	25.91	9.832	
4,500.0	4,447.8	4,492.4	4,441.8	13.7	13.4	105.89	-34.0	-605.3	261.9	235.3	26.60	9.845	
4,600.0	4,546.3	4,592.1	4,540.1	14.0	13.8	105.77	-35.2	-622.5	269.0	241.8	27.29	9.857	
4,700.0	4,644.8	4,691.9	4,638.3	14.4	14.1	105.67	-36.3	-639.8	276.2	248.2	27.99	9.869	
4,800.0	4,743.3	4,791.6	4,736.5	14.7	14.5	105.57	-37.5	-657.1	283.3	254.6	28.68	9.880	
4,900.0	4,841.8	4,892.1	4,835.6	15.1	14.8	105.65	-38.6	-673.6	290.3	261.0	29.34	9.895	
5,000.0	4,940.2	4,992.5	4,934.9	15.4	15.1	106.07	-39.6	-688.4	297.1	267.2	29.97	9.914	
5,100.0	5,038.7	5,092.8	5,034.4	15.8	15.4	106.80	-40.5	-701.4	303.7	273.2	30.57	9.937	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3D-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,137.2	5,193.1	5,134.0	16.1	15.6	107.81	-41.3	-712.7	310.2	279.1	31.12	9.969	
5,300.0	5,235.7	5,293.1	5,233.6	16.5	15.8	109.10	-42.0	-722.2	316.6	284.9	31.62	10.011	
5,400.0	5,334.5	5,393.0	5,333.2	16.8	16.0	110.42	-42.5	-730.0	322.4	290.4	32.05	10.059	
5,500.0	5,433.5	5,492.9	5,432.9	17.1	16.2	111.72	-42.9	-736.0	327.8	295.4	32.43	10.108	
5,600.0	5,532.7	5,592.7	5,532.6	17.3	16.4	112.98	-43.2	-740.3	332.6	299.8	32.75	10.156	
5,700.0	5,632.2	5,692.3	5,632.2	17.6	16.5	114.23	-43.4	-742.8	336.8	303.8	33.01	10.205	
5,800.0	5,731.8	5,791.9	5,731.8	17.8	16.6	115.47	-43.4	-743.7	340.5	307.3	33.21	10.253	
5,900.0	5,831.5	5,891.6	5,831.5	18.0	16.7	116.56	-43.4	-743.7	343.6	310.2	33.40	10.289	
6,000.0	5,931.4	5,991.5	5,931.4	18.1	16.8	117.37	-43.4	-743.7	346.0	312.5	33.59	10.303	
6,100.0	6,031.3	6,091.4	6,031.3	18.3	16.9	117.91	-43.4	-743.7	347.7	313.9	33.78	10.293	
6,200.0	6,131.3	6,191.4	6,131.3	18.4	17.0	118.18	-43.4	-743.7	348.6	314.6	33.98	10.257	
6,300.0	6,231.3	6,291.4	6,231.3	18.5	17.1	0.52	-43.4	-743.7	348.7	324.7	23.98	14.542	
6,400.0	6,331.3	6,391.4	6,331.3	18.6	17.3	-89.62	-43.4	-743.7	348.7	314.3	34.42	10.131	
6,432.4	6,363.6	6,423.7	6,363.6	18.5	17.3	-90.00	-43.4	-743.7	348.7	314.2	34.46	10.117	
6,500.0	6,430.5	6,490.6	6,430.5	18.5	17.4	-91.53	-43.4	-743.7	348.8	314.2	34.63	10.073	
6,600.0	6,527.1	6,588.8	6,528.6	18.2	17.4	-95.40	-43.4	-743.0	350.4	315.6	34.73	10.087	
6,700.0	6,619.2	6,691.8	6,630.9	17.8	17.4	-99.71	-43.4	-731.0	354.2	319.8	34.36	10.306	
6,800.0	6,705.1	6,799.4	6,734.7	17.3	17.1	-103.85	-43.4	-703.0	359.9	326.4	33.46	10.757	
6,900.0	6,783.0	6,912.2	6,837.6	16.8	16.6	-107.70	-43.4	-657.3	367.1	335.0	32.07	11.447	
7,000.0	6,851.4	7,030.3	6,936.4	16.2	15.9	-111.16	-43.4	-592.8	375.2	344.8	30.38	12.352	
7,100.0	6,909.0	7,153.8	7,026.9	15.6	15.2	-114.14	-43.4	-508.9	383.3	354.7	28.63	13.391	
7,200.0	6,954.7	7,282.5	7,104.4	15.2	14.5	-116.57	-43.4	-406.4	390.8	363.6	27.20	14.368	
7,300.0	6,987.6	7,415.8	7,164.0	15.0	14.2	-118.36	-43.4	-287.4	396.8	370.3	26.54	14.954	
7,400.0	7,007.1	7,552.4	7,201.2	14.8	14.6	-119.47	-43.4	-156.2	400.7	373.7	27.00	14.844	
7,500.0	7,013.0	7,684.8	7,213.0	15.7	15.7	-119.83	-43.4	-24.4	402.1	373.4	28.65	14.032	
7,600.0	7,014.8	7,784.8	7,214.8	17.1	16.9	-119.83	-43.3	75.6	402.1	371.3	30.77	13.067	
7,700.0	7,016.5	7,884.8	7,216.5	18.7	18.4	-119.83	-43.3	175.5	402.1	368.8	33.30	12.076	
7,800.0	7,018.3	7,984.8	7,218.3	20.4	20.1	-119.83	-43.3	275.5	402.1	365.9	36.16	11.120	
7,900.0	7,020.0	8,084.8	7,220.0	22.3	21.9	-119.83	-43.3	375.5	402.1	362.8	39.28	10.236	
8,000.0	7,021.8	8,184.8	7,221.8	24.2	23.8	-119.83	-43.3	475.5	402.1	359.5	42.61	9.437	
8,100.0	7,023.5	8,284.8	7,223.5	26.3	25.9	-119.83	-43.3	575.5	402.1	356.0	46.10	8.722	
8,200.0	7,025.3	8,384.8	7,225.2	28.4	27.9	-119.83	-43.3	675.5	402.1	352.4	49.72	8.088	
8,300.0	7,027.0	8,484.8	7,227.0	30.5	30.1	-119.83	-43.3	775.4	402.2	348.7	53.44	7.526	
8,400.0	7,028.8	8,584.8	7,228.7	32.7	32.3	-119.82	-43.3	875.4	402.2	344.9	57.24	7.026	
8,500.0	7,030.5	8,684.8	7,230.5	35.0	34.5	-119.82	-43.3	975.4	402.2	341.1	61.10	6.582	
