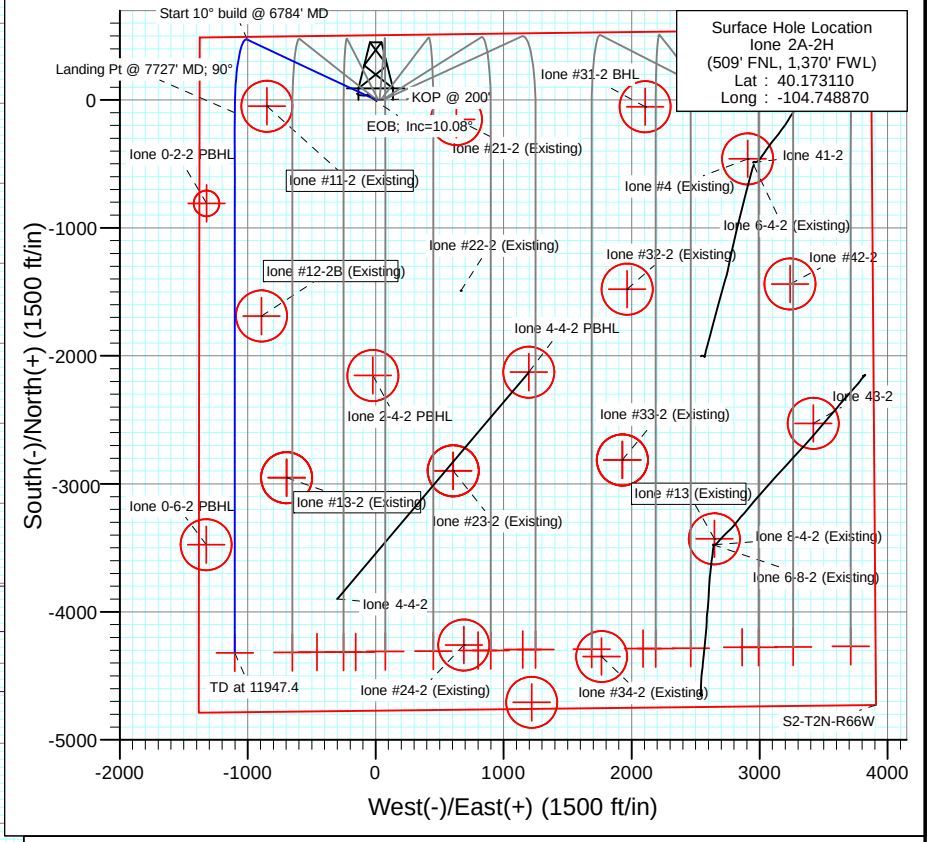
encana natural gas

Project: DJ Wattenberg
Site: NWNE S2-T2N-R66W (Ione)
Well: Ione 2A-2H
Wellbore: HZ
Design: Plan #1

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	704.0	10.08	295.15	701.4	18.8	-40.0	2.00	295.15	-18.8	
4	6784.7	10.08	295.15	6688.2	471.0	-1003.4	0.00	0.00	-471.0	
5	7727.4	90.00	180.00	7296.0	-100.3	-1101.2	10.00	-114.81	100.3	
6	11947.4	90.00	180.00	7296.0	-4320.3	-1101.2	0.00	0.00	4320.3	Ione 2A-2H PBHL (460' FSL, 275' FWL)



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Ione 2A-2H PBHL (460' FSL, 275' FWL)	-4320.3	-1101.2	1302468.96	3208836.96	40.161250	-104.752810

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4518.0	4580.4	Sussex
4801.0	4867.9	Sussex Marker
5177.0	5249.8	Shannon
6498.0	6591.5	Teepee Buttes
7186.0	7364.0	Sharon Springs
7247.0	7487.1	Niobrara
7286.0	7619.5	B Chalk

T M Azimuths to True North
Magnetic North: 8.64°

Magnetic Field
Strength: 52916.0snT
Dip Angle: 66.84°
Date: 8/8/2012
Model: IGRF200510

Plan #1
Ione 2A-2H
125XXX; LR
KB=13' @ 5059.0ft (Original Well Elev)
Ground Elevation @ 5046.0
North American Datum 1983
Well Ione 2A-2H, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 2A-2H	**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	NWNE S2-T2N-R66W (Ione)				
Site Position:		**Northing:**	1,306,798.50 ft	**Latitude:**	40.173110
From:	Lat/Long	**Easting:**	3,209,901.52 ft	**Longitude:**	-104.748870
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.49 °

Well	Ione 2A-2H				
Well Position	**+N/-S** 0.0 ft	**Northing:**	1,306,798.47 ft	**Latitude:**	40.173110
	+E/-W 0.0 ft	**Easting:**	3,209,901.52 ft	**Longitude:**	-104.748870
Position Uncertainty	0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	5,046.0 ft

Wellbore	HZ			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	8/8/2012	8.64	66.84	52,916

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	180.00

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	
704.0	10.08	295.15	701.4	18.8	-40.0	2.00	2.00	0.00	295.15	
6,784.7	10.08	295.15	6,688.2	471.0	-1,003.4	0.00	0.00	0.00	0.00	
7,727.4	90.00	180.00	7,296.0	-100.3	-1,101.2	10.00	8.48	-12.22	-114.81	
11,947.4	90.00	180.00	7,296.0	-4,320.3	-1,101.2	0.00	0.00	0.00	0.00	Ione 2A-2H PBHL (46

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 2A-2H
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Project:	DJ Wattenberg	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 2A-2H	**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'
300.0	2.00	295.15	300.0	0.7	-1.6	-0.7	2.00	2.00	
400.0	4.00	295.15	399.8	3.0	-6.3	-3.0	2.00	2.00	
500.0	6.00	295.15	499.5	6.7	-14.2	-6.7	2.00	2.00	
600.0	8.00	295.15	598.7	11.8	-25.2	-11.8	2.00	2.00	
700.0	10.00	295.15	697.5	18.5	-39.4	-18.5	2.00	2.00	
704.0	10.08	295.15	701.4	18.8	-40.0	-18.8	2.00	2.00	EOB; Inc=10.08°
800.0	10.08	295.15	795.9	25.9	-55.2	-25.9	0.00	0.00	
900.0	10.08	295.15	894.4	33.4	-71.1	-33.4	0.00	0.00	
1,000.0	10.08	295.15	992.8	40.8	-86.9	-40.8	0.00	0.00	
1,100.0	10.08	295.15	1,091.3	48.2	-102.8	-48.2	0.00	0.00	
1,200.0	10.08	295.15	1,189.7	55.7	-118.6	-55.7	0.00	0.00	
1,300.0	10.08	295.15	1,288.2	63.1	-134.5	-63.1	0.00	0.00	
1,400.0	10.08	295.15	1,386.7	70.6	-150.3	-70.6	0.00	0.00	
1,500.0	10.08	295.15	1,485.1	78.0	-166.1	-78.0	0.00	0.00	
1,600.0	10.08	295.15	1,583.6	85.4	-182.0	-85.4	0.00	0.00	
1,700.0	10.08	295.15	1,682.0	92.9	-197.8	-92.9	0.00	0.00	
1,800.0	10.08	295.15	1,780.5	100.3	-213.7	-100.3	0.00	0.00	
1,900.0	10.08	295.15	1,878.9	107.7	-229.5	-107.7	0.00	0.00	
2,000.0	10.08	295.15	1,977.4	115.2	-245.4	-115.2	0.00	0.00	
2,100.0	10.08	295.15	2,075.9	122.6	-261.2	-122.6	0.00	0.00	
2,200.0	10.08	295.15	2,174.3	130.1	-277.0	-130.1	0.00	0.00	
2,300.0	10.08	295.15	2,272.8	137.5	-292.9	-137.5	0.00	0.00	
2,400.0	10.08	295.15	2,371.2	144.9	-308.7	-144.9	0.00	0.00	
2,500.0	10.08	295.15	2,469.7	152.4	-324.6	-152.4	0.00	0.00	
2,600.0	10.08	295.15	2,568.1	159.8	-340.4	-159.8	0.00	0.00	
2,700.0	10.08	295.15	2,666.6	167.2	-356.3	-167.2	0.00	0.00	
2,800.0	10.08	295.15	2,765.1	174.7	-372.1	-174.7	0.00	0.00	
2,900.0	10.08	295.15	2,863.5	182.1	-387.9	-182.1	0.00	0.00	
3,000.0	10.08	295.15	2,962.0	189.6	-403.8	-189.6	0.00	0.00	
3,100.0	10.08	295.15	3,060.4	197.0	-419.6	-197.0	0.00	0.00	
3,200.0	10.08	295.15	3,158.9	204.4	-435.5	-204.4	0.00	0.00	
3,300.0	10.08	295.15	3,257.3	211.9	-451.3	-211.9	0.00	0.00	
3,400.0	10.08	295.15	3,355.8	219.3	-467.2	-219.3	0.00	0.00	
3,500.0	10.08	295.15	3,454.2	226.7	-483.0	-226.7	0.00	0.00	
3,600.0	10.08	295.15	3,552.7	234.2	-498.8	-234.2	0.00	0.00	
3,700.0	10.08	295.15	3,651.2	241.6	-514.7	-241.6	0.00	0.00	
3,800.0	10.08	295.15	3,749.6	249.0	-530.5	-249.0	0.00	0.00	
3,900.0	10.08	295.15	3,848.1	256.5	-546.4	-256.5	0.00	0.00	
4,000.0	10.08	295.15	3,946.5	263.9	-562.2	-263.9	0.00	0.00	
4,100.0	10.08	295.15	4,045.0	271.4	-578.1	-271.4	0.00	0.00	
4,200.0	10.08	295.15	4,143.4	278.8	-593.9	-278.8	0.00	0.00	
4,300.0	10.08	295.15	4,241.9	286.2	-609.7	-286.2	0.00	0.00	
4,400.0	10.08	295.15	4,340.4	293.7	-625.6	-293.7	0.00	0.00	
4,500.0	10.08	295.15	4,438.8	301.1	-641.4	-301.1	0.00	0.00	
4,580.4	10.08	295.15	4,518.0	307.1	-654.2	-307.1	0.00	0.00	Sussex
4,600.0	10.08	295.15	4,537.3	308.5	-657.3	-308.5	0.00	0.00	
4,700.0	10.08	295.15	4,635.7	316.0	-673.1	-316.0	0.00	0.00	
4,800.0	10.08	295.15	4,734.2	323.4	-689.0	-323.4	0.00	0.00	
4,867.9	10.08	295.15	4,801.0	328.5	-699.7	-328.5	0.00	0.00	Sussex Marker

