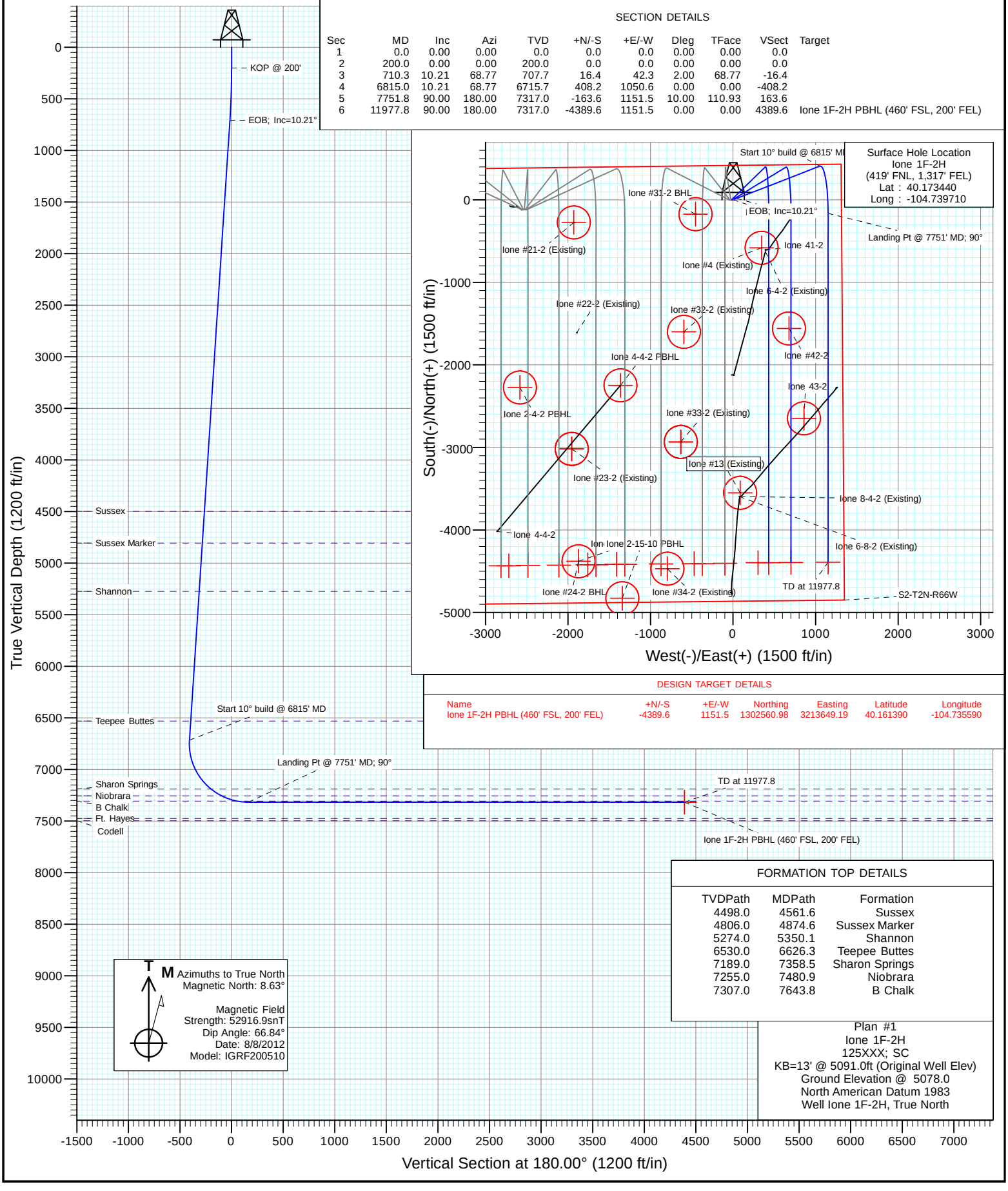
Project: DJ Wattenberg
Site: NWNE S2-T2N-R66W (Ione)
Well: Ione 1F-2H
Wellbore: HZ
Design: Plan #1

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	710.3	10.21	68.77	707.7	16.4	42.3	2.00	68.77	-16.4	
4	6815.0	10.21	68.77	6715.7	408.2	1050.6	0.00	0.00	-408.2	
5	7751.8	90.00	180.00	7317.0	-163.6	1151.5	10.00	110.93	163.6	
6	11977.8	90.00	180.00	7317.0	-4389.6	1151.5	0.00	0.00	4389.6	Ione 1F-2H PBHL (460' FSL, 200' FEL)



