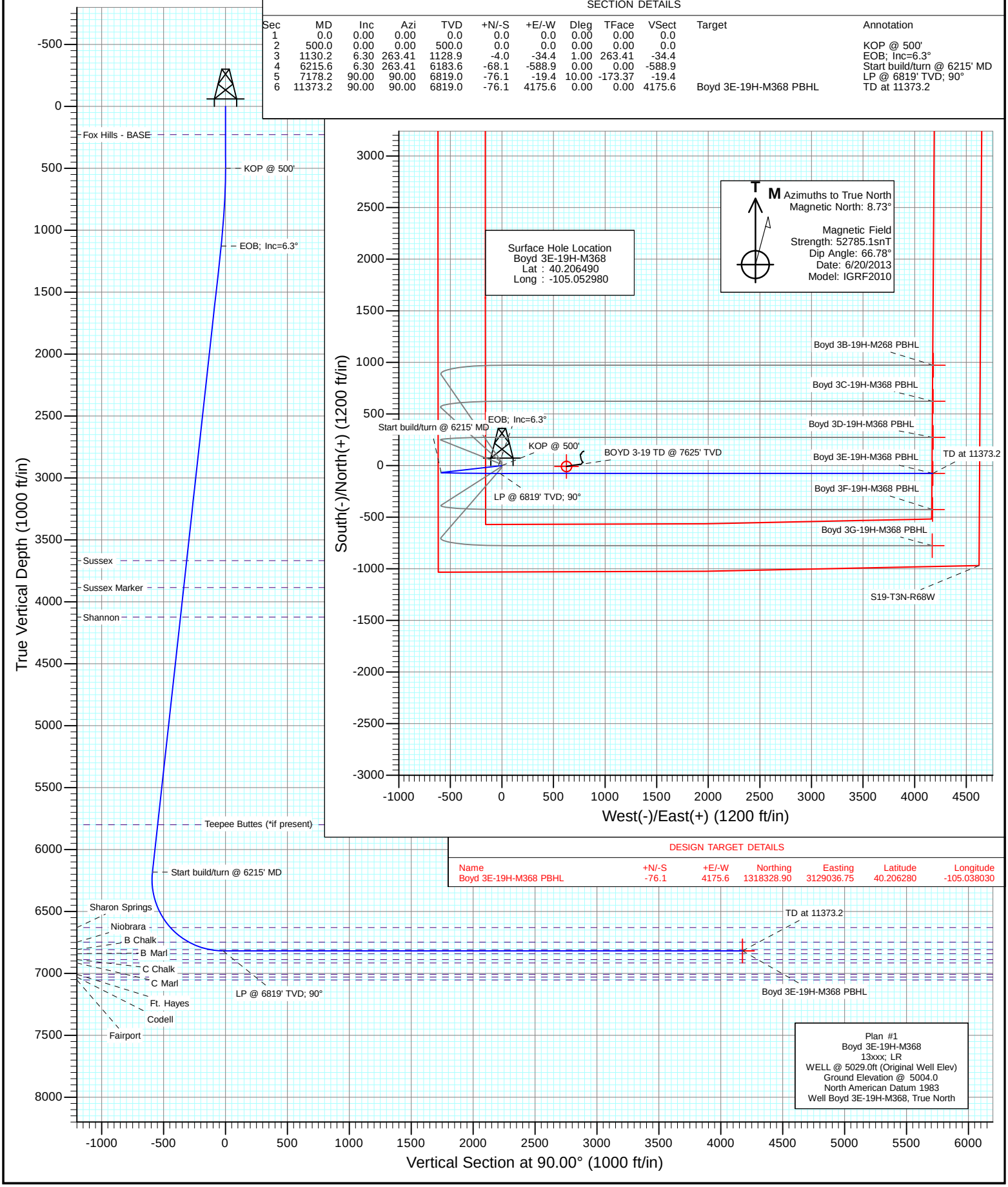
encana

Project: DJ Wattenberg
Site: S19-T3N-R68W (Boyd)
Well: Boyd 3E-19H-M368
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	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0		KOP @ 500'
3	1130.2	6.30	263.41	1128.9	-4.0	-34.4	1.00	263.41	-34.4		EOB; Inc=6.3°
4	6215.6	6.30	263.41	6183.6	-68.1	-588.9	0.00	0.00	-588.9		Start build/turn @ 6215' MD
5	7178.2	90.00	90.00	6819.0	-76.1	-19.4	10.00	-173.37	-19.4		LP @ 6819' TVD; 90°
6	11373.2	90.00	90.00	6819.0	-76.1	4175.6	0.00	0.00	4175.6	Boyd 3E-19H-M368 PBHL	TD at 11373.2



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Boyd 3E-19H-M368 PBHL	-76.1	4175.6	1318328.90	3129036.75	40.206280	-105.038030

Plan #1
Boyd 3E-19H-M368
13xxx; LR
WELL @ 5029.0ft (Original Well Elev)
Ground Elevation @ 5004.0
North American Datum 1983
Well Boyd 3E-19H-M368, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site:	S19-T3N-R68W (Boyd)	**North Reference:**	True
Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd)

Site Position:		**Northing:**	1,318,413.14 ft	**Latitude:**	40.206570
From:	Lat/Long	**Easting:**	3,124,860.64 ft	**Longitude:**	-105.052980
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.29 °

Well Boyd 3E-19H-M368

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,318,383.99 ft	**Latitude:**	40.206490
	+E/-W	0.0 ft	**Easting:**	3,124,860.79 ft	**Longitude:**	-105.052980
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	5,004.0 ft

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/20/2013	8.73	66.78	52,785

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,130.2	6.30	263.41	1,128.9	-4.0	-34.4	1.00	1.00	0.00	263.41	
6,215.6	6.30	263.41	6,183.6	-68.1	-588.9	0.00	0.00	0.00	0.00	
7,178.2	90.00	90.00	6,819.0	-76.1	-19.4	10.00	8.70	-18.01	-173.37	
11,373.2	90.00	90.00	6,819.0	-76.1	4,175.6	0.00	0.00	0.00	0.00	Boyd 3E-19H-M368 P

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site:	S19-T3N-R68W (Boyd)	**North Reference:**	True
Well:	Boyd 3E-19H-M368	**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	
229.0	0.00	0.00	229.0	0.0	0.0	0.0	0.00	0.00	Fox Hills - BASE
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500'
600.0	1.00	263.41	600.0	-0.1	-0.9	-0.9	1.00	1.00	
700.0	2.00	263.41	700.0	-0.4	-3.5	-3.5	1.00	1.00	
800.0	3.00	263.41	799.9	-0.9	-7.8	-7.8	1.00	1.00	
900.0	4.00	263.41	899.7	-1.6	-13.9	-13.9	1.00	1.00	
1,000.0	5.00	263.41	999.4	-2.5	-21.7	-21.7	1.00	1.00	
1,100.0	6.00	263.41	1,098.9	-3.6	-31.2	-31.2	1.00	1.00	
1,130.2	6.30	263.41	1,128.9	-4.0	-34.4	-34.4	1.00	1.00	EOB; Inc=6.3°
1,200.0	6.30	263.41	1,198.3	-4.9	-42.0	-42.0	0.00	0.00	
1,300.0	6.30	263.41	1,297.7	-6.1	-52.9	-52.9	0.00	0.00	
1,400.0	6.30	263.41	1,397.1	-7.4	-63.8	-63.8	0.00	0.00	
1,500.0	6.30	263.41	1,496.5	-8.6	-74.7	-74.7	0.00	0.00	
1,600.0	6.30	263.41	1,595.9	-9.9	-85.6	-85.6	0.00	0.00	
1,700.0	6.30	263.41	1,695.3	-11.2	-96.5	-96.5	0.00	0.00	
1,800.0	6.30	263.41	1,794.7	-12.4	-107.4	-107.4	0.00	0.00	
1,900.0	6.30	263.41	1,894.1	-13.7	-118.3	-118.3	0.00	0.00	
2,000.0	6.30	263.41	1,993.5	-14.9	-129.2	-129.2	0.00	0.00	
2,100.0	6.30	263.41	2,092.9	-16.2	-140.1	-140.1	0.00	0.00	
2,200.0	6.30	263.41	2,192.3	-17.5	-151.0	-151.0	0.00	0.00	
2,300.0	6.30	263.41	2,291.7	-18.7	-161.9	-161.9	0.00	0.00	
2,400.0	6.30	263.41	2,391.1	-20.0	-172.9	-172.9	0.00	0.00	
2,500.0	6.30	263.41	2,490.5	-21.2	-183.8	-183.8	0.00	0.00	
2,600.0	6.30	263.41	2,589.8	-22.5	-194.7	-194.7	0.00	0.00	
2,700.0	6.30	263.41	2,689.2	-23.8	-205.6	-205.6	0.00	0.00	
2,800.0	6.30	263.41	2,788.6	-25.0	-216.5	-216.5	0.00	0.00	
2,900.0	6.30	263.41	2,888.0	-26.3	-227.4	-227.4	0.00	0.00	
3,000.0	6.30	263.41	2,987.4	-27.5	-238.3	-238.3	0.00	0.00	
3,100.0	6.30	263.41	3,086.8	-28.8	-249.2	-249.2	0.00	0.00	
3,200.0	6.30	263.41	3,186.2	-30.1	-260.1	-260.1	0.00	0.00	
3,300.0	6.30	263.41	3,285.6	-31.3	-271.0	-271.0	0.00	0.00	
3,400.0	6.30	263.41	3,385.0	-32.6	-281.9	-281.9	0.00	0.00	
3,500.0	6.30	263.41	3,484.4	-33.8	-292.8	-292.8	0.00	0.00	
3,600.0	6.30	263.41	3,583.8	-35.1	-303.7	-303.7	0.00	0.00	
3,684.7	6.30	263.41	3,668.0	-36.2	-312.9	-312.9	0.00	0.00	Sussex
3,700.0	6.30	263.41	3,683.2	-36.4	-314.6	-314.6	0.00	0.00	
3,800.0	6.30	263.41	3,782.6	-37.6	-325.5	-325.5	0.00	0.00	
3,900.0	6.30	263.41	3,882.0	-38.9	-336.4	-336.4	0.00	0.00	
3,903.0	6.30	263.41	3,885.0	-38.9	-336.7	-336.7	0.00	0.00	Sussex Marker
4,000.0	6.30	263.41	3,981.4	-40.2	-347.3	-347.3	0.00	0.00	
4,100.0	6.30	263.41	4,080.8	-41.4	-358.2	-358.2	0.00	0.00	
4,143.5	6.30	263.41	4,124.0	-42.0	-363.0	-363.0	0.00	0.00	Shannon
4,200.0	6.30	263.41	4,180.2	-42.7	-369.1	-369.1	0.00	0.00	
4,300.0	6.30	263.41	4,279.6	-43.9	-380.0	-380.0	0.00	0.00	
4,400.0	6.30	263.41	4,379.0	-45.2	-390.9	-390.9	0.00	0.00	
4,500.0	6.30	263.41	4,478.4	-46.5	-401.8	-401.8	0.00	0.00	
4,600.0	6.30	263.41	4,577.8	-47.7	-412.7	-412.7	0.00	0.00	