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Well:	Ione 2A-2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,900.0	10.08	295.15	4,832.6	330.9	-704.8	-330.9	0.00	0.00	
5,000.0	10.08	295.15	4,931.1	338.3	-720.6	-338.3	0.00	0.00	
5,100.0	10.08	295.15	5,029.6	345.7	-736.5	-345.7	0.00	0.00	
5,200.0	10.08	295.15	5,128.0	353.2	-752.3	-353.2	0.00	0.00	
5,249.8	10.08	295.15	5,177.0	356.9	-760.2	-356.9	0.00	0.00	Shannon
5,300.0	10.08	295.15	5,226.5	360.6	-768.2	-360.6	0.00	0.00	
5,400.0	10.08	295.15	5,324.9	368.0	-784.0	-368.0	0.00	0.00	
5,500.0	10.08	295.15	5,423.4	375.5	-799.9	-375.5	0.00	0.00	
5,600.0	10.08	295.15	5,521.8	382.9	-815.7	-382.9	0.00	0.00	
5,700.0	10.08	295.15	5,620.3	390.4	-831.6	-390.4	0.00	0.00	
5,800.0	10.08	295.15	5,718.7	397.8	-847.4	-397.8	0.00	0.00	
5,900.0	10.08	295.15	5,817.2	405.2	-863.2	-405.2	0.00	0.00	
6,000.0	10.08	295.15	5,915.7	412.7	-879.1	-412.7	0.00	0.00	
6,100.0	10.08	295.15	6,014.1	420.1	-894.9	-420.1	0.00	0.00	
6,200.0	10.08	295.15	6,112.6	427.5	-910.8	-427.5	0.00	0.00	
6,300.0	10.08	295.15	6,211.0	435.0	-926.6	-435.0	0.00	0.00	
6,400.0	10.08	295.15	6,309.5	442.4	-942.5	-442.4	0.00	0.00	
6,500.0	10.08	295.15	6,407.9	449.9	-958.3	-449.9	0.00	0.00	
6,591.5	10.08	295.15	6,498.0	456.7	-972.8	-456.7	0.00	0.00	Teepee Buttes
6,600.0	10.08	295.15	6,506.4	457.3	-974.1	-457.3	0.00	0.00	
6,700.0	10.08	295.15	6,604.9	464.7	-990.0	-464.7	0.00	0.00	
6,784.7	10.08	295.15	6,688.2	471.0	-1,003.4	-471.0	0.00	0.00	Start 10° build @ 6784' MD
6,800.0	9.54	286.74	6,703.3	472.0	-1,005.8	-472.0	10.00	-3.54	
6,900.0	11.66	231.26	6,801.9	468.0	-1,021.7	-468.0	10.00	2.12	
7,000.0	19.47	207.08	6,898.2	446.8	-1,037.2	-446.8	10.00	7.81	
7,100.0	28.64	197.13	6,989.5	409.0	-1,051.9	-409.0	10.00	9.17	
7,200.0	38.21	191.79	7,072.8	355.6	-1,065.3	-355.6	10.00	9.57	
7,300.0	47.93	188.35	7,145.8	288.5	-1,077.0	-288.5	10.00	9.72	
7,364.0	54.20	186.67	7,186.0	239.2	-1,083.5	-239.2	10.00	9.79	Sharon Springs
7,400.0	57.73	185.83	7,206.2	209.5	-1,086.7	-209.5	10.00	9.81	
7,487.1	66.30	184.05	7,247.0	132.9	-1,093.3	-132.9	10.00	9.84	Niobrara
7,500.0	67.57	183.81	7,252.0	121.1	-1,094.1	-121.1	10.00	9.85	
7,600.0	77.43	182.06	7,282.1	26.0	-1,099.0	-26.0	10.00	9.86	
7,619.5	79.35	181.73	7,286.0	6.9	-1,099.6	-6.9	10.00	9.87	B Chalk
7,700.0	87.30	180.43	7,295.4	-73.0	-1,101.1	73.0	10.00	9.87	
7,727.4	90.00	180.00	7,296.0	-100.3	-1,101.2	100.3	10.00	9.87	Landing Pt @ 7727' MD; 90°
7,800.0	90.00	180.00	7,296.0	-173.0	-1,101.2	173.0	0.00	0.00	
7,900.0	90.00	180.00	7,296.0	-273.0	-1,101.2	273.0	0.00	0.00	
8,000.0	90.00	180.00	7,296.0	-373.0	-1,101.2	373.0	0.00	0.00	
8,100.0	90.00	180.00	7,296.0	-473.0	-1,101.2	473.0	0.00	0.00	
8,200.0	90.00	180.00	7,296.0	-573.0	-1,101.2	573.0	0.00	0.00	
8,300.0	90.00	180.00	7,296.0	-673.0	-1,101.2	673.0	0.00	0.00	
8,400.0	90.00	180.00	7,296.0	-773.0	-1,101.2	773.0	0.00	0.00	
8,500.0	90.00	180.00	7,296.0	-873.0	-1,101.2	873.0	0.00	0.00	
8,600.0	90.00	180.00	7,296.0	-973.0	-1,101.2	973.0	0.00	0.00	
8,700.0	90.00	180.00	7,296.0	-1,073.0	-1,101.2	1,073.0	0.00	0.00	
8,800.0	90.00	180.00	7,296.0	-1,173.0	-1,101.2	1,173.0	0.00	0.00	
8,900.0	90.00	180.00	7,296.0	-1,273.0	-1,101.2	1,273.0	0.00	0.00	
9,000.0	90.00	180.00	7,296.0	-1,373.0	-1,101.2	1,373.0	0.00	0.00	
9,100.0	90.00	180.00	7,296.0	-1,473.0	-1,101.2	1,473.0	0.00	0.00	
9,200.0	90.00	180.00	7,296.0	-1,573.0	-1,101.2	1,573.0	0.00	0.00	
9,300.0	90.00	180.00	7,296.0	-1,673.0	-1,101.2	1,673.0	0.00	0.00	

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Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 2A-2H	**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
9,400.0	90.00	180.00	7,296.0	-1,773.0	-1,101.2	1,773.0	0.00	0.00	
9,500.0	90.00	180.00	7,296.0	-1,873.0	-1,101.2	1,873.0	0.00	0.00	
9,600.0	90.00	180.00	7,296.0	-1,973.0	-1,101.2	1,973.0	0.00	0.00	
9,700.0	90.00	180.00	7,296.0	-2,073.0	-1,101.2	2,073.0	0.00	0.00	
9,800.0	90.00	180.00	7,296.0	-2,173.0	-1,101.2	2,173.0	0.00	0.00	
9,900.0	90.00	180.00	7,296.0	-2,273.0	-1,101.2	2,273.0	0.00	0.00	
10,000.0	90.00	180.00	7,296.0	-2,373.0	-1,101.2	2,373.0	0.00	0.00	
10,100.0	90.00	180.00	7,296.0	-2,473.0	-1,101.2	2,473.0	0.00	0.00	
10,200.0	90.00	180.00	7,296.0	-2,573.0	-1,101.2	2,573.0	0.00	0.00	
10,300.0	90.00	180.00	7,296.0	-2,673.0	-1,101.2	2,673.0	0.00	0.00	
10,400.0	90.00	180.00	7,296.0	-2,773.0	-1,101.2	2,773.0	0.00	0.00	
10,500.0	90.00	180.00	7,296.0	-2,873.0	-1,101.2	2,873.0	0.00	0.00	
10,600.0	90.00	180.00	7,296.0	-2,973.0	-1,101.2	2,973.0	0.00	0.00	
10,700.0	90.00	180.00	7,296.0	-3,073.0	-1,101.2	3,073.0	0.00	0.00	
10,800.0	90.00	180.00	7,296.0	-3,173.0	-1,101.2	3,173.0	0.00	0.00	
10,900.0	90.00	180.00	7,296.0	-3,273.0	-1,101.2	3,273.0	0.00	0.00	
11,000.0	90.00	180.00	7,296.0	-3,373.0	-1,101.2	3,373.0	0.00	0.00	
11,100.0	90.00	180.00	7,296.0	-3,473.0	-1,101.2	3,473.0	0.00	0.00	
11,200.0	90.00	180.00	7,296.0	-3,573.0	-1,101.2	3,573.0	0.00	0.00	
11,300.0	90.00	180.00	7,296.0	-3,673.0	-1,101.2	3,673.0	0.00	0.00	
11,400.0	90.00	180.00	7,296.0	-3,773.0	-1,101.2	3,773.0	0.00	0.00	
11,500.0	90.00	180.00	7,296.0	-3,873.0	-1,101.2	3,873.0	0.00	0.00	
11,600.0	90.00	180.00	7,296.0	-3,973.0	-1,101.2	3,973.0	0.00	0.00	
11,700.0	90.00	180.00	7,296.0	-4,073.0	-1,101.2	4,073.0	0.00	0.00	
11,800.0	90.00	180.00	7,296.0	-4,173.0	-1,101.2	4,173.0	0.00	0.00	
11,900.0	90.00	180.00	7,296.0	-4,273.0	-1,101.2	4,273.0	0.00	0.00	
11,947.4	90.00	180.00	7,296.0	-4,320.3	-1,101.2	4,320.3	0.00	0.00	TD at 11947.4 - Ione 2A-2H PBHL (460' FSL, 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
Ione 2A-2H PBHL (460' I - plan hits target center - Point	0.00	0.00	7,296.0	-4,320.3	-1,101.2	1,302,468.96	3,208,836.96	40.161250	-104.752810