8,600.0	7,032.2	8,784.8	7,232.2	37.3	36.8	-119.82	-43.3	1,075.4	402.2	337.2	65.02	6.186	
8,700.0	7,034.0	8,884.8	7,234.0	39.5	39.1	-119.82	-43.3	1,175.4	402.2	333.2	68.99	5.830	
8,800.0	7,035.7	8,984.8	7,235.7	41.9	41.4	-119.82	-43.3	1,275.4	402.2	329.2	72.99	5.511	
8,900.0	7,037.5	9,084.8	7,237.5	44.2	43.8	-119.82	-43.2	1,375.4	402.2	325.2	77.02	5.222	
9,000.0	7,039.2	9,184.8	7,239.2	46.5	46.1	-119.82	-43.2	1,475.3	402.2	321.2	81.09	4.961	
9,100.0	7,041.0	9,284.8	7,241.0	48.9	48.5	-119.82	-43.2	1,575.3	402.3	317.1	85.17	4.723	
9,200.0	7,042.7	9,384.8	7,242.7	51.2	50.8	-119.82	-43.2	1,675.3	402.3	313.0	89.28	4.506	
9,300.0	7,044.5	9,484.8	7,244.4	53.6	53.2	-119.82	-43.2	1,775.3	402.3	308.9	93.40	4.307	
9,400.0	7,046.2	9,584.8	7,246.2	56.0	55.6	-119.81	-43.2	1,875.3	402.3	304.8	97.54	4.125	
9,500.0	7,047.9	9,684.8	7,247.9	58.4	58.0	-119.81	-43.2	1,975.3	402.3	300.6	101.69	3.956	
9,600.0	7,049.7	9,784.8	7,249.7	60.8	60.4	-119.81	-43.2	2,075.3	402.3	296.5	105.85	3.801	
9,700.0	7,051.4	9,884.8	7,251.4	63.2	62.8	-119.81	-43.2	2,175.2	402.3	292.3	110.02	3.657	
9,800.0	7,053.2	9,984.8	7,253.2	65.6	65.2	-119.81	-43.2	2,275.2	402.3	288.1	114.21	3.523	
9,900.0	7,054.9	10,084.8	7,254.9	68.0	67.6	-119.81	-43.2	2,375.2	402.4	284.0	118.40	3.398	
10,000.0	7,056.7	10,184.8	7,256.7	70.4	70.1	-119.81	-43.2	2,475.2	402.4	279.8	122.60	3.282	
10,100.0	7,058.4	10,284.8	7,258.4	72.9	72.5	-119.81	-43.1	2,575.2	402.4	275.6	126.80	3.173	
10,200.0	7,060.2	10,384.8	7,260.2	75.3	74.9	-119.81	-43.1	2,675.2	402.4	271.4	131.01	3.071	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3D-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	7,061.9	10,484.8	7,261.9	77.7	77.3	-119.81	-43.1	2,775.1	402.4	267.2	135.23	2.976	
10,400.0	7,063.7	10,584.8	7,263.6	80.1	79.8	-119.81	-43.1	2,875.1	402.4	263.0	139.45	2.886	
10,500.0	7,065.4	10,684.8	7,265.4	82.6	82.2	-119.80	-43.1	2,975.1	402.4	258.7	143.68	2.801	
10,600.0	7,067.1	10,784.8	7,267.1	85.0	84.6	-119.80	-43.1	3,075.1	402.4	254.5	147.91	2.721	
10,700.0	7,068.9	10,884.8	7,268.9	87.4	87.1	-119.80	-43.1	3,175.1	402.5	250.3	152.14	2.645	
10,800.0	7,070.6	10,984.8	7,270.6	89.9	89.5	-119.80	-43.1	3,275.1	402.5	246.1	156.38	2.574	
10,900.0	7,072.4	11,084.8	7,272.4	92.3	92.0	-119.80	-43.1	3,375.1	402.5	241.8	160.63	2.506	
11,000.0	7,074.1	11,184.8	7,274.1	94.8	94.4	-119.80	-43.1	3,475.0	402.5	237.6	164.87	2.441	
11,100.0	7,075.9	11,284.8	7,275.9	97.2	96.9	-119.80	-43.1	3,575.0	402.5	233.4	169.12	2.380	
11,200.0	7,077.6	11,384.8	7,277.6	99.7	99.3	-119.80	-43.1	3,675.0	402.5	229.1	173.37	2.322	
11,300.0	7,079.4	11,484.8	7,279.4	102.1	101.8	-119.80	-43.0	3,775.0	402.5	224.9	177.62	2.266	
11,400.0	7,081.1	11,584.8	7,281.1	104.5	104.2	-119.80	-43.0	3,875.0	402.5	220.7	181.88	2.213	
11,500.0	7,082.9	11,684.8	7,282.8	107.0	106.7	-119.79	-43.0	3,975.0	402.5	216.4	186.13	2.163	
11,600.0	7,084.6	11,784.8	7,284.6	109.4	109.1	-119.79	-43.0	4,074.9	402.6	212.2	190.39	2.114	
11,700.0	7,086.3	11,884.8	7,286.3	111.9	111.6	-119.79	-43.0	4,174.9	402.6	207.9	194.65	2.068	
11,800.0	7,088.1	11,984.8	7,288.1	114.3	114.0	-119.79	-43.0	4,274.9	402.6	203.7	198.92	2.024	
11,900.0	7,089.8	12,084.8	7,289.8	116.8	116.5	-119.79	-43.0	4,374.9	402.6	199.4	203.18	1.981	
12,000.0	7,091.6	12,184.8	7,291.6	119.3	118.9	-119.79	-43.0	4,474.9	402.6	195.2	207.45	1.941	
12,100.0	7,093.3	12,284.8	7,293.3	121.7	121.4	-119.79	-43.0	4,574.9	402.6	190.9	211.71	1.902	
12,200.0	7,095.1	12,384.8	7,295.1	124.2	123.8	-119.79	-43.0	4,674.9	402.6	186.6	215.98	1.864	
12,300.0	7,096.8	12,484.8	7,296.8	126.6	126.3	-119.79	-43.0	4,774.8	402.6	182.4	220.25	1.828	
12,400.0	7,098.6	12,584.8	7,298.5	129.1	128.8	-119.79	-43.0	4,874.8	402.7	178.1	224.53	1.793	
12,500.0	7,100.3	12,684.8	7,300.3	131.5	131.2	-119.78	-42.9	4,974.8	402.7	173.9	228.80	1.760	
12,600.0	7,102.1	12,784.8	7,302.0	134.0	133.7	-119.78	-42.9	5,074.8	402.7	169.6	233.07	1.728	