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Well:	Boyd 3E-19H-M368	**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
4,700.0	6.30	263.41	4,677.2	-49.0	-423.6	-423.6	0.00	0.00	
4,800.0	6.30	263.41	4,776.6	-50.2	-434.5	-434.5	0.00	0.00	
4,900.0	6.30	263.41	4,876.0	-51.5	-445.5	-445.5	0.00	0.00	
5,000.0	6.30	263.41	4,975.3	-52.8	-456.4	-456.4	0.00	0.00	
5,100.0	6.30	263.41	5,074.7	-54.0	-467.3	-467.3	0.00	0.00	
5,200.0	6.30	263.41	5,174.1	-55.3	-478.2	-478.2	0.00	0.00	
5,300.0	6.30	263.41	5,273.5	-56.5	-489.1	-489.1	0.00	0.00	
5,400.0	6.30	263.41	5,372.9	-57.8	-500.0	-500.0	0.00	0.00	
5,500.0	6.30	263.41	5,472.3	-59.1	-510.9	-510.9	0.00	0.00	
5,600.0	6.30	263.41	5,571.7	-60.3	-521.8	-521.8	0.00	0.00	
5,700.0	6.30	263.41	5,671.1	-61.6	-532.7	-532.7	0.00	0.00	
5,800.0	6.30	263.41	5,770.5	-62.8	-543.6	-543.6	0.00	0.00	
5,829.7	6.30	263.41	5,800.0	-63.2	-546.8	-546.8	0.00	0.00	Teepee Buttes (*if present)
5,900.0	6.30	263.41	5,869.9	-64.1	-554.5	-554.5	0.00	0.00	
6,000.0	6.30	263.41	5,969.3	-65.4	-565.4	-565.4	0.00	0.00	
6,100.0	6.30	263.41	6,068.7	-66.6	-576.3	-576.3	0.00	0.00	
6,200.0	6.30	263.41	6,168.1	-67.9	-587.2	-587.2	0.00	0.00	
6,215.6	6.30	263.41	6,183.6	-68.1	-588.9	-588.9	0.00	0.00	Start build/turn @ 6215' MD
6,300.0	2.30	108.44	6,267.9	-69.1	-591.9	-591.9	10.00	-4.75	
6,400.0	12.20	93.36	6,366.9	-70.4	-579.4	-579.4	10.00	9.90	
6,500.0	22.19	91.78	6,462.4	-71.6	-549.9	-549.9	10.00	9.99	
6,600.0	32.19	91.15	6,551.2	-72.7	-504.3	-504.3	10.00	10.00	
6,699.0	42.08	90.80	6,630.0	-73.7	-444.7	-444.7	10.00	10.00	Sharon Springs
6,700.0	42.18	90.80	6,630.8	-73.8	-444.0	-444.0	10.00	10.00	
6,800.0	52.18	90.56	6,698.6	-74.6	-370.7	-370.7	10.00	10.00	
6,889.9	61.17	90.40	6,748.0	-75.2	-295.6	-295.6	10.00	10.00	Niobrara
6,900.0	62.18	90.38	6,752.8	-75.3	-286.8	-286.8	10.00	10.00	
7,000.0	72.18	90.23	6,791.5	-75.8	-194.7	-194.7	10.00	10.00	
7,071.0	79.28	90.14	6,809.0	-76.0	-125.9	-125.9	10.00	10.00	B Chalk
7,100.0	82.18	90.10	6,813.7	-76.1	-97.3	-97.3	10.00	10.00	
7,178.2	90.00	90.00	6,819.0	-76.1	-19.4	-19.4	10.00	10.00	LP @ 6819' TVD; 90°
7,200.0	90.00	90.00	6,819.0	-76.1	2.4	2.4	0.00	0.00	
7,300.0	90.00	90.00	6,819.0	-76.1	102.4	102.4	0.00	0.00	
7,400.0	90.00	90.00	6,819.0	-76.1	202.4	202.4	0.00	0.00	
7,500.0	90.00	90.00	6,819.0	-76.1	302.4	302.4	0.00	0.00	
7,600.0	90.00	90.00	6,819.0	-76.1	402.4	402.4	0.00	0.00	
7,700.0	90.00	90.00	6,819.0	-76.1	502.4	502.4	0.00	0.00	
7,800.0	90.00	90.00	6,819.0	-76.1	602.4	602.4	0.00	0.00	
7,900.0	90.00	90.00	6,819.0	-76.1	702.4	702.4	0.00	0.00	
8,000.0	90.00	90.00	6,819.0	-76.1	802.4	802.4	0.00	0.00	
8,100.0	90.00	90.00	6,819.0	-76.1	902.4	902.4	0.00	0.00	
8,200.0	90.00	90.00	6,819.0	-76.1	1,002.4	1,002.4	0.00	0.00	
8,300.0	90.00	90.00	6,819.0	-76.1	1,102.4	1,102.4	0.00	0.00	
8,400.0	90.00	90.00	6,819.0	-76.1	1,202.4	1,202.4	0.00	0.00	
8,500.0	90.00	90.00	6,819.0	-76.1	1,302.4	1,302.4	0.00	0.00	
8,600.0	90.00	90.00	6,819.0	-76.1	1,402.4	1,402.4	0.00	0.00	
8,700.0	90.00	90.00	6,819.0	-76.1	1,502.4	1,502.4	0.00	0.00	
8,800.0	90.00	90.00	6,819.0	-76.1	1,602.4	1,602.4	0.00	0.00	
8,900.0	90.00	90.00	6,819.0	-76.1	1,702.4	1,702.4	0.00	0.00	
9,000.0	90.00	90.00	6,819.0	-76.1	1,802.4	1,802.4	0.00	0.00	
9,100.0	90.00	90.00	6,819.0	-76.1	1,902.4	1,902.4	0.00	0.00	
9,200.0	90.00	90.00	6,819.0	-76.1	2,002.4	2,002.4	0.00	0.00	

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Well:	Boyd 3E-19H-M368	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,300.0	90.00	90.00	6,819.0	-76.1	2,102.4	2,102.4	0.00	0.00	
9,400.0	90.00	90.00	6,819.0	-76.1	2,202.4	2,202.4	0.00	0.00	
9,500.0	90.00	90.00	6,819.0	-76.1	2,302.4	2,302.4	0.00	0.00	
9,600.0	90.00	90.00	6,819.0	-76.1	2,402.4	2,402.4	0.00	0.00	
9,700.0	90.00	90.00	6,819.0	-76.1	2,502.4	2,502.4	0.00	0.00	
9,800.0	90.00	90.00	6,819.0	-76.1	2,602.4	2,602.4	0.00	0.00	
9,900.0	90.00	90.00	6,819.0	-76.1	2,702.4	2,702.4	0.00	0.00	
10,000.0	90.00	90.00	6,819.0	-76.1	2,802.4	2,802.4	0.00	0.00	
10,100.0	90.00	90.00	6,819.0	-76.1	2,902.4	2,902.4	0.00	0.00	
10,200.0	90.00	90.00	6,819.0	-76.1	3,002.4	3,002.4	0.00	0.00	
10,300.0	90.00	90.00	6,819.0	-76.1	3,102.4	3,102.4	0.00	0.00	
10,400.0	90.00	90.00	6,819.0	-76.1	3,202.4	3,202.4	0.00	0.00	
10,500.0	90.00	90.00	6,819.0	-76.1	3,302.4	3,302.4	0.00	0.00	
10,600.0	90.00	90.00	6,819.0	-76.1	3,402.4	3,402.4	0.00	0.00	
10,700.0	90.00	90.00	6,819.0	-76.1	3,502.4	3,502.4	0.00	0.00	
10,800.0	90.00	90.00	6,819.0	-76.1	3,602.4	3,602.4	0.00	0.00	
10,900.0	90.00	90.00	6,819.0	-76.1	3,702.4	3,702.4	0.00	0.00	
11,000.0	90.00	90.00	6,819.0	-76.1	3,802.4	3,802.4	0.00	0.00	
11,100.0	90.00	90.00	6,819.0	-76.1	3,902.4	3,902.4	0.00	0.00	
11,200.0	90.00	90.00	6,819.0	-76.1	4,002.4	4,002.4	0.00	0.00	
11,300.0	90.00	90.00	6,819.0	-76.1	4,102.4	4,102.4	0.00	0.00	
11,373.2	90.00	90.00	6,819.0	-76.1	4,175.6	4,175.6	0.00	0.00	TD at 11373.2

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
Boyd 3E-19H-M368 PBH - plan hits target center - Point	0.00	0.00	6,819.0	-76.1	4,175.6	1,318,328.90	3,129,036.75	40.206280	-105.038030