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,580.4	4,518.0	Sussex			
4,867.9	4,801.0	Sussex Marker			
5,249.8	5,177.0	Shannon			
6,591.5	6,498.0	Teepee Buttes			
7,364.0	7,186.0	Sharon Springs			
7,487.1	7,247.0	Niobrara			
7,619.5	7,286.0	B Chalk			

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 2A-2H	**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
200.0	200.0	0.0	0.0	KOP @ 200'
704.0	701.4	18.8	-40.0	EOB; Inc=10.08°
6,784.7	6,688.2	471.0	-1,003.4	Start 10° build @ 6784' MD
7,727.4	7,296.0	-100.3	-1,101.2	Landing Pt @ 7727' MD; 90°
11,947.4	7,296.0	-4,320.3	-1,101.2	TD at 11947.4

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
NWNE S2-T2N-R66W (Ione)
Ione 2A-2H
HZ
Plan #1

Anticollision Report

15 August, 2012

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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** 8/15/2012

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,947.4	Plan #1 (HZ)	MWD	Geolink MWD

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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

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
NWNE S2-T2N-R66W (Ione)						
Ione #11-2 (Existing) - DD - Plan #1	7,673.0	7,271.5	250.7	224.7	9.616	CC, ES, SF
Ione #12-2B (Existing) - DD - Plan #1	9,315.0	7,272.0	209.2	162.5	4.486	CC, ES, SF
Ione #13 (Existing) - HZ - Plan #1						Out of range
Ione #13-2 (Existing) - DD - Plan #1	10,578.8	7,274.0	405.0	337.3	5.979	CC, ES
Ione #13-2 (Existing) - DD - Plan #1	10,600.0	7,274.0	405.6	337.5	5.955	SF
Ione #21-2 (Existing) - DD - Plan #1						Out of range
Ione #22-2 (Existing) - DD - Plan #1						Out of range
Ione #23-2 (Existing) - DD - Plan #1						Out of range
Ione #24-2 (Existing) - DD - Plan #1						Out of range
Ione #3 (Existing) - DD - DD	325.3	323.3	0.5	-0.3	0.600	Level 1, CC, ES, SF
Ione #3 (Existing) - DD - Plan #1	200.0	198.0	0.0	-0.6	0.032	Level 1, CC, ES, SF
Ione #31-2 (Existing) - DD - Plan #1						Out of range
Ione #32-2 (Existing) - DD - Plan #1						Out of range
Ione #33-2 (Existing) - DD - Plan #1						Out of range
Ione #34-2 (Existing) - DD - Plan #1						Out of range
Ione #4 (Existing) - DD - Plan #1						Out of range
Ione #42-2 - DD - Plan #1						Out of range
Ione 1A-2H - HZ - Plan #1						Out of range
Ione 1B-2H - HZ - Plan #1						Out of range
Ione 1C-2H - HZ - Plan #1						Out of range
Ione 1D-2H - HZ - Plan #1						Out of range
Ione 1E-2H - HZ - Plan #1						Out of range
Ione 1F-2H - HZ - Plan #1						Out of range
Ione 2B-2H - HZ - Plan #1	200.0	200.0	8.4	7.7	12.843	CC, ES
Ione 2B-2H - HZ - Plan #1	300.0	300.0	10.0	9.0	9.970	SF
Ione 2C-2H - HZ - Plan #1	200.0	200.0	19.6	18.9	29.967	CC, ES
Ione 2C-2H - HZ - Plan #1	400.0	399.8	26.0	24.7	19.272	SF
Ione 2D-2H - HZ - Plan #1	200.0	200.0	30.7	30.1	47.091	CC, ES
Ione 2D-2H - HZ - Plan #1	500.0	499.5	45.4	43.7	26.708	SF
Ione 2E-2H - HZ - Plan #1	200.0	200.0	39.1	38.5	59.934	CC, ES
Ione 2E-2H - HZ - Plan #1	500.0	499.5	53.7	52.0	31.569	SF
Ione 2F-2H - HZ - Plan #1	200.0	200.0	50.3	49.6	77.058	CC, ES
Ione 2F-2H - HZ - Plan #1	500.0	497.7	66.2	64.5	38.891	SF
Ione 2G-2H - HZ - Plan #1	200.0	200.0	58.7	58.0	89.901	CC, ES
Ione 2G-2H - HZ - Plan #1	500.0	491.9	86.8	85.1	50.813	SF
Ione 41-2 - DD - DD						Out of range
Ione 43-2 - Wellbore #1 - Wellbore #1						Out of range
Ione 4-4-2 - Wellbore #1 - Plan #1						Out of range
Ione 6-4-2 (Existing) - Existing - Existing						Out of range
Ione 6-8-2 (Existing) - Existing - Existing						Out of range
Ione 8-4-2 (Existing) - Existing - Existing						Out of range