12,700.0	7,103.8	12,884.8	7,303.8	136.5	136.1	-119.78	-42.9	5,174.8	402.7	165.3	237.35	1.697	
12,800.0	7,105.5	12,984.8	7,305.5	138.9	138.6	-119.78	-42.9	5,274.8	402.7	161.1	241.62	1.667	
12,900.0	7,107.3	13,084.8	7,307.3	141.4	141.1	-119.78	-42.9	5,374.7	402.7	156.8	245.90	1.638	
13,000.0	7,109.0	13,184.8	7,309.0	143.8	143.5	-119.78	-42.9	5,474.7	402.7	152.6	250.18	1.610	
13,100.0	7,110.8	13,284.8	7,310.8	146.3	146.0	-119.78	-42.9	5,574.7	402.7	148.3	254.46	1.583	
13,200.0	7,112.5	13,384.8	7,312.5	148.8	148.4	-119.78	-42.9	5,674.7	402.8	144.0	258.73	1.557	
13,300.0	7,114.3	13,484.8	7,314.3	151.2	150.9	-119.78	-42.9	5,774.7	402.8	139.7	263.02	1.531	
13,400.0	7,116.0	13,584.8	7,316.0	153.7	153.4	-119.78	-42.9	5,874.7	402.8	135.5	267.30	1.507	
13,500.0	7,117.8	13,684.8	7,317.7	156.1	155.8	-119.77	-42.9	5,974.7	402.8	131.2	271.58	1.483	Level 3
13,600.0	7,119.5	13,784.8	7,319.5	158.6	158.3	-119.77	-42.9	6,074.6	402.8	126.9	275.86	1.460	Level 3
13,700.0	7,121.2	13,884.8	7,321.2	161.1	160.8	-119.77	-42.8	6,174.6	402.8	122.7	280.14	1.438	Level 3
13,800.0	7,123.0	13,984.8	7,323.0	163.5	163.2	-119.77	-42.8	6,274.6	402.8	118.4	284.43	1.416	Level 3
13,900.0	7,124.7	14,084.8	7,324.7	166.0	165.7	-119.77	-42.8	6,374.6	402.8	114.1	288.71	1.395	Level 3
14,000.0	7,126.5	14,184.8	7,326.5	168.5	168.2	-119.77	-42.8	6,474.6	402.8	109.9	293.00	1.375	Level 3
14,100.0	7,128.2	14,284.8	7,328.2	170.9	170.6	-119.77	-42.8	6,574.6	402.9	105.6	297.28	1.355	Level 3
14,200.0	7,130.0	14,384.8	7,330.0	173.4	173.1	-119.77	-42.8	6,674.5	402.9	101.3	301.57	1.336	Level 3
14,201.5	7,130.0	14,386.3	7,330.0	173.4	173.1	-119.77	-42.8	6,676.0	402.9	101.2	301.63	1.336	Level 3, SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3F-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-10.9	0.0	10.9				
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-10.9	0.0	10.9	10.6	0.30	35.986	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-10.9	0.0	10.9	10.3	0.65	16.742	
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-10.9	0.0	10.9	9.9	1.00	10.909	
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-10.9	0.0	10.9	9.6	1.35	8.090	CC, ES
500.0	500.0	499.7	499.7	0.9	0.9	-60.00	-12.1	-1.2	11.8	10.0	1.70	6.908	
600.0	600.0	599.3	599.2	1.0	1.0	-54.73	-15.8	-5.0	14.3	12.2	2.06	6.953	
700.0	699.9	698.8	698.2	1.2	1.3	-49.22	-21.8	-11.1	18.7	16.3	2.42	7.734	
800.0	799.7	797.9	796.6	1.4	1.5	-44.81	-30.2	-19.7	25.0	22.3	2.79	8.979	
900.0	899.4	896.6	894.2	1.6	1.8	-41.63	-41.0	-30.7	33.3	30.1	3.17	10.512	
1,000.0	998.9	994.9	990.7	1.8	2.1	-39.38	-54.0	-44.0	43.4	39.8	3.55	12.219	
1,100.0	1,098.3	1,093.4	1,086.7	2.1	2.5	-37.90	-69.1	-59.4	55.0	51.1	3.95	13.948	
1,200.0	1,197.4	1,192.8	1,183.6	2.3	2.9	-37.65	-84.8	-75.4	65.8	61.5	4.36	15.087	
1,300.0	1,296.3	1,292.4	1,280.6	2.6	3.3	-38.28	-100.4	-91.4	75.3	70.4	4.81	15.646	
1,400.0	1,394.9	1,392.0	1,377.7	2.9	3.7	-39.52	-116.1	-107.4	83.3	78.0	5.29	15.740	
1,500.0	1,493.4	1,491.7	1,474.8	3.3	4.1	-40.94	-131.8	-123.5	90.8	85.0	5.81	15.627	
1,600.0	1,591.9	1,591.4	1,572.0	3.6	4.6	-42.15	-147.5	-139.5	98.3	92.0	6.34	15.502	
1,700.0	1,690.4	1,691.1	1,669.1	3.9	5.0	-43.18	-163.2	-155.5	105.8	99.0	6.88	15.375	
1,800.0	1,788.9	1,790.8	1,766.3	4.3	5.4	-44.07	-178.9	-171.5	113.4	106.0	7.44	15.249	
1,900.0	1,887.3	1,890.5	1,863.4	4.6	5.8	-44.86	-194.6	-187.5	121.0	113.0	8.00	15.128	
2,000.0	1,985.8	1,990.2	1,960.6	4.9	6.3	-45.55	-210.3	-203.6	128.6	120.1	8.57	15.013	
2,100.0	2,084.3	2,089.9	2,057.7	5.3	6.7	-46.16	-226.0	-219.6	136.3	127.1	9.14	14.905	
2,200.0	2,182.8	2,189.6	2,154.8	5.6	7.1	-46.71	-241.7	-235.6	143.9	134.2	9.72	14.804	
2,300.0	2,281.3	2,289.3	2,252.0	6.0	7.5	-47.20	-257.4	-251.6	151.6	141.3	10.30	14.709	
2,400.0	2,379.7	2,389.0	2,349.1	6.3	8.0	-47.65	-273.0	-267.7	159.2	148.4	10.89	14.621	
