encana natural gas

Project: DJ Wattenberg
Site: S18-T3N-R68W (Billings)
Well: Billings 2A-18H
Wellbore: Hz
Design: Plan #1

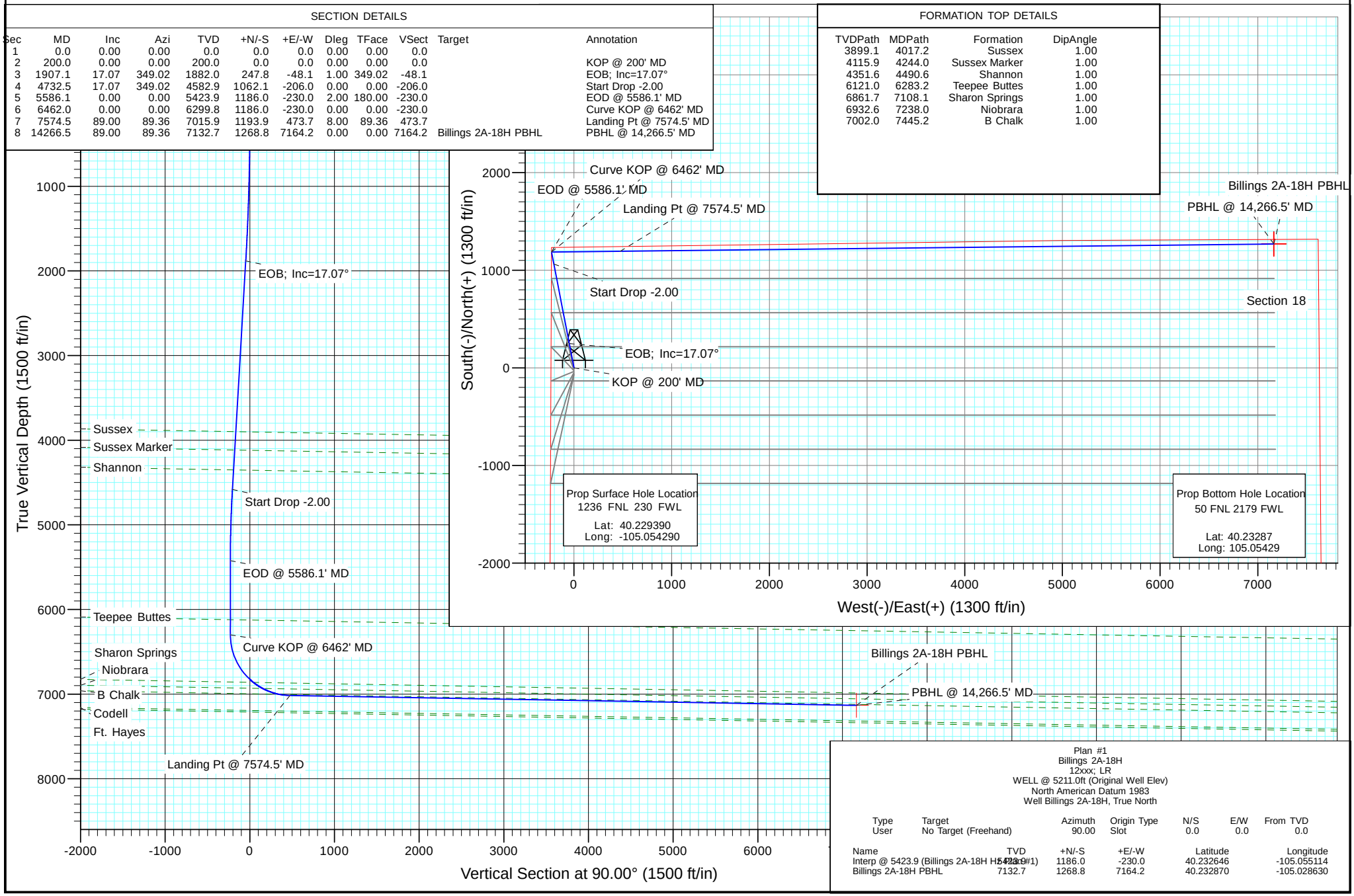
CATHEDRAL

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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0		KOP @ 200' MD
3	1907.1	17.07	349.02	1882.0	247.8	-48.1	1.00	349.02	-48.1		EOB; Inc=17.07°
4	4732.5	17.07	349.02	4582.9	1062.1	-206.0	0.00	0.00	-206.0		Start Drop -2.00
5	5586.1	0.00	0.00	5423.9	1186.0	-230.0	2.00	180.00	-230.0		EOD @ 5586.1' MD
6	6462.0	0.00	0.00	6299.8	1186.0	-230.0	0.00	0.00	-230.0		Curve KOP @ 6462' MD
7	7574.5	89.00	89.36	7015.9	1193.9	473.7	8.00	89.36	473.7		Landing Pt @ 7574.5' MD
8	14266.5	89.00	89.36	7132.7	1268.8	7164.2	0.00	0.00	7164.2	Billings 2A-18H PBHL	PBHL @ 14,266.5' MD

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle
3899.1	4017.2	Sussex	1.00
4115.9	4244.0	Sussex Marker	1.00
4351.6	4490.6	Shannon	1.00
6121.0	6283.2	Teepee Buttes	1.00
6861.7	7108.1	Sharon Springs	1.00
6932.6	7238.0	Niobrara	1.00
7002.0	7445.2	B Chalk	1.00



Plan #1
Billings 2A-18H
12xxx; LR
WELL @ 5211.0ft (Original Well Elev)
North American Datum 1983
Well Billings 2A-18H, True North

Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
User	No Target (Freehand)	90.00	Slot	0.0	0.0	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Interp @ 5423.9 (Billings 2A-18H H5423.9#1)	5423.9	1186.0	-230.0	40.232646	-105.055114
Billings 2A-18H PBHL	7132.7	1268.8	7164.2	40.232870	-105.028630

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 2A-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 2A-18H

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,326,724.17 ft	**Latitude:**	40.229390
	+E/-W	0.0 ft	**Easting:**	3,124,452.97 ft	**Longitude:**	-105.054290
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	5,198.0 ft

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/16/2012	8.77	66.83	52,884

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,907.1	17.07	349.02	1,882.0	247.8	-48.1	1.00	1.00	0.00	349.02	
4,732.5	17.07	349.02	4,582.9	1,062.1	-206.0	0.00	0.00	0.00	0.00	
5,586.1	0.00	0.00	5,423.9	1,186.0	-230.0	2.00	-2.00	0.00	180.00	
6,462.0	0.00	0.00	6,299.8	1,186.0	-230.0	0.00	0.00	0.00	0.00	
7,574.5	89.00	89.36	7,015.9	1,193.9	473.7	8.00	8.00	0.00	89.36	
14,266.5	89.00	89.36	7,132.7	1,268.8	7,164.2	0.00	0.00	0.00	0.00	Billings 2A-18H PBHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Billings 2A-18H
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Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 2A-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	KOP @ 200' MD
300.0	1.00	349.02	300.0	0.9	-0.2	-0.2	1.00	1.00	
400.0	2.00	349.02	400.0	3.4	-0.7	-0.7	1.00	1.00	
500.0	3.00	349.02	499.9	7.7	-1.5	-1.5	1.00	1.00	
600.0	4.00	349.02	599.7	13.7	-2.7	-2.7	1.00	1.00	
700.0	5.00	349.02	699.4	21.4	-4.2	-4.2	1.00	1.00	
800.0	6.00	349.02	798.9	30.8	-6.0	-6.0	1.00	1.00	
900.0	7.00	349.02	898.3	41.9	-8.1	-8.1	1.00	1.00	
1,000.0	8.00	349.02	997.4	54.7	-10.6	-10.6	1.00	1.00	
1,100.0	9.00	349.02	1,096.3	69.3	-13.4	-13.4	1.00	1.00	
1,200.0	10.00	349.02	1,194.9	85.5	-16.6	-16.6	1.00	1.00	
1,300.0	11.00	349.02	1,293.3	103.3	-20.0	-20.0	1.00	1.00	
1,400.0	12.00	349.02	1,391.2	122.9	-23.8	-23.8	1.00	1.00	
1,500.0	13.00	349.02	1,488.9	144.2	-28.0	-28.0	1.00	1.00	
1,600.0	14.00	349.02	1,586.1	167.1	-32.4	-32.4	1.00	1.00	
1,700.0	15.00	349.02	1,682.9	191.7	-37.2	-37.2	1.00	1.00	
1,800.0	16.00	349.02	1,779.3	217.9	-42.3	-42.3	1.00	1.00	
1,900.0	17.00	349.02	1,875.2	245.8	-47.7	-47.7	1.00	1.00	
1,907.1	17.07	349.02	1,882.0	247.8	-48.1	-48.1	1.00	1.00	EOB; Inc=17.07°
2,000.0	17.07	349.02	1,970.8	274.6	-53.3	-53.3	0.00	0.00	
2,100.0	17.07	349.02	2,066.4	303.4	-58.8	-58.8	0.00	0.00	
2,200.0	17.07	349.02	2,161.9	332.2	-64.4	-64.4	0.00	0.00	
2,300.0	17.07	349.02	2,257.5	361.0	-70.0	-70.0	0.00	0.00	
2,400.0	17.07	349.02	2,353.1	389.9	-75.6	-75.6	0.00	0.00	
2,500.0	17.07	349.02	2,448.7	418.7	-81.2	-81.2	0.00	0.00	
2,600.0	17.07	349.02	2,544.3	447.5	-86.8	-86.8	0.00	0.00	
2,700.0	17.07	349.02	2,639.9	476.3	-92.4	-92.4	0.00	0.00	
2,800.0	17.07	349.02	2,735.5	505.1	-98.0	-98.0	0.00	0.00	
2,900.0	17.07	349.02	2,831.1	534.0	-103.6	-103.6	0.00	0.00	
3,000.0	17.07	349.02	2,926.7	562.8	-109.1	-109.1	0.00	0.00	
3,100.0	17.07	349.02	3,022.3	591.6	-114.7	-114.7	0.00	0.00	
3,200.0	17.07	349.02	3,117.9	620.4	-120.3	-120.3	0.00	0.00	
3,300.0	17.07	349.02	3,213.5	649.2	-125.9	-125.9	0.00	0.00	
3,400.0	17.07	349.02	3,309.1	678.1	-131.5	-131.5	0.00	0.00	
3,500.0	17.07	349.02	3,404.7	706.9	-137.1	-137.1	0.00	0.00	
3,600.0	17.07	349.02	3,500.3	735.7	-142.7	-142.7	0.00	0.00	
3,700.0	17.07	349.02	3,595.9	764.5	-148.3	-148.3	0.00	0.00	
3,800.0	17.07	349.02	3,691.5	793.3	-153.9	-153.9	0.00	0.00	
3,900.0	17.07	349.02	3,787.0	822.2	-159.4	-159.4	0.00	0.00	
4,000.0	17.07	349.02	3,882.6	851.0	-165.0	-165.0	0.00	0.00	
4,017.2	17.07	349.02	3,899.1	855.9	-166.0	-166.0	0.00	0.00	Sussex
4,100.0	17.07	349.02	3,978.2	879.8	-170.6	-170.6	0.00	0.00	
4,200.0	17.07	349.02	4,073.8	908.6	-176.2	-176.2	0.00	0.00	
4,244.0	17.07	349.02	4,115.9	921.3	-178.7	-178.7	0.00	0.00	Sussex Marker
4,300.0	17.07	349.02	4,169.4	937.4	-181.8	-181.8	0.00	0.00	
4,400.0	17.07	349.02	4,265.0	966.3	-187.4	-187.4	0.00	0.00	
4,490.6	17.07	349.02	4,351.6	992.4	-192.4	-192.4	0.00	0.00	Shannon
4,500.0	17.07	349.02	4,360.6	995.1	-193.0	-193.0	0.00	0.00	
4,600.0	17.07	349.02	4,456.2	1,023.9	-198.6	-198.6	0.00	0.00	
4,700.0	17.07	349.02	4,551.8	1,052.7	-204.2	-204.2	0.00	0.00	

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Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 2A-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
4,732.5	17.07	349.02	4,582.9	1,062.1	-206.0	-206.0	0.00	0.00	Start Drop -2.00
4,800.0	15.72	349.02	4,647.6	1,080.8	-209.6	-209.6	2.00	-2.00	
4,900.0	13.72	349.02	4,744.3	1,105.7	-214.4	-214.4	2.00	-2.00	
5,000.0	11.72	349.02	4,841.9	1,127.4	-218.6	-218.6	2.00	-2.00	
5,100.0	9.72	349.02	4,940.1	1,145.6	-222.2	-222.2	2.00	-2.00	
5,200.0	7.72	349.02	5,039.0	1,160.5	-225.1	-225.1	2.00	-2.00	
5,300.0	5.72	349.02	5,138.3	1,172.0	-227.3	-227.3	2.00	-2.00	
5,400.0	3.72	349.02	5,237.9	1,180.1	-228.8	-228.8	2.00	-2.00	
5,500.0	1.72	349.02	5,337.8	1,184.7	-229.8	-229.8	2.00	-2.00	
5,586.1	0.00	0.00	5,423.9	1,186.0	-230.0	-230.0	2.00	-2.00	EOD @ 5586.1' MD
5,600.0	0.00	0.00	5,437.8	1,186.0	-230.0	-230.0	0.00	0.00	
5,700.0	0.00	0.00	5,537.8	1,186.0	-230.0	-230.0	0.00	0.00	
5,800.0	0.00	0.00	5,637.8	1,186.0	-230.0	-230.0	0.00	0.00	
5,900.0	0.00	0.00	5,737.8	1,186.0	-230.0	-230.0	0.00	0.00	
6,000.0	0.00	0.00	5,837.8	1,186.0	-230.0	-230.0	0.00	0.00	
6,100.0	0.00	0.00	5,937.8	1,186.0	-230.0	-230.0	0.00	0.00	
6,200.0	0.00	0.00	6,037.8	1,186.0	-230.0	-230.0	0.00	0.00	
6,283.2	0.00	0.00	6,121.0	1,186.0	-230.0	-230.0	0.00	0.00	Teepee Buttes
6,300.0	0.00	0.00	6,137.8	1,186.0	-230.0	-230.0	0.00	0.00	
6,400.0	0.00	0.00	6,237.8	1,186.0	-230.0	-230.0	0.00	0.00	
6,462.0	0.00	0.00	6,299.8	1,186.0	-230.0	-230.0	0.00	0.00	Curve KOP @ 6462' MD
6,500.0	3.04	89.36	6,337.8	1,186.0	-229.0	-229.0	8.00	8.00	
6,600.0	11.04	89.36	6,436.9	1,186.1	-216.8	-216.8	8.00	8.00	
6,700.0	19.04	89.36	6,533.4	1,186.4	-190.8	-190.8	8.00	8.00	
6,800.0	27.04	89.36	6,625.4	1,186.9	-151.7	-151.7	8.00	8.00	
6,900.0	35.04	89.36	6,711.0	1,187.5	-100.2	-100.2	8.00	8.00	
7,000.0	43.04	89.36	6,788.6	1,188.2	-37.3	-37.3	8.00	8.00	
7,100.0	51.04	89.36	6,856.7	1,189.0	35.8	35.8	8.00	8.00	
7,108.1	51.68	89.36	6,861.7	1,189.0	42.1	42.1	8.00	8.00	Sharon Springs
7,200.0	59.04	89.36	6,914.0	1,189.9	117.7	117.7	8.00	8.00	
7,238.0	62.08	89.36	6,932.6	1,190.3	150.8	150.8	8.00	8.00	Niobrara
7,300.0	67.04	89.36	6,959.3	1,190.9	206.8	206.8	8.00	8.00	
7,400.0	75.04	89.36	6,991.7	1,191.9	301.3	301.3	8.00	8.00	
7,445.2	78.66	89.36	7,002.0	1,192.4	345.3	345.3	8.00	8.00	B Chalk
7,500.0	83.04	89.36	7,010.7	1,193.0	399.3	399.3	8.00	8.00	
7,574.5	89.00	89.36	7,015.9	1,193.9	473.7	473.7	8.00	8.00	Landing Pt @ 7574.5' MD
7,600.0	89.00	89.36	7,016.4	1,194.2	499.1	499.1	0.00	0.00	
7,700.0	89.00	89.36	7,018.1	1,195.3	599.1	599.1	0.00	0.00	
7,800.0	89.00	89.36	7,019.8	1,196.4	699.1	699.1	0.00	0.00	
7,900.0	89.00	89.36	7,021.6	1,197.5	799.1	799.1	0.00	0.00	
8,000.0	89.00	89.36	7,023.3	1,198.6	899.0	899.0	0.00	0.00	
8,100.0	89.00	89.36	7,025.1	1,199.8	999.0	999.0	0.00	0.00	
8,200.0	89.00	89.36	7,026.8	1,200.9	1,099.0	1,099.0	0.00	0.00	
8,300.0	89.00	89.36	7,028.6	1,202.0	1,199.0	1,199.0	0.00	0.00	
8,400.0	89.00	89.36	7,030.3	1,203.1	1,298.9	1,298.9	0.00	0.00	
8,500.0	89.00	89.36	7,032.1	1,204.2	1,398.9	1,398.9	0.00	0.00	
8,600.0	89.00	89.36	7,033.8	1,205.3	1,498.9	1,498.9	0.00	0.00	
8,700.0	89.00	89.36	7,035.6	1,206.5	1,598.9	1,598.9	0.00	0.00	
8,800.0	89.00	89.36	7,037.3	1,207.6	1,698.9	1,698.9	0.00	0.00	
8,900.0	89.00	89.36	7,039.0	1,208.7	1,798.8	1,798.8	0.00	0.00	
9,000.0	89.00	89.36	7,040.8	1,209.8	1,898.8	1,898.8	0.00	0.00	
9,100.0	89.00	89.36	7,042.5	1,210.9	1,998.8	1,998.8	0.00	0.00	