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione #11-2 (Existing) - DD - 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
3,100.0	3,060.4	3,038.4	3,038.4	9.9	5.3	-55.40	-49.9	-850.1	496.2	482.2	13.99	35.469	
3,200.0	3,158.9	3,136.9	3,136.9	10.3	5.4	-57.08	-49.9	-850.1	486.4	471.8	14.58	33.354	
3,300.0	3,257.3	3,235.3	3,235.3	10.6	5.6	-58.83	-49.9	-850.1	477.0	461.8	15.18	31.417	
3,400.0	3,355.8	3,333.8	3,333.8	11.0	5.8	-60.64	-49.9	-850.1	468.1	452.3	15.79	29.641	
3,500.0	3,454.2	3,432.2	3,432.2	11.3	6.0	-62.52	-49.9	-850.1	459.6	443.2	16.41	28.017	
3,600.0	3,552.7	3,530.7	3,530.7	11.7	6.1	-64.46	-49.9	-850.1	451.7	434.7	17.03	26.532	
3,700.0	3,651.2	3,629.2	3,629.2	12.1	6.3	-66.47	-49.9	-850.1	444.4	426.7	17.65	25.177	
3,800.0	3,749.6	3,727.6	3,727.6	12.4	6.5	-68.54	-49.9	-850.1	437.6	419.3	18.27	23.944	
3,900.0	3,848.1	3,826.1	3,826.1	12.8	6.7	-70.68	-49.9	-850.1	431.4	412.5	18.90	22.824	
4,000.0	3,946.5	3,924.5	3,924.5	13.1	6.8	-72.87	-49.9	-850.1	425.8	406.3	19.52	21.810	
4,100.0	4,045.0	4,023.0	4,023.0	13.5	7.0	-75.11	-49.9	-850.1	420.9	400.8	20.14	20.896	
4,200.0	4,143.4	4,121.4	4,121.4	13.8	7.2	-77.41	-49.9	-850.1	416.7	396.0	20.76	20.076	
4,300.0	4,241.9	4,219.9	4,219.9	14.2	7.3	-79.74	-49.9	-850.1	413.2	391.8	21.36	19.345	
4,400.0	4,340.4	4,318.4	4,318.4	14.5	7.5	-82.11	-49.9	-850.1	410.4	388.4	21.95	18.696	
4,500.0	4,438.8	4,416.8	4,416.8	14.9	7.7	-84.51	-49.9	-850.1	408.3	385.8	22.53	18.125	
4,600.0	4,537.3	4,515.3	4,515.3	15.3	7.9	-86.92	-49.9	-850.1	407.0	383.9	23.09	17.627	
4,700.0	4,635.7	4,613.7	4,613.7	15.6	8.0	-89.35	-49.9	-850.1	406.4	382.8	23.63	17.198	
4,726.9	4,662.2	4,640.2	4,640.2	15.7	8.1	-90.00	-49.9	-850.1	406.4	382.6	23.77	17.094	
4,800.0	4,734.2	4,712.2	4,712.2	16.0	8.2	-91.78	-49.9	-850.1	406.6	382.4	24.15	16.834	
4,900.0	4,832.6	4,810.6	4,810.6	16.3	8.4	-94.20	-49.9	-850.1	407.5	382.9	24.65	16.530	
5,000.0	4,931.1	4,909.1	4,909.1	16.7	8.5	-96.61	-49.9	-850.1	409.2	384.1	25.13	16.282	
5,100.0	5,029.6	5,007.6	5,007.6	17.0	8.7	-98.99	-49.9	-850.1	411.6	386.0	25.59	16.088	
5,200.0	5,128.0	5,106.0	5,106.0	17.4	8.9	-101.34	-49.9	-850.1	414.7	388.7	26.02	15.942	
5,300.0	5,226.5	5,204.5	5,204.5	17.7	9.1	-103.66	-49.9	-850.1	418.6	392.2	26.42	15.841	
5,400.0	5,324.9	5,302.9	5,302.9	18.1	9.2	-105.93	-49.9	-850.1	423.1	396.3	26.81	15.783	
5,500.0	5,423.4	5,401.4	5,401.4	18.4	9.4	-108.15	-49.9	-850.1	428.3	401.2	27.17	15.763	
5,600.0	5,521.8	5,499.8	5,499.8	18.8	9.6	-110.32	-49.9	-850.1	434.2	406.7	27.52	15.779	
5,700.0	5,620.3	5,598.3	5,598.3	19.2	9.7	-112.42	-49.9	-850.1	440.6	412.8	27.84	15.828	
5,800.0	5,718.7	5,696.7	5,696.7	19.5	9.9	-114.47	-49.9	-850.1	447.7	419.5	28.15	15.906	
5,900.0	5,817.2	5,795.2	5,795.2	19.9	10.1	-116.45	-49.9	-850.1	455.3	426.9	28.44	16.011	
6,000.0	5,915.7	5,893.7	5,893.7	20.2	10.3	-118.36	-49.9	-850.1	463.5	434.8	28.71	16.141	
6,100.0	6,014.1	5,992.1	5,992.1	20.6	10.4	-120.21	-49.9	-850.1	472.1	443.2	28.98	16.294	
6,200.0	6,112.6	6,090.6	6,090.6	20.9	10.6	-121.99	-49.9	-850.1	481.3	452.0	29.23	16.466	
6,300.0	6,211.0	6,189.0	6,189.0	21.3	10.8	-123.71	-49.9	-850.1	490.9	461.4	29.47	16.655	
7,200.0	7,072.8	7,050.8	7,050.8	23.5	12.3	-46.63	-49.9	-850.1	459.1	433.1	26.04	17.630	
7,300.0	7,145.8	7,123.8	7,123.8	23.5	12.4	-53.54	-49.9	-850.1	407.4	383.0	24.47	16.648	
7,400.0	7,206.2	7,184.2	7,184.2	23.5	12.5	-64.49	-49.9	-850.1	351.1	326.9	24.19	14.515	
7,500.0	7,252.0	7,230.0	7,230.0	23.5	12.6	-76.99	-49.9	-850.1	298.0	273.0	25.03	11.907	
7,600.0	7,282.1	7,260.1	7,260.1	23.6	12.6	-86.69	-49.9	-850.1	260.2	234.4	25.76	10.100	
7,673.0	7,293.5	7,271.5	7,271.5	23.7	12.7	-90.00	-49.9	-850.1	250.7	224.7	26.08	9.616	CC, ES, SF
7,700.0	7,295.4	7,273.4	7,273.4	23.7	12.7	-90.27	-49.9	-850.1	252.1	225.9	26.16	9.636	
7,800.0	7,296.0	7,274.0	7,274.0	24.0	12.7	-90.00	-49.9	-850.1	279.7	253.0	26.63	10.501	
7,900.0	7,296.0	7,274.0	7,274.0	24.4	12.7	-90.00	-49.9	-850.1	335.9	308.6	27.32	12.295	
8,000.0	7,296.0	7,274.0	7,274.0	24.9	12.7	-90.00	-49.9	-850.1	409.2	381.0	28.18	14.522	
8,100.0	7,296.0	7,274.0	7,274.0	25.5	12.7	-90.00	-49.9	-850.1	492.0	462.8	29.18	16.862	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione #12-2B (Existing) - DD - 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
8,900.0	7,296.0	7,272.0	7,272.0	33.6	12.7	-90.00	-1,688.1	-892.0	464.8	424.7	40.06	11.603	
9,000.0	7,296.0	7,272.0	7,272.0	34.8	12.7	-90.00	-1,688.1	-892.0	378.2	336.6	41.61	9.089	
9,100.0	7,296.0	7,272.0	7,272.0	36.2	12.7	-90.00	-1,688.1	-892.0	300.0	256.8	43.18	6.947	
9,200.0	7,296.0	7,272.0	7,272.0	37.5	12.7	-90.00	-1,688.1	-892.0	238.7	193.9	44.77	5.332	
9,300.0	7,296.0	7,272.0	7,272.0	38.9	12.7	-90.00	-1,688.1	-892.0	209.7	163.3	46.38	4.521	
9,315.0	7,296.0	7,272.0	7,272.0	39.1	12.7	-90.00	-1,688.1	-892.0	209.2	162.5	46.63	4.486	CC, ES, SF
9,400.0	7,296.0	7,272.0	7,272.0	40.3	12.7	-90.00	-1,688.1	-892.0	225.7	177.7	48.00	4.702	
9,500.0	7,296.0	7,272.0	7,272.0	41.7	12.7	-90.00	-1,688.1	-892.0	279.2	229.5	49.64	5.624	
9,600.0	7,296.0	7,272.0	7,272.0	43.2	12.7	-90.00	-1,688.1	-892.0	353.5	302.2	51.28	6.892	
9,700.0	7,296.0	7,272.0	7,272.0	44.7	12.7	-90.00	-1,688.1	-892.0	438.1	385.1	52.94	8.275	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione #13-2 (Existing) - DD - 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	7,296.0	7,274.0	7,274.0	53.9	12.7	-90.00	-2,951.8	-696.2	491.7	428.7	63.01	7.804	
10,400.0	7,296.0	7,274.0	7,274.0	55.5	12.7	-90.00	-2,951.8	-696.2	442.7	378.0	64.70	6.842	
10,500.0	7,296.0	7,274.0	7,274.0	57.1	12.7	-90.00	-2,951.8	-696.2	412.6	346.2	66.40	6.214	
10,578.8	7,296.0	7,274.0	7,274.0	58.4	12.7	-90.00	-2,951.8	-696.2	405.0	337.3	67.74	5.979	CC, ES
10,600.0	7,296.0	7,274.0	7,274.0	58.7	12.7	-90.00	-2,951.8	-696.2	405.6	337.5	68.10	5.955	SF
10,700.0	7,296.0	7,274.0	7,274.0	60.3	12.7	-90.00	-2,951.8	-696.2	422.8	353.0	69.81	6.056	
10,800.0	7,296.0	7,274.0	7,274.0	61.9	12.7	-90.00	-2,951.8	-696.2	461.5	390.0	71.52	6.453	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione #3 (Existing) - DD - DD