2,500.0	2,478.2	2,488.7	2,446.3	6.7	8.4	-48.05	-288.7	-283.7	166.9	155.4	11.48	14.539	
2,600.0	2,576.7	2,588.4	2,543.4	7.0	8.8	-48.42	-304.4	-299.7	174.6	162.5	12.07	14.462	
2,700.0	2,675.2	2,688.1	2,640.6	7.4	9.3	-48.76	-320.1	-315.7	182.3	169.6	12.67	14.390	
2,800.0	2,773.7	2,787.8	2,737.7	7.7	9.7	-49.07	-335.8	-331.8	190.0	176.7	13.27	14.323	
2,900.0	2,872.1	2,887.5	2,834.8	8.1	10.1	-49.35	-351.5	-347.8	197.7	183.8	13.86	14.261	
3,000.0	2,970.6	2,987.2	2,932.0	8.4	10.5	-49.62	-367.2	-363.8	205.4	190.9	14.46	14.202	
3,100.0	3,069.1	3,086.9	3,029.1	8.7	11.0	-49.86	-382.9	-379.8	213.1	198.1	15.06	14.147	
3,200.0	3,167.6	3,186.6	3,126.3	9.1	11.4	-50.09	-398.6	-395.9	220.8	205.2	15.67	14.095	
3,300.0	3,266.1	3,286.3	3,223.4	9.4	11.8	-50.30	-414.3	-411.9	228.6	212.3	16.27	14.047	
3,400.0	3,364.5	3,386.0	3,320.6	9.8	12.3	-50.50	-430.0	-427.9	236.3	219.4	16.88	14.001	
3,500.0	3,463.0	3,485.7	3,417.7	10.1	12.7	-50.69	-445.7	-443.9	244.0	226.5	17.48	13.958	
3,600.0	3,561.5	3,585.4	3,514.8	10.5	13.1	-50.86	-461.3	-460.0	251.7	233.6	18.09	13.918	
3,700.0	3,660.0	3,685.1	3,612.0	10.8	13.6	-51.03	-477.0	-476.0	259.5	240.8	18.69	13.879	
3,800.0	3,758.5	3,784.8	3,709.1	11.2	14.0	-51.18	-492.7	-492.0	267.2	247.9	19.30	13.843	
3,900.0	3,857.0	3,884.5	3,806.3	11.5	14.4	-51.33	-508.4	-508.0	274.9	255.0	19.91	13.808	
4,000.0	3,955.4	3,984.2	3,903.4	11.9	14.9	-51.47	-524.1	-524.0	282.7	262.1	20.52	13.776	
4,100.0	4,053.9	4,083.9	4,000.6	12.2	15.3	-51.60	-539.8	-540.1	290.4	269.3	21.13	13.745	
4,200.0	4,152.4	4,183.6	4,097.7	12.6	15.7	-51.72	-555.5	-556.1	298.1	276.4	21.74	13.715	
4,300.0	4,250.9	4,283.3	4,194.8	13.0	16.2	-51.84	-571.2	-572.1	305.9	283.5	22.35	13.687	
4,400.0	4,349.4	4,383.0	4,292.0	13.3	16.6	-51.95	-586.9	-588.1	313.6	290.6	22.96	13.660	
4,500.0	4,447.8	4,482.7	4,389.1	13.7	17.0	-52.06	-602.6	-604.2	321.3	297.8	23.57	13.635	
4,600.0	4,546.3	4,582.4	4,486.3	14.0	17.5	-52.16	-618.3	-620.2	329.1	304.9	24.18	13.610	
4,700.0	4,644.8	4,682.1	4,583.4	14.4	17.9	-52.26	-634.0	-636.2	336.8	312.0	24.79	13.587	
4,800.0	4,743.3	4,781.8	4,680.6	14.7	18.3	-52.35	-649.6	-652.2	344.6	319.2	25.40	13.565	
4,900.0	4,841.8	4,881.5	4,777.7	15.1	18.8	-52.44	-665.3	-668.3	352.3	326.3	26.01	13.543	
5,000.0	4,940.2	4,981.2	4,874.8	15.4	19.2	-52.52	-681.0	-684.3	360.1	333.4	26.63	13.523	
5,100.0	5,038.7	5,085.0	4,976.1	15.8	19.6	-52.64	-697.2	-700.8	367.6	340.4	27.25	13.488	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3F-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,137.2	5,196.4	5,085.4	16.1	20.0	-53.06	-712.2	-716.1	372.7	344.7	27.96	13.329	
5,300.0	5,235.7	5,307.9	5,195.6	16.5	20.3	-53.85	-724.2	-728.3	374.8	346.0	28.74	13.041	
5,400.0	5,334.5	5,419.3	5,306.2	16.8	20.6	-54.83	-733.2	-737.5	374.7	345.2	29.51	12.698	
5,500.0	5,433.5	5,530.3	5,416.9	17.1	20.8	-55.97	-739.1	-743.6	372.7	342.5	30.28	12.311	
5,600.0	5,532.7	5,640.9	5,527.4	17.3	20.9	-57.27	-742.1	-746.6	368.9	337.9	31.04	11.886	
5,700.0	5,632.2	5,745.7	5,632.2	17.6	21.0	-58.64	-742.4	-747.0	363.6	331.9	31.76	11.448	
5,800.0	5,731.8	5,845.3	5,731.8	17.8	21.1	-59.80	-742.4	-747.0	359.1	326.7	32.40	11.084	
5,900.0	5,831.5	5,945.0	5,831.5	18.0	21.2	-60.75	-742.4	-747.0	355.6	322.6	32.95	10.792	
6,000.0	5,931.4	6,044.9	5,931.4	18.1	21.3	-61.48	-742.4	-747.0	353.0	319.6	33.42	10.565	
6,100.0	6,031.3	6,144.8	6,031.3	18.3	21.3	-61.98	-742.4	-747.0	351.3	317.5	33.80	10.396	
6,200.0	6,131.3	6,244.8	6,131.3	18.4	21.4	-62.24	-742.4	-747.0	350.5	316.4	34.09	10.280	
6,279.0	6,210.3	6,323.8	6,210.3	18.5	21.5	-62.30	-742.4	-747.0	350.3	316.0	34.28	10.217	
6,300.0	6,231.3	6,344.8	6,231.3	18.5	21.5	-179.97	-742.4	-747.0	350.4	320.4	29.93	11.706	
6,352.8	6,284.1	6,397.6	6,284.1	18.5	21.6	90.13	-742.4	-747.0	350.4	316.0	34.40	10.185	
6,400.0	6,331.3	6,444.8	6,331.3	18.6	21.6	90.16	-742.4	-747.0	350.4	315.9	34.49	10.159	