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Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 2A-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
9,200.0	89.00	89.36	7,044.3	1,212.1	2,098.8	2,098.8	0.00	0.00	
9,300.0	89.00	89.36	7,046.0	1,213.2	2,198.8	2,198.8	0.00	0.00	
9,400.0	89.00	89.36	7,047.8	1,214.3	2,298.7	2,298.7	0.00	0.00	
9,500.0	89.00	89.36	7,049.5	1,215.4	2,398.7	2,398.7	0.00	0.00	
9,600.0	89.00	89.36	7,051.3	1,216.5	2,498.7	2,498.7	0.00	0.00	
9,700.0	89.00	89.36	7,053.0	1,217.7	2,598.7	2,598.7	0.00	0.00	
9,800.0	89.00	89.36	7,054.7	1,218.8	2,698.6	2,698.6	0.00	0.00	
9,900.0	89.00	89.36	7,056.5	1,219.9	2,798.6	2,798.6	0.00	0.00	
10,000.0	89.00	89.36	7,058.2	1,221.0	2,898.6	2,898.6	0.00	0.00	
10,100.0	89.00	89.36	7,060.0	1,222.1	2,998.6	2,998.6	0.00	0.00	
10,200.0	89.00	89.36	7,061.7	1,223.3	3,098.6	3,098.6	0.00	0.00	
10,300.0	89.00	89.36	7,063.5	1,224.4	3,198.5	3,198.5	0.00	0.00	
10,400.0	89.00	89.36	7,065.2	1,225.5	3,298.5	3,298.5	0.00	0.00	
10,500.0	89.00	89.36	7,067.0	1,226.6	3,398.5	3,398.5	0.00	0.00	
10,600.0	89.00	89.36	7,068.7	1,227.7	3,498.5	3,498.5	0.00	0.00	
10,700.0	89.00	89.36	7,070.5	1,228.8	3,598.5	3,598.5	0.00	0.00	
10,800.0	89.00	89.36	7,072.2	1,230.0	3,698.4	3,698.4	0.00	0.00	
10,900.0	89.00	89.36	7,073.9	1,231.1	3,798.4	3,798.4	0.00	0.00	
11,000.0	89.00	89.36	7,075.7	1,232.2	3,898.4	3,898.4	0.00	0.00	
11,100.0	89.00	89.36	7,077.4	1,233.3	3,998.4	3,998.4	0.00	0.00	
11,200.0	89.00	89.36	7,079.2	1,234.4	4,098.3	4,098.3	0.00	0.00	
11,300.0	89.00	89.36	7,080.9	1,235.6	4,198.3	4,198.3	0.00	0.00	
11,400.0	89.00	89.36	7,082.7	1,236.7	4,298.3	4,298.3	0.00	0.00	
11,500.0	89.00	89.36	7,084.4	1,237.8	4,398.3	4,398.3	0.00	0.00	
11,600.0	89.00	89.36	7,086.2	1,238.9	4,498.3	4,498.3	0.00	0.00	
11,700.0	89.00	89.36	7,087.9	1,240.0	4,598.2	4,598.2	0.00	0.00	
11,800.0	89.00	89.36	7,089.7	1,241.2	4,698.2	4,698.2	0.00	0.00	
11,900.0	89.00	89.36	7,091.4	1,242.3	4,798.2	4,798.2	0.00	0.00	
12,000.0	89.00	89.36	7,093.1	1,243.4	4,898.2	4,898.2	0.00	0.00	
12,100.0	89.00	89.36	7,094.9	1,244.5	4,998.2	4,998.2	0.00	0.00	
12,200.0	89.00	89.36	7,096.6	1,245.6	5,098.1	5,098.1	0.00	0.00	
12,300.0	89.00	89.36	7,098.4	1,246.8	5,198.1	5,198.1	0.00	0.00	
12,400.0	89.00	89.36	7,100.1	1,247.9	5,298.1	5,298.1	0.00	0.00	
12,500.0	89.00	89.36	7,101.9	1,249.0	5,398.1	5,398.1	0.00	0.00	
12,600.0	89.00	89.36	7,103.6	1,250.1	5,498.0	5,498.0	0.00	0.00	
12,700.0	89.00	89.36	7,105.4	1,251.2	5,598.0	5,598.0	0.00	0.00	
12,800.0	89.00	89.36	7,107.1	1,252.3	5,698.0	5,698.0	0.00	0.00	
12,900.0	89.00	89.36	7,108.9	1,253.5	5,798.0	5,798.0	0.00	0.00	
13,000.0	89.00	89.36	7,110.6	1,254.6	5,898.0	5,898.0	0.00	0.00	
13,100.0	89.00	89.36	7,112.3	1,255.7	5,997.9	5,997.9	0.00	0.00	
13,200.0	89.00	89.36	7,114.1	1,256.8	6,097.9	6,097.9	0.00	0.00	
13,300.0	89.00	89.36	7,115.8	1,257.9	6,197.9	6,197.9	0.00	0.00	
13,400.0	89.00	89.36	7,117.6	1,259.1	6,297.9	6,297.9	0.00	0.00	
13,500.0	89.00	89.36	7,119.3	1,260.2	6,397.9	6,397.9	0.00	0.00	
13,600.0	89.00	89.36	7,121.1	1,261.3	6,497.8	6,497.8	0.00	0.00	
13,700.0	89.00	89.36	7,122.8	1,262.4	6,597.8	6,597.8	0.00	0.00	
13,800.0	89.00	89.36	7,124.6	1,263.5	6,697.8	6,697.8	0.00	0.00	
13,900.0	89.00	89.36	7,126.3	1,264.7	6,797.8	6,797.8	0.00	0.00	
14,000.0	89.00	89.36	7,128.0	1,265.8	6,897.7	6,897.7	0.00	0.00	
14,100.0	89.00	89.36	7,129.8	1,266.9	6,997.7	6,997.7	0.00	0.00	
14,200.0	89.00	89.36	7,131.5	1,268.0	7,097.7	7,097.7	0.00	0.00	
14,266.5	89.00	89.36	7,132.7	1,268.8	7,164.2	7,164.2	0.00	0.00	PBHL @ 14,266.5' MD

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site:	S18-T3N-R68W (Billings)	**North Reference:**	True
Well:	Billings 2A-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

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
Interp @ 5423.9 (Billings - plan hits target center - Point	0.00	0.00	5,423.9	1,186.0	-230.0	1,327,909.00	3,124,217.01	40.232646	-105.055114
Billings 2A-18H PBHL - plan hits target center - Point	0.00	0.00	7,132.7	1,268.8	7,164.2	1,328,028.92	3,131,610.71	40.232870	-105.028630

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,017.2	3,902.0	Sussex		1.00	90.00
4,244.0	4,119.0	Sussex Marker		1.00	90.00
4,490.6	4,355.0	Shannon		1.00	90.00
6,283.2	6,125.0	Teepee Buttes		1.00	90.00
7,108.1	6,861.0	Sharon Springs		1.00	90.00
7,238.0	6,930.0	Niobrara		1.00	90.00
7,445.2	6,996.0	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
200.0	200.0	0.0	0.0	KOP @ 200' MD
1,907.1	1,882.0	247.8	-48.1	EOB; Inc=17.07°
4,732.5	4,582.9	1,062.1	-206.0	Start Drop -2.00
5,586.1	5,423.9	1,186.0	-230.0	EOD @ 5586.1' MD
6,462.0	6,299.8	1,186.0	-230.0	Curve KOP @ 6462' MD
7,574.5	7,015.9	1,193.9	473.7	Landing Pt @ 7574.5' MD
14,266.5	7,132.7	1,268.8	7,164.2	PBHL @ 14,266.5' MD

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S18-T3N-R68W (Billings)
Billings 2A-18H
Hz
Plan #1

Anticollision Report

29 November, 2012

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 1,626.7ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 11/29/2012

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,266.5	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 2B-18H - HZ - Plan #1	200.0	199.0	7.3	6.6	11.204	CC, ES
Billings 2B-18H - HZ - Plan #1	14,266.5	14,324.5	363.3	12.8	1.037	Level 2, SF
Billings 2C-18H - HZ - Plan #1	200.0	199.0	18.2	17.6	27.985	CC, ES
Billings 2C-18H - HZ - Plan #1	14,266.5	14,064.3	710.4	353.9	1.993	SF
Billings 2D-18H - Hz - Plan #1	200.0	199.0	29.1	28.5	44.772	CC
Billings 2D-18H - Hz - Plan #1	300.0	299.4	29.4	28.4	29.353	ES
Billings 2D-18H - Hz - Plan #1	14,266.5	14,234.5	1,057.3	699.0	2.951	SF
Billings 2E-18H - HZ - Plan #1	200.0	199.0	36.4	35.8	55.964	CC, ES
Billings 2E-18H - HZ - Plan #1	14,266.5	14,020.9	1,406.2	1,047.2	3.917	SF
Billings 2F-18H - HZ - Plan #1	200.0	199.0	47.4	46.7	72.751	CC, ES
Billings 2F-18H - HZ - Plan #1	600.0	595.7	67.8	65.8	33.191	SF
Billings 2G-18H - Hz - Plan #1	200.0	199.0	58.3	57.6	89.538	CC, ES
Billings 2G-18H - Hz - Plan #1	700.0	694.3	87.0	84.7	36.461	SF
Billings 2H-18H - Hz - Plan #1	200.0	199.0	69.2	68.6	106.325	CC, ES
Billings 2H-18H - Hz - Plan #1	700.0	689.7	111.5	109.1	46.812	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2B-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	-7.3	0.0	7.4				
100.0	100.0	99.0	99.0	0.2	0.2	180.00	-7.3	0.0	7.3	7.0	0.30	24.139	
200.0	200.0	199.0	199.0	0.3	0.3	180.00	-7.3	0.0	7.3	6.6	0.65	11.204	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-170.19	-7.3	0.0	8.2	7.2	1.00	8.152	
400.0	400.0	399.1	399.1	0.7	0.7	-171.67	-6.5	-0.2	9.9	8.6	1.35	7.338	
500.0	499.9	499.3	499.3	0.9	0.9	-172.24	-3.9	-0.8	11.7	10.0	1.70	6.869	
600.0	599.7	599.5	599.4	1.1	1.0	-172.27	0.3	-1.9	13.4	11.4	2.05	6.565	
700.0	699.4	699.7	699.4	1.3	1.2	-171.94	6.2	-3.4	15.2	12.8	2.40	6.352	
800.0	798.9	800.0	799.4	1.5	1.4	-171.36	13.9	-5.3	17.0	14.3	2.75	6.196	
900.0	898.3	900.3	899.2	1.8	1.7	-170.61	23.2	-7.6	18.8	15.7	3.10	6.075	
1,000.0	997.4	1,000.6	998.9	2.0	1.9	-169.74	34.2	-10.4	20.7	17.2	3.46	5.977	
1,100.0	1,096.3	1,101.0	1,098.3	2.3	2.2	-168.77	46.9	-13.6	22.5	18.7	3.82	5.894	
1,200.0	1,194.9	1,201.3	1,197.6	2.7	2.5	-167.73	61.3	-17.2	24.4	20.2	4.19	5.819	
1,300.0	1,293.3	1,301.7	1,296.6	3.0	2.8	-166.64	77.4	-21.2	26.3	21.7	4.58	5.748	
1,400.0	1,391.2	1,402.2	1,395.4	3.4	3.2	-165.51	95.2	-25.7	28.2	23.2	4.97	5.677	
1,500.0	1,488.9	1,502.6	1,493.8	3.8	3.5	-164.35	114.7	-30.5	30.2	24.8	5.38	5.603	
1,600.0	1,586.1	1,603.1	1,591.9	4.2	3.9	-163.17	135.8	-35.8	32.2	26.3	5.82	5.524	
1,700.0	1,682.9	1,703.7	1,689.7	4.7	4.4	-161.98	158.7	-41.5	34.2	27.9	6.28	5.437	
1,800.0	1,779.3	1,804.2	1,787.0	5.2	4.8	-160.78	183.2	-47.7	36.2	29.4	6.78	5.341	
1,900.0	1,875.2	1,904.8	1,883.9	5.7	5.3	-159.57	209.3	-54.2	38.3	31.0	7.31	5.237	
2,000.0	1,970.8	2,005.4	1,980.3	6.2	5.8	-157.97	237.1	-61.2	39.7	31.8	7.93	5.014	
2,100.0	2,066.4	2,106.0	2,076.2	6.7	6.4	-155.35	266.5	-68.5	39.6	31.0	8.69	4.564	
2,200.0	2,161.9	2,206.6	2,171.6	7.3	6.9	-151.39	297.6	-76.3	38.1	28.4	9.68	3.937	
2,300.0	2,257.5	2,307.0	2,266.2	7.8	7.5	-145.45	330.2	-84.5	35.4	24.3	11.07	3.198	
2,400.0	2,353.1	2,406.9	2,359.9	8.3	8.1	-137.23	363.7	-92.9	32.3	19.3	12.93	2.496	
2,500.0	2,448.7	2,506.7	2,453.6	8.8	8.8	-127.47	397.2	-101.2	29.9	14.8	15.12	1.981	
2,600.0	2,544.3	2,606.6	2,547.3	9.4	9.4	-116.46	430.7	-109.6	28.6	11.2	17.41	1.644	
2,666.7	2,608.1	2,673.2	2,609.8	9.7	9.8	-108.72	453.1	-115.2	28.4	9.5	18.83	1.506	
2,700.0	2,639.9	2,706.4	2,641.0	9.9	10.0	-104.85	464.2	-118.0	28.4	9.0	19.47	1.460	Level 3
2,800.0	2,735.5	2,806.2	2,734.6	10.4	10.6	-93.54	497.7	-126.4	29.4	8.4	21.03	1.397	Level 3
2,900.0	2,831.1	2,906.1	2,828.3	11.0	11.2	-83.32	531.2	-134.8	31.4	9.4	22.01	1.426	Level 3
3,000.0	2,926.7	3,005.9	2,922.0	11.5	11.8	-74.56	564.7	-143.2	34.3	11.7	22.54	1.521	
3,100.0	3,022.3	3,105.7	3,015.6	12.1	12.5	-67.31	598.2	-151.5	37.8	15.1	22.78	1.661	
3,200.0	3,117.9	3,205.6	3,109.3	12.6	13.1	-61.37	631.7	-159.9	41.9	19.0	22.89	1.830	
3,300.0	3,213.5	3,305.4	3,203.0	13.1	13.7	-56.52	665.2	-168.3	46.3	23.4	22.94	2.019	
3,400.0	3,309.1	3,405.2	3,296.6	13.7	14.3	-52.54	698.7	-176.7	51.0	28.0	23.00	2.218	
3,500.0	3,404.7	3,505.1	3,390.3	14.2	14.9	-49.24	732.2	-185.1	55.9	32.8	23.08	2.423	
3,600.0	3,500.3	3,605.9	3,485.2	14.7	15.5	-46.94	765.4	-193.4	60.4	37.1	23.31	2.593	
3,700.0	3,595.9	3,707.4	3,581.8	15.3	16.1	-47.02	795.7	-201.0	62.6	38.5	24.14	2.594	
3,800.0	3,691.5	3,809.0	3,679.4	15.8	16.6	-49.40	822.7	-207.7	62.3	36.7	25.63	2.431	
3,900.0	3,787.0	3,910.2	3,777.7	16.4	17.0	-54.37	846.2	-213.6	59.8	32.0	27.84	2.148	
4,000.0	3,882.6	4,011.0	3,876.3	16.9	17.4	-62.74	866.2	-218.6	56.0	25.2	30.79	1.817	
4,100.0	3,978.2	4,110.9	3,974.8	17.4	17.7	-75.61	882.8	-222.8	52.3	18.3	34.02	1.537	
4,170.5	4,045.6	4,180.8	4,044.0	17.8	17.9	-87.63	892.4	-225.2	51.2	15.6	35.63	1.437	Level 3
4,200.0	4,073.8	4,209.9	4,072.9	18.0	18.0	-93.24	895.9	-226.0	51.4	15.5	35.91	1.432	Level 3
4,300.0	4,169.4	4,307.6	4,170.1	18.5	18.2	-112.89	905.6	-228.5	56.5	22.0	34.57	1.635	
4,400.0	4,265.0	4,404.0	4,266.2	19.1	18.3	-129.99	912.0	-230.1	69.1	38.3	30.75	2.247	
4,500.0	4,360.6	4,498.7	4,360.9	19.6	18.4	-142.55	915.2	-230.9	88.4	61.6	26.80	3.299	
4,600.0	4,456.2	4,593.1	4,455.2	20.1	18.5	-151.26	915.7	-231.0	112.9	89.1	23.84	4.738	
4,700.0	4,551.8	4,688.6	4,550.8	20.7	18.5	-157.02	915.7	-231.0	139.6	117.6	22.01	6.343	
4,800.0	4,647.6	4,784.5	4,646.6	21.2	18.6	-160.97	915.7	-231.0	166.5	145.5	20.95	7.945	
4,900.0	4,744.3	4,881.2	4,743.3	21.6	18.7	-163.60	915.7	-231.0	190.7	170.3	20.42	9.341	