Offset Site Error: 0.0 ft

Survey Program: 100-Gyro

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	0.0	0.0	2.0				
100.0	100.0	98.0	98.0	0.2	0.1	-75.51	0.2	-0.7	0.8	0.5	0.23	3.385	
200.0	200.0	198.0	198.0	0.3	0.2	-67.92	0.8	-1.9	2.0	1.5	0.49	4.124	
300.0	300.0	298.0	298.0	0.5	0.2	20.39	1.5	-2.3	1.1	0.3	0.75	1.426	Level 3
325.3	325.3	323.3	323.3	0.6	0.3	74.45	1.7	-2.4	0.5	-0.3	0.82	0.600	Level 1, CC, ES, SF
400.0	399.8	397.9	397.9	0.7	0.3	174.39	1.7	-2.8	3.8	2.8	1.01	3.744	
500.0	499.5	497.6	497.6	0.9	0.4	178.94	1.8	-3.4	11.8	10.6	1.27	9.310	
600.0	598.7	596.9	596.9	1.2	0.5	178.15	2.7	-4.0	23.1	21.6	1.53	15.117	
700.0	697.5	695.8	695.8	1.5	0.6	178.22	3.4	-4.6	37.9	36.1	1.79	21.168	
800.0	795.9	794.5	794.5	1.8	0.7	178.46	4.1	-5.4	54.4	52.4	2.05	26.512	
900.0	894.4	893.1	893.0	2.2	0.8	178.45	4.9	-6.1	71.0	68.6	2.32	30.638	
1,000.0	992.8	991.7	991.6	2.5	0.9	178.45	5.7	-6.7	87.6	85.0	2.58	33.964	
1,100.0	1,091.3	1,090.2	1,090.1	2.9	0.9	178.39	6.6	-7.2	104.2	101.4	2.84	36.697	
1,200.0	1,189.7	1,187.1	1,187.0	3.2	1.0	178.50	6.9	-7.3	121.6	118.5	3.10	39.207	
1,300.0	1,288.2	1,286.4	1,286.4	3.6	1.1	178.58	6.9	-6.8	139.5	136.1	3.36	41.466	
1,400.0	1,386.7	1,385.6	1,385.5	3.9	1.2	178.47	7.8	-6.8	156.6	153.0	3.63	43.185	
1,500.0	1,485.1	1,484.2	1,484.1	4.3	1.3	178.53	8.3	-7.3	173.5	169.6	3.89	44.626	
1,600.0	1,583.6	1,582.9	1,582.8	4.6	1.4	178.58	8.8	-7.7	190.4	186.3	4.15	45.883	
1,700.0	1,682.0	1,681.3	1,681.3	5.0	1.5	178.58	9.4	-8.1	207.3	202.9	4.41	46.985	
1,800.0	1,780.5	1,780.0	1,779.9	5.3	1.5	178.58	10.0	-8.5	224.2	219.5	4.67	47.966	
1,900.0	1,878.9	1,879.2	1,879.2	5.7	1.6	178.64	10.5	-9.1	240.9	236.0	4.94	48.812	
2,000.0	1,977.4	1,977.7	1,977.6	6.0	1.7	178.73	10.9	-9.9	257.5	252.3	5.20	49.546	
2,100.0	2,075.9	2,076.8	2,076.7	6.4	1.8	178.76	11.5	-10.7	274.1	268.6	5.46	50.206	
2,200.0	2,174.3	2,176.2	2,176.1	6.7	1.9	178.79	12.2	-11.6	290.4	284.7	5.72	50.759	
2,300.0	2,272.8	2,274.8	2,274.7	7.1	2.0	178.85	12.7	-12.8	306.6	300.6	5.98	51.244	
2,400.0	2,371.2	2,373.7	2,373.6	7.5	2.1	178.94	13.1	-14.1	322.8	316.6	6.25	51.695	
2,500.0	2,469.7	2,472.4	2,472.3	7.8	2.2	179.04	13.4	-15.4	339.0	332.5	6.51	52.099	
2,600.0	2,568.1	2,571.0	2,570.9	8.2	2.2	179.15	13.6	-16.8	355.2	348.4	6.77	52.477	
2,700.0	2,666.6	2,670.8	2,670.7	8.5	2.3	179.19	14.2	-18.1	371.2	364.2	7.03	52.803	
2,800.0	2,765.1	2,770.1	2,769.9	8.9	2.4	179.24	14.8	-19.7	387.0	379.7	7.29	53.069	
2,900.0	2,863.5	2,869.7	2,869.6	9.2	2.5	179.28	15.6	-21.4	402.7	395.1	7.56	53.300	
3,000.0	2,962.0	2,968.9	2,968.7	9.6	2.6	179.34	16.2	-23.4	418.1	410.3	7.82	53.491	
3,100.0	3,060.4	3,067.1	3,066.9	9.9	2.7	179.39	16.9	-25.3	433.6	425.5	8.08	53.679	
3,200.0	3,158.9	3,165.4	3,165.1	10.3	2.8	179.40	17.7	-26.9	449.3	440.9	8.34	53.874	
3,300.0	3,257.3	3,264.2	3,264.0	10.6	2.9	179.39	18.8	-28.4	465.0	456.4	8.60	54.057	
3,400.0	3,355.8	3,362.8	3,362.5	11.0	2.9	179.40	19.6	-30.1	480.6	471.8	8.86	54.230	
3,500.0	3,454.2	3,461.5	3,461.2	11.3	3.0	179.34	21.0	-31.4	496.4	487.3	9.13	54.397	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione #3 (Existing) - DD - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	2.0				
100.0	100.0	98.0	98.0	0.2	0.1	0.00	0.0	0.0	0.0	-0.3	0.30	0.070	Level 1
200.0	200.0	198.0	198.0	0.3	0.3	0.00	0.0	0.0	0.0	-0.6	0.65	0.032	Level 1, CC, ES, SF
300.0	300.0	298.0	298.0	0.5	0.5	179.38	0.0	0.0	1.7	0.7	0.99	1.746	
400.0	399.8	397.8	397.8	0.7	0.7	179.84	0.0	0.0	7.0	5.6	1.34	5.194	
500.0	499.5	497.5	497.5	0.9	0.8	179.93	0.0	0.0	15.7	14.0	1.69	9.295	
600.0	598.7	596.7	596.7	1.2	1.0	179.96	0.0	0.0	27.9	25.8	2.03	13.727	
700.0	697.5	695.5	695.5	1.5	1.2	179.97	0.0	0.0	43.5	41.1	2.37	18.359	
800.0	795.9	793.9	793.9	1.8	1.4	179.98	0.0	0.0	61.0	58.3	2.72	22.469	
900.0	894.4	892.4	892.4	2.2	1.5	179.99	0.0	0.0	78.5	75.5	3.06	25.649	
1,000.0	992.8	990.8	990.8	2.5	1.7	179.99	0.0	0.0	96.0	92.6	3.41	28.185	
1,100.0	1,091.3	1,089.3	1,089.3	2.9	1.9	179.99	0.0	0.0	113.5	109.8	3.75	30.254	
1,200.0	1,189.7	1,187.7	1,187.7	3.2	2.0	179.99	0.0	0.0	131.0	126.9	4.10	31.974	
1,300.0	1,288.2	1,286.2	1,286.2	3.6	2.2	179.99	0.0	0.0	148.5	144.1	4.44	33.427	
1,400.0	1,386.7	1,384.7	1,384.7	3.9	2.4	179.99	0.0	0.0	166.0	161.2	4.79	34.671	
1,500.0	1,485.1	1,483.1	1,483.1	4.3	2.6	179.99	0.0	0.0	183.5	178.4	5.13	35.747	
1,600.0	1,583.6	1,581.6	1,581.6	4.6	2.7	179.99	0.0	0.0	201.0	195.5	5.48	36.688	
1,700.0	1,682.0	1,680.0	1,680.0	5.0	2.9	179.99	0.0	0.0	218.5	212.7	5.82	37.518	
1,800.0	1,780.5	1,778.5	1,778.5	5.3	3.1	180.00	0.0	0.0	236.0	229.9	6.17	38.254	
1,900.0	1,878.9	1,876.9	1,876.9	5.7	3.2	180.00	0.0	0.0	253.5	247.0	6.52	38.913	
2,000.0	1,977.4	1,975.4	1,975.4	6.0	3.4	180.00	0.0	0.0	271.0	264.2	6.86	39.505	
2,100.0	2,075.9	2,073.9	2,073.9	6.4	3.6	180.00	0.0	0.0	288.5	281.3	7.21	40.041	
2,200.0	2,174.3	2,172.3	2,172.3	6.7	3.8	180.00	0.0	0.0	306.0	298.5	7.55	40.527	
2,300.0	2,272.8	2,270.8	2,270.8	7.1	3.9	180.00	0.0	0.0	323.5	315.6	7.90	40.971	
2,400.0	2,371.2	2,369.2	2,369.2	7.5	4.1	180.00	0.0	0.0	341.0	332.8	8.24	41.378	
2,500.0	2,469.7	2,467.7	2,467.7	7.8	4.3	180.00	0.0	0.0	358.5	350.0	8.59	41.753	