6,500.0	6,430.5	6,544.0	6,430.5	18.5	21.7	92.05	-742.4	-747.0	350.6	316.6	34.01	10.309	
6,600.0	6,527.1	6,642.3	6,528.8	18.2	21.8	95.88	-742.4	-746.3	352.4	319.5	32.82	10.735	
6,700.0	6,619.2	6,745.9	6,631.6	17.8	21.7	100.16	-742.4	-734.2	356.4	325.1	31.27	11.397	
6,800.0	6,705.1	6,854.1	6,735.9	17.3	21.5	104.25	-742.4	-705.8	362.3	332.7	29.61	12.236	
6,900.0	6,783.0	6,967.5	6,839.3	16.8	21.1	108.04	-742.4	-659.6	369.6	341.6	27.98	13.209	
7,000.0	6,851.4	7,086.2	6,938.4	16.2	20.5	111.43	-742.4	-594.4	377.6	351.1	26.55	14.224	
7,100.0	6,909.0	7,210.4	7,029.0	15.6	19.9	114.34	-742.4	-509.8	385.7	360.2	25.49	15.132	
7,200.0	6,954.7	7,339.7	7,106.3	15.2	19.3	116.69	-742.4	-406.4	393.0	368.0	24.99	15.725	
7,300.0	6,987.6	7,473.4	7,165.4	15.0	18.8	118.40	-742.4	-286.7	398.7	373.5	25.23	15.799	
7,400.0	7,007.1	7,610.3	7,201.9	14.8	18.6	119.42	-742.4	-154.9	402.3	376.0	26.30	15.294	
7,500.0	7,013.0	7,741.4	7,212.9	15.7	18.7	119.71	-742.4	-24.4	403.3	375.2	28.12	14.342	
7,600.0	7,014.8	7,841.4	7,214.7	17.1	19.4	119.72	-742.4	75.6	403.3	373.0	30.32	13.303	
7,700.0	7,016.5	7,941.4	7,216.4	18.7	20.5	119.72	-742.4	175.6	403.3	370.4	32.92	12.253	
7,800.0	7,018.3	8,041.4	7,218.2	20.4	22.0	119.72	-742.4	275.6	403.3	367.5	35.84	11.251	
7,900.0	7,020.0	8,141.4	7,219.9	22.3	23.7	119.72	-742.4	375.5	403.3	364.3	39.03	10.333	
8,000.0	7,021.8	8,241.4	7,221.7	24.2	25.5	119.72	-742.4	475.5	403.3	360.9	42.41	9.509	
8,100.0	7,023.5	8,341.4	7,223.4	26.3	27.4	119.72	-742.4	575.5	403.3	357.3	45.95	8.777	
8,200.0	7,025.3	8,441.4	7,225.1	28.4	29.5	119.72	-742.4	675.5	403.3	353.7	49.60	8.130	
8,300.0	7,027.0	8,541.4	7,226.9	30.5	31.6	119.72	-742.4	775.5	403.3	349.9	53.36	7.558	
8,400.0	7,028.8	8,641.4	7,228.6	32.7	33.7	119.72	-742.4	875.5	403.3	346.1	57.19	7.052	
8,500.0	7,030.5	8,741.4	7,230.4	35.0	35.9	119.72	-742.4	975.5	403.2	342.2	61.08	6.602	
8,600.0	7,032.2	8,841.4	7,232.1	37.3	38.1	119.72	-742.4	1,075.4	403.2	338.2	65.03	6.201	
8,700.0	7,034.0	8,941.4	7,233.9	39.5	40.3	119.72	-742.4	1,175.4	403.2	334.2	69.01	5.843	
8,800.0	7,035.7	9,041.4	7,235.6	41.9	42.6	119.72	-742.4	1,275.4	403.2	330.2	73.04	5.521	
8,900.0	7,037.5	9,141.4	7,237.4	44.2	44.9	119.72	-742.4	1,375.4	403.2	326.1	77.09	5.231	
9,000.0	7,039.2	9,241.4	7,239.1	46.5	47.2	119.72	-742.4	1,475.4	403.2	322.0	81.17	4.968	
9,100.0	7,041.0	9,341.4	7,240.9	48.9	49.5	119.72	-742.4	1,575.4	403.2	317.9	85.27	4.729	
9,200.0	7,042.7	9,441.4	7,242.6	51.2	51.8	119.72	-742.4	1,675.4	403.2	313.8	89.39	4.511	
9,300.0	7,044.5	9,541.4	7,244.3	53.6	54.2	119.73	-742.4	1,775.3	403.2	309.7	93.52	4.311	
9,400.0	7,046.2	9,641.4	7,246.1	56.0	56.6	119.73	-742.4	1,875.3	403.2	305.5	97.67	4.128	
9,500.0	7,047.9	9,741.4	7,247.8	58.4	58.9	119.73	-742.4	1,975.3	403.2	301.3	101.83	3.959	
9,600.0	7,049.7	9,841.4	7,249.6	60.8	61.3	119.73	-742.4	2,075.3	403.2	297.2	106.01	3.803	
9,700.0	7,051.4	9,941.4	7,251.3	63.2	63.7	119.73	-742.4	2,175.3	403.2	293.0	110.19	3.659	
9,800.0	7,053.2	10,041.4	7,253.1	65.6	66.1	119.73	-742.4	2,275.3	403.2	288.8	114.38	3.525	
9,900.0	7,054.9	10,141.4	7,254.8	68.0	68.5	119.73	-742.4	2,375.2	403.1	284.6	118.58	3.400	
10,000.0	7,056.7	10,241.4	7,256.6	70.4	70.9	119.73	-742.4	2,475.2	403.1	280.4	122.79	3.283	
10,100.0	7,058.4	10,341.4	7,258.3	72.9	73.3	119.73	-742.4	2,575.2	403.1	276.1	127.00	3.174	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3F-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,200.0	7,060.2	10,441.4	7,260.1	75.3	75.7	119.73	-742.3	2,675.2	403.1	271.9	131.22	3.072	
10,300.0	7,061.9	10,541.4	7,261.8	77.7	78.1	119.73	-742.3	2,775.2	403.1	267.7	135.44	2.976	
10,400.0	7,063.7	10,641.4	7,263.5	80.1	80.5	119.73	-742.3	2,875.2	403.1	263.4	139.67	2.886	
10,500.0	7,065.4	10,741.4	7,265.3	82.6	82.9	119.73	-742.3	2,975.2	403.1	259.2	143.90	2.801	