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
229.0	229.0	Fox Hills - BASE			
3,684.7	3,668.0	Sussex			
3,903.0	3,885.0	Sussex Marker			
4,143.5	4,124.0	Shannon			
5,829.7	5,800.0	Teepee Buttes (*if present)			
6,699.0	6,630.0	Sharon Springs			
6,889.9	6,748.0	Niobrara			
7,071.0	6,809.0	B Chalk			

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site:	S19-T3N-R68W (Boyd)	**North Reference:**	True
Well:	Boyd 3E-19H-M368	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
500.0	500.0	0.0	0.0	KOP @ 500'
1,130.2	1,128.9	-4.0	-34.4	EOB; Inc=6.3°
6,215.6	6,183.6	-68.1	-588.9	Start build/turn @ 6215' MD
7,178.2	6,819.0	-76.1	-19.4	LP @ 6819' TVD; 90°
11,373.2	6,819.0	-76.1	4,175.6	TD at 11373.2

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S19-T3N-R68W (Boyd)
Boyd 3E-19H-M368
Hz
Plan #1

Anticollision Report

20 June, 2013

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

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

Survey Tool Program **Date** 6/20/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,373.2	Plan #1 (Hz)	Geolink 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
S19-T3N-R68W (Boyd)						
BOYD 3-19 (EXISTING) - ENCANA WELL - SURVEYS	7,916.1	6,829.6	84.2	44.6	2.129	CC, ES, SF
Boyd 3B-19H-M368 - Hz - Plan #1	200.0	200.0	29.1	28.5	47.714	CC, ES
Boyd 3B-19H-M368 - Hz - Plan #1	700.0	696.8	48.2	45.8	20.353	SF
Boyd 3C-19H-M368 - Hz - Plan #1	300.0	300.0	21.9	20.9	22.769	CC, ES
Boyd 3C-19H-M368 - Hz - Plan #1	700.0	698.4	32.4	30.0	13.652	SF
Boyd 3D-19H-M368 - Hz - Plan #1	400.0	400.0	10.9	9.6	8.349	CC, ES
Boyd 3D-19H-M368 - Hz - Plan #1	11,373.2	11,599.9	413.7	225.7	2.201	SF
Boyd 3F-19H-M368 - Hz - Plan #1	400.0	400.0	7.3	6.0	5.566	CC, ES
Boyd 3F-19H-M368 - Hz - Plan #1	11,373.2	11,602.7	413.7	225.8	2.202	SF
Boyd 3G-19H-M368 - Hz - Plan #1	300.0	300.0	18.2	17.3	18.974	CC, ES
Boyd 3G-19H-M368 - Hz - Plan #1	600.0	599.0	24.4	22.4	12.139	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - BOYD 3-19 (EXISTING) - ENCANA WELL - SURVEYS

Offset Site Error: 0.0 ft

Survey Program: 75-Geolink 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
7,500.0	6,819.0	6,899.4	6,892.8	19.1	12.4	-130.64	6.3	707.2	419.1	393.2	25.96	16.143	
7,600.0	6,819.0	6,881.8	6,875.4	21.0	12.3	-122.81	6.8	710.1	323.1	293.9	29.25	11.047	
7,700.0	6,819.0	6,864.8	6,858.6	23.0	12.3	-113.72	7.2	712.9	229.3	196.5	32.84	6.984	
7,800.0	6,819.0	6,848.2	6,842.3	25.1	12.3	-103.61	7.6	715.6	142.2	105.9	36.31	3.917	
7,900.0	6,819.0	6,832.1	6,826.4	27.2	12.2	-92.99	7.9	718.1	85.7	46.5	39.16	2.187	
7,916.1	6,819.0	6,829.6	6,823.9	27.6	12.2	-91.28	8.0	718.5	84.2	44.6	39.54	2.129	CC, ES, SF
8,000.0	6,819.0	6,816.7	6,811.2	29.4	12.2	-82.69	8.3	720.5	118.1	77.1	41.06	2.877	
8,100.0	6,819.0	6,802.7	6,797.3	31.6	12.2	-73.75	8.5	722.6	200.3	158.2	42.06	4.762	
8,200.0	6,819.0	6,790.0	6,784.7	33.9	12.1	-66.30	8.7	724.4	293.1	250.6	42.49	6.898	
8,300.0	6,819.0	6,778.4	6,773.2	36.2	12.1	-60.17	8.9	725.9	389.0	346.4	42.61	9.130	
8,400.0	6,819.0	6,767.7	6,762.7	38.5	12.1	-55.15	9.0	727.3	486.3	443.7	42.60	11.416	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3B-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.26	111.333	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.61	47.714	CC, ES
300.0	300.0	299.6	299.6	0.5	0.5	-0.94	29.9	-0.5	29.9	28.9	0.96	31.118	
400.0	400.0	399.1	399.0	0.7	0.7	-3.52	32.0	-2.0	32.1	30.8	1.31	24.452	
500.0	500.0	498.5	498.3	0.8	0.8	-7.10	35.5	-4.4	35.9	34.2	1.67	21.481	
600.0	600.0	597.7	597.4	1.0	1.0	86.77	40.5	-7.9	41.3	39.3	2.01	20.516	
700.0	700.0	696.8	696.1	1.2	1.3	85.91	46.8	-12.3	48.2	45.8	2.37	20.353	SF
800.0	799.9	795.6	794.5	1.4	1.5	86.29	54.6	-17.6	56.6	53.9	2.73	20.692	
900.0	899.7	894.1	892.4	1.6	1.7	87.42	63.7	-23.9	66.4	63.3	3.12	21.318	
1,000.0	999.4	992.4	989.8	1.8	2.0	88.93	74.1	-31.1	77.8	74.3	3.52	22.103	
1,100.0	1,098.9	1,090.2	1,086.7	2.0	2.3	90.59	85.9	-39.3	90.7	86.7	3.95	22.962	
1,200.0	1,198.3	1,187.7	1,182.8	2.2	2.6	92.15	99.0	-48.3	105.2	100.8	4.40	23.887	
1,300.0	1,297.7	1,285.8	1,279.3	2.5	2.9	93.05	113.3	-58.2	120.9	116.0	4.87	24.839	
1,400.0	1,397.1	1,384.5	1,376.5	2.7	3.3	93.72	127.7	-68.3	136.8	131.4	5.34	25.607	
1,500.0	1,496.5	1,483.2	1,473.6	2.9	3.6	94.25	142.2	-78.3	152.7	146.8	5.82	26.224	
1,600.0	1,595.9	1,581.9	1,570.7	3.2	4.0	94.68	156.7	-88.3	168.5	162.2	6.31	26.729	
1,700.0	1,695.3	1,680.7	1,667.9	3.4	4.3	95.04	171.2	-98.4	184.5	177.7	6.79	27.147	
1,800.0	1,794.7	1,779.4	1,765.0	3.7	4.6	95.34	185.7	-108.4	200.4	193.1	7.29	27.499	
1,900.0	1,894.1	1,878.1	1,862.1	3.9	5.0	95.59	200.2	-118.4	216.3	208.5	7.78	27.798	
2,000.0	1,993.5	1,976.8	1,959.3	4.2	5.3	95.81	214.7	-128.5	232.2	223.9	8.28	28.055	
2,100.0	2,092.9	2,075.5	2,056.4	4.4	5.7	96.00	229.2	-138.5	248.1	239.4	8.77	28.278	
2,200.0	2,192.3	2,174.3	2,153.5	4.7	6.0	96.17	243.7	-148.6	264.0	254.8	9.27	28.473	
2,300.0	2,291.7	2,273.0	2,250.7	4.9	6.4	96.32	258.2	-158.6	280.0	270.2	9.77	28.644	
2,400.0	2,391.1	2,371.7	2,347.8	5.2	6.7	96.45	272.7	-168.6	295.9	285.6	10.28	28.797	
2,500.0	2,490.5	2,470.4	2,444.9	5.5	7.1	96.57	287.2	-178.7	311.8	301.1	10.78	28.933	
2,600.0	2,589.8	2,569.1	2,542.1	5.7	7.4	96.68	301.7	-188.7	327.8	316.5	11.28	29.055	
2,700.0	2,689.2	2,667.9	2,639.2	6.0	7.8	96.78	316.2	-198.7	343.7	331.9	11.78	29.165	
2,800.0	2,788.6	2,766.6	2,736.3	6.2	8.1	96.87	330.7	-208.8	359.6	347.3	12.29	29.264	
2,900.0	2,888.0	2,865.3	2,833.5	6.5	8.5	96.95	345.2	-218.8	375.6	362.8	12.79	29.355	
3,000.0	2,987.4	2,964.0	2,930.6	6.7	8.8	97.03	359.7	-228.8	391.5	378.2	13.30	29.438	
3,100.0	3,086.8	3,062.8	3,027.7	7.0	9.2	97.10	374.2	-238.9	407.4	393.6	13.80	29.514	
3,200.0	3,186.2	3,161.5	3,124.9	7.3	9.5	97.16	388.7	-248.9	423.4	409.1	14.31	29.584	
3,300.0	3,285.6	3,260.2	3,222.0	7.5	9.9	97.22	403.2	-259.0	439.3	424.5	14.82	29.648	
3,400.0	3,385.0	3,358.9	3,319.1	7.8	10.3	97.27	417.7	-269.0	455.2	439.9	15.32	29.708	
3,500.0	3,484.4	3,457.6	3,416.3	8.0	10.6	97.33	432.2	-279.0	471.2	455.4	15.83	29.763	
3,600.0	3,583.8	3,556.4	3,513.4	8.3	11.0	97.37	446.7	-289.1	487.1	470.8	16.34	29.815	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3C-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	21.9	0.0	21.9				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	21.9	0.0	21.9	21.6	0.26	83.488	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	21.9	0.0	21.9	21.2	0.61	35.780	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	21.9	0.0	21.9	20.9	0.96	22.769	CC, ES
400.0	400.0	399.7	399.7	0.7	0.7	-1.64	22.4	-0.6	22.5	21.1	1.31	17.155	
500.0	500.0	499.4	499.4	0.8	0.8	-6.05	24.2	-2.6	24.3	22.7	1.66	14.668	
600.0	600.0	599.0	598.8	1.0	1.0	86.35	27.1	-5.8	27.7	25.7	2.01	13.755	
700.0	700.0	698.4	698.1	1.2	1.2	84.40	31.2	-10.2	32.4	30.0	2.37	13.652	SF
800.0	799.9	797.8	797.1	1.4	1.4	84.05	36.4	-16.0	38.3	35.6	2.74	13.985	
900.0	899.7	896.9	895.8	1.6	1.6	84.70	42.8	-23.0	45.5	42.4	3.12	14.559	
1,000.0	999.4	995.9	994.2	1.8	1.9	85.90	50.3	-31.2	53.9	50.4	3.53	15.266	
1,100.0	1,098.9	1,094.6	1,092.0	2.0	2.2	87.35	58.9	-40.6	63.6	59.6	3.97	16.035	
1,200.0	1,198.3	1,193.7	1,190.1	2.2	2.4	88.79	68.5	-51.2	74.4	70.0	4.43	16.809	
1,300.0	1,297.7	1,293.1	1,288.4	2.5	2.7	89.89	78.2	-61.8	85.3	80.4	4.90	17.421	
1,400.0	1,397.1	1,392.4	1,386.8	2.7	3.0	90.75	87.9	-72.4	96.2	90.8	5.37	17.903	
1,500.0	1,496.5	1,491.8	1,485.1	2.9	3.3	91.43	97.6	-83.0	107.1	101.3	5.86	18.290	
1,600.0	1,595.9	1,591.2	1,583.5	3.2	3.6	91.98	107.3	-93.7	118.1	111.8	6.35	18.605	
1,700.0	1,695.3	1,690.6	1,681.8	3.4	3.9	92.44	117.0	-104.3	129.1	122.2	6.84	18.866	
1,800.0	1,794.7	1,790.0	1,780.2	3.7	4.2	92.83	126.7	-114.9	140.0	132.7	7.34	19.086	
1,900.0	1,894.1	1,889.4	1,878.5	3.9	4.5	93.16	136.4	-125.6	151.0	143.2	7.84	19.272	
2,000.0	1,993.5	1,988.8	1,976.9	4.2	4.8	93.45	146.0	-136.2	162.0	153.7	8.34	19.432	
2,100.0	2,092.9	2,088.2	2,075.2	4.4	5.1	93.70	155.7	-146.8	173.0	164.1	8.84	19.570	
2,200.0	2,192.3	2,187.6	2,173.5	4.7	5.4	93.92	165.4	-157.5	184.0	174.6	9.34	19.691	
2,300.0	2,291.7	2,287.0	2,271.9	4.9	5.7	94.11	175.1	-168.1	194.9	185.1	9.85	19.798	
2,400.0	2,391.1	2,386.4	2,370.2	5.2	6.0	94.29	184.8	-178.7	205.9	195.6	10.35	19.892	
2,500.0	2,490.5	2,485.8	2,468.6	5.5	6.3	94.44	194.5	-189.3	216.9	206.1	10.86	19.977	
2,600.0	2,589.8	2,585.2	2,566.9	5.7	6.6	94.59	204.2	-200.0	227.9	216.6	11.37	20.052	
2,700.0	2,689.2	2,684.5	2,665.3	6.0	6.9	94.71	213.9	-210.6	238.9	227.0	11.87	20.120	
2,800.0	2,788.6	2,783.9	2,763.6	6.2	7.2	94.83	223.6	-221.2	249.9	237.5	12.38	20.182	
2,900.0	2,888.0	2,883.3	2,862.0	6.5	7.5	94.94	233.3	-231.9	260.9	248.0	12.89	20.238	
3,000.0	2,987.4	2,982.7	2,960.3	6.7	7.8	95.04	243.0	-242.5	271.9	258.5	13.40	20.289	
3,100.0	3,086.8	3,082.1	3,058.7	7.0	8.1	95.13	252.7	-253.1	282.9	269.0	13.91	20.336	
3,200.0	3,186.2	3,181.5	3,157.0	7.3	8.4	95.21	262.4	-263.8	293.9	279.5	14.42	20.379	
3,300.0	3,285.6	3,280.9	3,255.4	7.5	8.7	95.29	272.1	-274.4	304.9	290.0	14.93	20.419	
3,400.0	3,385.0	3,380.3	3,353.7	7.8	9.0	95.36	281.7	-285.0	315.9	300.5	15.44	20.456	
3,500.0	3,484.4	3,479.7	3,452.0	8.0	9.3	95.43	291.4	-295.6	326.9	311.0	15.95	20.490	
3,600.0	3,583.8	3,579.1	3,550.4	8.3	9.7	95.50	301.1	-306.3	337.9	321.4	16.47	20.522	
3,700.0	3,683.2	3,678.5	3,648.7	8.5	10.0	95.56	310.8	-316.9	348.9	331.9	16.98	20.551	
3,800.0	3,782.6	3,777.9	3,747.1	8.8	10.3	95.61	320.5	-327.5	359.9	342.4	17.49	20.579	
3,900.0	3,882.0	3,877.3	3,845.4	9.1	10.6	95.66	330.2	-338.2	370.9	352.9	18.00	20.605	
4,000.0	3,981.4	3,976.6	3,943.8	9.3	10.9	95.71	339.9	-348.8	381.9	363.4	18.51	20.629	
4,100.0	4,080.8	4,076.0	4,042.1	9.6	11.2	95.76	349.6	-359.4	392.9	373.9	19.03	20.652	
4,200.0	4,180.2	4,175.4	4,140.5	9.8	11.5	95.80	359.3	-370.1	403.9	384.4	19.54	20.674	
4,300.0	4,279.6	4,274.8	4,238.8	10.1	11.8	95.85	369.0	-380.7	414.9	394.9	20.05	20.694	
4,400.0	4,379.0	4,374.2	4,337.2	10.4	12.1	95.89	378.7	-391.3	425.9	405.4	20.56	20.713	
4,500.0	4,478.4	4,473.6	4,435.5	10.6	12.4	95.92	388.4	-402.0	436.9	415.9	21.08	20.732	
4,600.0	4,577.8	4,573.0	4,533.8	10.9	12.7	95.96	398.1	-412.6	447.9	426.3	21.59	20.749	
4,700.0	4,677.2	4,672.4	4,632.2	11.1	13.0	95.99	407.8	-423.2	458.9	436.8	22.10	20.765	
4,800.0	4,776.6	4,771.8	4,730.5	11.4	13.3	96.03	417.4	-433.8	469.9	447.3	22.61	20.781	
4,900.0	4,876.0	4,871.2	4,828.9	11.7	13.6	96.06	427.1	-444.5	480.9	457.8	23.13	20.796	
5,000.0	4,975.3	4,970.6	4,927.2	11.9	13.9	96.09	436.8	-455.1	492.0	468.3	23.64	20.810	