2,600.0	2,568.1	2,566.1	2,566.1	8.2	4.5	180.00	0.0	0.0	376.0	367.1	8.93	42.098	
2,700.0	2,666.6	2,664.6	2,664.6	8.5	4.6	180.00	0.0	0.0	393.5	384.3	9.28	42.418	
2,800.0	2,765.1	2,763.1	2,763.1	8.9	4.8	180.00	0.0	0.0	411.1	401.4	9.62	42.714	
2,900.0	2,863.5	2,861.5	2,861.5	9.2	5.0	180.00	0.0	0.0	428.6	418.6	9.97	42.990	
3,000.0	2,962.0	2,960.0	2,960.0	9.6	5.1	180.00	0.0	0.0	446.1	435.7	10.31	43.248	
3,100.0	3,060.4	3,058.4	3,058.4	9.9	5.3	180.00	0.0	0.0	463.6	452.9	10.66	43.489	
3,200.0	3,158.9	3,156.9	3,156.9	10.3	5.5	180.00	0.0	0.0	481.1	470.1	11.00	43.715	
3,300.0	3,257.3	3,255.3	3,255.3	10.6	5.7	180.00	0.0	0.0	498.6	487.2	11.35	43.927	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione 2B-2H - 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	89.91	0.0	8.4	8.4				
100.0	100.0	100.0	100.0	0.2	0.2	89.91	0.0	8.4	8.4	8.1	0.30	27.605	
200.0	200.0	200.0	200.0	0.3	0.3	89.91	0.0	8.4	8.4	7.7	0.65	12.843	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	159.03	0.0	8.4	10.0	9.0	1.00	9.970	SF
400.0	399.8	399.8	399.8	0.7	0.7	166.18	0.0	8.4	15.0	13.6	1.35	11.104	
500.0	499.5	500.2	500.2	0.9	0.9	169.55	1.1	7.0	21.9	20.2	1.70	12.918	
600.0	598.7	600.7	600.6	1.2	1.0	169.75	4.4	2.9	29.1	27.1	2.05	14.213	
700.0	697.5	701.5	701.0	1.5	1.3	168.65	9.8	-4.1	36.5	34.1	2.41	15.163	
800.0	795.9	801.8	800.6	1.8	1.5	166.81	17.1	-13.2	43.2	40.4	2.79	15.474	
900.0	894.4	901.6	899.6	2.2	1.7	165.31	24.5	-22.6	49.5	46.4	3.18	15.586	
1,000.0	992.8	1,001.4	998.7	2.5	2.0	164.15	31.9	-32.0	56.0	52.4	3.58	15.648	
1,100.0	1,091.3	1,101.2	1,097.8	2.9	2.3	163.23	39.3	-41.4	62.4	58.4	3.98	15.677	
1,200.0	1,189.7	1,201.0	1,196.8	3.2	2.5	162.48	46.7	-50.8	68.8	64.4	4.39	15.687	
1,300.0	1,288.2	1,300.7	1,295.9	3.6	2.8	161.86	54.1	-60.1	75.3	70.5	4.80	15.685	
1,400.0	1,386.7	1,400.5	1,395.0	3.9	3.0	161.33	61.5	-69.5	81.7	76.5	5.21	15.675	
1,500.0	1,485.1	1,500.3	1,494.1	4.3	3.3	160.89	68.9	-78.9	88.2	82.6	5.63	15.661	
1,600.0	1,583.6	1,600.1	1,593.1	4.6	3.6	160.50	76.3	-88.3	94.7	88.6	6.05	15.644	
1,700.0	1,682.0	1,699.9	1,692.2	5.0	3.8	160.17	83.7	-97.6	101.1	94.7	6.47	15.626	
1,800.0	1,780.5	1,799.7	1,791.3	5.3	4.1	159.87	91.1	-107.0	107.6	100.7	6.89	15.607	
1,900.0	1,878.9	1,899.5	1,890.3	5.7	4.4	159.61	98.5	-116.4	114.1	106.8	7.32	15.588	
2,000.0	1,977.4	1,999.3	1,989.4	6.0	4.6	159.37	105.9	-125.8	120.6	112.8	7.74	15.570	
2,100.0	2,075.9	2,099.1	2,088.5	6.4	4.9	159.16	113.3	-135.1	127.0	118.9	8.17	15.552	
2,200.0	2,174.3	2,198.8	2,187.6	6.7	5.2	158.97	120.7	-144.5	133.5	124.9	8.59	15.535	
2,300.0	2,272.8	2,298.6	2,286.6	7.1	5.5	158.80	128.0	-153.9	140.0	131.0	9.02	15.518	
2,400.0	2,371.2	2,398.4	2,385.7	7.5	5.7	158.65	135.4	-163.3	146.5	137.0	9.45	15.502	
2,500.0	2,469.7	2,498.2	2,484.8	7.8	6.0	158.50	142.8	-172.7	153.0	143.1	9.88	15.487	
2,600.0	2,568.1	2,598.0	2,583.8	8.2	6.3	158.37	150.2	-182.0	159.4	149.1	10.31	15.472	
2,700.0	2,666.6	2,697.8	2,682.9	8.5	6.5	158.25	157.6	-191.4	165.9	155.2	10.73	15.458	
2,800.0	2,765.1	2,797.6	2,782.0	8.9	6.8	158.14	165.0	-200.8	172.4	161.3	11.16	15.445	
2,900.0	2,863.5	2,897.4	2,881.1	9.2	7.1	158.03	172.4	-210.2	178.9	167.3	11.59	15.432	
3,000.0	2,962.0	2,997.2	2,980.1	9.6	7.3	157.93	179.8	-219.5	185.4	173.4	12.02	15.420	
3,100.0	3,060.4	3,096.9	3,079.2	9.9	7.6	157.84	187.2	-228.9	191.9	179.4	12.45	15.408	
3,200.0	3,158.9	3,196.7	3,178.3	10.3	7.9	157.76	194.6	-238.3	198.4	185.5	12.88	15.397	
3,300.0	3,257.3	3,296.5	3,277.3	10.6	8.2	157.68	202.0	-247.7	204.9	191.6	13.31	15.387	
3,400.0	3,355.8	3,396.3	3,376.4	11.0	8.4	157.61	209.4	-257.0	211.4	197.6	13.75	15.377	
3,500.0	3,454.2	3,496.1	3,475.5	11.3	8.7	157.54	216.8	-266.4	217.8	203.7	14.18	15.367	
3,600.0	3,552.7	3,595.9	3,574.6	11.7	9.0	157.47	224.2	-275.8	224.3	209.7	14.61	15.358	
3,700.0	3,651.2	3,695.7	3,673.6	12.1	9.2	157.41	231.6	-285.2	230.8	215.8	15.04	15.349	
3,800.0	3,749.6	3,795.5	3,772.7	12.4	9.5	157.35	239.0	-294.6	237.3	221.8	15.47	15.341	
3,900.0	3,848.1	3,895.3	3,871.8	12.8	9.8	157.29	246.4	-303.9	243.8	227.9	15.90	15.333	
4,000.0	3,946.5	3,995.0	3,970.8	13.1	10.1	157.24	253.8	-313.3	250.3	234.0	16.33	15.325	
4,100.0	4,045.0	4,094.8	4,069.9	13.5	10.3	157.19	261.2	-322.7	256.8	240.0	16.76	15.318	
4,200.0	4,143.4	4,194.6	4,169.0	13.8	10.6	157.14	268.6	-332.1	263.3	246.1	17.20	15.310	
4,300.0	4,241.9	4,294.4	4,268.1	14.2	10.9	157.10	276.0	-341.4	269.8	252.1	17.63	15.304	
4,400.0	4,340.4	4,394.2	4,367.1	14.5	11.2	157.06	283.4	-350.8	276.3	258.2	18.06	15.297	
4,500.0	4,438.8	4,494.0	4,466.2	14.9	11.4	157.01	290.8	-360.2	282.8	264.3	18.49	15.291	
4,600.0	4,537.3	4,593.8	4,565.3	15.3	11.7	156.97	298.2	-369.6	289.3	270.3	18.92	15.285	
4,700.0	4,635.7	4,693.6	4,664.3	15.6	12.0	156.94	305.6	-378.9	295.7	276.4	19.36	15.279	
4,800.0	4,734.2	4,793.4	4,763.4	16.0	12.2	156.90	313.0	-388.3	302.2	282.4	19.79	15.273	
4,900.0	4,832.6	4,893.1	4,862.5	16.3	12.5	156.87	320.4	-397.7	308.7	288.5	20.22	15.268	
5,000.0	4,931.1	4,992.9	4,961.6	16.7	12.8	156.83	327.8	-407.1	315.2	294.6	20.65	15.262	
5,100.0	5,029.6	5,092.7	5,060.6	17.0	13.1	156.80	335.2	-416.5	321.7	300.6	21.09	15.257	