10,600.0	7,067.1	10,841.4	7,267.0	85.0	85.3	119.73	-742.3	3,075.1	403.1	255.0	148.14	2.721	
10,700.0	7,068.9	10,941.4	7,268.8	87.4	87.8	119.73	-742.3	3,175.1	403.1	250.7	152.37	2.645	
10,800.0	7,070.6	11,041.4	7,270.5	89.9	90.2	119.73	-742.3	3,275.1	403.1	246.5	156.62	2.574	
10,900.0	7,072.4	11,141.4	7,272.3	92.3	92.6	119.74	-742.3	3,375.1	403.1	242.2	160.86	2.506	
11,000.0	7,074.1	11,241.4	7,274.0	94.8	95.0	119.74	-742.3	3,475.1	403.1	238.0	165.11	2.441	
11,100.0	7,075.9	11,341.4	7,275.8	97.2	97.5	119.74	-742.3	3,575.1	403.1	233.7	169.36	2.380	
11,200.0	7,077.6	11,441.4	7,277.5	99.7	99.9	119.74	-742.3	3,675.0	403.0	229.4	173.62	2.321	
11,300.0	7,079.4	11,541.4	7,279.3	102.1	102.4	119.74	-742.3	3,775.0	403.0	225.2	177.87	2.266	
11,400.0	7,081.1	11,641.4	7,281.0	104.5	104.8	119.74	-742.3	3,875.0	403.0	220.9	182.13	2.213	
11,500.0	7,082.9	11,741.4	7,282.7	107.0	107.2	119.74	-742.3	3,975.0	403.0	216.6	186.39	2.162	
11,600.0	7,084.6	11,841.4	7,284.5	109.4	109.7	119.74	-742.3	4,075.0	403.0	212.4	190.65	2.114	
11,700.0	7,086.3	11,941.4	7,286.2	111.9	112.1	119.74	-742.3	4,175.0	403.0	208.1	194.91	2.068	
11,800.0	7,088.1	12,041.4	7,288.0	114.3	114.6	119.74	-742.3	4,275.0	403.0	203.8	199.18	2.023	
11,900.0	7,089.8	12,141.4	7,289.7	116.8	117.0	119.74	-742.3	4,374.9	403.0	199.6	203.44	1.981	
12,000.0	7,091.6	12,241.4	7,291.5	119.3	119.5	119.74	-742.3	4,474.9	403.0	195.3	207.71	1.940	
12,100.0	7,093.3	12,341.4	7,293.2	121.7	121.9	119.74	-742.3	4,574.9	403.0	191.0	211.98	1.901	
12,200.0	7,095.1	12,441.4	7,295.0	124.2	124.4	119.74	-742.3	4,674.9	403.0	186.7	216.25	1.863	
12,300.0	7,096.8	12,541.4	7,296.7	126.6	126.8	119.74	-742.3	4,774.9	403.0	182.4	220.52	1.827	
12,400.0	7,098.6	12,641.4	7,298.4	129.1	129.3	119.74	-742.3	4,874.9	403.0	178.2	224.79	1.793	
12,500.0	7,100.3	12,741.4	7,300.2	131.5	131.7	119.74	-742.3	4,974.8	403.0	173.9	229.06	1.759	
12,600.0	7,102.1	12,841.4	7,301.9	134.0	134.2	119.75	-742.3	5,074.8	402.9	169.6	233.33	1.727	
12,700.0	7,103.8	12,941.4	7,303.7	136.5	136.6	119.75	-742.3	5,174.8	402.9	165.3	237.61	1.696	
12,800.0	7,105.5	13,041.4	7,305.4	138.9	139.1	119.75	-742.3	5,274.8	402.9	161.0	241.88	1.666	
12,900.0	7,107.3	13,141.4	7,307.2	141.4	141.5	119.75	-742.3	5,374.8	402.9	156.8	246.16	1.637	
13,000.0	7,109.0	13,241.4	7,308.9	143.8	144.0	119.75	-742.3	5,474.8	402.9	152.5	250.44	1.609	
13,100.0	7,110.8	13,341.4	7,310.7	146.3	146.4	119.75	-742.3	5,574.8	402.9	148.2	254.71	1.582	
13,200.0	7,112.5	13,441.4	7,312.4	148.8	148.9	119.75	-742.3	5,674.7	402.9	143.9	258.99	1.556	
13,300.0	7,114.3	13,541.4	7,314.2	151.2	151.4	119.75	-742.3	5,774.7	402.9	139.6	263.27	1.530	
13,400.0	7,116.0	13,641.4	7,315.9	153.7	153.8	119.75	-742.3	5,874.7	402.9	135.3	267.55	1.506	
13,500.0	7,117.8	13,741.4	7,317.6	156.1	156.3	119.75	-742.3	5,974.7	402.9	131.0	271.83	1.482	Level 3
13,600.0	7,119.5	13,841.4	7,319.4	158.6	158.7	119.75	-742.2	6,074.7	402.9	126.8	276.11	1.459	Level 3
13,700.0	7,121.2	13,941.4	7,321.1	161.1	161.2	119.75	-742.2	6,174.7	402.9	122.5	280.39	1.437	Level 3
13,800.0	7,123.0	14,041.4	7,322.9	163.5	163.6	119.75	-742.2	6,274.7	402.9	118.2	284.67	1.415	Level 3
13,900.0	7,124.7	14,141.4	7,324.6	166.0	166.1	119.75	-742.2	6,374.6	402.8	113.9	288.95	1.394	Level 3
14,000.0	7,126.5	14,241.4	7,326.4	168.5	168.6	119.75	-742.2	6,474.6	402.8	109.6	293.24	1.374	Level 3
14,100.0	7,128.2	14,341.4	7,328.1	170.9	171.0	119.75	-742.2	6,574.6	402.8	105.3	297.52	1.354	Level 3
14,200.0	7,130.0	14,441.4	7,329.9	173.4	173.5	119.76	-742.2	6,674.6	402.8	101.0	301.80	1.335	Level 3
14,201.5	7,130.0	14,442.9	7,329.9	173.4	173.5	119.76	-742.2	6,676.0	402.8	101.0	301.86	1.334	Level 3, SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3G-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	180.00	-21.9	0.0	21.9				
100.0	100.0	101.0	101.0	0.2	0.2	180.00	-21.9	0.0	21.9	21.6	0.31	71.561	