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 Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3D-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	10.9	0.0	10.9				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	10.9	0.0	10.9	10.7	0.26	41.744	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	10.9	0.0	10.9	10.3	0.61	17.890	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	10.9	0.0	10.9	10.0	0.96	11.385	
400.0	400.0	400.0	400.0	0.7	0.7	0.00	10.9	0.0	10.9	9.6	1.31	8.349	CC, ES
500.0	500.0	499.9	499.9	0.8	0.8	-4.11	11.3	-0.8	11.3	9.6	1.66	6.804	
600.0	600.0	599.8	599.8	1.0	1.0	85.70	12.2	-3.2	12.5	10.5	2.01	6.243	
700.0	700.0	699.6	699.5	1.2	1.2	81.57	13.8	-7.3	14.7	12.4	2.37	6.226	
800.0	799.9	799.4	799.1	1.4	1.4	79.71	16.1	-12.9	17.8	15.0	2.74	6.492	
900.0	899.7	899.1	898.5	1.6	1.6	79.37	19.0	-20.2	21.6	18.4	3.12	6.908	
1,000.0	999.4	998.8	997.7	1.8	1.8	79.91	22.5	-29.0	26.1	22.6	3.53	7.404	
1,100.0	1,098.9	1,098.5	1,096.8	2.0	2.1	81.36	26.6	-39.2	31.3	27.3	3.97	7.891	
1,200.0	1,198.3	1,198.4	1,196.0	2.2	2.3	84.31	30.7	-49.5	36.4	32.0	4.43	8.224	
1,300.0	1,297.7	1,298.2	1,295.3	2.5	2.5	86.64	34.8	-59.8	41.6	36.7	4.90	8.487	
1,400.0	1,397.1	1,398.1	1,394.5	2.7	2.8	88.46	39.0	-70.2	46.8	41.5	5.38	8.701	
1,500.0	1,496.5	1,497.9	1,493.7	2.9	3.0	89.91	43.1	-80.5	52.1	46.2	5.87	8.877	
1,600.0	1,595.9	1,597.8	1,593.0	3.2	3.3	91.09	47.2	-90.8	57.4	51.1	6.36	9.025	
1,700.0	1,695.3	1,697.6	1,692.2	3.4	3.5	92.07	51.3	-101.1	62.7	55.9	6.86	9.150	
1,800.0	1,794.7	1,797.5	1,791.4	3.7	3.8	92.90	55.5	-111.4	68.1	60.7	7.35	9.256	
1,900.0	1,894.1	1,897.3	1,890.7	3.9	4.1	93.61	59.6	-121.8	73.4	65.6	7.85	9.349	
2,000.0	1,993.5	1,997.2	1,989.9	4.2	4.3	94.22	63.7	-132.1	78.8	70.4	8.35	9.429	
2,100.0	2,092.9	2,097.0	2,089.1	4.4	4.6	94.75	67.8	-142.4	84.1	75.3	8.86	9.500	
2,200.0	2,192.3	2,196.9	2,188.4	4.7	4.8	95.22	72.0	-152.7	89.5	80.2	9.36	9.563	
2,300.0	2,291.7	2,296.7	2,287.6	4.9	5.1	95.64	76.1	-163.0	94.9	85.0	9.87	9.619	
2,400.0	2,391.1	2,396.6	2,386.8	5.2	5.3	96.01	80.2	-173.3	100.3	89.9	10.37	9.669	
2,500.0	2,490.5	2,496.5	2,486.1	5.5	5.6	96.35	84.3	-183.7	105.7	94.8	10.88	9.714	
2,600.0	2,589.8	2,596.3	2,585.3	5.7	5.9	96.65	88.5	-194.0	111.1	99.7	11.38	9.755	
2,700.0	2,689.2	2,696.2	2,684.5	6.0	6.1	96.92	92.6	-204.3	116.4	104.6	11.89	9.793	
2,800.0	2,788.6	2,796.0	2,783.8	6.2	6.4	97.17	96.7	-214.6	121.8	109.4	12.40	9.827	
2,900.0	2,888.0	2,895.9	2,883.0	6.5	6.6	97.40	100.8	-224.9	127.2	114.3	12.91	9.858	
3,000.0	2,987.4	2,995.7	2,982.2	6.7	6.9	97.61	104.9	-235.3	132.6	119.2	13.41	9.887	
3,100.0	3,086.8	3,095.6	3,081.5	7.0	7.1	97.80	109.1	-245.6	138.0	124.1	13.92	9.913	
3,200.0	3,186.2	3,195.4	3,180.7	7.3	7.4	97.98	113.2	-255.9	143.4	129.0	14.43	9.938	
3,300.0	3,285.6	3,295.3	3,279.9	7.5	7.7	98.15	117.3	-266.2	148.8	133.9	14.94	9.961	
3,400.0	3,385.0	3,395.1	3,379.2	7.8	7.9	98.30	121.4	-276.5	154.2	138.8	15.45	9.982	
3,500.0	3,484.4	3,495.0	3,478.4	8.0	8.2	98.44	125.6	-286.9	159.6	143.7	15.96	10.002	
3,600.0	3,583.8	3,594.8	3,577.6	8.3	8.4	98.58	129.7	-297.2	165.0	148.6	16.47	10.020	
3,700.0	3,683.2	3,694.7	3,676.9	8.5	8.7	98.70	133.8	-307.5	170.5	153.5	16.98	10.038	
3,800.0	3,782.6	3,794.5	3,776.1	8.8	9.0	98.82	137.9	-317.8	175.9	158.4	17.49	10.054	
3,900.0	3,882.0	3,894.4	3,875.3	9.1	9.2	98.93	142.1	-328.1	181.3	163.3	18.00	10.070	
4,000.0	3,981.4	3,994.2	3,974.6	9.3	9.5	99.04	146.2	-338.4	186.7	168.2	18.51	10.084	
4,100.0	4,080.8	4,094.1	4,073.8	9.6	9.8	99.14	150.3	-348.8	192.1	173.1	19.02	10.098	
4,200.0	4,180.2	4,194.0	4,173.0	9.8	10.0	99.23	154.4	-359.1	197.5	178.0	19.53	10.111	
4,300.0	4,279.6	4,293.8	4,272.3	10.1	10.3	99.32	158.6	-369.4	202.9	182.9	20.04	10.123	
4,400.0	4,379.0	4,393.7	4,371.5	10.4	10.5	99.40	162.7	-379.7	208.3	187.8	20.55	10.135	
4,500.0	4,478.4	4,493.5	4,470.7	10.6	10.8	99.48	166.8	-390.0	213.7	192.7	21.07	10.146	
4,600.0	4,577.8	4,593.4	4,570.0	10.9	11.1	99.56	170.9	-400.4	219.1	197.6	21.58	10.156	
4,700.0	4,677.2	4,693.2	4,669.2	11.1	11.3	99.63	175.1	-410.7	224.5	202.5	22.09	10.166	
4,800.0	4,776.6	4,793.1	4,768.4	11.4	11.6	99.70	179.2	-421.0	230.0	207.4	22.60	10.176	
4,900.0	4,876.0	4,892.9	4,867.7	11.7	11.8	99.76	183.3	-431.3	235.4	212.3	23.11	10.185	
5,000.0	4,975.3	4,992.8	4,966.9	11.9	12.1	99.83	187.4	-441.6	240.8	217.2	23.62	10.194	
5,100.0	5,074.7	5,092.6	5,066.1	12.2	12.4	99.89	191.5	-451.9	246.2	222.1	24.13	10.202	