Surface Hole Location
Ione 1F-2H
(419' FNL, 1,317' FEL)
Lat : 40.173440
Long : -104.739710

DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Ione 1F-2H PBHL (460' FSL, 200' FEL)	-4389.6	1151.5	1302560.98	3213649.19	40.161390	-104.735590

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4498.0	4561.6	Sussex
4806.0	4874.6	Sussex Marker
5274.0	5350.1	Shannon
6530.0	6626.3	Teepee Buttes
7189.0	7358.5	Sharon Springs
7255.0	7480.9	Niobrara
7307.0	7643.8	B Chalk

T M Azimuths to True North
Magnetic North: 8.63°

Magnetic Field
Strength: 52916.9snT
Dip Angle: 66.84°
Date: 8/8/2012
Model: IGRF200510

Plan #1
Ione 1F-2H
125XXX; SC
KB=13' @ 5091.0ft (Original Well Elev)
Ground Elevation @ 5078.0
North American Datum 1983
Well Ione 1F-2H, True North

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1F-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 1F-2H

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,306,940.51 ft	**Latitude:**	40.173440
	+E/-W	0.0 ft	**Easting:**	3,212,460.09 ft	**Longitude:**	-104.739710
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	5,078.0 ft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/8/2012	8.63	66.84	52,917

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	
710.3	10.21	68.77	707.7	16.4	42.3	2.00	2.00	0.00	68.77	
6,815.0	10.21	68.77	6,715.7	408.2	1,050.6	0.00	0.00	0.00	0.00	
7,751.8	90.00	180.00	7,317.0	-163.6	1,151.5	10.00	8.52	11.87	110.93	
11,977.8	90.00	180.00	7,317.0	-4,389.6	1,151.5	0.00	0.00	0.00	0.00	Ione 1F-2H PBHL (46

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 1F-2H
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Project:	DJ Wattenberg	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1F-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	68.77	300.0	0.6	1.6	-0.6	2.00	2.00	
400.0	4.00	68.77	399.8	2.5	6.5	-2.5	2.00	2.00	
500.0	6.00	68.77	499.5	5.7	14.6	-5.7	2.00	2.00	
600.0	8.00	68.77	598.7	10.1	26.0	-10.1	2.00	2.00	
700.0	10.00	68.77	697.5	15.8	40.6	-15.8	2.00	2.00	
710.3	10.21	68.77	707.7	16.4	42.3	-16.4	2.00	2.00	EOB; Inc=10.21°
800.0	10.21	68.77	795.9	22.2	57.1	-22.2	0.00	0.00	
900.0	10.21	68.77	894.3	28.6	73.6	-28.6	0.00	0.00	
1,000.0	10.21	68.77	992.7	35.0	90.1	-35.0	0.00	0.00	
1,100.0	10.21	68.77	1,091.1	41.4	106.6	-41.4	0.00	0.00	
1,200.0	10.21	68.77	1,189.6	47.8	123.1	-47.8	0.00	0.00	
1,300.0	10.21	68.77	1,288.0	54.3	139.7	-54.3	0.00	0.00	
1,400.0	10.21	68.77	1,386.4	60.7	156.2	-60.7	0.00	0.00	
1,500.0	10.21	68.77	1,484.8	67.1	172.7	-67.1	0.00	0.00	
1,600.0	10.21	68.77	1,583.2	73.5	189.2	-73.5	0.00	0.00	
1,700.0	10.21	68.77	1,681.6	79.9	205.7	-79.9	0.00	0.00	
1,800.0	10.21	68.77	1,780.1	86.4	222.2	-86.4	0.00	0.00	
1,900.0	10.21	68.77	1,878.5	92.8	238.8	-92.8	0.00	0.00	
2,000.0	10.21	68.77	1,976.9	99.2	255.3	-99.2	0.00	0.00	
2,100.0	10.21	68.77	2,075.3	105.6	271.8	-105.6	0.00	0.00	
2,200.0	10.21	68.77	2,173.7	112.0	288.3	-112.0	0.00	0.00	
2,300.0	10.21	68.77	2,272.1	118.4	304.8	-118.4	0.00	0.00	
2,400.0	10.21	68.77	2,370.6	124.9	321.3	-124.9	0.00	0.00	
2,500.0	10.21	68.77	2,469.0	131.3	337.9	-131.3	0.00	0.00	
2,600.0	10.21	68.77	2,567.4	137.7	354.4	-137.7	0.00	0.00	
2,700.0	10.21	68.77	2,665.8	144.1	370.9	-144.1	0.00	0.00	
2,800.0	10.21	68.77	2,764.2	150.5	387.4	-150.5	0.00	0.00	
2,900.0	10.21	68.77	2,862.7	157.0	403.9	-157.0	0.00	0.00	
3,000.0	10.21	68.77	2,961.1	163.4	420.4	-163.4	0.00	0.00	
3,100.0	10.21	68.77	3,059.5	169.8	437.0	-169.8	0.00	0.00	
3,200.0	10.21	68.77	3,157.9	176.2	453.5	-176.2	0.00	0.00	
3,300.0	10.21	68.77	3,256.3	182.6	470.0	-182.6	0.00	0.00	
3,400.0	10.21	68.77	3,354.7	189.0	486.5	-189.0	0.00	0.00	
3,500.0	10.21	68.77	3,453.2	195.5	503.0	-195.5	0.00	0.00	
3,600.0	10.21	68.77	3,551.6	201.9	519.6	-201.9	0.00	0.00	
3,700.0	10.21	68.77	3,650.0	208.3	536.1	-208.3	0.00	0.00	
3,800.0	10.21	68.77	3,748.4	214.7	552.6	-214.7	0.00	0.00	
3,900.0	10.21	68.77	3,846.8	221.1	569.1	-221.1	0.00	0.00	
4,000.0	10.21	68.77	3,945.2	227.5	585.6	-227.5	0.00	0.00	
4,100.0	10.21	68.77	4,043.7	234.0	602.1	-234.0	0.00	0.00	
4,200.0	10.21	68.77	4,142.1	240.4	618.7	-240.4	0.00	0.00	
4,300.0	10.21	68.77	4,240.5	246.8	635.2	-246.8	0.00	0.00	
4,400.0	10.21	68.77	4,338.9	253.2	651.7	-253.2	0.00	0.00	
4,500.0	10.21	68.77	4,437.3	259.6	668.2	-259.6	0.00	0.00	
4,561.6	10.21	68.77	4,498.0	263.6	678.4	-263.6	0.00	0.00	Sussex
4,600.0	10.21	68.77	4,535.7	266.1	684.7	-266.1	0.00	0.00	
4,700.0	10.21	68.77	4,634.2	272.5	701.2	-272.5	0.00	0.00	
4,800.0	10.21	68.77	4,732.6	278.9	717.8	-278.9	0.00	0.00	
4,874.6	10.21	68.77	4,806.0	283.7	730.1	-283.7	0.00	0.00	Sussex Marker