200.0	200.0	201.0	201.0	0.3	0.3	180.00	-21.9	0.0	21.9	21.2	0.65	33.395	
300.0	300.0	301.0	301.0	0.5	0.5	180.00	-21.9	0.0	21.9	20.9	1.00	21.779	
332.4	332.4	333.4	333.4	0.6	0.6	180.00	-21.9	0.0	21.9	20.7	1.12	19.575	CC, ES
400.0	400.0	400.5	400.5	0.7	0.7	-179.02	-22.4	-0.4	22.4	21.1	1.35	16.575	
500.0	500.0	499.3	499.2	0.9	0.9	-56.64	-26.6	-3.3	26.4	24.7	1.70	15.516	SF
600.0	600.0	597.6	596.9	1.0	1.1	-51.76	-35.0	-9.2	34.2	32.1	2.06	16.583	
700.0	699.9	695.1	693.2	1.2	1.4	-47.97	-47.3	-17.8	45.7	43.2	2.42	18.847	
800.0	799.7	791.4	787.4	1.4	1.7	-45.34	-63.4	-29.1	60.8	58.0	2.79	21.795	
900.0	899.4	889.0	882.2	1.6	2.1	-43.79	-82.7	-42.6	78.3	75.1	3.17	24.712	
1,000.0	998.9	987.6	977.9	1.8	2.6	-43.47	-102.2	-56.3	94.7	91.2	3.56	26.581	
1,100.0	1,098.3	1,086.5	1,073.8	2.1	3.0	-43.85	-121.8	-70.0	109.9	105.9	3.98	27.615	
1,200.0	1,197.4	1,185.5	1,169.9	2.3	3.4	-44.69	-141.4	-83.7	123.8	119.4	4.42	28.001	
1,300.0	1,296.3	1,284.6	1,266.1	2.6	3.9	-45.87	-161.1	-97.5	136.6	131.7	4.90	27.875	
1,400.0	1,394.9	1,383.9	1,362.4	2.9	4.3	-47.33	-180.7	-111.2	148.2	142.8	5.42	27.347	
1,500.0	1,493.4	1,483.2	1,458.7	3.3	4.8	-48.89	-200.4	-125.0	159.4	153.4	5.97	26.689	
1,600.0	1,591.9	1,582.5	1,555.1	3.6	5.2	-50.25	-220.1	-138.8	170.6	164.1	6.54	26.089	
1,700.0	1,690.4	1,681.7	1,651.4	3.9	5.7	-51.43	-239.8	-152.6	182.0	174.8	7.12	25.546	
1,800.0	1,788.9	1,781.0	1,747.8	4.3	6.1	-52.48	-259.4	-166.4	193.4	185.7	7.72	25.056	
1,900.0	1,887.3	1,880.3	1,844.1	4.6	6.6	-53.41	-279.1	-180.1	204.8	196.5	8.32	24.615	
2,000.0	1,985.8	1,979.6	1,940.4	4.9	7.0	-54.24	-298.8	-193.9	216.4	207.4	8.93	24.219	
2,100.0	2,084.3	2,078.9	2,036.8	5.3	7.5	-54.99	-318.5	-207.7	227.9	218.4	9.55	23.861	
2,200.0	2,182.8	2,178.2	2,133.1	5.6	7.9	-55.67	-338.1	-221.5	239.5	229.3	10.18	23.537	
2,300.0	2,281.3	2,277.5	2,229.4	6.0	8.4	-56.28	-357.8	-235.2	251.1	240.3	10.80	23.243	
2,400.0	2,379.7	2,376.8	2,325.8	6.3	8.9	-56.84	-377.5	-249.0	262.8	251.3	11.44	22.977	
2,500.0	2,478.2	2,476.0	2,422.1	6.7	9.3	-57.35	-397.2	-262.8	274.4	262.4	12.07	22.733	
2,600.0	2,576.7	2,575.3	2,518.5	7.0	9.8	-57.82	-416.8	-276.6	286.1	273.4	12.71	22.511	
2,700.0	2,675.2	2,674.6	2,614.8	7.4	10.2	-58.25	-436.5	-290.4	297.8	284.5	13.35	22.307	
2,800.0	2,773.7	2,773.9	2,711.1	7.7	10.7	-58.65	-456.2	-304.1	309.5	295.6	13.99	22.119	
2,900.0	2,872.1	2,873.2	2,807.5	8.1	11.1	-59.03	-475.9	-317.9	321.3	306.6	14.64	21.946	
3,000.0	2,970.6	2,972.5	2,903.8	8.4	11.6	-59.37	-495.5	-331.7	333.0	317.7	15.29	21.786	
3,100.0	3,069.1	3,071.8	3,000.2	8.7	12.0	-59.69	-515.2	-345.5	344.8	328.8	15.93	21.638	
3,200.0	3,167.6	3,171.1	3,096.5	9.1	12.5	-59.99	-534.9	-359.2	356.6	340.0	16.58	21.500	
3,300.0	3,266.1	3,270.4	3,192.8	9.4	13.0	-60.27	-554.6	-373.0	368.3	351.1	17.23	21.372	
3,400.0	3,364.5	3,369.6	3,289.2	9.8	13.4	-60.54	-574.3	-386.8	380.1	362.2	17.89	21.252	
3,500.0	3,463.0	3,468.9	3,385.5	10.1	13.9	-60.78	-593.9	-400.6	391.9	373.4	18.54	21.140	
3,600.0	3,561.5	3,568.2	3,481.9	10.5	14.3	-61.02	-613.6	-414.3	403.7	384.5	19.19	21.035	
3,700.0	3,660.0	3,667.5	3,578.2	10.8	14.8	-61.24	-633.3	-428.1	415.5	395.7	19.85	20.936	
3,800.0	3,758.5	3,766.8	3,674.5	11.2	15.2	-61.45	-653.0	-441.9	427.3	406.8	20.50	20.843	
3,900.0	3,857.0	3,866.1	3,770.9	11.5	15.7	-61.64	-672.6	-455.7	439.1	418.0	21.16	20.756	
4,000.0	3,955.4	3,965.4	3,867.2	11.9	16.2	-61.83	-692.3	-469.5	451.0	429.1	21.81	20.673	
4,100.0	4,053.9	4,064.7	3,963.6	12.2	16.6	-62.01	-712.0	-483.2	462.8	440.3	22.47	20.596	
4,200.0	4,152.4	4,164.0	4,059.9	12.6	17.1	-62.17	-731.7	-497.0	474.6	451.5	23.13	20.522	
4,300.0	4,250.9	4,263.2	4,156.2	13.0	17.5	-62.33	-751.3	-510.8	486.4	462.7	23.78	20.452	
4,400.0	4,349.4	4,362.5	4,252.6	13.3	18.0	-62.49	-771.0	-524.6	498.3	473.8	24.44	20.386	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S18-T3N-R68W (Billings) - Billings 3H-18H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-32.8	0.0	32.8				