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 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2B-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
5,000.0	4,841.9	4,978.7	4,840.9	22.0	18.8	-165.39	915.7	-231.0	212.0	191.8	20.20	10.497	
5,100.0	4,940.1	5,077.0	4,939.1	22.4	18.9	-166.64	915.7	-231.0	230.1	209.9	20.15	11.419	
5,200.0	5,039.0	5,175.8	5,038.0	22.7	18.9	-167.52	915.7	-231.0	244.9	224.7	20.21	12.116	
5,300.0	5,138.3	5,275.1	5,137.3	22.9	19.0	-168.14	915.7	-231.0	256.3	236.0	20.34	12.601	
5,400.0	5,237.9	5,374.8	5,236.9	23.1	19.1	-168.54	915.7	-231.0	264.4	243.9	20.52	12.886	
5,500.0	5,337.8	5,474.7	5,336.8	23.2	19.2	-168.75	915.7	-231.0	269.0	248.3	20.73	12.980	
5,600.0	5,437.8	5,574.6	5,436.8	23.3	19.3	-179.79	915.7	-231.0	270.3	228.6	41.65	6.489	
5,700.0	5,537.8	5,674.6	5,536.8	23.3	19.4	-179.79	915.7	-231.0	270.3	228.5	41.82	6.464	
5,800.0	5,637.8	5,774.6	5,636.8	23.4	19.5	-179.79	915.7	-231.0	270.3	228.3	41.99	6.438	
5,900.0	5,737.8	5,874.6	5,736.8	23.5	19.5	-179.79	915.7	-231.0	270.3	228.1	42.16	6.412	
6,000.0	5,837.8	5,974.6	5,836.8	23.6	19.6	-179.79	915.7	-231.0	270.3	228.0	42.33	6.386	
6,100.0	5,937.8	6,074.6	5,936.8	23.6	19.7	-179.79	915.7	-231.0	270.3	227.8	42.50	6.360	
6,200.0	6,037.8	6,174.6	6,036.8	23.7	19.8	-179.79	915.7	-231.0	270.3	227.6	42.68	6.333	
6,300.0	6,137.8	6,274.6	6,136.8	23.8	19.9	-179.79	915.7	-231.0	270.3	227.4	42.86	6.307	
6,400.0	6,237.8	6,374.6	6,236.8	23.9	20.0	-179.79	915.7	-231.0	270.3	227.3	43.04	6.280	
6,443.8	6,281.6	6,418.4	6,280.6	23.9	20.1	90.96	915.7	-231.0	270.3	246.6	23.75	11.381	
6,500.0	6,337.8	6,474.6	6,336.8	24.0	20.1	91.06	915.7	-231.0	270.3	246.4	23.95	11.285	
6,600.0	6,436.9	6,574.8	6,436.9	24.0	20.2	93.21	915.7	-229.0	270.7	246.1	24.66	10.977	
6,700.0	6,533.4	6,676.7	6,537.6	24.0	20.2	95.61	915.7	-214.1	271.8	246.5	25.24	10.770	
6,800.0	6,625.4	6,780.3	6,636.8	24.0	20.2	97.90	915.7	-184.5	273.4	247.9	25.53	10.712	
6,900.0	6,711.0	6,885.7	6,732.3	24.0	20.2	100.02	915.7	-140.1	275.6	250.0	25.55	10.786	
7,000.0	6,788.6	6,992.8	6,821.5	24.1	20.3	101.92	915.7	-81.1	278.0	252.6	25.43	10.932	
7,100.0	6,856.7	7,101.5	6,902.1	24.2	20.4	103.55	915.7	-8.3	280.7	255.2	25.45	11.028	
7,200.0	6,914.0	7,211.6	6,971.6	24.4	20.6	104.89	915.7	77.0	283.3	257.4	25.97	10.909	
7,300.0	6,959.3	7,323.0	7,027.7	24.8	20.9	105.89	915.7	173.1	285.8	258.4	27.36	10.446	
7,400.0	6,991.7	7,435.4	7,068.5	25.3	21.6	106.56	915.7	277.7	288.0	258.1	29.83	9.655	
7,500.0	7,010.7	7,548.4	7,092.6	26.0	22.5	106.86	915.7	388.0	289.7	256.4	33.33	8.691	
7,600.0	7,016.4	7,658.4	7,099.6	26.9	23.8	106.84	915.7	497.6	290.9	253.5	37.41	7.777	
7,700.0	7,018.1	7,758.3	7,101.3	28.0	25.1	106.78	915.7	597.6	292.0	250.9	41.12	7.102	
7,800.0	7,019.8	7,858.3	7,103.1	29.4	26.7	106.72	915.7	697.6	293.1	248.1	45.02	6.510	
7,900.0	7,021.6	7,958.3	7,104.8	30.9	28.4	106.65	915.7	797.6	294.2	245.1	49.08	5.994	
8,000.0	7,023.3	8,058.3	7,106.6	32.5	30.3	106.59	915.7	897.6	295.3	242.0	53.25	5.545	
8,100.0	7,025.1	8,158.3	7,108.3	34.3	32.3	106.53	915.7	997.5	296.3	238.8	57.52	5.152	
8,200.0	7,026.8	8,258.3	7,110.1	36.2	34.3	106.47	915.7	1,097.5	297.4	235.5	61.86	4.808	
8,300.0	7,028.6	8,358.3	7,111.8	38.1	36.4	106.41	915.6	1,197.5	298.5	232.2	66.26	4.505	
8,400.0	7,030.3	8,458.3	7,113.5	40.2	38.6	106.35	915.6	1,297.5	299.6	228.8	70.71	4.236	
8,500.0	7,032.1	8,558.3	7,115.3	42.3	40.8	106.29	915.6	1,397.4	300.6	225.4	75.20	3.998	
8,600.0	7,033.8	8,658.3	7,117.0	44.4	43.0	106.23	915.6	1,497.4	301.7	222.0	79.73	3.784	
8,700.0	7,035.6	8,758.3	7,118.8	46.6	45.3	106.17	915.6	1,597.4	302.8	218.5	84.29	3.592	
8,800.0	7,037.3	8,858.3	7,120.5	48.8	47.6	106.11	915.6	1,697.4	303.9	215.0	88.87	3.419	
8,900.0	7,039.0	8,958.3	7,122.3	51.1	49.9	106.05	915.6	1,797.4	305.0	211.5	93.47	3.262	
9,000.0	7,040.8	9,058.3	7,124.0	53.3	52.2	105.99	915.6	1,897.3	306.0	207.9	98.10	3.120	
9,100.0	7,042.5	9,158.3	7,125.8	55.6	54.5	105.93	915.6	1,997.3	307.1	204.4	102.74	2.989	
9,200.0	7,044.3	9,258.3	7,127.5	57.9	56.9	105.88	915.6	2,097.3	308.2	200.8	107.39	2.870	
9,300.0	7,046.0	9,358.2	7,129.3	60.2	59.2	105.82	915.6	2,197.3	309.3	197.2	112.06	2.760	
9,400.0	7,047.8	9,458.2	7,131.0	62.6	61.6	105.76	915.6	2,297.3	310.4	193.6	116.74	2.658	
9,500.0	7,049.5	9,558.2	7,132.7	64.9	64.0	105.71	915.6	2,397.2	311.4	190.0	121.44	2.565	
9,600.0	7,051.3	9,658.2	7,134.5	67.3	66.3	105.65	915.6	2,497.2	312.5	186.4	126.14	2.478	
9,700.0	7,053.0	9,758.2	7,136.2	69.6	68.7	105.59	915.6	2,597.2	313.6	182.7	130.85	2.397	
9,800.0	7,054.7	9,858.2	7,138.0	72.0	71.1	105.54	915.6	2,697.2	314.7	179.1	135.57	2.321	
9,900.0	7,056.5	9,958.2	7,139.7	74.4	73.5	105.49	915.6	2,797.1	315.8	175.5	140.29	2.251	
10,000.0	7,058.2	10,058.2	7,141.5	76.8	75.9	105.43	915.6	2,897.1	316.8	171.8	145.03	2.185	

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 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2B-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
10,100.0	7,060.0	10,158.2	7,143.2	79.2	78.3	105.38	915.6	2,997.1	317.9	168.2	149.77	2.123	
10,200.0	7,061.7	10,258.2	7,145.0	81.6	80.8	105.32	915.6	3,097.1	319.0	164.5	154.52	2.065	
10,300.0	7,063.5	10,358.2	7,146.7	84.0	83.2	105.27	915.6	3,197.1	320.1	160.8	159.27	2.010	
10,400.0	7,065.2	10,458.2	7,148.4	86.4	85.6	105.22	915.6	3,297.0	321.2	157.1	164.03	1.958	
10,500.0	7,067.0	10,558.2	7,150.2	88.8	88.0	105.17	915.6	3,397.0	322.3	153.5	168.79	1.909	
10,600.0	7,068.7	10,658.2	7,151.9	91.2	90.4	105.11	915.6	3,497.0	323.3	149.8	173.56	1.863	
10,700.0	7,070.5	10,758.2	7,153.7	93.6	92.9	105.06	915.5	3,597.0	324.4	146.1	178.33	1.819	
10,800.0	7,072.2	10,858.2	7,155.4	96.0	95.3	105.01	915.5	3,696.9	325.5	142.4	183.11	1.778	
10,900.0	7,073.9	10,958.1	7,157.2	98.4	97.7	104.96	915.5	3,796.9	326.6	138.7	187.89	1.738	
11,000.0	7,075.7	11,058.1	7,158.9	100.9	100.2	104.91	915.5	3,896.9	327.7	135.0	192.67	1.701	
11,100.0	7,077.4	11,158.1	7,160.7	103.3	102.6	104.86	915.5	3,996.9	328.8	131.3	197.46	1.665	
11,200.0	7,079.2	11,258.1	7,162.4	105.7	105.1	104.81	915.5	4,096.9	329.9	127.6	202.26	1.631	
11,300.0	7,080.9	11,358.1	7,164.2	108.1	107.5	104.76	915.5	4,196.8	330.9	123.9	207.05	1.598	
11,400.0	7,082.7	11,458.1	7,165.9	110.6	109.9	104.71	915.5	4,296.8	332.0	120.2	211.85	1.567	
11,500.0	7,084.4	11,558.1	7,167.6	113.0	112.4	104.66	915.5	4,396.8	333.1	116.5	216.65	1.538	
11,600.0	7,086.2	11,658.1	7,169.4	115.4	114.8	104.61	915.5	4,496.8	334.2	112.7	221.46	1.509	
11,700.0	7,087.9	11,758.1	7,171.1	117.9	117.3	104.56	915.5	4,596.8	335.3	109.0	226.27	1.482	Level 3
11,800.0	7,089.7	11,858.1	7,172.9	120.3	119.7	104.52	915.5	4,696.7	336.4	105.3	231.08	1.456	Level 3
11,900.0	7,091.4	11,958.1	7,174.6	122.8	122.2	104.47	915.5	4,796.7	337.5	101.6	235.89	1.431	Level 3
12,000.0	7,093.1	12,058.1	7,176.4	125.2	124.6	104.42	915.5	4,896.7	338.5	97.8	240.71	1.406	Level 3
12,100.0	7,094.9	12,158.1	7,178.1	127.7	127.1	104.37	915.5	4,996.7	339.6	94.1	245.52	1.383	Level 3
12,200.0	7,096.6	12,258.1	7,179.9	130.1	129.5	104.33	915.5	5,096.6	340.7	90.4	250.35	1.361	Level 3
12,300.0	7,098.4	12,358.1	7,181.6	132.5	132.0	104.28	915.5	5,196.6	341.8	86.6	255.17	1.340	Level 3
12,400.0	7,100.1	12,458.0	7,183.4	135.0	134.4	104.23	915.5	5,296.6	342.9	82.9	260.00	1.319	Level 3
12,500.0	7,101.9	12,558.0	7,185.1	137.4	136.9	104.19	915.5	5,396.6	344.0	79.2	264.82	1.299	Level 3
12,600.0	7,103.6	12,658.0	7,186.8	139.9	139.3	104.14	915.5	5,496.6	345.1	75.4	269.65	1.280	Level 3
12,700.0	7,105.4	12,758.0	7,188.6	142.3	141.8	104.10	915.5	5,596.5	346.2	71.7	274.49	1.261	Level 3
12,800.0	7,107.1	12,858.0	7,190.3	144.8	144.2	104.05	915.5	5,696.5	347.3	67.9	279.32	1.243	Level 2
12,900.0	7,108.9	12,958.0	7,192.1	147.2	146.7	104.01	915.5	5,796.5	348.3	64.2	284.16	1.226	Level 2
13,000.0	7,110.6	13,058.0	7,193.8	149.7	149.1	103.96	915.5	5,896.5	349.4	60.4	289.00	1.209	Level 2
13,100.0	7,112.3	13,158.0	7,195.6	152.1	151.6	103.92	915.4	5,996.5	350.5	56.7	293.84	1.193	Level 2
13,200.0	7,114.1	13,258.0	7,197.3	154.6	154.1	103.87	915.4	6,096.4	351.6	52.9	298.68	1.177	Level 2
13,300.0	7,115.8	13,358.0	7,199.1	157.0	156.5	103.83	915.4	6,196.4	352.7	49.2	303.52	1.162	Level 2
13,400.0	7,117.6	13,458.0	7,200.8	159.5	159.0	103.79	915.4	6,296.4	353.8	45.4	308.37	1.147	Level 2
13,500.0	7,119.3	13,558.0	7,202.5	162.0	161.4	103.74	915.4	6,396.4	354.9	41.7	313.22	1.133	Level 2
13,600.0	7,121.1	13,658.0	7,204.3	164.4	163.9	103.70	915.4	6,496.3	356.0	37.9	318.07	1.119	Level 2
13,700.0	7,122.8	13,758.0	7,206.0	166.9	166.4	103.66	915.4	6,596.3	357.1	34.2	322.92	1.106	Level 2
13,800.0	7,124.6	13,858.0	7,207.8	169.3	168.8	103.61	915.4	6,696.3	358.2	30.4	327.77	1.093	Level 2
13,900.0	7,126.3	13,958.0	7,209.5	171.8	171.3	103.57	915.4	6,796.3	359.3	26.6	332.62	1.080	Level 2
14,000.0	7,128.0	14,057.9	7,211.3	174.2	173.7	103.53	915.4	6,896.3	360.3	22.9	337.48	1.068	Level 2
14,100.0	7,129.8	14,157.9	7,213.0	176.7	176.2	103.49	915.4	6,996.2	361.4	19.1	342.34	1.056	Level 2
14,200.0	7,131.5	14,257.9	7,214.8	179.2	178.7	103.45	915.4	7,096.2	362.5	15.3	347.19	1.044	Level 2
14,266.5	7,132.7	14,324.5	7,215.9	180.8	180.3	103.42	915.4	7,162.7	363.3	12.8	350.43	1.037	Level 2, SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2C-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	-18.2	0.0	18.2				
100.0	100.0	99.0	99.0	0.2	0.2	-180.00	-18.2	0.0	18.2	17.9	0.30	60.292	
200.0	200.0	199.0	199.0	0.3	0.3	-180.00	-18.2	0.0	18.2	17.6	0.65	27.985	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-169.52	-18.2	0.0	19.1	18.1	1.00	19.076	
400.0	400.0	399.0	399.0	0.7	0.7	-170.78	-18.2	0.0	21.7	20.3	1.35	16.055	
500.0	499.9	499.3	499.3	0.9	0.8	-171.70	-17.4	-0.3	25.2	23.5	1.70	14.816	
600.0	599.7	599.7	599.6	1.1	1.0	-171.76	-15.0	-1.3	28.7	26.7	2.05	14.034	
700.0	699.4	700.1	700.0	1.3	1.2	-171.23	-10.9	-2.9	32.4	30.0	2.40	13.503	
800.0	798.9	800.6	800.3	1.5	1.4	-170.31	-5.2	-5.2	36.1	33.4	2.75	13.126	
900.0	898.3	901.1	900.5	1.8	1.6	-169.10	2.1	-8.1	39.9	36.8	3.11	12.845	
1,000.0	997.4	1,001.7	1,000.6	2.0	1.8	-167.68	11.1	-11.7	43.8	40.4	3.47	12.627	
1,100.0	1,096.3	1,102.4	1,100.6	2.3	2.1	-166.12	21.7	-15.9	47.9	44.0	3.85	12.446	
1,200.0	1,194.9	1,203.1	1,200.5	2.7	2.4	-164.46	34.0	-20.8	52.0	47.8	4.24	12.285	
1,300.0	1,293.3	1,303.8	1,300.1	3.0	2.6	-162.73	47.9	-26.3	56.4	51.7	4.65	12.128	
1,400.0	1,391.2	1,404.6	1,399.5	3.4	3.0	-160.96	63.4	-32.5	60.8	55.8	5.09	11.965	
1,500.0	1,488.9	1,505.4	1,498.6	3.8	3.3	-159.17	80.6	-39.3	65.5	59.9	5.56	11.788	
1,600.0	1,586.1	1,606.1	1,597.2	4.2	3.7	-157.39	99.3	-46.8	70.4	64.3	6.07	11.599	
1,700.0	1,682.9	1,705.9	1,694.9	4.7	4.0	-156.13	118.3	-54.4	76.4	69.8	6.59	11.595	
1,800.0	1,779.3	1,805.6	1,792.5	5.2	4.4	-155.55	137.4	-62.0	84.1	77.0	7.11	11.827	
1,900.0	1,875.2	1,905.2	1,889.9	5.7	4.8	-155.51	156.5	-69.5	93.3	85.7	7.61	12.258	
2,000.0	1,970.8	2,004.7	1,987.3	6.2	5.2	-155.73	175.5	-77.1	103.4	95.3	8.11	12.753	
2,100.0	2,066.4	2,104.2	2,084.6	6.7	5.6	-155.92	194.5	-84.7	113.6	105.0	8.61	13.187	
2,200.0	2,161.9	2,203.7	2,182.0	7.3	5.9	-156.07	213.5	-92.3	123.7	114.6	9.12	13.569	
2,300.0	2,257.5	2,303.1	2,279.3	7.8	6.3	-156.21	232.5	-99.8	133.9	124.3	9.62	13.910	
2,400.0	2,353.1	2,402.6	2,376.7	8.3	6.7	-156.32	251.6	-107.4	144.0	133.9	10.13	14.214	
2,500.0	2,448.7	2,502.1	2,474.0	8.8	7.1	-156.42	270.6	-115.0	154.2	143.5	10.64	14.487	
2,600.0	2,544.3	2,601.6	2,571.4	9.4	7.5	-156.50	289.6	-122.5	164.3	153.2	11.15	14.734	
2,700.0	2,639.9	2,701.1	2,668.7	9.9	7.9	-156.58	308.6	-130.1	174.5	162.8	11.66	14.959	
2,800.0	2,735.5	2,800.6	2,766.1	10.4	8.3	-156.65	327.6	-137.7	184.6	172.4	12.18	15.163	
2,900.0	2,831.1	2,900.0	2,863.5	11.0	8.7	-156.71	346.7	-145.3	194.8	182.1	12.69	15.350	
3,000.0	2,926.7	2,999.5	2,960.8	11.5	9.1	-156.76	365.7	-152.8	204.9	191.7	13.20	15.522	
3,100.0	3,022.3	3,099.0	3,058.2	12.1	9.5	-156.81	384.7	-160.4	215.1	201.3	13.72	15.680	
3,200.0	3,117.9	3,198.5	3,155.5	12.6	9.8	-156.86	403.7	-168.0	225.2	211.0	14.23	15.827	
3,300.0	3,213.5	3,298.0	3,252.9	13.1	10.2	-156.90	422.8	-175.6	235.4	220.6	14.74	15.962	
3,400.0	3,309.1	3,397.5	3,350.2	13.7	10.6	-156.94	441.8	-183.1	245.5	230.2	15.26	16.088	
3,500.0	3,404.7	3,496.9	3,447.6	14.2	11.0	-156.97	460.8	-190.7	255.7	239.9	15.78	16.206	
3,600.0	3,500.3	3,596.4	3,544.9	14.7	11.4	-157.00	479.8	-198.3	265.8	249.5	16.29	16.316	
3,700.0	3,595.9	3,695.9	3,642.3	15.3	11.8	-157.03	498.8	-205.9	276.0	259.1	16.81	16.418	
3,800.0	3,691.5	3,791.7	3,736.1	15.8	12.2	-157.10	516.9	-213.0	286.4	269.1	17.30	16.554	
3,900.0	3,787.0	3,883.1	3,826.1	16.4	12.5	-157.42	531.7	-218.9	299.1	281.5	17.69	16.909	
4,000.0	3,882.6	3,973.7	3,915.7	16.9	12.7	-158.01	543.8	-223.8	314.6	296.6	17.99	17.485	
4,100.0	3,978.2	4,063.3	4,004.8	17.4	12.9	-158.80	553.2	-227.5	332.6	314.4	18.21	18.267	
4,200.0	4,073.8	4,151.9	4,093.0	18.0	13.1	-159.74	559.9	-230.2	353.4	335.1	18.36	19.245	
4,300.0	4,169.4	4,239.1	4,180.2	18.5	13.2	-160.78	564.1	-231.8	376.9	358.4	18.47	20.408	
4,400.0	4,265.0	4,325.1	4,266.1	19.1	13.3	-161.88	565.7	-232.5	403.1	384.5	18.54	21.740	
4,500.0	4,360.6	4,418.6	4,359.6	19.6	13.4	-163.06	565.8	-232.5	431.1	412.5	18.60	23.182	
4,600.0	4,456.2	4,514.2	4,455.2	20.1	13.5	-164.12	565.8	-232.5	459.4	440.7	18.69	24.583	
4,700.0	4,551.8	4,609.8	4,550.8	20.7	13.6	-165.06	565.8	-232.5	487.8	468.9	18.81	25.933	
4,800.0	4,647.6	4,705.6	4,646.6	21.2	13.7	-165.97	565.8	-232.5	515.5	496.5	18.97	27.181	
4,900.0	4,744.3	4,802.3	4,743.3	21.6	13.8	-166.74	565.8	-232.5	540.3	521.1	19.16	28.199	
5,000.0	4,841.9	4,899.8	4,840.9	22.0	13.9	-167.35	565.8	-232.5	561.7	542.4	19.38	28.991	
5,100.0	4,940.1	4,998.1	4,939.1	22.4	14.0	-167.83	565.8	-232.5	579.9	560.3	19.61	29.571	