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Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1F-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	10.21	68.77	4,831.0	285.3	734.3	-285.3	0.00	0.00	
5,000.0	10.21	68.77	4,929.4	291.7	750.8	-291.7	0.00	0.00	
5,100.0	10.21	68.77	5,027.8	298.1	767.3	-298.1	0.00	0.00	
5,200.0	10.21	68.77	5,126.3	304.6	783.8	-304.6	0.00	0.00	
5,300.0	10.21	68.77	5,224.7	311.0	800.3	-311.0	0.00	0.00	
5,350.1	10.21	68.77	5,274.0	314.2	808.6	-314.2	0.00	0.00	Shannon
5,400.0	10.21	68.77	5,323.1	317.4	816.9	-317.4	0.00	0.00	
5,500.0	10.21	68.77	5,421.5	323.8	833.4	-323.8	0.00	0.00	
5,600.0	10.21	68.77	5,519.9	330.2	849.9	-330.2	0.00	0.00	
5,700.0	10.21	68.77	5,618.3	336.7	866.4	-336.7	0.00	0.00	
5,800.0	10.21	68.77	5,716.8	343.1	882.9	-343.1	0.00	0.00	
5,900.0	10.21	68.77	5,815.2	349.5	899.5	-349.5	0.00	0.00	
6,000.0	10.21	68.77	5,913.6	355.9	916.0	-355.9	0.00	0.00	
6,100.0	10.21	68.77	6,012.0	362.3	932.5	-362.3	0.00	0.00	
6,200.0	10.21	68.77	6,110.4	368.7	949.0	-368.7	0.00	0.00	
6,300.0	10.21	68.77	6,208.8	375.2	965.5	-375.2	0.00	0.00	
6,400.0	10.21	68.77	6,307.3	381.6	982.0	-381.6	0.00	0.00	
6,500.0	10.21	68.77	6,405.7	388.0	998.6	-388.0	0.00	0.00	
6,600.0	10.21	68.77	6,504.1	394.4	1,015.1	-394.4	0.00	0.00	
6,626.3	10.21	68.77	6,530.0	396.1	1,019.4	-396.1	0.00	0.00	Teepee Buttes
6,700.0	10.21	68.77	6,602.5	400.8	1,031.6	-400.8	0.00	0.00	
6,800.0	10.21	68.77	6,700.9	407.3	1,048.1	-407.3	0.00	0.00	
6,815.0	10.21	68.77	6,715.7	408.2	1,050.6	-408.2	0.00	0.00	Start 10° build @ 6815' MD
6,900.0	10.67	117.01	6,799.4	407.4	1,064.6	-407.4	10.00	0.54	
7,000.0	17.56	147.97	6,896.5	390.3	1,080.9	-390.3	10.00	6.89	
7,100.0	26.48	160.31	6,989.2	356.5	1,096.5	-356.5	10.00	8.92	
7,200.0	35.94	166.62	7,074.6	306.8	1,110.8	-306.8	10.00	9.46	
7,300.0	45.61	170.54	7,150.3	242.8	1,123.5	-242.8	10.00	9.67	
7,358.5	51.31	172.28	7,189.0	199.6	1,130.0	-199.6	10.00	9.75	Sharon Springs
7,400.0	55.38	173.35	7,213.8	166.5	1,134.2	-166.5	10.00	9.78	
7,480.9	63.31	175.16	7,255.0	97.4	1,141.1	-97.4	10.00	9.81	Niobrara
7,500.0	65.19	175.55	7,263.3	80.2	1,142.5	-80.2	10.00	9.83	
7,600.0	75.04	177.43	7,297.3	-13.5	1,148.2	13.5	10.00	9.84	
7,643.8	79.36	178.19	7,307.0	-56.2	1,149.8	56.2	10.00	9.85	B Chalk
7,700.0	84.89	179.14	7,314.7	-111.9	1,151.1	111.9	10.00	9.86	
7,751.8	90.00	180.00	7,317.0	-163.6	1,151.5	163.6	10.00	9.86	Landing Pt @ 7751' MD; 90°
7,800.0	90.00	180.00	7,317.0	-211.8	1,151.5	211.8	0.00	0.00	
7,900.0	90.00	180.00	7,317.0	-311.8	1,151.5	311.8	0.00	0.00	
8,000.0	90.00	180.00	7,317.0	-411.8	1,151.5	411.8	0.00	0.00	
8,100.0	90.00	180.00	7,317.0	-511.8	1,151.5	511.8	0.00	0.00	
8,200.0	90.00	180.00	7,317.0	-611.8	1,151.5	611.8	0.00	0.00	
8,300.0	90.00	180.00	7,317.0	-711.8	1,151.5	711.8	0.00	0.00	
8,400.0	90.00	180.00	7,317.0	-811.8	1,151.5	811.8	0.00	0.00	
8,500.0	90.00	180.00	7,317.0	-911.8	1,151.5	911.8	0.00	0.00	
8,600.0	90.00	180.00	7,317.0	-1,011.8	1,151.5	1,011.8	0.00	0.00	
8,700.0	90.00	180.00	7,317.0	-1,111.8	1,151.5	1,111.8	0.00	0.00	
8,800.0	90.00	180.00	7,317.0	-1,211.8	1,151.5	1,211.8	0.00	0.00	
8,900.0	90.00	180.00	7,317.0	-1,311.8	1,151.5	1,311.8	0.00	0.00	
9,000.0	90.00	180.00	7,317.0	-1,411.8	1,151.5	1,411.8	0.00	0.00	
9,100.0	90.00	180.00	7,317.0	-1,511.8	1,151.5	1,511.8	0.00	0.00	
9,200.0	90.00	180.00	7,317.0	-1,611.8	1,151.5	1,611.8	0.00	0.00	
9,300.0	90.00	180.00	7,317.0	-1,711.8	1,151.5	1,711.8	0.00	0.00	