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 Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3D-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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	5,174.1	5,192.5	5,165.4	12.4	12.6	99.94	195.7	-462.3	251.6	227.0	24.64	10.210	
5,300.0	5,273.5	5,292.3	5,264.6	12.7	12.9	100.00	199.8	-472.6	257.0	231.9	25.15	10.218	
5,400.0	5,372.9	5,392.2	5,363.8	12.9	13.1	100.05	203.9	-482.9	262.4	236.8	25.67	10.225	
5,500.0	5,472.3	5,492.0	5,463.1	13.2	13.4	100.10	208.0	-493.2	267.8	241.7	26.18	10.232	
5,600.0	5,571.7	5,591.9	5,562.3	13.5	13.7	100.15	212.2	-503.5	273.3	246.6	26.69	10.239	
5,700.0	5,671.1	5,691.8	5,661.5	13.7	13.9	100.19	216.3	-513.9	278.7	251.5	27.20	10.245	
5,800.0	5,770.5	5,791.6	5,760.8	14.0	14.2	100.24	220.4	-524.2	284.1	256.4	27.71	10.251	
5,900.0	5,869.9	5,891.5	5,860.0	14.2	14.4	100.28	224.5	-534.5	289.5	261.3	28.22	10.257	
6,000.0	5,969.3	5,991.3	5,959.2	14.5	14.7	100.32	228.7	-544.8	294.9	266.2	28.74	10.263	
6,100.0	6,068.7	6,091.2	6,058.5	14.8	15.0	100.36	232.8	-555.1	300.3	271.1	29.25	10.269	
6,200.0	6,168.1	6,191.0	6,157.7	15.0	15.2	100.40	236.9	-565.5	305.7	276.0	29.76	10.274	
6,300.0	6,267.9	6,290.6	6,256.7	15.2	15.5	-105.36	241.0	-575.7	310.8	280.6	30.15	10.309	
6,400.0	6,366.9	6,387.7	6,353.2	15.1	15.7	-93.89	245.0	-585.8	315.8	285.6	30.21	10.452	
6,500.0	6,462.4	6,482.5	6,447.5	14.8	16.0	-97.96	249.0	-594.2	324.0	294.1	29.86	10.849	
6,600.0	6,551.2	6,585.3	6,549.9	14.4	16.0	-103.23	253.2	-588.6	336.7	307.7	29.01	11.607	
6,700.0	6,630.8	6,697.7	6,658.7	13.9	15.8	-108.36	257.7	-561.7	352.9	325.1	27.76	12.711	
6,800.0	6,698.6	6,821.8	6,770.2	13.5	15.4	-113.04	262.4	-508.0	370.8	344.5	26.30	14.101	
6,900.0	6,752.8	6,959.4	6,877.1	13.2	14.7	-117.03	266.8	-422.0	388.3	363.3	24.94	15.569	
7,000.0	6,791.5	7,111.0	6,967.4	13.2	14.1	-120.08	270.6	-300.8	402.7	378.5	24.18	16.652	
7,100.0	6,813.7	7,274.2	7,025.7	13.7	13.9	-121.89	273.0	-148.9	411.6	387.0	24.63	16.713	
7,200.0	6,819.0	7,426.6	7,040.0	14.6	15.1	-122.29	273.6	2.4	413.7	387.3	26.42	15.661	
7,300.0	6,819.0	7,526.6	7,040.0	15.9	16.4	-122.29	273.6	102.4	413.7	385.2	28.52	14.507	
7,400.0	6,819.0	7,626.6	7,040.0	17.4	17.9	-122.29	273.6	202.4	413.7	382.6	31.04	13.327	
7,500.0	6,819.0	7,726.6	7,040.0	19.1	19.6	-122.29	273.6	302.4	413.7	379.8	33.90	12.204	
7,600.0	6,819.0	7,826.6	7,040.0	21.0	21.5	-122.29	273.6	402.4	413.7	376.7	37.01	11.178	
7,700.0	6,819.0	7,926.6	7,040.0	23.0	23.5	-122.29	273.6	502.4	413.7	373.4	40.32	10.261	
7,800.0	6,819.0	8,026.6	7,040.0	25.1	25.5	-122.29	273.6	602.4	413.7	369.9	43.78	9.450	
7,900.0	6,819.0	8,126.6	7,040.0	27.2	27.6	-122.29	273.6	702.4	413.7	366.3	47.35	8.736	
8,000.0	6,819.0	8,226.6	7,040.0	29.4	29.8	-122.29	273.6	802.4	413.7	362.7	51.02	8.108	
8,100.0	6,819.0	8,326.6	7,040.0	31.6	32.0	-122.29	273.6	902.4	413.7	358.9	54.77	7.553	
8,200.0	6,819.0	8,426.6	7,040.0	33.9	34.3	-122.29	273.6	1,002.4	413.7	355.1	58.57	7.063	
8,300.0	6,819.0	8,526.6	7,040.0	36.2	36.6	-122.29	273.6	1,102.4	413.7	351.3	62.43	6.627	
8,400.0	6,819.0	8,626.6	7,040.0	38.5	38.9	-122.29	273.6	1,202.4	413.7	347.4	66.32	6.238	
8,500.0	6,819.0	8,726.6	7,040.0	40.9	41.2	-122.29	273.6	1,302.4	413.7	343.4	70.25	5.889	
8,600.0	6,819.0	8,826.6	7,040.0	43.2	43.5	-122.29	273.6	1,402.4	413.7	339.5	74.21	5.575	
8,700.0	6,819.0	8,926.6	7,040.0	45.6	45.9	-122.29	273.6	1,502.4	413.7	335.5	78.19	5.291	
8,800.0	6,819.0	9,026.6	7,040.0	47.9	48.2	-122.29	273.6	1,602.4	413.7	331.5	82.19	5.033	
8,900.0	6,819.0	9,126.6	7,040.0	50.3	50.6	-122.29	273.6	1,702.4	413.7	327.5	86.21	4.799	
9,000.0	6,819.0	9,226.6	7,040.0	52.7	53.0	-122.29	273.6	1,802.4	413.7	323.4	90.25	4.584	
9,100.0	6,819.0	9,326.6	7,040.0	55.1	55.4	-122.29	273.6	1,902.4	413.7	319.4	94.30	4.387	
9,200.0	6,819.0	9,426.6	7,040.0	57.5	57.8	-122.29	273.6	2,002.4	413.7	315.3	98.36	4.206	
9,300.0	6,819.0	9,526.6	7,040.0	59.9	60.2	-122.29	273.6	2,102.4	413.7	311.3	102.43	4.039	
9,400.0	6,819.0	9,626.6	7,040.0	62.4	62.6	-122.29	273.6	2,202.4	413.7	307.2	106.51	3.884	
9,500.0	6,819.0	9,726.6	7,040.0	64.8	65.0	-122.29	273.6	2,302.4	413.7	303.1	110.59	3.741	
9,600.0	6,819.0	9,826.6	7,040.0	67.2	67.5	-122.29	273.6	2,402.4	413.7	299.0	114.69	3.607	
9,700.0	6,819.0	9,926.6	7,040.0	69.6	69.9	-122.29	273.6	2,502.4	413.7	294.9	118.79	3.483	
9,800.0	6,819.0	10,026.6	7,040.0	72.1	72.3	-122.29	273.6	2,602.4	413.7	290.8	122.90	3.366	
9,900.0	6,819.0	10,126.6	7,040.0	74.5	74.7	-122.29	273.6	2,702.4	413.7	286.7	127.01	3.257	
10,000.0	6,819.0	10,226.6	7,040.0	76.9	77.2	-122.29	273.6	2,802.4	413.7	282.6	131.13	3.155	
10,100.0	6,819.0	10,326.6	7,040.0	79.4	79.6	-122.29	273.6	2,902.4	413.7	278.4	135.25	3.059	
10,200.0	6,819.0	10,426.6	7,040.0	81.8	82.0	-122.29	273.6	3,002.4	413.7	274.3	139.38	2.968	
10,300.0	6,819.0	10,526.6	7,040.0	84.3	84.5	-122.29	273.6	3,102.4	413.7	270.2	143.51	2.883	