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 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2C-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	5,039.0	5,096.9	5,038.0	22.7	14.1	-168.20	565.8	-232.5	594.8	574.9	19.86	29.953	
5,300.0	5,138.3	5,196.2	5,137.3	22.9	14.2	-168.48	565.8	-232.5	606.2	586.1	20.11	30.148	
5,400.0	5,237.9	5,295.9	5,236.9	23.1	14.4	-168.66	565.8	-232.5	614.3	593.9	20.36	30.166	
5,500.0	5,337.8	5,395.8	5,336.8	23.2	14.5	-168.77	565.8	-232.5	619.0	598.3	20.62	30.017	
5,600.0	5,437.8	5,495.8	5,436.8	23.3	14.6	-179.77	565.8	-232.5	620.2	583.4	36.81	16.848	
5,700.0	5,537.8	5,595.8	5,536.8	23.3	14.7	-179.77	565.8	-232.5	620.2	583.2	37.01	16.759	
5,800.0	5,637.8	5,695.8	5,636.8	23.4	14.8	-179.77	565.8	-232.5	620.2	583.0	37.21	16.670	
5,900.0	5,737.8	5,795.8	5,736.8	23.5	14.9	-179.77	565.8	-232.5	620.2	582.8	37.41	16.581	
6,000.0	5,837.8	5,895.8	5,836.8	23.6	15.1	-179.77	565.8	-232.5	620.2	582.6	37.61	16.492	
6,100.0	5,937.8	5,995.8	5,936.8	23.6	15.2	-179.77	565.8	-232.5	620.2	582.4	37.81	16.403	
6,200.0	6,037.8	6,095.8	6,036.8	23.7	15.3	-179.77	565.8	-232.5	620.2	582.2	38.02	16.314	
6,300.0	6,137.8	6,195.8	6,136.8	23.8	15.4	-179.77	565.8	-232.5	620.2	582.0	38.23	16.225	
6,400.0	6,237.8	6,295.9	6,236.9	23.9	15.5	-179.87	565.8	-231.4	620.2	581.8	38.45	16.132	
6,411.8	6,249.6	6,307.7	6,248.7	23.9	15.5	90.70	565.8	-230.6	620.2	596.7	23.48	26.419	
6,500.0	6,337.8	6,394.7	6,334.8	24.0	15.6	89.72	565.8	-219.1	620.3	596.8	23.50	26.398	
6,600.0	6,436.9	6,491.4	6,428.2	24.0	15.6	88.44	565.8	-194.1	620.8	597.4	23.42	26.513	
6,700.0	6,533.4	6,586.5	6,515.9	24.0	15.6	87.21	565.8	-157.6	621.8	598.4	23.35	26.626	
6,800.0	6,625.4	6,680.0	6,596.7	24.0	15.6	86.04	565.8	-110.6	623.1	599.7	23.42	26.608	
6,900.0	6,711.0	6,772.2	6,669.7	24.0	15.6	84.95	565.8	-54.3	624.7	600.9	23.72	26.332	
7,000.0	6,788.6	6,863.3	6,734.1	24.1	15.7	83.96	565.8	9.9	626.5	602.1	24.36	25.718	
7,100.0	6,856.7	6,953.3	6,789.3	24.2	16.0	83.08	565.8	81.0	628.4	602.9	25.42	24.716	
7,200.0	6,914.0	7,042.5	6,834.7	24.4	16.4	82.33	565.8	157.7	630.3	603.3	26.97	23.373	
7,300.0	6,959.3	7,131.1	6,870.0	24.8	17.0	81.72	565.8	238.9	632.1	603.1	28.99	21.807	
7,400.0	6,991.7	7,219.1	6,895.0	25.3	17.9	81.25	565.8	323.3	633.8	602.4	31.44	20.160	
7,500.0	7,010.7	7,306.9	6,909.4	26.0	19.1	80.94	565.8	409.8	635.3	601.1	34.25	18.549	
7,600.0	7,016.4	7,398.2	6,913.6	26.9	20.6	80.81	565.8	500.9	636.6	599.1	37.50	16.975	
7,700.0	7,018.1	7,498.1	6,915.3	28.0	22.3	80.83	565.8	600.9	637.7	596.3	41.42	15.394	
7,800.0	7,019.8	7,598.1	6,917.1	29.4	24.2	80.84	565.8	700.8	638.8	593.3	45.53	14.029	
7,900.0	7,021.6	7,698.1	6,918.8	30.9	26.3	80.86	565.8	800.8	639.9	590.1	49.78	12.854	
8,000.0	7,023.3	7,798.1	6,920.6	32.5	28.4	80.87	565.8	900.8	641.0	586.9	54.14	11.840	
8,100.0	7,025.1	7,898.1	6,922.3	34.3	30.5	80.89	565.8	1,000.8	642.1	583.5	58.58	10.961	
8,200.0	7,026.8	7,998.1	6,924.1	36.2	32.7	80.91	565.8	1,100.8	643.2	580.1	63.09	10.195	
8,300.0	7,028.6	8,098.1	6,925.8	38.1	35.0	80.92	565.8	1,200.7	644.3	576.7	67.65	9.524	
8,400.0	7,030.3	8,198.1	6,927.6	40.2	37.2	80.94	565.8	1,300.7	645.4	573.2	72.25	8.933	
8,500.0	7,032.1	8,298.1	6,929.3	42.3	39.5	80.95	565.8	1,400.7	646.5	569.6	76.89	8.408	
8,600.0	7,033.8	8,398.1	6,931.0	44.4	41.8	80.97	565.8	1,500.7	647.6	566.1	81.56	7.940	
8,700.0	7,035.6	8,498.1	6,932.8	46.6	44.2	80.98	565.8	1,600.7	648.7	562.5	86.26	7.521	
8,800.0	7,037.3	8,598.1	6,934.5	48.8	46.5	81.00	565.8	1,700.6	649.9	558.9	90.97	7.143	
8,900.0	7,039.0	8,698.1	6,936.3	51.1	48.9	81.02	565.8	1,800.6	651.0	555.3	95.71	6.802	
9,000.0	7,040.8	8,798.1	6,938.0	53.3	51.3	81.03	565.8	1,900.6	652.1	551.6	100.45	6.491	
9,100.0	7,042.5	8,898.1	6,939.8	55.6	53.6	81.05	565.8	2,000.6	653.2	548.0	105.22	6.208	
9,200.0	7,044.3	8,998.1	6,941.5	57.9	56.0	81.06	565.8	2,100.5	654.3	544.3	109.99	5.949	
9,300.0	7,046.0	9,098.0	6,943.3	60.2	58.4	81.08	565.7	2,200.5	655.4	540.6	114.77	5.710	
9,400.0	7,047.8	9,198.0	6,945.0	62.6	60.8	81.09	565.7	2,300.5	656.5	536.9	119.57	5.491	
9,500.0	7,049.5	9,298.0	6,946.7	64.9	63.2	81.11	565.7	2,400.5	657.6	533.2	124.37	5.288	
9,600.0	7,051.3	9,398.0	6,948.5	67.3	65.6	81.12	565.7	2,500.5	658.7	529.5	129.18	5.099	
9,700.0	7,053.0	9,498.0	6,950.2	69.6	68.1	81.14	565.7	2,600.4	659.8	525.8	133.99	4.924	
9,800.0	7,054.7	9,598.0	6,952.0	72.0	70.5	81.15	565.7	2,700.4	660.9	522.1	138.81	4.761	
9,900.0	7,056.5	9,698.0	6,953.7	74.4	72.9	81.17	565.7	2,800.4	662.0	518.4	143.64	4.609	
10,000.0	7,058.2	9,798.0	6,955.5	76.8	75.3	81.18	565.7	2,900.4	663.1	514.7	148.47	4.466	
10,100.0	7,060.0	9,898.0	6,957.2	79.2	77.8	81.20	565.7	3,000.4	664.2	510.9	153.30	4.333	
10,200.0	7,061.7	9,998.0	6,959.0	81.6	80.2	81.21	565.7	3,100.3	665.3	507.2	158.14	4.207	