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Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1F-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	7,317.0	-1,811.8	1,151.5	1,811.8	0.00	0.00	
9,500.0	90.00	180.00	7,317.0	-1,911.8	1,151.5	1,911.8	0.00	0.00	
9,600.0	90.00	180.00	7,317.0	-2,011.8	1,151.5	2,011.8	0.00	0.00	
9,700.0	90.00	180.00	7,317.0	-2,111.8	1,151.5	2,111.8	0.00	0.00	
9,800.0	90.00	180.00	7,317.0	-2,211.8	1,151.5	2,211.8	0.00	0.00	
9,900.0	90.00	180.00	7,317.0	-2,311.8	1,151.5	2,311.8	0.00	0.00	
10,000.0	90.00	180.00	7,317.0	-2,411.8	1,151.5	2,411.8	0.00	0.00	
10,100.0	90.00	180.00	7,317.0	-2,511.8	1,151.5	2,511.8	0.00	0.00	
10,200.0	90.00	180.00	7,317.0	-2,611.8	1,151.5	2,611.8	0.00	0.00	
10,300.0	90.00	180.00	7,317.0	-2,711.8	1,151.5	2,711.8	0.00	0.00	
10,400.0	90.00	180.00	7,317.0	-2,811.8	1,151.5	2,811.8	0.00	0.00	
10,500.0	90.00	180.00	7,317.0	-2,911.8	1,151.5	2,911.8	0.00	0.00	
10,600.0	90.00	180.00	7,317.0	-3,011.8	1,151.5	3,011.8	0.00	0.00	
10,700.0	90.00	180.00	7,317.0	-3,111.8	1,151.5	3,111.8	0.00	0.00	
10,800.0	90.00	180.00	7,317.0	-3,211.8	1,151.5	3,211.8	0.00	0.00	
10,900.0	90.00	180.00	7,317.0	-3,311.8	1,151.5	3,311.8	0.00	0.00	
11,000.0	90.00	180.00	7,317.0	-3,411.8	1,151.5	3,411.8	0.00	0.00	
11,100.0	90.00	180.00	7,317.0	-3,511.8	1,151.5	3,511.8	0.00	0.00	
11,200.0	90.00	180.00	7,317.0	-3,611.8	1,151.5	3,611.8	0.00	0.00	
11,300.0	90.00	180.00	7,317.0	-3,711.8	1,151.5	3,711.8	0.00	0.00	
11,400.0	90.00	180.00	7,317.0	-3,811.8	1,151.5	3,811.8	0.00	0.00	
11,500.0	90.00	180.00	7,317.0	-3,911.8	1,151.5	3,911.8	0.00	0.00	
11,600.0	90.00	180.00	7,317.0	-4,011.8	1,151.5	4,011.8	0.00	0.00	
11,700.0	90.00	180.00	7,317.0	-4,111.8	1,151.5	4,111.8	0.00	0.00	
11,800.0	90.00	180.00	7,317.0	-4,211.8	1,151.5	4,211.8	0.00	0.00	
11,900.0	90.00	180.00	7,317.0	-4,311.8	1,151.5	4,311.8	0.00	0.00	
11,977.8	90.00	180.00	7,317.0	-4,389.6	1,151.5	4,389.6	0.00	0.00	TD at 11977.8 - Ione 1F-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 1F-2H PBHL (460' I - plan hits target center - Point	0.00	0.00	7,317.0	-4,389.6	1,151.5	1,302,560.98	3,213,649.19	40.161390	-104.735590