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 Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3D-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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
10,400.0	6,819.0	10,626.6	7,040.0	86.7	86.9	-122.29	273.6	3,202.4	413.7	266.1	147.64	2.802	
10,500.0	6,819.0	10,726.6	7,040.0	89.1	89.4	-122.29	273.6	3,302.4	413.7	261.9	151.78	2.726	
10,600.0	6,819.0	10,826.6	7,040.0	91.6	91.8	-122.29	273.6	3,402.4	413.7	257.8	155.91	2.653	
10,700.0	6,819.0	10,926.6	7,040.0	94.0	94.3	-122.29	273.6	3,502.4	413.7	253.6	160.06	2.585	
10,800.0	6,819.0	11,026.6	7,040.0	96.5	96.7	-122.29	273.6	3,602.4	413.7	249.5	164.20	2.519	
10,900.0	6,819.0	11,126.6	7,040.0	98.9	99.1	-122.29	273.6	3,702.4	413.7	245.3	168.35	2.457	
11,000.0	6,819.0	11,226.6	7,040.0	101.4	101.6	-122.29	273.6	3,802.4	413.7	241.2	172.49	2.398	
11,100.0	6,819.0	11,326.6	7,040.0	103.8	104.1	-122.29	273.6	3,902.4	413.7	237.0	176.64	2.342	
11,200.0	6,819.0	11,426.6	7,040.0	106.3	106.5	-122.29	273.6	4,002.4	413.7	232.9	180.80	2.288	
11,300.0	6,819.0	11,526.6	7,040.0	108.8	109.0	-122.29	273.6	4,102.4	413.7	228.7	184.95	2.237	
11,373.2	6,819.0	11,599.9	7,040.0	110.6	110.8	-122.29	273.6	4,175.6	413.7	225.7	187.99	2.201	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3F-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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	7.3				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-7.3	0.0	7.3	7.0	0.26	27.829	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-7.3	0.0	7.3	6.7	0.61	11.927	
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-7.3	0.0	7.3	6.3	0.96	7.590	
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-7.3	0.0	7.3	6.0	1.31	5.566	CC, ES
500.0	500.0	499.9	499.9	0.8	0.8	-174.59	-7.8	-0.7	7.8	6.1	1.66	4.698	
600.0	600.0	599.8	599.8	1.0	1.0	-70.53	-9.2	-2.9	9.3	7.3	2.01	4.628	
700.0	700.0	699.6	699.5	1.2	1.2	-67.59	-11.5	-6.6	11.5	9.2	2.36	4.883	
800.0	799.9	799.4	799.1	1.4	1.4	-67.50	-14.8	-11.7	14.4	11.7	2.73	5.292	
900.0	899.7	899.2	898.5	1.6	1.6	-68.88	-19.0	-18.3	18.0	14.9	3.11	5.782	
1,000.0	999.4	998.8	997.7	1.8	1.8	-70.91	-24.1	-26.3	22.2	18.7	3.51	6.313	
1,100.0	1,098.9	1,098.4	1,096.7	2.0	2.1	-73.12	-30.2	-35.8	27.1	23.1	3.95	6.856	
1,200.0	1,198.3	1,198.2	1,195.8	2.2	2.3	-75.64	-36.8	-46.1	32.3	27.9	4.41	7.327	
1,300.0	1,297.7	1,298.1	1,294.9	2.5	2.6	-77.58	-43.4	-56.5	37.5	32.7	4.88	7.693	
1,400.0	1,397.1	1,397.9	1,394.0	2.7	2.8	-79.04	-50.0	-66.8	42.8	37.5	5.36	7.988	
1,500.0	1,496.5	1,497.8	1,493.1	2.9	3.1	-80.18	-56.6	-77.1	48.1	42.3	5.85	8.228	
1,600.0	1,595.9	1,597.7	1,592.2	3.2	3.4	-81.10	-63.2	-87.4	53.4	47.1	6.34	8.427	
1,700.0	1,695.3	1,697.5	1,691.3	3.4	3.6	-81.85	-69.8	-97.7	58.8	51.9	6.84	8.594	
1,800.0	1,794.7	1,797.4	1,790.4	3.7	3.9	-82.47	-76.4	-108.0	64.1	56.8	7.34	8.736	
1,900.0	1,894.1	1,897.2	1,889.5	3.9	4.2	-83.00	-83.0	-118.4	69.4	61.6	7.84	8.857	
2,000.0	1,993.5	1,997.1	1,988.6	4.2	4.4	-83.46	-89.6	-128.7	74.8	66.4	8.34	8.962	
2,100.0	2,092.9	2,096.9	2,087.7	4.4	4.7	-83.85	-96.2	-139.0	80.1	71.3	8.85	9.054	
2,200.0	2,192.3	2,196.8	2,186.8	4.7	5.0	-84.19	-102.8	-149.3	85.5	76.1	9.36	9.135	
2,300.0	2,291.7	2,296.6	2,285.9	4.9	5.2	-84.49	-109.4	-159.6	90.8	81.0	9.87	9.207	
2,400.0	2,391.1	2,396.5	2,385.0	5.2	5.5	-84.76	-116.0	-170.0	96.2	85.8	10.38	9.271	
2,500.0	2,490.5	2,496.4	2,484.1	5.5	5.8	-85.01	-122.5	-180.3	101.6	90.7	10.89	9.328	
2,600.0	2,589.8	2,596.2	2,583.2	5.7	6.1	-85.22	-129.1	-190.6	106.9	95.5	11.40	9.380	
2,700.0	2,689.2	2,696.1	2,682.3	6.0	6.3	-85.42	-135.7	-200.9	112.3	100.4	11.91	9.427	
2,800.0	2,788.6	2,795.9	2,781.4	6.2	6.6	-85.60	-142.3	-211.2	117.7	105.2	12.43	9.469	
2,900.0	2,888.0	2,895.8	2,880.5	6.5	6.9	-85.76	-148.9	-221.6	123.0	110.1	12.94	9.508	
3,000.0	2,987.4	2,995.6	2,979.6	6.7	7.2	-85.91	-155.5	-231.9	128.4	114.9	13.45	9.544	
3,100.0	3,086.8	3,095.5	3,078.7	7.0	7.4	-86.04	-162.1	-242.2	133.8	119.8	13.97	9.577	
3,200.0	3,186.2	3,195.3	3,177.8	7.3	7.7	-86.17	-168.7	-252.5	139.1	124.6	14.48	9.607	
3,300.0	3,285.6	3,295.2	3,276.9	7.5	8.0	-86.29	-175.3	-262.8	144.5	129.5	15.00	9.636	
3,400.0	3,385.0	3,395.1	3,376.0	7.8	8.3	-86.40	-181.9	-273.1	149.9	134.4	15.51	9.662	
3,500.0	3,484.4	3,494.9	3,475.1	8.0	8.5	-86.50	-188.5	-283.5	155.2	139.2	16.03	9.686	
3,600.0	3,583.8	3,594.8	3,574.2	8.3	8.8	-86.59	-195.1	-293.8	160.6	144.1	16.54	9.709	
3,700.0	3,683.2	3,694.6	3,673.3	8.5	9.1	-86.68	-201.7	-304.1	166.0	148.9	17.06	9.730	
3,800.0	3,782.6	3,794.5	3,772.4	8.8	9.4	-86.76	-208.3	-314.4	171.3	153.8	17.57	9.750	
3,900.0	3,882.0	3,894.3	3,871.5	9.1	9.6	-86.84	-214.9	-324.7	176.7	158.6	18.09	9.768	
4,000.0	3,981.4	3,994.2	3,970.6	9.3	9.9	-86.91	-221.5	-335.1	182.1	163.5	18.61	9.786	
4,100.0	4,080.8	4,094.0	4,069.7	9.6	10.2	-86.98	-228.1	-345.4	187.5	168.3	19.12	9.803	
4,200.0	4,180.2	4,193.9	4,168.8	9.8	10.5	-87.05	-234.7	-355.7	192.8	173.2	19.64	9.818	
4,300.0	4,279.6	4,293.8	4,267.9	10.1	10.7	-87.11	-241.3	-366.0	198.2	178.1	20.16	9.833	
4,400.0	4,379.0	4,393.6	4,367.0	10.4	11.0	-87.17	-247.9	-376.3	203.6	182.9	20.67	9.847	
4,500.0	4,478.4	4,493.5	4,466.1	10.6	11.3	-87.22	-254.5	-386.7	209.0	187.8	21.19	9.860	
4,600.0	4,577.8	4,593.3	4,565.2	10.9	11.6	-87.28	-261.1	-397.0	214.3	192.6	21.71	9.873	
4,700.0	4,677.2	4,693.2	4,664.3	11.1	11.8	-87.33	-267.7	-407.3	219.7	197.5	22.23	9.885	
4,800.0	4,776.6	4,793.0	4,763.4	11.4	12.1	-87.37	-274.3	-417.6	225.1	202.3	22.74	9.896	
4,900.0	4,876.0	4,892.9	4,862.5	11.7	12.4	-87.42	-280.9	-427.9	230.5	207.2	23.26	9.907	
5,000.0	4,975.3	4,992.7	4,961.6	11.9	12.7	-87.46	-287.5	-438.3	235.8	212.0	23.78	9.917	
5,100.0	5,074.7	5,092.6	5,060.7	12.2	12.9	-87.50	-294.1	-448.6	241.2	216.9	24.30	9.927	