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 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2C-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	7,063.5	10,098.0	6,960.7	84.0	82.6	81.23	565.7	3,200.3	666.5	503.5	162.99	4.089	
10,400.0	7,065.2	10,198.0	6,962.5	86.4	85.1	81.24	565.7	3,300.3	667.6	499.7	167.83	3.978	
10,500.0	7,067.0	10,298.0	6,964.2	88.8	87.5	81.26	565.7	3,400.3	668.7	496.0	172.68	3.872	
10,600.0	7,068.7	10,398.0	6,965.9	91.2	90.0	81.27	565.7	3,500.2	669.8	492.2	177.53	3.773	
10,700.0	7,070.5	10,498.0	6,967.7	93.6	92.4	81.28	565.7	3,600.2	670.9	488.5	182.39	3.678	
10,800.0	7,072.2	10,598.0	6,969.4	96.0	94.8	81.30	565.7	3,700.2	672.0	484.7	187.25	3.589	
10,900.0	7,073.9	10,697.9	6,971.2	98.4	97.3	81.31	565.7	3,800.2	673.1	481.0	192.11	3.504	
11,000.0	7,075.7	10,797.9	6,972.9	100.9	99.7	81.33	565.7	3,900.2	674.2	477.2	196.97	3.423	
11,100.0	7,077.4	10,897.9	6,974.7	103.3	102.2	81.34	565.7	4,000.1	675.3	473.5	201.83	3.346	
11,200.0	7,079.2	10,997.9	6,976.4	105.7	104.6	81.36	565.7	4,100.1	676.4	469.7	206.70	3.272	
11,300.0	7,080.9	11,097.9	6,978.2	108.1	107.1	81.37	565.7	4,200.1	677.5	466.0	211.57	3.202	
11,400.0	7,082.7	11,197.9	6,979.9	110.6	109.5	81.38	565.7	4,300.1	678.6	462.2	216.44	3.135	
11,500.0	7,084.4	11,297.9	6,981.7	113.0	112.0	81.40	565.7	4,400.1	679.7	458.4	221.31	3.071	
11,600.0	7,086.2	11,397.9	6,983.4	115.4	114.5	81.41	565.7	4,500.0	680.8	454.7	226.18	3.010	
11,700.0	7,087.9	11,497.9	6,985.1	117.9	116.9	81.43	565.7	4,600.0	682.0	450.9	231.06	2.951	
11,800.0	7,089.7	11,597.9	6,986.9	120.3	119.4	81.44	565.7	4,700.0	683.1	447.1	235.93	2.895	
11,900.0	7,091.4	11,697.9	6,988.6	122.8	121.8	81.46	565.7	4,800.0	684.2	443.4	240.81	2.841	
12,000.0	7,093.1	11,797.9	6,990.4	125.2	124.3	81.47	565.7	4,899.9	685.3	439.6	245.69	2.789	
12,100.0	7,094.9	11,897.9	6,992.1	127.7	126.7	81.48	565.7	4,999.9	686.4	435.8	250.57	2.739	
12,200.0	7,096.6	11,997.9	6,993.9	130.1	129.2	81.50	565.7	5,099.9	687.5	432.0	255.45	2.691	
12,300.0	7,098.4	12,097.9	6,995.6	132.5	131.7	81.51	565.7	5,199.9	688.6	428.3	260.33	2.645	
12,400.0	7,100.1	12,197.9	6,997.4	135.0	134.1	81.52	565.7	5,299.9	689.7	424.5	265.21	2.601	
12,500.0	7,101.9	12,297.8	6,999.1	137.4	136.6	81.54	565.7	5,399.8	690.8	420.7	270.10	2.558	
12,600.0	7,103.6	12,397.8	7,000.8	139.9	139.0	81.55	565.7	5,499.8	691.9	416.9	274.98	2.516	
12,700.0	7,105.4	12,497.8	7,002.6	142.3	141.5	81.57	565.7	5,599.8	693.0	413.2	279.87	2.476	
12,800.0	7,107.1	12,597.8	7,004.3	144.8	144.0	81.58	565.7	5,699.8	694.1	409.4	284.76	2.438	
12,900.0	7,108.9	12,697.8	7,006.1	147.2	146.4	81.59	565.7	5,799.7	695.3	405.6	289.64	2.400	
13,000.0	7,110.6	12,797.8	7,007.8	149.7	148.9	81.61	565.7	5,899.7	696.4	401.8	294.53	2.364	
13,100.0	7,112.3	12,897.8	7,009.6	152.1	151.3	81.62	565.7	5,999.7	697.5	398.0	299.42	2.329	
13,200.0	7,114.1	12,997.8	7,011.3	154.6	153.8	81.63	565.7	6,099.7	698.6	394.3	304.31	2.296	
13,300.0	7,115.8	13,097.8	7,013.1	157.0	156.3	81.65	565.7	6,199.7	699.7	390.5	309.20	2.263	
13,400.0	7,117.6	13,197.8	7,014.8	159.5	158.7	81.66	565.7	6,299.6	700.8	386.7	314.09	2.231	
13,500.0	7,119.3	13,297.8	7,016.6	162.0	161.2	81.67	565.7	6,399.6	701.9	382.9	318.99	2.200	
13,600.0	7,121.1	13,397.8	7,018.3	164.4	163.7	81.69	565.7	6,499.6	703.0	379.1	323.88	2.171	
13,700.0	7,122.8	13,497.8	7,020.0	166.9	166.1	81.70	565.7	6,599.6	704.1	375.3	328.77	2.142	
13,800.0	7,124.6	13,597.8	7,021.8	169.3	168.6	81.71	565.7	6,699.6	705.2	371.6	333.67	2.114	
13,900.0	7,126.3	13,697.8	7,023.5	171.8	171.1	81.73	565.7	6,799.5	706.3	367.8	338.56	2.086	
14,000.0	7,128.0	13,797.8	7,025.3	174.2	173.5	81.74	565.7	6,899.5	707.4	364.0	343.46	2.060	
14,100.0	7,129.8	13,897.7	7,027.0	176.7	176.0	81.75	565.7	6,999.5	708.6	360.2	348.35	2.034	
14,200.0	7,131.5	13,997.7	7,028.8	179.2	178.4	81.76	565.7	7,099.5	709.7	356.4	353.25	2.009	
14,266.5	7,132.7	14,064.3	7,029.9	180.8	180.1	81.77	565.7	7,166.0	710.4	353.9	356.51	1.993	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2D-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	-29.1	0.0	29.2				
100.0	100.0	99.0	99.0	0.2	0.2	180.00	-29.1	0.0	29.1	28.8	0.30	96.459	
200.0	200.0	199.0	199.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.65	44.772	CC
300.0	300.0	299.4	299.4	0.5	0.5	-168.19	-28.5	-0.6	29.4	28.4	1.00	29.353	ES
400.0	400.0	399.7	399.7	0.7	0.7	-165.71	-26.6	-2.4	30.1	28.8	1.35	22.248	
500.0	499.9	500.0	499.9	0.9	0.9	-161.84	-23.5	-5.4	31.4	29.7	1.71	18.357	
600.0	599.7	600.3	600.0	1.1	1.1	-156.96	-19.0	-9.7	33.5	31.4	2.09	16.069	
700.0	699.4	700.5	699.9	1.3	1.3	-151.55	-13.4	-15.1	36.5	34.0	2.48	14.700	
800.0	798.9	800.7	799.6	1.5	1.5	-146.06	-6.4	-21.7	40.5	37.5	2.91	13.900	
900.0	898.3	900.7	899.0	1.8	1.8	-140.87	1.8	-29.6	45.5	42.2	3.38	13.464	
1,000.0	997.4	1,000.7	998.1	2.0	2.0	-136.18	11.2	-38.6	51.8	47.9	3.90	13.264	
1,100.0	1,096.3	1,100.6	1,096.9	2.3	2.3	-132.08	21.9	-48.8	59.1	54.7	4.47	13.217	
1,200.0	1,194.9	1,200.3	1,195.2	2.7	2.7	-128.56	33.8	-60.2	67.6	62.5	5.10	13.267	
1,300.0	1,293.3	1,299.8	1,293.1	3.0	3.0	-125.58	46.9	-72.7	77.2	71.4	5.77	13.375	
1,400.0	1,391.2	1,399.3	1,390.5	3.4	3.4	-123.06	61.2	-86.4	87.9	81.4	6.50	13.518	
1,500.0	1,488.9	1,498.5	1,487.4	3.8	3.8	-120.92	76.7	-101.3	99.6	92.3	7.28	13.679	
1,600.0	1,586.1	1,597.6	1,583.8	4.2	4.2	-119.10	93.4	-117.2	112.3	104.2	8.11	13.846	
1,700.0	1,682.9	1,696.6	1,679.7	4.7	4.7	-117.77	111.0	-134.0	126.1	117.1	8.98	14.042	
1,800.0	1,779.3	1,795.5	1,775.6	5.2	5.1	-117.28	128.6	-150.8	140.6	130.8	9.86	14.266	
1,900.0	1,875.2	1,894.3	1,871.4	5.7	5.6	-117.43	146.1	-167.6	156.0	145.2	10.75	14.507	
2,000.0	1,970.8	1,993.3	1,967.5	6.2	6.0	-118.20	163.2	-183.9	171.7	160.1	11.61	14.785	
2,100.0	2,066.4	2,092.2	2,064.3	6.7	6.4	-119.85	177.9	-198.0	187.4	175.0	12.39	15.129	
2,200.0	2,161.9	2,190.7	2,161.3	7.3	6.7	-122.20	190.2	-209.8	203.2	190.1	13.06	15.560	
2,300.0	2,257.5	2,288.5	2,258.2	7.8	6.9	-125.09	200.1	-219.2	219.5	205.9	13.62	16.117	
2,400.0	2,353.1	2,385.5	2,354.6	8.3	7.2	-128.36	207.4	-226.2	236.6	222.5	14.05	16.837	
2,500.0	2,448.7	2,481.4	2,450.2	8.8	7.3	-131.88	212.4	-231.0	254.9	240.6	14.36	17.755	
2,600.0	2,544.3	2,576.0	2,544.8	9.4	7.5	-135.54	215.0	-233.5	274.9	260.4	14.54	18.905	
2,700.0	2,639.9	2,670.1	2,638.9	9.9	7.6	-139.25	215.6	-234.0	296.8	282.1	14.63	20.285	
2,800.0	2,735.5	2,765.7	2,734.5	10.4	7.7	-142.63	215.6	-234.0	320.0	305.3	14.69	21.778	
2,900.0	2,831.1	2,861.3	2,830.1	11.0	7.8	-145.55	215.6	-234.0	344.1	329.3	14.76	23.312	
3,000.0	2,926.7	2,956.9	2,925.7	11.5	7.9	-148.10	215.6	-234.0	369.0	354.2	14.84	24.860	
3,100.0	3,022.3	3,052.5	3,021.3	12.1	8.0	-150.33	215.6	-234.0	394.5	379.6	14.94	26.403	
3,200.0	3,117.9	3,148.1	3,116.9	12.6	8.1	-152.29	215.6	-234.0	420.5	405.5	15.06	27.929	
3,300.0	3,213.5	3,243.7	3,212.5	13.1	8.2	-154.03	215.6	-234.0	447.0	431.8	15.19	29.427	
3,400.0	3,309.1	3,339.3	3,308.1	13.7	8.3	-155.57	215.6	-234.0	473.7	458.4	15.34	30.890	
3,500.0	3,404.7	3,434.9	3,403.7	14.2	8.4	-156.95	215.6	-234.0	500.8	485.3	15.50	32.313	
3,600.0	3,500.3	3,530.5	3,499.3	14.7	8.6	-158.19	215.6	-234.0	528.1	512.4	15.67	33.692	
3,700.0	3,595.9	3,626.1	3,594.9	15.3	8.7	-159.31	215.6	-234.0	555.6	539.8	15.86	35.027	
3,800.0	3,691.5	3,721.7	3,690.5	15.8	8.8	-160.32	215.6	-234.0	583.3	567.3	16.06	36.315	
3,900.0	3,787.0	3,817.3	3,786.0	16.4	8.9	-161.25	215.6	-234.0	611.2	594.9	16.27	37.558	
4,000.0	3,882.6	3,912.9	3,881.6	16.9	9.1	-162.09	215.6	-234.0	639.2	622.7	16.49	38.755	
4,100.0	3,978.2	4,008.5	3,977.2	17.4	9.2	-162.86	215.6	-234.0	667.3	650.5	16.72	39.907	
4,200.0	4,073.8	4,104.0	4,072.8	18.0	9.3	-163.57	215.6	-234.0	695.5	678.5	16.96	41.016	
4,300.0	4,169.4	4,199.6	4,168.4	18.5	9.4	-164.23	215.6	-234.0	723.8	706.6	17.20	42.082	
4,400.0	4,265.0	4,295.2	4,264.0	19.1	9.6	-164.83	215.6	-234.0	752.2	734.7	17.45	43.108	
4,500.0	4,360.6	4,390.8	4,359.6	19.6	9.7	-165.39	215.6	-234.0	780.6	762.9	17.70	44.094	
4,600.0	4,456.2	4,486.4	4,455.2	20.1	9.8	-165.92	215.6	-234.0	809.1	791.2	17.96	45.043	
4,700.0	4,551.8	4,582.0	4,550.8	20.7	10.0	-166.40	215.6	-234.0	837.7	819.5	18.23	45.956	
4,800.0	4,647.6	4,677.8	4,646.6	21.2	10.1	-166.94	215.6	-234.0	865.6	847.1	18.52	46.734	
4,900.0	4,744.3	4,774.6	4,743.3	21.6	10.2	-167.42	215.6	-234.0	890.4	871.6	18.83	47.295	
5,000.0	4,841.9	4,872.1	4,840.9	22.0	10.4	-167.81	215.6	-234.0	911.9	892.8	19.13	47.666	
5,100.0	4,940.1	4,970.3	4,939.1	22.4	10.5	-168.13	215.6	-234.0	930.1	910.7	19.43	47.860	

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 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2D-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	5,039.0	5,069.2	5,038.0	22.7	10.7	-168.38	215.6	-234.0	945.0	925.3	19.73	47.888	
5,300.0	5,138.3	5,168.5	5,137.3	22.9	10.8	-168.57	215.6	-234.0	956.5	936.4	20.03	47.759	
5,400.0	5,237.9	5,268.1	5,236.9	23.1	10.9	-168.70	215.6	-234.0	964.5	944.2	20.31	47.483	
5,500.0	5,337.8	5,368.0	5,336.8	23.2	11.1	-168.77	215.6	-234.0	969.2	948.6	20.59	47.066	
5,600.0	5,437.8	5,468.0	5,436.8	23.3	11.2	-179.76	215.6	-234.0	970.5	937.2	33.28	29.163	
5,700.0	5,537.8	5,568.0	5,536.8	23.3	11.4	-179.76	215.6	-234.0	970.5	936.9	33.51	28.959	
5,800.0	5,637.8	5,668.0	5,636.8	23.4	11.5	-179.76	215.6	-234.0	970.5	936.7	33.75	28.756	
5,900.0	5,737.8	5,768.0	5,736.8	23.5	11.7	-179.76	215.6	-234.0	970.5	936.5	33.99	28.555	
6,000.0	5,837.8	5,868.0	5,836.8	23.6	11.8	-179.76	215.6	-234.0	970.5	936.2	34.23	28.355	
6,100.0	5,937.8	5,968.0	5,936.8	23.6	12.0	-179.76	215.6	-234.0	970.5	936.0	34.47	28.157	
6,200.0	6,037.8	6,068.0	6,036.8	23.7	12.1	-179.76	215.6	-234.0	970.5	935.7	34.71	27.961	
6,300.0	6,137.8	6,168.0	6,136.8	23.8	12.3	-179.76	215.6	-234.0	970.5	935.5	34.95	27.766	
6,400.0	6,237.8	6,268.0	6,236.8	23.9	12.4	-179.76	215.6	-234.0	970.5	935.3	35.20	27.573	
6,441.7	6,279.5	6,309.7	6,278.5	23.9	12.5	90.90	215.6	-234.0	970.5	946.9	23.61	41.104	
6,500.0	6,337.8	6,368.0	6,336.8	24.0	12.6	90.94	215.6	-234.0	970.5	946.7	23.80	40.777	
6,600.0	6,436.9	6,468.1	6,436.8	24.0	12.7	91.57	215.6	-232.9	970.7	946.6	24.12	40.249	
6,700.0	6,533.4	6,570.5	6,538.3	24.0	12.8	92.34	215.6	-219.9	971.3	947.0	24.30	39.979	
6,800.0	6,625.4	6,674.9	6,638.8	24.0	12.8	93.07	215.6	-191.9	972.3	947.9	24.34	39.944	
6,900.0	6,711.0	6,781.4	6,736.1	24.0	12.8	93.74	215.6	-148.6	973.4	949.1	24.34	39.991	
7,000.0	6,788.6	6,890.0	6,827.4	24.1	12.8	94.34	215.6	-90.2	974.8	950.4	24.46	39.857	
7,100.0	6,856.7	7,000.5	6,910.3	24.2	12.9	94.85	215.6	-17.2	976.4	951.5	24.92	39.186	
7,200.0	6,914.0	7,112.8	6,981.9	24.4	13.3	95.27	215.6	69.1	978.0	952.0	25.98	37.639	
7,300.0	6,959.3	7,226.5	7,039.9	24.8	14.1	95.57	215.6	166.8	979.5	951.7	27.85	35.176	
7,400.0	6,991.7	7,341.4	7,082.0	25.3	15.5	95.74	215.6	273.5	981.0	950.4	30.57	32.088	
7,500.0	7,010.7	7,456.9	7,106.7	26.0	17.2	95.79	215.6	386.3	982.3	948.3	34.08	28.827	
7,600.0	7,016.4	7,568.4	7,113.5	26.9	19.2	95.74	215.6	497.5	983.5	945.5	38.01	25.872	
7,700.0	7,018.1	7,668.4	7,115.2	28.0	21.1	95.73	215.6	597.4	984.6	942.7	41.91	23.495	
7,800.0	7,019.8	7,768.4	7,117.0	29.4	23.1	95.73	215.6	697.4	985.7	939.7	45.99	21.433	
7,900.0	7,021.6	7,868.4	7,118.7	30.9	25.2	95.72	215.6	797.4	986.8	936.6	50.22	19.648	
8,000.0	7,023.3	7,968.4	7,120.5	32.5	27.4	95.71	215.6	897.4	987.9	933.3	54.57	18.102	
8,100.0	7,025.1	8,068.4	7,122.2	34.3	29.6	95.71	215.6	997.4	989.0	930.0	59.02	16.759	
8,200.0	7,026.8	8,168.4	7,124.0	36.2	31.9	95.70	215.6	1,097.3	990.1	926.6	63.53	15.586	
8,300.0	7,028.6	8,268.4	7,125.7	38.1	34.2	95.69	215.6	1,197.3	991.2	923.1	68.10	14.556	
8,400.0	7,030.3	8,368.3	7,127.4	40.2	36.5	95.69	215.6	1,297.3	992.3	919.6	72.71	13.647	
8,500.0	7,032.1	8,468.3	7,129.2	42.3	38.8	95.68	215.6	1,397.3	993.4	916.1	77.37	12.841	
8,600.0	7,033.8	8,568.3	7,130.9	44.4	41.1	95.67	215.6	1,497.2	994.6	912.5	82.05	12.121	
8,700.0	7,035.6	8,668.3	7,132.7	46.6	43.5	95.67	215.7	1,597.2	995.7	908.9	86.77	11.475	
8,800.0	7,037.3	8,768.3	7,134.4	48.8	45.9	95.66	215.7	1,697.2	996.8	905.3	91.50	10.894	
8,900.0	7,039.0	8,868.3	7,136.2	51.1	48.3	95.66	215.7	1,797.2	997.9	901.6	96.25	10.367	
9,000.0	7,040.8	8,968.3	7,137.9	53.3	50.6	95.65	215.7	1,897.2	999.0	898.0	101.02	9.889	
9,100.0	7,042.5	9,068.3	7,139.7	55.6	53.0	95.64	215.7	1,997.1	1,000.1	894.3	105.81	9.452	
9,200.0	7,044.3	9,168.3	7,141.4	57.9	55.5	95.64	215.7	2,097.1	1,001.2	890.6	110.61	9.052	
9,300.0	7,046.0	9,268.3	7,143.1	60.2	57.9	95.63	215.7	2,197.1	1,002.3	886.9	115.41	8.684	
9,400.0	7,047.8	9,368.3	7,144.9	62.6	60.3	95.62	215.7	2,297.1	1,003.4	883.2	120.23	8.346	
9,500.0	7,049.5	9,468.3	7,146.6	64.9	62.7	95.62	215.7	2,397.1	1,004.5	879.5	125.06	8.032	
9,600.0	7,051.3	9,568.3	7,148.4	67.3	65.1	95.61	215.7	2,497.0	1,005.6	875.7	129.89	7.742	
9,700.0	7,053.0	9,668.3	7,150.1	69.6	67.6	95.61	215.7	2,597.0	1,006.7	872.0	134.73	7.472	
9,800.0	7,054.7	9,768.3	7,151.9	72.0	70.0	95.60	215.7	2,697.0	1,007.8	868.3	139.58	7.221	
9,900.0	7,056.5	9,868.3	7,153.6	74.4	72.4	95.59	215.7	2,797.0	1,009.0	864.5	144.43	6.986	
10,000.0	7,058.2	9,968.2	7,155.4	76.8	74.9	95.59	215.7	2,896.9	1,010.1	860.8	149.29	6.766	
10,100.0	7,060.0	10,068.2	7,157.1	79.2	77.3	95.58	215.7	2,996.9	1,011.2	857.0	154.15	6.560	
10,200.0	7,061.7	10,168.2	7,158.9	81.6	79.7	95.57	215.7	3,096.9	1,012.3	853.3	159.01	6.366	