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 Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione 2B-2H - 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	5,128.0	5,192.5	5,159.7	17.4	13.3	156.77	342.6	-425.8	328.2	306.7	21.52	15.252	
5,300.0	5,226.5	5,292.3	5,258.8	17.7	13.6	156.74	350.0	-435.2	334.7	312.8	21.95	15.248	
5,400.0	5,324.9	5,392.1	5,357.8	18.1	13.9	156.71	357.4	-444.6	341.2	318.8	22.38	15.243	
5,500.0	5,423.4	5,491.9	5,456.9	18.4	14.1	156.69	364.8	-454.0	347.7	324.9	22.82	15.239	
5,600.0	5,521.8	5,591.7	5,556.0	18.8	14.4	156.66	372.2	-463.3	354.2	330.9	23.25	15.234	
5,700.0	5,620.3	5,691.5	5,655.1	19.2	14.7	156.64	379.6	-472.7	360.7	337.0	23.68	15.230	
5,800.0	5,718.7	5,791.2	5,754.1	19.5	15.0	156.61	387.0	-482.1	367.2	343.1	24.11	15.226	
5,900.0	5,817.2	5,891.0	5,853.2	19.9	15.2	156.59	394.4	-491.5	373.7	349.1	24.55	15.222	
6,000.0	5,915.7	5,990.8	5,952.3	20.2	15.5	156.57	401.8	-500.8	380.2	355.2	24.98	15.219	
6,100.0	6,014.1	6,090.6	6,051.3	20.6	15.8	156.54	409.2	-510.2	386.7	361.2	25.41	15.215	
6,200.0	6,112.6	6,190.4	6,150.4	20.9	16.0	156.52	416.6	-519.6	393.1	367.3	25.85	15.211	
6,300.0	6,211.0	6,290.2	6,249.5	21.3	16.3	156.50	424.0	-529.0	399.6	373.4	26.28	15.208	
6,400.0	6,309.5	6,390.0	6,348.6	21.6	16.6	156.48	431.4	-538.4	406.1	379.4	26.71	15.204	
6,500.0	6,407.9	6,489.8	6,447.6	22.0	16.9	156.46	438.8	-547.7	412.6	385.5	27.14	15.201	
6,600.0	6,506.4	6,589.6	6,546.7	22.3	17.1	156.44	446.2	-557.1	419.1	391.5	27.58	15.198	
6,700.0	6,604.9	6,689.3	6,645.8	22.7	17.4	156.43	453.6	-566.5	425.6	397.6	28.01	15.195	
6,800.0	6,703.3	6,789.1	6,744.8	23.1	17.7	164.77	461.0	-575.9	432.1	403.7	28.42	15.204	
6,900.0	6,801.9	6,888.1	6,843.1	23.3	18.0	-141.40	468.3	-585.2	438.5	409.5	28.94	15.153	
7,000.0	6,898.2	6,984.2	6,938.5	23.5	18.2	-120.81	475.3	-594.2	445.7	416.0	29.76	14.978	
7,100.0	6,989.5	7,085.9	7,039.6	23.5	18.4	-115.20	472.0	-603.8	455.3	425.0	30.31	15.019	
7,200.0	7,072.8	7,195.2	7,145.7	23.5	18.4	-114.08	448.6	-613.8	466.7	436.4	30.23	15.440	
7,300.0	7,145.8	7,313.4	7,253.1	23.5	18.3	-114.67	401.0	-624.0	479.0	449.5	29.47	16.255	
7,400.0	7,206.2	7,441.5	7,356.0	23.5	18.1	-115.89	325.7	-633.7	491.1	462.9	28.20	17.415	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione 2C-2H - 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	89.99	0.0	19.6	19.6				
100.0	100.0	100.0	100.0	0.2	0.2	89.99	0.0	19.6	19.6	19.3	0.30	64.412	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	19.6	19.6	18.9	0.65	29.967	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	156.84	0.0	19.6	21.2	20.2	1.00	21.110	
400.0	399.8	399.8	399.8	0.7	0.7	161.34	0.0	19.6	26.0	24.7	1.35	19.272	SF
500.0	499.5	499.5	499.5	0.9	0.8	165.94	0.0	19.6	34.4	32.7	1.70	20.255	
600.0	598.7	598.7	598.7	1.2	1.0	169.56	0.0	19.6	46.3	44.3	2.04	22.675	
700.0	697.5	697.5	697.5	1.5	1.2	172.15	0.0	19.6	61.8	59.4	2.38	25.919	
800.0	795.9	795.9	795.9	1.8	1.4	173.88	0.0	19.6	79.2	76.4	2.73	29.011	
900.0	894.4	894.4	894.4	2.2	1.5	174.98	0.0	19.6	96.6	93.5	3.07	31.421	
1,000.0	992.8	992.8	992.8	2.5	1.7	175.75	0.0	19.6	114.0	110.6	3.42	33.352	
1,100.0	1,091.3	1,091.3	1,091.3	2.9	1.9	176.32	0.0	19.6	131.5	127.7	3.76	34.933	
1,200.0	1,189.7	1,189.7	1,189.7	3.2	2.1	176.75	0.0	19.6	149.0	144.9	4.11	36.250	
1,300.0	1,288.2	1,292.2	1,292.2	3.6	2.2	176.76	1.3	18.9	165.4	160.9	4.46	37.054	
1,400.0	1,386.7	1,395.9	1,395.8	3.9	2.4	175.99	6.0	16.5	179.1	174.3	4.82	37.124	
1,500.0	1,485.1	1,499.6	1,499.0	4.3	2.6	174.57	13.9	12.5	190.3	185.1	5.20	36.596	
1,600.0	1,583.6	1,598.9	1,597.9	4.6	2.8	173.07	22.8	8.0	200.5	194.9	5.58	35.953	
1,700.0	1,682.0	1,698.3	1,696.7	5.0	3.0	171.73	31.7	3.5	210.9	204.9	5.96	35.359	
1,800.0	1,780.5	1,797.6	1,795.6	5.3	3.2	170.51	40.6	-1.1	221.3	215.0	6.36	34.808	
1,900.0	1,878.9	1,897.0	1,894.4	5.7	3.5	169.40	49.5	-5.6	231.9	225.1	6.76	34.297	
2,000.0	1,977.4	1,996.3	1,993.3	6.0	3.7	168.38	58.4	-10.1	242.5	235.4	7.17	33.822	
2,100.0	2,075.9	2,095.7	2,092.1	6.4	3.9	167.46	67.3	-14.6	253.2	245.7	7.59	33.380	
2,200.0	2,174.3	2,195.0	2,190.9	6.7	4.1	166.60	76.2	-19.1	264.0	256.0	8.01	32.970	
2,300.0	2,272.8	2,294.3	2,289.8	7.1	4.3	165.82	85.1	-23.6	274.8	266.4	8.43	32.587	
2,400.0	2,371.2	2,393.7	2,388.6	7.5	4.6	165.09	93.9	-28.2	285.7	276.8	8.86	32.231	
2,500.0	2,469.7	2,493.0	2,487.5	7.8	4.8	164.42	102.8	-32.7	296.6	287.3	9.30	31.899	
2,600.0	2,568.1	2,592.4	2,586.3	8.2	5.0	163.79	111.7	-37.2	307.5	297.8	9.74	31.589	
2,700.0	2,666.6	2,691.7	2,685.2	8.5	5.3	163.21	120.6	-41.7	318.5	308.4	10.18	31.299	
2,800.0	2,765.1	2,791.1	2,784.0	8.9	5.5	162.67	129.5	-46.2	329.5	318.9	10.62	31.028	
2,900.0	2,863.5	2,890.4	2,882.8	9.2	5.7	162.16	138.4	-50.7	340.6	329.5	11.07	30.773	
3,000.0	2,962.0	2,989.8	2,981.7	9.6	6.0	161.68	147.3	-55.3	351.6	340.1	11.52	30.535	
3,100.0	3,060.4	3,089.1	3,080.5	9.9	6.2	161.23	156.2	-59.8	362.7	350.8	11.97	30.311	
3,200.0	3,158.9	3,188.4	3,179.4	10.3	6.5	160.81	165.1	-64.3	373.8	361.4	12.42	30.100	
3,300.0	3,257.3	3,287.8	3,278.2	10.6	6.7	160.42	173.9	-68.8	385.0	372.1	12.87	29.902	
3,400.0	3,355.8	3,387.1	3,377.1	11.0	6.9	160.04	182.8	-73.3	396.1	382.8	13.33	29.714	
3,500.0	3,454.2	3,486.5	3,475.9	11.3	7.2	159.69	191.7	-77.8	407.3	393.5	13.79	29.538	
3,600.0	3,552.7	3,585.8	3,574.8	11.7	7.4	159.35	200.6	-82.4	418.4	404.2	14.25	29.371	
3,700.0	3,651.2	3,685.2	3,673.6	12.1	7.7	159.04	209.5	-86.9	429.6	414.9	14.71	29.212	
3,800.0	3,749.6	3,784.5	3,772.4	12.4	7.9	158.74	218.4	-91.4	440.8	425.6	15.17	29.063	
3,900.0	3,848.1	3,883.9	3,871.3	12.8	8.1	158.45	227.3	-95.9	452.0	436.4	15.63	28.920	
4,000.0	3,946.5	3,983.2	3,970.1	13.1	8.4	158.18	236.2	-100.4	463.2	447.1	16.09	28.785	
4,100.0	4,045.0	4,082.6	4,069.0	13.5	8.6	157.92	245.1	-104.9	474.5	457.9	16.56	28.657	
4,200.0	4,143.4	4,181.9	4,167.8	13.8	8.9	157.67	254.0	-109.4	485.7	468.7	17.02	28.535	
4,300.0	4,241.9	4,281.2	4,266.7	14.2	9.1	157.43	262.8	-114.0	497.0	479.5	17.49	28.418	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione 2D-2H - 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	90.02	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.2	0.2	90.02	0.0	30.7	30.7	30.4	0.30	101.218	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	0.0	30.7	30.7	30.1	0.65	47.091	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	156.18	0.0	30.7	32.3	31.3	1.00	32.260	
400.0	399.8	399.8	399.8	0.7	0.7	159.40	0.0	30.7	37.2	35.8	1.35	27.494	
500.0	499.5	499.5	499.5	0.9	0.8	163.22	0.0	30.7	45.4	43.7	1.70	26.708	SF
600.0	598.7	598.7	598.7	1.2	1.0	166.69	0.0	30.7	57.2	55.2	2.05	27.947	
700.0	697.5	697.5	697.5	1.5	1.2	169.48	0.0	30.7	72.5	70.1	2.39	30.359	
800.0	795.9	795.9	795.9	1.8	1.4	171.51	0.0	30.7	89.8	87.1	2.73	32.839	
900.0	894.4	895.2	895.1	2.2	1.5	172.07	1.6	30.9	106.8	103.7	3.09	34.616	
1,000.0	992.8	994.6	994.5	2.5	1.7	170.89	6.6	31.3	123.1	119.6	3.45	35.669	
1,100.0	1,091.3	1,093.6	1,093.1	2.9	1.9	168.86	14.3	31.9	138.9	135.1	3.83	36.234	
1,200.0	1,189.7	1,192.2	1,191.4	3.2	2.1	167.17	22.2	32.6	154.9	150.7	4.23	36.624	
1,300.0	1,288.2	1,290.8	1,289.7	3.6	2.3	165.80	30.1	33.3	170.9	166.3	4.63	36.903	
1,400.0	1,386.7	1,389.4	1,388.0	3.9	2.5	164.66	38.0	33.9	187.1	182.0	5.04	37.106	
1,500.0	1,485.1	1,488.1	1,486.3	4.3	2.7	163.70	45.9	34.6	203.3	197.8	5.46	37.253	
1,600.0	1,583.6	1,586.7	1,584.6	4.6	2.9	162.89	53.9	35.3	219.5	213.7	5.88	37.362	
1,700.0	1,682.0	1,685.3	1,683.0	5.0	3.1	162.18	61.8	35.9	235.8	229.5	6.30	37.442	