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 Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3F-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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	5,174.1	5,192.4	5,159.8	12.4	13.2	-87.54	-300.7	-458.9	246.6	221.8	24.81	9.937	
5,300.0	5,273.5	5,292.3	5,258.9	12.7	13.5	-87.58	-307.3	-469.2	251.9	226.6	25.33	9.946	
5,400.0	5,372.9	5,392.2	5,358.0	12.9	13.8	-87.62	-313.9	-479.5	257.3	231.5	25.85	9.955	
5,500.0	5,472.3	5,492.0	5,457.1	13.2	14.0	-87.65	-320.5	-489.8	262.7	236.3	26.37	9.963	
5,600.0	5,571.7	5,591.9	5,556.2	13.5	14.3	-87.69	-327.1	-500.2	268.1	241.2	26.89	9.971	
5,700.0	5,671.1	5,691.7	5,655.3	13.7	14.6	-87.72	-333.7	-510.5	273.4	246.0	27.40	9.979	
5,800.0	5,770.5	5,791.6	5,754.4	14.0	14.9	-87.75	-340.3	-520.8	278.8	250.9	27.92	9.986	
5,900.0	5,869.9	5,891.4	5,853.5	14.2	15.2	-87.78	-346.9	-531.1	284.2	255.8	28.44	9.993	
6,000.0	5,969.3	5,991.3	5,952.6	14.5	15.4	-87.81	-353.5	-541.4	289.6	260.6	28.96	10.000	
6,100.0	6,068.7	6,091.1	6,051.7	14.8	15.7	-87.83	-360.1	-551.8	294.9	265.5	29.48	10.006	
6,200.0	6,168.1	6,191.0	6,150.8	15.0	16.0	-87.86	-366.7	-562.1	300.3	270.3	29.99	10.013	
6,300.0	6,267.9	6,290.6	6,249.7	15.2	16.3	67.78	-373.2	-572.4	305.3	274.9	30.34	10.060	
6,400.0	6,366.9	6,387.7	6,346.0	15.1	16.5	86.44	-379.7	-582.4	310.0	279.8	30.21	10.262	
6,500.0	6,462.4	6,481.6	6,439.3	14.8	16.8	93.73	-385.9	-591.3	317.8	288.2	29.57	10.746	
6,600.0	6,551.2	6,583.2	6,540.5	14.4	16.8	100.44	-392.6	-587.5	330.7	302.2	28.50	11.601	
6,700.0	6,630.8	6,694.6	6,648.7	13.9	16.7	106.44	-399.8	-562.8	347.5	320.3	27.17	12.789	
6,800.0	6,698.6	6,818.0	6,760.4	13.5	16.3	111.74	-407.2	-511.6	366.5	340.7	25.75	14.234	
6,900.0	6,752.8	6,955.7	6,869.0	13.2	15.8	116.23	-414.5	-427.7	385.3	360.7	24.51	15.716	
7,000.0	6,791.5	7,108.7	6,962.4	13.2	15.2	119.67	-420.7	-307.3	401.0	377.1	23.90	16.780	
7,100.0	6,813.7	7,274.9	7,024.0	13.7	14.8	121.76	-424.8	-153.6	411.1	386.7	24.44	16.822	
7,200.0	6,819.0	7,432.2	7,040.0	14.6	15.3	122.29	-425.9	2.4	413.7	387.4	26.25	15.761	
7,300.0	6,819.0	7,532.2	7,040.0	15.9	16.6	122.29	-425.9	102.4	413.7	385.3	28.36	14.585	
7,400.0	6,819.0	7,632.2	7,040.0	17.4	18.2	122.29	-425.9	202.4	413.7	382.8	30.90	13.389	
7,500.0	6,819.0	7,732.2	7,040.0	19.1	19.9	122.29	-425.9	302.4	413.7	379.9	33.76	12.253	
7,600.0	6,819.0	7,832.2	7,040.0	21.0	21.8	122.29	-425.9	402.4	413.7	376.8	36.88	11.216	
7,700.0	6,819.0	7,932.2	7,040.0	23.0	23.7	122.29	-425.9	502.4	413.7	373.5	40.20	10.291	
7,800.0	6,819.0	8,032.2	7,040.0	25.1	25.8	122.29	-425.9	602.4	413.7	370.0	43.66	9.475	
7,900.0	6,819.0	8,132.2	7,040.0	27.2	27.9	122.29	-425.9	702.4	413.7	366.4	47.25	8.756	
8,000.0	6,819.0	8,232.2	7,040.0	29.4	30.1	122.29	-425.9	802.4	413.7	362.8	50.92	8.124	
8,100.0	6,819.0	8,332.2	7,040.0	31.6	32.3	122.29	-425.9	902.4	413.7	359.0	54.67	7.567	
8,200.0	6,819.0	8,432.2	7,040.0	33.9	34.5	122.29	-425.9	1,002.4	413.7	355.2	58.48	7.074	
8,300.0	6,819.0	8,532.2	7,040.0	36.2	36.8	122.29	-425.9	1,102.4	413.7	351.4	62.34	6.636	
8,400.0	6,819.0	8,632.2	7,040.0	38.5	39.1	122.29	-425.9	1,202.4	413.7	347.5	66.24	6.246	
8,500.0	6,819.0	8,732.2	7,040.0	40.9	41.4	122.29	-425.9	1,302.4	413.7	343.5	70.17	5.896	
8,600.0	6,819.0	8,832.2	7,040.0	43.2	43.7	122.29	-425.9	1,402.4	413.7	339.6	74.13	5.581	
8,700.0	6,819.0	8,932.2	7,040.0	45.6	46.0	122.29	-425.9	1,502.4	413.7	335.6	78.11	5.296	
8,800.0	6,819.0	9,032.2	7,040.0	47.9	48.4	122.29	-425.9	1,602.4	413.7	331.6	82.12	5.038	
8,900.0	6,819.0	9,132.2	7,040.0	50.3	50.8	122.29	-425.9	1,702.4	413.7	327.6	86.14	4.803	
9,000.0	6,819.0	9,232.2	7,040.0	52.7	53.2	122.29	-425.9	1,802.4	413.7	323.5	90.18	4.588	
9,100.0	6,819.0	9,332.2	7,040.0	55.1	55.5	122.29	-425.9	1,902.4	413.7	319.5	94.23	4.390	
9,200.0	6,819.0	9,432.2	7,040.0	57.5	57.9	122.29	-425.9	2,002.4	413.7	315.4	98.29	4.209	
9,300.0	6,819.0	9,532.2	7,040.0	59.9	60.3	122.29	-425.9	2,102.4	413.7	311.3	102.36	4.041	
9,400.0	6,819.0	9,632.2	7,040.0	62.4	62.7	122.29	-425.9	2,202.4	413.7	307.2	106.44	3.887	
9,500.0	6,819.0	9,732.2	7,040.0	64.8	65.1	122.29	-425.9	2,302.4	413.7	303.2	110.53	3.743	
9,600.0	6,819.0	9,832.2	7,040.0	67.2	67.6	122.29	-425.9	2,402.4	413.7	299.1	114.63	3.609	
9,700.0	6,819.0	9,932.2	7,040.0	69.6	70.0	122.29	-425.9	2,502.4	413.7	295.0	118.73	3.484	
9,800.0	6,819.0	10,032.2	7,040.0	72.1	72.4	122.29	-425.9	2,602.4	413.7	290.9	122.84	3.368	
9,900.0	6,819.0	10,132.2	7,040.0	74.5	74.8	122.29	-425.9	2,702.4	413.7	286.7	126.95	3.259	
10,000.0	6,819.0	10,232.2	7,040.0	76.9	77.3	122.29	-425.9	2,802.4	413.7	282.6	131.07	3.156	
10,100.0	6,819.0	10,332.2	7,040.0	79.4	79.7	122.29	-425.9	2,902.4	413.7	278.5	135.20	3.060	
10,200.0	6,819.0	10,432.2	7,040.0	81.8	82.1	122.29	-425.9	3,002.4	413.7	274.4	139.32	2.969	
10,300.0	6,819.0	10,532.2	7,040.0	84.3	84.6	122.29	-425.9	3,102.4	413.7	270.2	143.45	2.884	