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 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2D-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	7,063.5	10,268.2	7,160.6	84.0	82.2	95.57	215.7	3,196.9	1,013.4	849.5	163.88	6.184	
10,400.0	7,065.2	10,368.2	7,162.3	86.4	84.6	95.56	215.8	3,296.9	1,014.5	845.7	168.75	6.012	
10,500.0	7,067.0	10,468.2	7,164.1	88.8	87.1	95.56	215.8	3,396.8	1,015.6	842.0	173.63	5.849	
10,600.0	7,068.7	10,568.2	7,165.8	91.2	89.5	95.55	215.8	3,496.8	1,016.7	838.2	178.51	5.696	
10,700.0	7,070.5	10,668.2	7,167.6	93.6	92.0	95.54	215.8	3,596.8	1,017.8	834.4	183.39	5.550	
10,800.0	7,072.2	10,768.2	7,169.3	96.0	94.4	95.54	215.8	3,696.8	1,018.9	830.7	188.27	5.412	
10,900.0	7,073.9	10,868.2	7,171.1	98.4	96.9	95.53	215.8	3,796.8	1,020.0	826.9	193.16	5.281	
11,000.0	7,075.7	10,968.2	7,172.8	100.9	99.3	95.53	215.8	3,896.7	1,021.1	823.1	198.04	5.156	
11,100.0	7,077.4	11,068.2	7,174.6	103.3	101.8	95.52	215.8	3,996.7	1,022.3	819.3	202.93	5.037	
11,200.0	7,079.2	11,168.2	7,176.3	105.7	104.2	95.51	215.8	4,096.7	1,023.4	815.5	207.83	4.924	
11,300.0	7,080.9	11,268.2	7,178.0	108.1	106.7	95.51	215.8	4,196.7	1,024.5	811.8	212.72	4.816	
11,400.0	7,082.7	11,368.2	7,179.8	110.6	109.1	95.50	215.8	4,296.6	1,025.6	808.0	217.61	4.713	
11,500.0	7,084.4	11,468.2	7,181.5	113.0	111.6	95.50	215.8	4,396.6	1,026.7	804.2	222.51	4.614	
11,600.0	7,086.2	11,568.1	7,183.3	115.4	114.1	95.49	215.8	4,496.6	1,027.8	800.4	227.41	4.520	
11,700.0	7,087.9	11,668.1	7,185.0	117.9	116.5	95.48	215.8	4,596.6	1,028.9	796.6	232.31	4.429	
11,800.0	7,089.7	11,768.1	7,186.8	120.3	119.0	95.48	215.8	4,696.6	1,030.0	792.8	237.21	4.342	
11,900.0	7,091.4	11,868.1	7,188.5	122.8	121.4	95.47	215.8	4,796.5	1,031.1	789.0	242.11	4.259	
12,000.0	7,093.1	11,968.1	7,190.3	125.2	123.9	95.47	215.8	4,896.5	1,032.2	785.2	247.01	4.179	
12,100.0	7,094.9	12,068.1	7,192.0	127.7	126.4	95.46	215.8	4,996.5	1,033.3	781.4	251.92	4.102	
12,200.0	7,096.6	12,168.1	7,193.8	130.1	128.8	95.46	215.9	5,096.5	1,034.4	777.6	256.82	4.028	
12,300.0	7,098.4	12,268.1	7,195.5	132.5	131.3	95.45	215.9	5,196.5	1,035.6	773.8	261.73	3.957	
12,400.0	7,100.1	12,368.1	7,197.2	135.0	133.7	95.44	215.9	5,296.4	1,036.7	770.0	266.63	3.888	
12,500.0	7,101.9	12,468.1	7,199.0	137.4	136.2	95.44	215.9	5,396.4	1,037.8	766.2	271.54	3.822	
12,600.0	7,103.6	12,568.1	7,200.7	139.9	138.7	95.43	215.9	5,496.4	1,038.9	762.4	276.45	3.758	
12,700.0	7,105.4	12,668.1	7,202.5	142.3	141.1	95.43	215.9	5,596.4	1,040.0	758.6	281.36	3.696	
12,800.0	7,107.1	12,768.1	7,204.2	144.8	143.6	95.42	215.9	5,696.3	1,041.1	754.8	286.27	3.637	
12,900.0	7,108.9	12,868.1	7,206.0	147.2	146.1	95.41	215.9	5,796.3	1,042.2	751.0	291.18	3.579	
13,000.0	7,110.6	12,968.1	7,207.7	149.7	148.5	95.41	215.9	5,896.3	1,043.3	747.2	296.09	3.524	
13,100.0	7,112.3	13,068.1	7,209.5	152.1	151.0	95.40	215.9	5,996.3	1,044.4	743.4	301.00	3.470	
13,200.0	7,114.1	13,168.0	7,211.2	154.6	153.5	95.40	215.9	6,096.3	1,045.5	739.6	305.91	3.418	
13,300.0	7,115.8	13,268.0	7,213.0	157.0	155.9	95.39	215.9	6,196.2	1,046.6	735.8	310.83	3.367	
13,400.0	7,117.6	13,368.0	7,214.7	159.5	158.4	95.39	215.9	6,296.2	1,047.7	732.0	315.74	3.318	
13,500.0	7,119.3	13,468.0	7,216.4	162.0	160.9	95.38	215.9	6,396.2	1,048.9	728.2	320.65	3.271	
13,600.0	7,121.1	13,568.0	7,218.2	164.4	163.3	95.37	215.9	6,496.2	1,050.0	724.4	325.57	3.225	
13,700.0	7,122.8	13,668.0	7,219.9	166.9	165.8	95.37	215.9	6,596.2	1,051.1	720.6	330.48	3.180	
13,800.0	7,124.6	13,768.0	7,221.7	169.3	168.3	95.36	215.9	6,696.1	1,052.2	716.8	335.40	3.137	
13,900.0	7,126.3	13,868.0	7,223.4	171.8	170.7	95.36	216.0	6,796.1	1,053.3	713.0	340.31	3.095	
14,000.0	7,128.0	13,968.0	7,225.2	174.2	173.2	95.35	216.0	6,896.1	1,054.4	709.2	345.23	3.054	
14,100.0	7,129.8	14,068.0	7,226.9	176.7	175.7	95.35	216.0	6,996.1	1,055.5	705.4	350.15	3.014	
14,200.0	7,131.5	14,168.0	7,228.7	179.2	178.1	95.34	216.0	7,096.0	1,056.6	701.5	355.07	2.976	
14,266.5	7,132.7	14,234.5	7,229.8	180.8	179.8	95.34	216.0	7,162.6	1,057.3	699.0	358.34	2.951	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2E-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	-36.4	0.0	36.4				
100.0	100.0	99.0	99.0	0.2	0.2	-180.00	-36.4	0.0	36.4	36.1	0.30	120.571	
200.0	200.0	199.0	199.0	0.3	0.3	-180.00	-36.4	0.0	36.4	35.8	0.65	55.964	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-169.28	-36.4	0.0	37.3	36.3	1.00	37.289	
400.0	400.0	399.0	399.0	0.7	0.7	-169.97	-36.4	0.0	39.9	38.5	1.35	29.555	
500.0	499.9	498.6	498.6	0.9	0.8	-169.92	-36.8	-0.8	44.5	42.8	1.70	26.201	
600.0	599.7	598.0	598.0	1.1	1.0	-168.43	-37.7	-3.2	51.5	49.4	2.05	25.119	
700.0	699.4	697.1	697.0	1.3	1.2	-166.16	-39.4	-7.1	60.9	58.5	2.40	25.315	
800.0	798.9	795.9	795.6	1.5	1.4	-163.64	-41.7	-12.6	72.8	70.1	2.77	26.292	
900.0	898.3	894.1	893.5	1.8	1.6	-161.21	-44.6	-19.7	87.4	84.2	3.15	27.762	
1,000.0	997.4	991.7	990.6	2.0	1.8	-158.99	-48.1	-28.2	104.5	101.0	3.54	29.541	
1,100.0	1,096.3	1,089.0	1,087.3	2.3	2.0	-157.06	-52.3	-38.1	124.3	120.3	3.94	31.509	
1,200.0	1,194.9	1,186.6	1,184.3	2.7	2.3	-155.80	-56.5	-48.4	145.8	141.5	4.36	33.458	
1,300.0	1,293.3	1,283.9	1,280.9	3.0	2.5	-155.08	-60.8	-58.6	169.0	164.2	4.78	35.351	
1,400.0	1,391.2	1,380.8	1,377.2	3.4	2.8	-154.73	-65.0	-68.8	193.7	188.5	5.21	37.191	
1,500.0	1,488.9	1,477.2	1,473.1	3.8	3.0	-154.63	-69.2	-79.0	219.9	214.3	5.64	38.989	
1,600.0	1,586.1	1,573.3	1,568.5	4.2	3.3	-154.70	-73.4	-89.1	247.7	241.6	6.08	40.752	
1,700.0	1,682.9	1,668.9	1,663.5	4.7	3.5	-154.88	-77.6	-99.2	277.0	270.4	6.52	42.489	
1,800.0	1,779.3	1,764.0	1,758.0	5.2	3.7	-155.14	-81.8	-109.2	307.7	300.8	6.96	44.208	
1,900.0	1,875.2	1,858.7	1,852.0	5.7	4.0	-155.45	-85.9	-119.2	340.0	332.6	7.41	45.911	
2,000.0	1,970.8	1,953.0	1,945.7	6.2	4.2	-155.88	-90.1	-129.1	373.2	365.4	7.86	47.460	
2,100.0	2,066.4	2,047.3	2,039.4	6.7	4.5	-156.25	-94.2	-139.0	406.4	398.1	8.32	48.830	
2,200.0	2,161.9	2,141.5	2,133.0	7.3	4.7	-156.56	-98.3	-149.0	439.6	430.9	8.78	50.054	
2,300.0	2,257.5	2,235.8	2,226.7	7.8	5.0	-156.83	-102.4	-158.9	472.9	463.6	9.24	51.153	
2,400.0	2,353.1	2,330.1	2,320.4	8.3	5.2	-157.06	-106.5	-168.8	506.1	496.4	9.71	52.145	
2,500.0	2,448.7	2,424.4	2,414.1	8.8	5.5	-157.27	-110.7	-178.7	539.3	529.2	10.17	53.045	
2,600.0	2,544.3	2,518.7	2,507.8	9.4	5.7	-157.45	-114.8	-188.7	572.6	561.9	10.63	53.865	
2,700.0	2,639.9	2,613.0	2,601.5	9.9	6.0	-157.61	-118.9	-198.6	605.8	594.7	11.09	54.615	
2,800.0	2,735.5	2,707.3	2,695.1	10.4	6.2	-157.76	-123.0	-208.5	639.1	627.5	11.56	55.304	
2,900.0	2,831.1	2,803.0	2,790.2	11.0	6.5	-157.89	-127.2	-218.6	672.3	660.3	12.02	55.929	
3,000.0	2,926.7	2,911.7	2,898.4	11.5	6.7	-158.20	-131.0	-227.8	704.4	692.0	12.47	56.506	
3,100.0	3,022.3	3,021.4	3,008.0	12.1	6.9	-158.78	-133.3	-233.2	734.6	721.8	12.86	57.135	
3,200.0	3,117.9	3,130.4	3,116.9	12.6	7.0	-159.57	-133.9	-234.7	763.0	749.8	13.20	57.810	
3,300.0	3,213.5	3,226.0	3,212.5	13.1	7.2	-160.31	-133.9	-234.7	790.7	777.2	13.51	58.509	
3,400.0	3,309.1	3,321.5	3,308.1	13.7	7.3	-161.00	-133.9	-234.7	818.5	804.7	13.83	59.192	
3,500.0	3,404.7	3,417.1	3,403.7	14.2	7.4	-161.64	-133.9	-234.7	846.5	832.3	14.14	59.858	
3,600.0	3,500.3	3,512.7	3,499.3	14.7	7.6	-162.25	-133.9	-234.7	874.5	860.0	14.45	60.505	
3,700.0	3,595.9	3,608.3	3,594.9	15.3	7.7	-162.81	-133.9	-234.7	902.6	887.8	14.76	61.134	
3,800.0	3,691.5	3,703.9	3,690.5	15.8	7.8	-163.34	-133.9	-234.7	930.8	915.7	15.08	61.743	
3,900.0	3,787.0	3,799.5	3,786.0	16.4	8.0	-163.85	-133.9	-234.7	959.1	943.7	15.39	62.334	
4,000.0	3,882.6	3,895.1	3,881.6	16.9	8.1	-164.32	-133.9	-234.7	987.4	971.7	15.70	62.906	
4,100.0	3,978.2	3,990.7	3,977.2	17.4	8.3	-164.76	-133.9	-234.7	1,015.8	999.8	16.01	63.460	
4,200.0	4,073.8	4,086.3	4,072.8	18.0	8.4	-165.19	-133.9	-234.7	1,044.2	1,027.9	16.32	63.996	
4,300.0	4,169.4	4,181.9	4,168.4	18.5	8.5	-165.59	-133.9	-234.7	1,072.7	1,056.1	16.63	64.514	
4,400.0	4,265.0	4,277.5	4,264.0	19.1	8.7	-165.97	-133.9	-234.7	1,101.2	1,084.3	16.94	65.015	
4,500.0	4,360.6	4,373.1	4,359.6	19.6	8.8	-166.33	-133.9	-234.7	1,129.8	1,112.5	17.25	65.500	
4,600.0	4,456.2	4,468.7	4,455.2	20.1	9.0	-166.67	-133.9	-234.7	1,158.4	1,140.8	17.56	65.968	
4,700.0	4,551.8	4,564.3	4,550.8	20.7	9.1	-166.99	-133.9	-234.7	1,187.0	1,169.2	17.87	66.421	
4,800.0	4,647.6	4,660.1	4,646.6	21.2	9.3	-167.38	-133.9	-234.7	1,215.0	1,196.8	18.22	66.677	
4,900.0	4,744.3	4,756.8	4,743.3	21.6	9.4	-167.75	-133.9	-234.7	1,239.8	1,221.2	18.58	66.719	
5,000.0	4,841.9	4,854.3	4,840.9	22.0	9.6	-168.05	-133.9	-234.7	1,261.4	1,242.5	18.94	66.616	
5,100.0	4,940.1	4,952.6	4,939.1	22.4	9.7	-168.30	-133.9	-234.7	1,279.6	1,260.3	19.28	66.376	