1,800.0	1,780.5	1,784.0	1,781.3	5.3	3.3	161.57	69.7	36.6	252.1	245.4	6.72	37.502	
1,900.0	1,878.9	1,882.6	1,879.6	5.7	3.6	161.03	77.6	37.3	268.5	261.3	7.15	37.547	
2,000.0	1,977.4	1,981.2	1,977.9	6.0	3.8	160.56	85.5	37.9	284.8	277.3	7.58	37.580	
2,100.0	2,075.9	2,079.8	2,076.2	6.4	4.0	160.13	93.4	38.6	301.2	293.2	8.01	37.604	
2,200.0	2,174.3	2,178.5	2,174.5	6.7	4.2	159.75	101.4	39.3	317.6	309.2	8.44	37.622	
2,300.0	2,272.8	2,277.1	2,272.8	7.1	4.4	159.41	109.3	39.9	334.0	325.1	8.88	37.634	
2,400.0	2,371.2	2,375.7	2,371.1	7.5	4.6	159.10	117.2	40.6	350.4	341.1	9.31	37.643	
2,500.0	2,469.7	2,474.3	2,469.4	7.8	4.9	158.81	125.1	41.3	366.9	357.1	9.74	37.649	
2,600.0	2,568.1	2,573.0	2,567.7	8.2	5.1	158.56	133.0	41.9	383.3	373.1	10.18	37.652	
2,700.0	2,666.6	2,671.6	2,666.0	8.5	5.3	158.32	140.9	42.6	399.7	389.1	10.62	37.653	
2,800.0	2,765.1	2,770.2	2,764.3	8.9	5.5	158.10	148.8	43.3	416.2	405.1	11.05	37.653	
2,900.0	2,863.5	2,868.8	2,862.6	9.2	5.7	157.90	156.8	43.9	432.6	421.1	11.49	37.652	
3,000.0	2,962.0	2,967.5	2,960.9	9.6	5.9	157.71	164.7	44.6	449.1	437.1	11.93	37.650	
3,100.0	3,060.4	3,066.1	3,059.2	9.9	6.2	157.53	172.6	45.3	465.5	453.2	12.37	37.647	
3,200.0	3,158.9	3,164.7	3,157.5	10.3	6.4	157.37	180.5	45.9	482.0	469.2	12.80	37.644	
3,300.0	3,257.3	3,263.4	3,255.8	10.6	6.6	157.22	188.4	46.6	498.5	485.2	13.24	37.640	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione 2E-2H - 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	90.01	0.0	39.1	39.1				
100.0	100.0	100.0	100.0	0.2	0.2	90.01	0.0	39.1	39.1	38.8	0.30	128.823	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	39.1	39.1	38.5	0.65	59.934	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	155.89	0.0	39.1	40.7	39.7	1.00	40.623	
400.0	399.8	399.8	399.8	0.7	0.7	158.54	0.0	39.1	45.5	44.2	1.35	33.671	
500.0	499.5	499.5	499.5	0.9	0.8	161.89	0.0	39.1	53.7	52.0	1.70	31.569	SF
600.0	598.7	598.7	598.7	1.2	1.0	165.15	0.0	39.1	65.4	63.4	2.05	31.925	
700.0	697.5	696.3	696.3	1.5	1.2	166.84	1.3	40.1	81.4	79.0	2.40	33.966	
800.0	795.9	793.1	793.0	1.8	1.4	166.51	5.2	43.1	100.5	97.8	2.76	36.467	
900.0	894.4	889.3	888.8	2.2	1.6	164.88	11.6	48.0	121.2	118.0	3.14	38.590	
1,000.0	992.8	986.7	985.7	2.5	1.8	163.03	19.5	54.1	142.8	139.3	3.54	40.301	
1,100.0	1,091.3	1,084.2	1,082.7	2.9	2.0	161.66	27.5	60.2	164.5	160.6	3.95	41.599	
1,200.0	1,189.7	1,181.8	1,179.7	3.2	2.2	160.62	35.5	66.3	186.3	181.9	4.37	42.612	
1,300.0	1,288.2	1,279.3	1,276.8	3.6	2.4	159.79	43.5	72.5	208.2	203.4	4.79	43.419	
1,400.0	1,386.7	1,376.9	1,373.8	3.9	2.7	159.12	51.5	78.6	230.0	224.8	5.22	44.077	
1,500.0	1,485.1	1,474.4	1,470.8	4.3	2.9	158.57	59.5	84.7	251.9	246.3	5.65	44.621	
1,600.0	1,583.6	1,572.0	1,567.8	4.6	3.1	158.10	67.5	90.8	273.8	267.8	6.07	45.078	
1,700.0	1,682.0	1,669.5	1,664.9	5.0	3.4	157.70	75.4	96.9	295.8	289.3	6.51	45.467	
1,800.0	1,780.5	1,767.1	1,761.9	5.3	3.6	157.36	83.4	103.1	317.7	310.8	6.94	45.802	
1,900.0	1,878.9	1,864.6	1,858.9	5.7	3.9	157.06	91.4	109.2	339.7	332.3	7.37	46.093	
2,000.0	1,977.4	1,962.2	1,956.0	6.0	4.1	156.80	99.4	115.3	361.6	353.8	7.80	46.348	
2,100.0	2,075.9	2,059.7	2,053.0	6.4	4.3	156.57	107.4	121.4	383.6	375.4	8.24	46.573	
2,200.0	2,174.3	2,157.3	2,150.0	6.7	4.6	156.36	115.4	127.5	405.6	396.9	8.67	46.773	
2,300.0	2,272.8	2,254.8	2,247.0	7.1	4.8	156.18	123.4	133.6	427.5	418.4	9.11	46.953	
2,400.0	2,371.2	2,352.4	2,344.1	7.5	5.1	156.01	131.3	139.8	449.5	440.0	9.54	47.114	
2,500.0	2,469.7	2,449.9	2,441.1	7.8	5.3	155.86	139.3	145.9	471.5	461.5	9.98	47.260	
2,600.0	2,568.1	2,547.4	2,538.1	8.2	5.5	155.72	147.3	152.0	493.5	483.1	10.41	47.392	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione 2F-2H - 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	90.01	0.0	50.3	50.3				
100.0	100.0	100.0	100.0	0.2	0.2	90.01	0.0	50.3	50.3	50.0	0.30	165.630	
200.0	200.0	200.0	200.0	0.3	0.3	90.01	0.0	50.3	50.3	49.6	0.65	77.058	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	155.67	0.0	50.3	51.9	50.9	1.00	51.776	
400.0	399.8	399.8	399.8	0.7	0.7	157.82	0.0	50.3	56.7	55.3	1.35	41.915	
500.0	499.5	497.7	497.7	0.9	0.8	159.72	0.9	51.7	66.2	64.5	1.70	38.891	SF
600.0	598.7	594.5	594.3	1.2	1.0	160.40	3.5	55.9	81.7	79.6	2.06	39.708	
700.0	697.5	689.8	689.3	1.5	1.2	160.28	7.8	62.7	103.0	100.5	2.42	42.508	
800.0	795.9	783.5	782.3	1.8	1.5	159.69	13.7	72.0	128.5	125.7	2.81	45.784	
900.0	894.4	878.4	876.3	2.2	1.7	158.74	20.9	83.4	156.0	152.8	3.21	48.655	
1,000.0	992.8	974.5	971.4	2.5	2.0	158.03	28.3	95.1	183.7	180.1	3.62	50.815	
1,100.0	1,091.3	1,070.6	1,066.5	2.9	2.3	157.51	35.7	106.8	211.4	207.4	4.03	52.491	
1,200.0	1,189.7	1,166.7	1,161.5	3.2	2.5	157.10	43.1	118.5	239.1	234.7	4.44	53.824	
1,300.0	1,288.2	1,262.7	1,256.6	3.6	2.8	156.78	50.5	130.2	266.9	262.0	4.86	54.908	
1,400.0	1,386.7	1,358.8	1,351.7	3.9	3.1	156.53	57.9	141.9	294.6	289.3	5.28	55.805	
1,500.0	1,485.1	1,454.9	1,446.7	4.3	3.4	156.31	65.3	153.6	322.3	316.6	5.70	56.559	
1,600.0	1,583.6	1,550.9	1,541.8	4.6	3.7	156.13	72.7	165.3	350.1	343.9	6.12	57.201	
1,700.0	1,682.0	1,647.0	1,636.9	5.0	4.0	155.98	80.1	177.0	377.8	371.3	6.54	57.754	
1,800.0	1,780.5	1,743.1	1,731.9	5.3	4.3	155.84	87.5	188.8	405.5	398.6	6.96	58.235	
1,900.0	1,878.9	1,839.1	1,827.0	5.7	4.5	155.73	94.9	200.5	433.3	425.9	7.39	58.657	
2,000.0	1,977.4	1,935.2	1,922.1	6.0	4.8	155.63	102.3	212.2	461.0	453.2	7.81	59.030	
2,100.0	2,075.9	2,031.3	2,017.1	6.4	5.1	155.54	109.7	223.9	488.8	480.6	8.23	59.363	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 NWNE S2-T2N-R66W (Ione) - Ione 2G-2H - 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	90.02	0.0	58.7	58.7				
100.0	100.0	100.0	100.0	0.2	0.2	90.02	0.0	58.7	58.7	58.4	0.30	193.235	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	0.0	58.7	58.7	58.0	0.65	89.901	CC, ES
300.0	300.0	298.1	298.1	0.5	0.5	154.87	0.7	60.2	61.8	60.8	1.00	61.853	
400.0	399.8	395.6	395.4	0.7	0.7	154.86	2.8	64.8	71.2	69.9	1.35	52.744	
500.0	499.5	491.9	491.4	0.9	0.9	154.83	6.2	72.2	86.8	85.1	1.71	50.813	SF
600.0	598.7	586.6	585.5	1.2	1.2	154.76	10.8	82.4	108.4	106.3	2.08	52.239	
700.0	697.5	679.2	677.0	1.5	1.4	154.66	16.6	95.0	136.0	133.5	2.46	55.372	
800.0	795.9	770.9	767.2	1.8	1.8	154.59	23.5	110.1	167.9	165.0	2.85	58.877	
900.0	894.4	865.5	860.0	2.2	2.1	154.44	31.0	126.4	200.4	197.2	3.26	61.510	
1,000.0	992.8	960.0	952.9	2.5	2.4	154.34	38.4	142.6	233.0	229.3	3.67	63.498	
1,100.0	1,091.3	1,054.6	1,045.7	2.9	2.8	154.26	45.9	158.9	265.6	261.5	4.08	65.044	
1,200.0	1,189.7	1,149.1	1,138.6	3.2	3.1	154.20	53.3	175.1	298.1	293.6	4.50	66.279	
1,300.0	1,288.2	1,243.7	1,231.4	3.6	3.5	154.16	60.8	191.3	330.7	325.8	4.92	67.285	
1,400.0	1,386.7	1,338.2	1,324.2	3.9	3.8	154.12	68.2	207.6	363.3	358.0	5.33	68.121	
1,500.0	1,485.1	1,432.8	1,417.1	4.3	4.2	154.08	75.6	223.8	395.9	390.1	5.75	68.825	
1,600.0	1,583.6	1,527.3	1,509.9	4.6	4.5	154.06	83.1	240.1	428.4	422.3	6.17	69.426	
1,700.0	1,682.0	1,621.8	1,602.8	5.0	4.9	154.03	90.5	256.3	461.0	454.4	6.59	69.945	
1,800.0	1,780.5	1,716.4	1,695.6	5.3	5.2	154.01	98.0	272.6	493.6	486.6	7.01	70.397	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2A-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5059.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 2A-2H	**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 KB=13' @ 5059.0ft (Original Well Elev
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Ione 2A-2H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.49°