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-32.8	0.0	32.8	32.5	0.30	107.959	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-32.8	0.0	32.8	32.1	0.65	50.227	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-178.56	-34.3	-0.9	34.3	33.3	1.00	34.162	
400.0	400.0	397.7	397.6	0.7	0.7	-174.91	-38.7	-3.4	38.9	37.5	1.37	28.381	
500.0	500.0	496.1	495.6	0.9	0.9	-53.55	-46.0	-7.7	46.3	44.6	1.70	27.179	
600.0	600.0	594.0	592.7	1.0	1.2	-51.13	-56.1	-13.7	56.0	53.9	2.06	27.179	
700.0	699.9	691.2	688.8	1.2	1.5	-49.64	-69.0	-21.2	67.8	65.4	2.42	28.009	
800.0	799.7	787.9	783.7	1.4	1.8	-48.79	-84.6	-30.4	81.8	79.0	2.79	29.283	
900.0	899.4	883.7	877.2	1.6	2.2	-48.34	-102.8	-41.0	97.8	94.6	3.17	30.796	
1,000.0	998.9	982.1	972.8	1.8	2.7	-48.38	-123.1	-52.9	114.4	110.8	3.58	31.969	
1,100.0	1,098.3	1,080.9	1,068.7	2.1	3.1	-48.96	-143.4	-64.8	129.9	125.9	4.00	32.427	
1,200.0	1,197.4	1,179.8	1,164.8	2.3	3.5	-49.93	-163.8	-76.7	144.2	139.8	4.46	32.326	
1,300.0	1,296.3	1,278.9	1,261.0	2.6	4.0	-51.21	-184.1	-88.6	157.6	152.6	4.96	31.790	
1,400.0	1,394.9	1,378.0	1,357.3	2.9	4.4	-52.75	-204.5	-100.6	169.9	164.5	5.50	30.916	
1,500.0	1,493.4	1,477.1	1,453.6	3.3	4.8	-54.38	-224.9	-112.5	181.9	175.9	6.07	29.975	
1,600.0	1,591.9	1,576.3	1,549.9	3.6	5.3	-55.82	-245.3	-124.5	194.0	187.4	6.66	29.138	
1,700.0	1,690.4	1,675.5	1,646.2	3.9	5.7	-57.08	-265.7	-136.4	206.2	199.0	7.26	28.395	
1,800.0	1,788.9	1,774.6	1,742.5	4.3	6.2	-58.20	-286.1	-148.4	218.5	210.7	7.88	27.736	
1,900.0	1,887.3	1,873.8	1,838.8	4.6	6.6	-59.21	-306.5	-160.3	230.9	222.4	8.51	27.150	
2,000.0	1,985.8	1,972.9	1,935.0	4.9	7.1	-60.11	-326.9	-172.3	243.4	234.2	9.14	26.629	
2,100.0	2,084.3	2,072.1	2,031.3	5.3	7.5	-60.92	-347.3	-184.2	255.8	246.1	9.78	26.164	
2,200.0	2,182.8	2,171.2	2,127.6	5.6	8.0	-61.66	-367.7	-196.2	268.4	258.0	10.42	25.747	
2,300.0	2,281.3	2,270.4	2,223.9	6.0	8.4	-62.33	-388.1	-208.1	281.0	269.9	11.07	25.371	
2,400.0	2,379.7	2,369.5	2,320.2	6.3	8.9	-62.95	-408.4	-220.1	293.6	281.8	11.73	25.032	
2,500.0	2,478.2	2,468.7	2,416.5	6.7	9.3	-63.51	-428.8	-232.0	306.2	293.8	12.38	24.725	
2,600.0	2,576.7	2,567.8	2,512.8	7.0	9.8	-64.03	-449.2	-243.9	318.9	305.8	13.04	24.445	
2,700.0	2,675.2	2,667.0	2,609.1	7.4	10.2	-64.51	-469.6	-255.9	331.6	317.9	13.71	24.190	
2,800.0	2,773.7	2,766.2	2,705.4	7.7	10.7	-64.95	-490.0	-267.8	344.3	329.9	14.37	23.956	
2,900.0	2,872.1	2,865.3	2,801.7	8.1	11.1	-65.36	-510.4	-279.8	357.0	342.0	15.04	23.742	
3,000.0	2,970.6	2,964.5	2,898.0	8.4	11.6	-65.75	-530.8	-291.7	369.8	354.1	15.70	23.544	
3,100.0	3,069.1	3,063.6	2,994.3	8.7	12.0	-66.11	-551.2	-303.7	382.5	366.1	16.37	23.361	
3,200.0	3,167.6	3,162.8	3,090.6	9.1	12.5	-66.44	-571.6	-315.6	395.3	378.3	17.04	23.192	
3,300.0	3,266.1	3,261.9	3,186.9	9.4	12.9	-66.76	-592.0	-327.6	408.1	390.4	17.72	23.035	
3,400.0	3,364.5	3,361.1	3,283.2	9.8	13.4	-67.05	-612.4	-339.5	420.9	402.5	18.39	22.888	
3,500.0	3,463.0	3,460.2	3,379.5	10.1	13.8	-67.33	-632.8	-351.5	433.7	414.6	19.06	22.752	
3,600.0	3,561.5	3,559.4	3,475.8	10.5	14.3	-67.59	-653.2	-363.4	446.5	426.8	19.74	22.624	
3,700.0	3,660.0	3,658.5	3,572.1	10.8	14.7	-67.84	-673.6	-375.4	459.4	438.9	20.41	22.505	
3,800.0	3,758.5	3,757.7	3,668.4	11.2	15.2	-68.07	-694.0	-387.3	472.2	451.1	21.09	22.393	
3,900.0	3,857.0	3,856.9	3,764.7	11.5	15.6	-68.29	-714.4	-399.2	485.0	463.3	21.76	22.287	
4,000.0	3,955.4	3,956.0	3,861.0	11.9	16.1	-68.50	-734.8	-411.2	497.9	475.4	22.44	22.188	SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 3E-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5158.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 3E-18H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5158.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Billings 3E-18H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.29°