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 Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3F-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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
10,400.0	6,819.0	10,632.2	7,040.0	86.7	87.0	122.29	-425.9	3,202.4	413.7	266.1	147.59	2.803	
10,500.0	6,819.0	10,732.2	7,040.0	89.1	89.4	122.29	-425.9	3,302.4	413.7	262.0	151.72	2.727	
10,600.0	6,819.0	10,832.2	7,040.0	91.6	91.9	122.29	-425.9	3,402.4	413.7	257.8	155.86	2.654	
10,700.0	6,819.0	10,932.2	7,040.0	94.0	94.3	122.29	-425.9	3,502.4	413.7	253.7	160.00	2.585	
10,800.0	6,819.0	11,032.2	7,040.0	96.5	96.8	122.29	-425.9	3,602.4	413.7	249.5	164.15	2.520	
10,900.0	6,819.0	11,132.2	7,040.0	98.9	99.2	122.29	-425.9	3,702.4	413.7	245.4	168.30	2.458	
11,000.0	6,819.0	11,232.2	7,040.0	101.4	101.7	122.29	-425.9	3,802.4	413.7	241.2	172.44	2.399	
11,100.0	6,819.0	11,332.2	7,040.0	103.8	104.1	122.29	-425.9	3,902.4	413.7	237.1	176.59	2.343	
11,200.0	6,819.0	11,432.2	7,040.0	106.3	106.6	122.29	-425.9	4,002.4	413.7	232.9	180.75	2.289	
11,300.0	6,819.0	11,532.2	7,040.0	108.8	109.0	122.29	-425.9	4,102.4	413.7	228.8	184.90	2.237	
11,352.9	6,819.0	11,585.1	7,040.0	110.1	110.3	122.29	-425.9	4,155.3	413.7	226.6	187.10	2.211	
11,373.2	6,819.0	11,602.7	7,040.0	110.6	110.8	122.29	-425.9	4,172.9	413.7	225.8	187.89	2.202	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 S19-T3N-R68W (Boyd) - Boyd 3G-19H-M368 - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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	100.0	100.0	0.1	0.1	180.00	-18.2	0.0	18.2	18.0	0.26	69.573	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-18.2	0.0	18.2	17.6	0.61	29.817	
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-18.2	0.0	18.2	17.3	0.96	18.974	CC, ES
400.0	400.0	399.8	399.7	0.7	0.7	-178.27	-18.9	-0.6	18.9	17.6	1.31	14.423	
500.0	500.0	499.4	499.4	0.8	0.8	-173.76	-20.8	-2.3	21.0	19.3	1.66	12.623	
600.0	600.0	599.0	598.9	1.0	1.0	-73.32	-24.1	-5.1	24.4	22.4	2.01	12.139	SF
700.0	700.0	698.5	698.2	1.2	1.2	-72.06	-28.7	-9.1	28.9	26.5	2.37	12.203	
800.0	799.9	797.9	797.3	1.4	1.4	-72.47	-34.5	-14.2	34.3	31.6	2.73	12.567	
900.0	899.7	897.1	896.1	1.6	1.6	-73.85	-41.7	-20.4	40.8	37.7	3.11	13.097	
1,000.0	999.4	996.2	994.5	1.8	1.9	-75.72	-50.1	-27.7	48.2	44.7	3.52	13.717	
1,100.0	1,098.9	1,095.1	1,092.5	2.0	2.2	-77.78	-59.8	-36.1	56.8	52.8	3.95	14.374	
1,200.0	1,198.3	1,193.7	1,190.1	2.2	2.4	-79.55	-70.7	-45.6	66.5	62.1	4.41	15.086	
1,300.0	1,297.7	1,292.7	1,287.8	2.5	2.8	-80.26	-82.8	-56.1	77.4	72.5	4.87	15.876	
1,400.0	1,397.1	1,392.1	1,385.8	2.7	3.1	-80.72	-95.1	-66.8	88.5	83.1	5.35	16.532	
1,500.0	1,496.5	1,491.4	1,483.8	2.9	3.4	-81.07	-107.4	-77.4	99.6	93.7	5.84	17.062	
1,600.0	1,595.9	1,590.8	1,581.9	3.2	3.7	-81.36	-119.6	-88.1	110.7	104.3	6.32	17.498	
1,700.0	1,695.3	1,690.2	1,679.9	3.4	4.0	-81.59	-131.9	-98.8	121.8	114.9	6.82	17.861	
1,800.0	1,794.7	1,789.6	1,778.0	3.7	4.3	-81.78	-144.2	-109.5	132.8	125.5	7.31	18.167	
1,900.0	1,894.1	1,889.0	1,876.0	3.9	4.7	-81.94	-156.5	-120.1	143.9	136.1	7.81	18.429	
2,000.0	1,993.5	1,988.3	1,974.0	4.2	5.0	-82.08	-168.8	-130.8	155.0	146.7	8.31	18.654	
2,100.0	2,092.9	2,087.7	2,072.1	4.4	5.3	-82.20	-181.0	-141.5	166.1	157.3	8.81	18.851	
2,200.0	2,192.3	2,187.1	2,170.1	4.7	5.7	-82.31	-193.3	-152.1	177.2	167.9	9.32	19.023	
2,300.0	2,291.7	2,286.5	2,268.2	4.9	6.0	-82.40	-205.6	-162.8	188.3	178.5	9.82	19.175	
2,400.0	2,391.1	2,385.9	2,366.2	5.2	6.3	-82.49	-217.9	-173.5	199.4	189.1	10.33	19.311	
2,500.0	2,490.5	2,485.3	2,464.2	5.5	6.6	-82.56	-230.2	-184.1	210.5	199.7	10.84	19.432	
2,600.0	2,589.8	2,584.6	2,562.3	5.7	7.0	-82.63	-242.4	-194.8	221.6	210.3	11.34	19.541	
2,700.0	2,689.2	2,684.0	2,660.3	6.0	7.3	-82.69	-254.7	-205.5	232.7	220.9	11.85	19.639	
2,800.0	2,788.6	2,783.4	2,758.4	6.2	7.6	-82.74	-267.0	-216.1	243.9	231.5	12.36	19.729	
2,900.0	2,888.0	2,882.8	2,856.4	6.5	8.0	-82.79	-279.3	-226.8	255.0	242.1	12.87	19.811	
3,000.0	2,987.4	2,982.2	2,954.5	6.7	8.3	-82.84	-291.5	-237.5	266.1	252.7	13.38	19.885	
3,100.0	3,086.8	3,081.5	3,052.5	7.0	8.6	-82.88	-303.8	-248.1	277.2	263.3	13.89	19.954	
3,200.0	3,186.2	3,180.9	3,150.5	7.3	9.0	-82.92	-316.1	-258.8	288.3	273.9	14.40	20.017	
3,300.0	3,285.6	3,280.3	3,248.6	7.5	9.3	-82.96	-328.4	-269.5	299.4	284.5	14.91	20.076	
3,400.0	3,385.0	3,379.7	3,346.6	7.8	9.6	-82.99	-340.7	-280.1	310.5	295.0	15.42	20.130	
3,500.0	3,484.4	3,479.1	3,444.7	8.0	10.0	-83.02	-352.9	-290.8	321.6	305.6	15.93	20.180	
3,600.0	3,583.8	3,578.4	3,542.7	8.3	10.3	-83.05	-365.2	-301.5	332.7	316.2	16.45	20.227	
3,700.0	3,683.2	3,677.8	3,640.7	8.5	10.6	-83.08	-377.5	-312.1	343.8	326.8	16.96	20.271	
3,800.0	3,782.6	3,777.2	3,738.8	8.8	10.9	-83.10	-389.8	-322.8	354.9	337.4	17.47	20.312	
3,900.0	3,882.0	3,876.6	3,836.8	9.1	11.3	-83.13	-402.1	-333.5	366.0	348.0	17.98	20.351	
4,000.0	3,981.4	3,976.0	3,934.9	9.3	11.6	-83.15	-414.3	-344.2	377.1	358.6	18.50	20.387	
4,100.0	4,080.8	4,075.4	4,032.9	9.6	11.9	-83.17	-426.6	-354.8	388.2	369.2	19.01	20.421	
4,200.0	4,180.2	4,174.7	4,131.0	9.8	12.3	-83.19	-438.9	-365.5	399.3	379.8	19.52	20.453	
4,300.0	4,279.6	4,274.1	4,229.0	10.1	12.6	-83.21	-451.2	-376.2	410.4	390.4	20.04	20.484	
4,400.0	4,379.0	4,373.5	4,327.0	10.4	12.9	-83.23	-463.5	-386.8	421.5	400.9	20.55	20.512	
4,500.0	4,478.4	4,472.9	4,425.1	10.6	13.3	-83.25	-475.7	-397.5	432.6	411.5	21.06	20.540	
4,600.0	4,577.8	4,572.3	4,523.1	10.9	13.6	-83.26	-488.0	-408.2	443.7	422.1	21.58	20.565	
4,700.0	4,677.2	4,671.6	4,621.2	11.1	13.9	-83.28	-500.3	-418.8	454.8	432.7	22.09	20.590	
4,800.0	4,776.6	4,771.0	4,719.2	11.4	14.3	-83.29	-512.6	-429.5	465.9	443.3	22.60	20.613	
4,900.0	4,876.0	4,870.4	4,817.2	11.7	14.6	-83.31	-524.9	-440.2	477.0	453.9	23.12	20.636	
5,000.0	4,975.3	4,969.8	4,915.3	11.9	14.9	-83.32	-537.1	-450.8	488.1	464.5	23.63	20.657	
5,100.0	5,074.7	5,069.2	5,013.3	12.2	15.3	-83.33	-549.4	-461.5	499.2	475.1	24.14	20.677	

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 Boyd 3E-19H-M368
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Reference Site:	S19-T3N-R68W (Boyd)	**MD Reference:**	WELL @ 5029.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Boyd 3E-19H-M368	**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 @ 5029.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Boyd 3E-19H-M368
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.29°