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 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2E-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	5,039.0	5,051.4	5,038.0	22.7	9.9	-168.49	-133.9	-234.7	1,294.5	1,274.9	19.61	66.009	
5,300.0	5,138.3	5,150.7	5,137.3	22.9	10.0	-168.64	-133.9	-234.7	1,305.9	1,286.0	19.93	65.520	
5,400.0	5,237.9	5,250.4	5,236.9	23.1	10.2	-168.75	-133.9	-234.7	1,314.0	1,293.8	20.24	64.917	
5,500.0	5,337.8	5,350.3	5,336.8	23.2	10.3	-168.80	-133.9	-234.7	1,318.7	1,298.1	20.54	64.204	
5,600.0	5,437.8	5,450.3	5,436.8	23.3	10.5	-179.79	-133.9	-234.7	1,319.9	1,287.4	32.51	40.605	
5,700.0	5,537.8	5,550.3	5,536.8	23.3	10.6	-179.79	-133.9	-234.7	1,319.9	1,287.2	32.75	40.299	
5,800.0	5,637.8	5,650.3	5,636.8	23.4	10.8	-179.79	-133.9	-234.7	1,319.9	1,286.9	33.00	39.996	
5,900.0	5,737.8	5,750.3	5,736.8	23.5	11.0	-179.79	-133.9	-234.7	1,319.9	1,286.7	33.25	39.697	
6,000.0	5,837.8	5,850.3	5,836.8	23.6	11.1	-179.79	-133.9	-234.7	1,319.9	1,286.4	33.50	39.400	
6,100.0	5,937.8	5,950.3	5,936.8	23.6	11.3	-179.79	-133.9	-234.7	1,319.9	1,286.2	33.75	39.107	
6,200.0	6,037.8	6,050.3	6,036.8	23.7	11.4	-179.79	-133.9	-234.7	1,319.9	1,285.9	34.00	38.817	
6,300.0	6,137.8	6,150.3	6,136.8	23.8	11.6	-179.79	-133.9	-234.7	1,319.9	1,285.7	34.26	38.529	
6,400.0	6,237.8	6,250.5	6,237.0	23.9	11.8	-179.84	-133.9	-233.6	1,319.9	1,285.4	34.52	38.242	
6,435.5	6,273.3	6,286.0	6,272.4	23.9	11.8	90.69	-133.9	-230.7	1,319.9	1,296.4	23.49	56.197	
6,500.0	6,337.8	6,349.6	6,335.3	24.0	11.8	90.30	-133.9	-221.2	1,320.0	1,296.4	23.58	55.976	
6,600.0	6,436.9	6,446.6	6,428.9	24.0	11.8	89.69	-133.9	-196.1	1,320.3	1,296.7	23.61	55.923	
6,700.0	6,533.4	6,541.9	6,516.7	24.0	11.8	89.09	-133.9	-159.3	1,320.8	1,297.3	23.58	56.017	
6,800.0	6,625.4	6,635.7	6,597.6	24.0	11.8	88.51	-133.9	-112.1	1,321.7	1,298.1	23.59	56.021	
6,900.0	6,711.0	6,728.1	6,670.7	24.0	11.9	87.96	-133.9	-55.6	1,322.7	1,298.9	23.77	55.639	
7,000.0	6,788.6	6,819.3	6,735.0	24.1	12.1	87.45	-133.9	8.9	1,323.9	1,299.7	24.26	54.567	
7,100.0	6,856.7	6,909.4	6,790.1	24.2	12.6	86.99	-133.9	80.2	1,325.3	1,300.1	25.19	52.611	
7,200.0	6,914.0	7,000.0	6,836.0	24.4	13.4	86.57	-133.9	158.3	1,326.7	1,300.0	26.67	49.751	
7,300.0	6,959.3	7,087.4	6,870.5	24.8	14.4	86.23	-133.9	238.4	1,328.1	1,299.4	28.71	46.264	
7,400.0	6,991.7	7,175.5	6,895.3	25.3	15.7	85.95	-133.9	323.0	1,329.5	1,298.2	31.29	42.485	
7,500.0	7,010.7	7,263.2	6,909.4	26.0	17.1	85.73	-133.9	409.5	1,330.8	1,296.5	34.32	38.775	
7,600.0	7,016.4	7,354.8	6,913.5	26.9	18.8	85.62	-133.9	500.9	1,332.0	1,294.2	37.78	35.256	
7,700.0	7,018.1	7,454.8	6,915.2	28.0	20.8	85.63	-133.9	600.9	1,333.1	1,291.4	41.72	31.950	
7,800.0	7,019.8	7,554.8	6,917.0	29.4	22.9	85.63	-133.9	700.9	1,334.2	1,288.3	45.85	29.096	
7,900.0	7,021.6	7,654.8	6,918.7	30.9	25.0	85.64	-133.9	800.9	1,335.3	1,285.2	50.13	26.636	
8,000.0	7,023.3	7,754.8	6,920.5	32.5	27.2	85.64	-133.9	900.8	1,336.4	1,281.9	54.52	24.513	
8,100.0	7,025.1	7,854.8	6,922.2	34.3	29.4	85.64	-133.9	1,000.8	1,337.5	1,278.5	58.99	22.673	
8,200.0	7,026.8	7,954.8	6,924.0	36.2	31.7	85.65	-133.9	1,100.8	1,338.7	1,275.1	63.54	21.069	
8,300.0	7,028.6	8,054.7	6,925.7	38.1	34.0	85.65	-133.9	1,200.8	1,339.8	1,271.6	68.13	19.664	
8,400.0	7,030.3	8,154.7	6,927.5	40.2	36.4	85.65	-133.9	1,300.8	1,340.9	1,268.1	72.77	18.425	
8,500.0	7,032.1	8,254.7	6,929.2	42.3	38.7	85.66	-133.9	1,400.7	1,342.0	1,264.5	77.45	17.327	
8,600.0	7,033.8	8,354.7	6,930.9	44.4	41.1	85.66	-133.9	1,500.7	1,343.1	1,260.9	82.16	16.348	
8,700.0	7,035.6	8,454.7	6,932.7	46.6	43.4	85.66	-133.9	1,600.7	1,344.2	1,257.3	86.89	15.470	
8,800.0	7,037.3	8,554.7	6,934.4	48.8	45.8	85.67	-133.9	1,700.7	1,345.3	1,253.7	91.65	14.680	
8,900.0	7,039.0	8,654.7	6,936.2	51.1	48.2	85.67	-133.9	1,800.7	1,346.4	1,250.0	96.42	13.965	
9,000.0	7,040.8	8,754.7	6,937.9	53.3	50.6	85.68	-133.9	1,900.6	1,347.6	1,246.4	101.20	13.315	
9,100.0	7,042.5	8,854.7	6,939.7	55.6	53.0	85.68	-133.9	2,000.6	1,348.7	1,242.7	106.01	12.723	
9,200.0	7,044.3	8,954.7	6,941.4	57.9	55.4	85.68	-133.9	2,100.6	1,349.8	1,239.0	110.82	12.180	
9,300.0	7,046.0	9,054.7	6,943.2	60.2	57.9	85.69	-133.9	2,200.6	1,350.9	1,235.3	115.64	11.682	
9,400.0	7,047.8	9,154.7	6,944.9	62.6	60.3	85.69	-133.9	2,300.5	1,352.0	1,231.5	120.47	11.223	
9,500.0	7,049.5	9,254.7	6,946.6	64.9	62.7	85.69	-133.9	2,400.5	1,353.1	1,227.8	125.31	10.798	
9,600.0	7,051.3	9,354.7	6,948.4	67.3	65.1	85.70	-133.9	2,500.5	1,354.2	1,224.1	130.16	10.404	
9,700.0	7,053.0	9,454.7	6,950.1	69.6	67.6	85.70	-133.9	2,600.5	1,355.4	1,220.3	135.01	10.039	
9,800.0	7,054.7	9,554.7	6,951.9	72.0	70.0	85.70	-133.9	2,700.5	1,356.5	1,216.6	139.87	9.698	
9,900.0	7,056.5	9,654.6	6,953.6	74.4	72.4	85.71	-133.9	2,800.4	1,357.6	1,212.8	144.74	9.380	
10,000.0	7,058.2	9,754.6	6,955.4	76.8	74.9	85.71	-133.9	2,900.4	1,358.7	1,209.1	149.61	9.082	
10,100.0	7,060.0	9,854.6	6,957.1	79.2	77.3	85.71	-133.8	3,000.4	1,359.8	1,205.3	154.48	8.803	
10,200.0	7,061.7	9,954.6	6,958.9	81.6	79.8	85.72	-133.8	3,100.4	1,360.9	1,201.6	159.36	8.540	

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 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2E-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	7,063.5	10,054.6	6,960.6	84.0	82.2	85.72	-133.8	3,200.4	1,362.0	1,197.8	164.24	8.293	
10,400.0	7,065.2	10,154.6	6,962.4	86.4	84.7	85.72	-133.8	3,300.3	1,363.1	1,194.0	169.12	8.060	
10,500.0	7,067.0	10,254.6	6,964.1	88.8	87.1	85.73	-133.8	3,400.3	1,364.3	1,190.3	174.01	7.840	
10,600.0	7,068.7	10,354.6	6,965.8	91.2	89.6	85.73	-133.8	3,500.3	1,365.4	1,186.5	178.90	7.632	
10,700.0	7,070.5	10,454.6	6,967.6	93.6	92.0	85.74	-133.8	3,600.3	1,366.5	1,182.7	183.79	7.435	
10,800.0	7,072.2	10,554.6	6,969.3	96.0	94.5	85.74	-133.8	3,700.2	1,367.6	1,178.9	188.68	7.248	
10,900.0	7,073.9	10,654.6	6,971.1	98.4	96.9	85.74	-133.8	3,800.2	1,368.7	1,175.1	193.58	7.071	
11,000.0	7,075.7	10,754.6	6,972.8	100.9	99.4	85.75	-133.8	3,900.2	1,369.8	1,171.4	198.47	6.902	
11,100.0	7,077.4	10,854.6	6,974.6	103.3	101.8	85.75	-133.8	4,000.2	1,370.9	1,167.6	203.37	6.741	
11,200.0	7,079.2	10,954.6	6,976.3	105.7	104.3	85.75	-133.8	4,100.2	1,372.1	1,163.8	208.28	6.588	
11,300.0	7,080.9	11,054.6	6,978.1	108.1	106.8	85.76	-133.8	4,200.1	1,373.2	1,160.0	213.18	6.441	
11,400.0	7,082.7	11,154.6	6,979.8	110.6	109.2	85.76	-133.8	4,300.1	1,374.3	1,156.2	218.08	6.302	
11,500.0	7,084.4	11,254.5	6,981.6	113.0	111.7	85.76	-133.8	4,400.1	1,375.4	1,152.4	222.99	6.168	
11,600.0	7,086.2	11,354.5	6,983.3	115.4	114.1	85.77	-133.8	4,500.1	1,376.5	1,148.6	227.90	6.040	
11,700.0	7,087.9	11,454.5	6,985.0	117.9	116.6	85.77	-133.8	4,600.1	1,377.6	1,144.8	232.80	5.917	
11,800.0	7,089.7	11,554.5	6,986.8	120.3	119.1	85.77	-133.8	4,700.0	1,378.7	1,141.0	237.71	5.800	
11,900.0	7,091.4	11,654.5	6,988.5	122.8	121.5	85.78	-133.8	4,800.0	1,379.8	1,137.2	242.62	5.687	
12,000.0	7,093.1	11,754.5	6,990.3	125.2	124.0	85.78	-133.8	4,900.0	1,381.0	1,133.4	247.54	5.579	
12,100.0	7,094.9	11,854.5	6,992.0	127.7	126.4	85.78	-133.8	5,000.0	1,382.1	1,129.6	252.45	5.475	
12,200.0	7,096.6	11,954.5	6,993.8	130.1	128.9	85.79	-133.8	5,099.9	1,383.2	1,125.8	257.36	5.374	
12,300.0	7,098.4	12,054.5	6,995.5	132.5	131.4	85.79	-133.8	5,199.9	1,384.3	1,122.0	262.28	5.278	
12,400.0	7,100.1	12,154.5	6,997.3	135.0	133.8	85.79	-133.8	5,299.9	1,385.4	1,118.2	267.19	5.185	
12,500.0	7,101.9	12,254.5	6,999.0	137.4	136.3	85.80	-133.8	5,399.9	1,386.5	1,114.4	272.11	5.096	
12,600.0	7,103.6	12,354.5	7,000.7	139.9	138.8	85.80	-133.8	5,499.9	1,387.6	1,110.6	277.02	5.009	
12,700.0	7,105.4	12,454.5	7,002.5	142.3	141.2	85.80	-133.8	5,599.8	1,388.8	1,106.8	281.94	4.926	
12,800.0	7,107.1	12,554.5	7,004.2	144.8	143.7	85.81	-133.8	5,699.8	1,389.9	1,103.0	286.86	4.845	
12,900.0	7,108.9	12,654.5	7,006.0	147.2	146.2	85.81	-133.8	5,799.8	1,391.0	1,099.2	291.78	4.767	
13,000.0	7,110.6	12,754.5	7,007.7	149.7	148.6	85.81	-133.8	5,899.8	1,392.1	1,095.4	296.70	4.692	
13,100.0	7,112.3	12,854.4	7,009.5	152.1	151.1	85.82	-133.8	5,999.8	1,393.2	1,091.6	301.62	4.619	
13,200.0	7,114.1	12,954.4	7,011.2	154.6	153.5	85.82	-133.8	6,099.7	1,394.3	1,087.8	306.54	4.549	
13,300.0	7,115.8	13,054.4	7,013.0	157.0	156.0	85.82	-133.8	6,199.7	1,395.4	1,084.0	311.46	4.480	
13,400.0	7,117.6	13,154.4	7,014.7	159.5	158.5	85.83	-133.8	6,299.7	1,396.5	1,080.2	316.38	4.414	
13,500.0	7,119.3	13,254.4	7,016.5	162.0	160.9	85.83	-133.8	6,399.7	1,397.7	1,076.4	321.30	4.350	
13,600.0	7,121.1	13,354.4	7,018.2	164.4	163.4	85.83	-133.8	6,499.6	1,398.8	1,072.5	326.22	4.288	
13,700.0	7,122.8	13,454.4	7,019.9	166.9	165.9	85.84	-133.8	6,599.6	1,399.9	1,068.7	331.15	4.227	
13,800.0	7,124.6	13,554.4	7,021.7	169.3	168.4	85.84	-133.8	6,699.6	1,401.0	1,064.9	336.07	4.169	
13,900.0	7,126.3	13,654.4	7,023.4	171.8	170.8	85.84	-133.8	6,799.6	1,402.1	1,061.1	340.99	4.112	
14,000.0	7,128.0	13,754.4	7,025.2	174.2	173.3	85.85	-133.7	6,899.6	1,403.2	1,057.3	345.92	4.057	
14,100.0	7,129.8	13,854.4	7,026.9	176.7	175.8	85.85	-133.7	6,999.5	1,404.3	1,053.5	350.84	4.003	
14,200.0	7,131.5	13,954.4	7,028.7	179.2	178.2	85.85	-133.7	7,099.5	1,405.5	1,049.7	355.76	3.951	
14,266.5	7,132.7	14,020.9	7,029.8	180.8	179.9	85.86	-133.7	7,166.0	1,406.2	1,047.2	359.04	3.917 SF	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2F-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	-47.4	0.0	47.4				
100.0	100.0	99.0	99.0	0.2	0.2	180.00	-47.4	0.0	47.4	47.1	0.30	156.738	
200.0	200.0	199.0	199.0	0.3	0.3	180.00	-47.4	0.0	47.4	46.7	0.65	72.751	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-169.22	-47.4	0.0	48.2	47.2	1.00	48.218	
400.0	400.0	398.2	398.2	0.7	0.7	-169.31	-48.1	-0.4	51.5	50.2	1.35	38.239	
500.0	499.9	497.1	497.1	0.9	0.8	-168.87	-50.3	-1.6	58.1	56.4	1.70	34.253	
600.0	599.7	595.7	595.6	1.1	1.0	-168.13	-54.1	-3.6	67.8	65.8	2.04	33.191	SF
700.0	699.4	693.7	693.4	1.3	1.2	-167.28	-59.2	-6.5	80.8	78.4	2.39	33.769	
800.0	798.9	791.0	790.4	1.5	1.4	-166.44	-65.8	-10.0	97.0	94.3	2.74	35.349	
900.0	898.3	887.5	886.5	1.8	1.6	-165.68	-73.8	-14.4	116.4	113.3	3.10	37.578	
1,000.0	997.4	983.0	981.4	2.0	1.9	-165.02	-83.1	-19.4	138.9	135.5	3.45	40.241	
1,100.0	1,096.3	1,077.4	1,075.0	2.3	2.1	-164.44	-93.6	-25.1	164.6	160.8	3.81	43.199	
1,200.0	1,194.9	1,170.5	1,167.2	2.7	2.4	-163.94	-105.4	-31.5	193.3	189.1	4.17	46.369	
1,300.0	1,293.3	1,265.5	1,261.1	3.0	2.7	-163.58	-118.0	-38.4	224.3	219.8	4.53	49.481	
1,400.0	1,391.2	1,360.0	1,354.5	3.4	3.0	-163.39	-130.6	-45.2	256.9	252.0	4.90	52.440	
1,500.0	1,488.9	1,454.0	1,447.4	3.8	3.2	-163.32	-143.2	-52.0	291.2	285.9	5.27	55.277	
1,600.0	1,586.1	1,547.4	1,539.7	4.2	3.5	-163.33	-155.6	-58.7	326.9	321.3	5.64	58.013	
1,700.0	1,682.9	1,640.1	1,631.4	4.7	3.8	-163.40	-168.0	-65.5	364.3	358.3	6.00	60.668	
1,800.0	1,779.3	1,732.3	1,722.4	5.2	4.1	-163.50	-180.2	-72.1	403.1	396.8	6.37	63.257	
1,900.0	1,875.2	1,823.7	1,812.8	5.7	4.4	-163.63	-192.4	-78.7	443.6	436.8	6.74	65.790	
2,000.0	1,970.8	1,914.8	1,902.8	6.2	4.7	-163.87	-204.6	-85.3	484.9	477.7	7.13	68.033	
2,100.0	2,066.4	2,005.8	1,992.8	6.7	4.9	-164.07	-216.7	-91.9	526.2	518.7	7.51	70.027	
2,200.0	2,161.9	2,096.9	2,082.8	7.3	5.2	-164.25	-228.8	-98.5	567.5	559.6	7.90	71.822	
2,300.0	2,257.5	2,187.9	2,172.8	7.8	5.5	-164.41	-241.0	-105.1	608.8	600.5	8.29	73.445	
2,400.0	2,353.1	2,279.0	2,262.8	8.3	5.8	-164.54	-253.1	-111.7	650.2	641.5	8.68	74.919	
2,500.0	2,448.7	2,370.0	2,352.8	8.8	6.1	-164.66	-265.2	-118.2	691.5	682.4	9.07	76.264	
2,600.0	2,544.3	2,461.1	2,442.8	9.4	6.4	-164.76	-277.4	-124.8	732.8	723.4	9.46	77.496	
2,700.0	2,639.9	2,552.1	2,532.8	9.9	6.6	-164.86	-289.5	-131.4	774.1	764.3	9.85	78.629	
2,800.0	2,735.5	2,643.2	2,622.8	10.4	6.9	-164.94	-301.7	-138.0	815.5	805.2	10.24	79.673	
2,900.0	2,831.1	2,734.2	2,712.8	11.0	7.2	-165.02	-313.8	-144.6	856.8	846.2	10.63	80.640	
3,000.0	2,926.7	2,825.3	2,802.8	11.5	7.5	-165.09	-325.9	-151.2	898.2	887.1	11.02	81.536	
3,100.0	3,022.3	2,916.3	2,892.8	12.1	7.8	-165.15	-338.1	-157.8	939.5	928.1	11.41	82.370	
3,200.0	3,117.9	3,007.4	2,982.8	12.6	8.1	-165.21	-350.2	-164.4	980.8	969.0	11.80	83.148	
3,300.0	3,213.5	3,098.4	3,072.8	13.1	8.4	-165.26	-362.3	-170.9	1,022.2	1,010.0	12.19	83.875	
3,400.0	3,309.1	3,189.5	3,162.8	13.7	8.7	-165.31	-374.5	-177.5	1,063.5	1,050.9	12.58	84.556	
3,500.0	3,404.7	3,280.5	3,252.8	14.2	8.9	-165.36	-386.6	-184.1	1,104.8	1,091.9	12.97	85.195	
3,600.0	3,500.3	3,371.6	3,342.8	14.7	9.2	-165.40	-398.7	-190.7	1,146.2	1,132.8	13.36	85.796	
3,700.0	3,595.9	3,462.6	3,432.8	15.3	9.5	-165.44	-410.9	-197.3	1,187.5	1,173.8	13.75	86.362	
3,800.0	3,691.5	3,553.7	3,522.8	15.8	9.8	-165.47	-423.0	-203.9	1,228.9	1,214.7	14.14	86.897	
3,900.0	3,787.0	3,644.7	3,612.8	16.4	10.1	-165.51	-435.1	-210.5	1,270.2	1,255.7	14.53	87.402	
4,000.0	3,882.6	3,735.8	3,702.8	16.9	10.4	-165.54	-447.3	-217.0	1,311.6	1,296.6	14.92	87.880	
4,100.0	3,978.2	3,855.5	3,821.2	17.4	10.7	-165.59	-462.5	-225.3	1,352.5	1,337.1	15.36	88.036	
4,200.0	4,073.8	4,018.4	3,983.3	18.0	11.1	-165.80	-476.9	-233.1	1,389.5	1,373.7	15.85	87.683	
4,300.0	4,169.4	4,187.4	4,152.1	18.5	11.3	-166.19	-483.2	-236.5	1,421.7	1,405.4	16.30	87.222	
4,400.0	4,265.0	4,299.3	4,264.0	19.1	11.5	-166.51	-483.4	-236.6	1,450.5	1,433.8	16.66	87.070	
4,500.0	4,360.6	4,394.9	4,359.6	19.6	11.6	-166.77	-483.4	-236.6	1,479.1	1,462.1	16.99	87.034	
4,600.0	4,456.2	4,490.5	4,455.2	20.1	11.7	-167.02	-483.4	-236.6	1,507.7	1,490.4	17.33	87.006	
4,700.0	4,551.8	4,586.1	4,550.8	20.7	11.8	-167.27	-483.4	-236.6	1,536.4	1,518.8	17.66	86.985	
4,800.0	4,647.6	4,681.9	4,646.6	21.2	11.9	-167.58	-483.4	-236.6	1,564.4	1,546.3	18.05	86.675	
4,900.0	4,744.3	4,778.6	4,743.3	21.6	12.0	-167.89	-483.4	-236.6	1,589.2	1,570.8	18.45	86.147	
5,000.0	4,841.9	4,876.2	4,840.9	22.0	12.1	-168.14	-483.4	-236.6	1,610.8	1,592.0	18.83	85.525	

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2G-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	-58.3	0.0	58.3				
100.0	100.0	99.0	99.0	0.2	0.2	180.00	-58.3	0.0	58.3	58.0	0.30	192.905	
200.0	200.0	199.0	199.0	0.3	0.3	180.00	-58.3	0.0	58.3	57.6	0.65	89.538	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-169.18	-58.3	0.0	59.1	58.1	1.00	59.146	
400.0	400.0	399.0	399.0	0.7	0.7	-169.64	-58.3	0.0	61.7	60.4	1.35	45.758	
500.0	499.9	497.8	497.8	0.9	0.8	-170.08	-59.1	-0.2	66.8	65.1	1.70	39.406	
600.0	599.7	596.3	596.2	1.1	1.0	-170.25	-61.5	-1.0	75.3	73.2	2.04	36.863	
700.0	699.4	694.3	694.1	1.3	1.2	-170.22	-65.5	-2.2	87.0	84.7	2.39	36.461	SF
800.0	798.9	791.6	791.3	1.5	1.4	-170.05	-71.1	-3.9	102.1	99.4	2.73	37.380	
900.0	898.3	888.1	887.5	1.8	1.6	-169.82	-78.2	-6.1	120.5	117.4	3.08	39.168	
1,000.0	997.4	983.7	982.6	2.0	1.8	-169.55	-86.7	-8.7	142.1	138.7	3.42	41.554	
1,100.0	1,096.3	1,078.1	1,076.5	2.3	2.0	-169.28	-96.6	-11.8	166.9	163.2	3.76	44.366	
1,200.0	1,194.9	1,171.3	1,169.0	2.7	2.3	-169.02	-107.8	-15.2	194.9	190.8	4.10	47.489	
1,300.0	1,293.3	1,263.1	1,259.8	3.0	2.5	-168.77	-120.3	-19.1	226.0	221.6	4.44	50.843	
1,400.0	1,391.2	1,353.4	1,349.0	3.4	2.8	-168.53	-133.9	-23.2	260.1	255.4	4.78	54.371	
1,500.0	1,488.9	1,444.2	1,438.5	3.8	3.1	-168.32	-148.8	-27.8	297.1	292.0	5.13	57.964	
1,600.0	1,586.1	1,536.4	1,529.3	4.2	3.4	-168.18	-164.1	-32.5	335.9	330.4	5.47	61.403	
1,700.0	1,682.9	1,627.9	1,619.4	4.7	3.7	-168.11	-179.3	-37.2	376.2	370.4	5.81	64.715	
1,800.0	1,779.3	1,718.7	1,708.8	5.2	4.0	-168.09	-194.4	-41.8	418.1	412.0	6.16	67.924	
1,900.0	1,875.2	1,808.8	1,797.5	5.7	4.3	-168.09	-209.4	-46.4	461.5	455.0	6.50	71.046	
2,000.0	1,970.8	1,898.4	1,885.8	6.2	4.6	-168.20	-224.2	-51.0	505.8	499.0	6.85	73.812	
2,100.0	2,066.4	1,988.1	1,974.1	6.7	4.9	-168.29	-239.1	-55.6	550.2	542.9	7.21	76.283	
2,200.0	2,161.9	2,077.7	2,062.4	7.3	5.2	-168.37	-254.0	-60.1	594.5	586.9	7.57	78.514	
2,300.0	2,257.5	2,167.4	2,150.6	7.8	5.5	-168.44	-268.9	-64.7	638.8	630.8	7.93	80.538	
2,400.0	2,353.1	2,257.0	2,238.9	8.3	5.8	-168.50	-283.7	-69.3	683.1	674.8	8.29	82.382	
2,500.0	2,448.7	2,346.7	2,327.2	8.8	6.1	-168.56	-298.6	-73.9	727.4	718.8	8.65	84.069	
2,600.0	2,544.3	2,436.3	2,415.5	9.4	6.4	-168.61	-313.5	-78.4	771.7	762.7	9.01	85.618	
2,700.0	2,639.9	2,525.9	2,503.8	9.9	6.7	-168.65	-328.4	-83.0	816.0	806.7	9.37	87.045	
2,800.0	2,735.5	2,615.6	2,592.1	10.4	7.0	-168.69	-343.3	-87.6	860.4	850.6	9.74	88.364	
2,900.0	2,831.1	2,705.2	2,680.3	11.0	7.3	-168.72	-358.1	-92.1	904.7	894.6	10.10	89.586	
3,000.0	2,926.7	2,794.9	2,768.6	11.5	7.6	-168.75	-373.0	-96.7	949.0	938.5	10.46	90.721	
3,100.0	3,022.3	2,884.5	2,856.9	12.1	8.0	-168.78	-387.9	-101.3	993.3	982.5	10.82	91.779	
3,200.0	3,117.9	2,974.2	2,945.2	12.6	8.3	-168.80	-402.8	-105.9	1,037.6	1,026.4	11.19	92.767	
3,300.0	3,213.5	3,063.8	3,033.5	13.1	8.6	-168.83	-417.7	-110.4	1,081.9	1,070.4	11.55	93.692	
3,400.0	3,309.1	3,153.4	3,121.7	13.7	8.9	-168.85	-432.5	-115.0	1,126.3	1,114.3	11.91	94.560	
3,500.0	3,404.7	3,243.1	3,210.0	14.2	9.2	-168.87	-447.4	-119.6	1,170.6	1,158.3	12.27	95.375	
3,600.0	3,500.3	3,332.7	3,298.3	14.7	9.5	-168.89	-462.3	-124.2	1,214.9	1,202.3	12.64	96.143	
3,700.0	3,595.9	3,422.4	3,386.6	15.3	9.8	-168.91	-477.2	-128.7	1,259.2	1,246.2	13.00	96.866	
3,800.0	3,691.5	3,512.0	3,474.9	15.8	10.1	-168.92	-492.1	-133.3	1,303.5	1,290.2	13.36	97.550	
3,900.0	3,787.0	3,601.7	3,563.1	16.4	10.4	-168.94	-506.9	-137.9	1,347.8	1,334.1	13.73	98.197	
4,000.0	3,882.6	3,691.3	3,651.4	16.9	10.8	-168.95	-521.8	-142.4	1,392.2	1,378.1	14.09	98.810	
4,100.0	3,978.2	3,780.9	3,739.7	17.4	11.1	-168.96	-536.7	-147.0	1,436.5	1,422.0	14.45	99.392	
4,200.0	4,073.8	3,870.6	3,828.0	18.0	11.4	-168.98	-551.6	-151.6	1,480.8	1,466.0	14.82	99.945	
4,300.0	4,169.4	3,960.2	3,916.3	18.5	11.7	-168.99	-566.5	-156.2	1,525.1	1,509.9	15.18	100.471	
4,400.0	4,265.0	4,049.9	4,004.6	19.1	12.0	-169.00	-581.3	-160.7	1,569.4	1,553.9	15.54	100.971	
4,500.0	4,360.6	4,139.5	4,092.8	19.6	12.3	-169.01	-596.2	-165.3	1,613.7	1,597.8	15.91	101.449	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 2H-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	-69.2	0.0	69.2				
100.0	100.0	99.0	99.0	0.2	0.2	-180.00	-69.2	0.0	69.2	68.9	0.30	229.072	
200.0	200.0	199.0	199.0	0.3	0.3	-180.00	-69.2	0.0	69.2	68.6	0.65	106.325	CC, ES
300.0	300.0	297.8	297.8	0.5	0.5	-169.01	-70.0	-0.2	70.9	69.9	1.00	71.044	
400.0	400.0	396.5	396.4	0.7	0.7	-168.97	-72.5	-0.7	76.0	74.6	1.34	56.504	
500.0	499.9	494.7	494.6	0.9	0.9	-168.91	-76.6	-1.6	84.4	82.8	1.69	49.941	
600.0	599.7	592.5	592.2	1.1	1.1	-168.84	-82.4	-2.8	96.3	94.2	2.04	47.279	
700.0	699.4	689.7	689.1	1.3	1.3	-168.77	-89.7	-4.4	111.5	109.1	2.38	46.812	SF
800.0	798.9	785.9	784.9	1.5	1.5	-168.70	-98.5	-6.3	129.9	127.2	2.72	47.700	
900.0	898.3	881.3	879.7	1.8	1.7	-168.63	-108.8	-8.5	151.7	148.6	3.07	49.479	
1,000.0	997.4	975.4	973.1	2.0	2.0	-168.57	-120.4	-11.0	176.7	173.3	3.41	51.875	
1,100.0	1,096.3	1,068.4	1,065.0	2.3	2.2	-168.51	-133.4	-13.8	204.9	201.2	3.75	54.712	
1,200.0	1,194.9	1,159.9	1,155.4	2.7	2.5	-168.44	-147.6	-16.9	236.3	232.2	4.08	57.875	
1,300.0	1,293.3	1,249.9	1,244.0	3.0	2.8	-168.38	-163.0	-20.2	270.7	266.2	4.42	61.283	
1,400.0	1,391.2	1,338.2	1,330.8	3.4	3.2	-168.32	-179.4	-23.7	308.1	303.3	4.75	64.877	
1,500.0	1,488.9	1,424.9	1,415.6	3.8	3.5	-168.26	-196.7	-27.5	348.5	343.4	5.08	68.616	
1,600.0	1,586.1	1,509.7	1,498.3	4.2	3.8	-168.19	-214.9	-31.4	391.7	386.3	5.41	72.467	
1,700.0	1,682.9	1,592.5	1,578.9	4.7	4.2	-168.12	-233.8	-35.5	437.8	432.1	5.73	76.404	
1,800.0	1,779.3	1,673.4	1,657.3	5.2	4.6	-168.04	-253.4	-39.7	486.6	480.5	6.05	80.406	
1,900.0	1,875.2	1,756.6	1,737.6	5.7	4.9	-167.97	-274.4	-44.2	537.9	531.5	6.38	84.335	
2,000.0	1,970.8	1,841.9	1,819.9	6.2	5.3	-168.03	-296.1	-48.9	590.0	583.3	6.72	87.741	
2,100.0	2,066.4	1,927.2	1,902.3	6.7	5.7	-168.09	-317.8	-53.6	642.2	635.2	7.07	90.784	
2,200.0	2,161.9	2,012.5	1,984.7	7.3	6.1	-168.14	-339.4	-58.2	694.4	687.0	7.42	93.533	
2,300.0	2,257.5	2,097.8	2,067.1	7.8	6.5	-168.18	-361.1	-62.9	746.6	738.8	7.78	96.026	
2,400.0	2,353.1	2,183.1	2,149.4	8.3	7.0	-168.21	-382.7	-67.6	798.8	790.7	8.13	98.297	
2,500.0	2,448.7	2,268.4	2,231.8	8.8	7.4	-168.24	-404.4	-72.2	851.0	842.5	8.48	100.375	
2,600.0	2,544.3	2,353.7	2,314.2	9.4	7.8	-168.27	-426.1	-76.9	903.2	894.4	8.83	102.282	
2,700.0	2,639.9	2,439.0	2,396.5	9.9	8.2	-168.30	-447.7	-81.6	955.4	946.2	9.18	104.039	
2,800.0	2,735.5	2,524.3	2,478.9	10.4	8.6	-168.32	-469.4	-86.2	1,007.6	998.0	9.54	105.663	
2,900.0	2,831.1	2,609.6	2,561.3	11.0	9.0	-168.34	-491.0	-90.9	1,059.8	1,049.9	9.89	107.168	
3,000.0	2,926.7	2,694.9	2,643.7	11.5	9.4	-168.36	-512.7	-95.6	1,111.9	1,101.7	10.24	108.566	
3,100.0	3,022.3	2,780.2	2,726.0	12.1	9.8	-168.37	-534.4	-100.2	1,164.1	1,153.5	10.60	109.869	
3,200.0	3,117.9	2,865.5	2,808.4	12.6	10.2	-168.39	-556.0	-104.9	1,216.3	1,205.4	10.95	111.085	
3,300.0	3,213.5	2,950.8	2,890.8	13.1	10.6	-168.40	-577.7	-109.6	1,268.5	1,257.2	11.30	112.223	
3,400.0	3,309.1	3,036.1	2,973.1	13.7	11.0	-168.41	-599.3	-114.2	1,320.7	1,309.0	11.66	113.291	
3,500.0	3,404.7	3,121.4	3,055.5	14.2	11.5	-168.43	-621.0	-118.9	1,372.9	1,360.9	12.01	114.294	
3,600.0	3,500.3	3,206.7	3,137.9	14.7	11.9	-168.44	-642.7	-123.6	1,425.1	1,412.7	12.37	115.239	
3,700.0	3,595.9	3,292.0	3,220.2	15.3	12.3	-168.45	-664.3	-128.2	1,477.3	1,464.6	12.72	116.129	
3,800.0	3,691.5	3,377.3	3,302.6	15.8	12.7	-168.46	-686.0	-132.9	1,529.5	1,516.4	13.08	116.970	
3,900.0	3,787.0	3,462.6	3,385.0	16.4	13.1	-168.46	-707.7	-137.6	1,581.7	1,568.2	13.43	117.766	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Billings 2A-18H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Reference Site:	S18-T3N-R68W (Billings)	**MD Reference:**	WELL @ 5211.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Billings 2A-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 @ 5211.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Billings 2A-18H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.29°