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,561.6	4,498.0	Sussex			
4,874.6	4,806.0	Sussex Marker			
5,350.1	5,274.0	Shannon			
6,626.3	6,530.0	Teepee Buttes			
7,358.5	7,189.0	Sharon Springs			
7,480.9	7,255.0	Niobrara			
7,643.8	7,307.0	B Chalk			

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site:	NWNE S2-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1F-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'
710.3	707.7	16.4	42.3	EOB; Inc=10.21°
6,815.0	6,715.7	408.2	1,050.6	Start 10° build @ 6815' MD
7,751.8	7,317.0	-163.6	1,151.5	Landing Pt @ 7751' MD; 90°
11,977.8	7,317.0	-4,389.6	1,151.5	TD at 11977.8

EnCana Oil & Gas (USA) Inc

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

Anticollision Report

15 August, 2012

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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	11,977.8	Plan #1 (HZ)	MWD	Geolink MWD

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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						Out of range
Ione #12-2B (Existing) - DD - Plan #1						Out of range
Ione #13 (Existing) - HZ - Plan #1						Out of range
Ione #13-2 (Existing) - DD - Plan #1						Out of range
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						Out of range
Ione #3 (Existing) - DD - Plan #1						Out of range
Ione #31-2 (Existing) - DD - Plan #1	200.0	205.0	487.0	486.3	740.122	CC, ES
Ione #31-2 (Existing) - DD - Plan #1	400.0	404.8	494.0	492.6	364.800	SF
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	9,146.6	7,310.0	474.7	430.1	10.648	CC, ES
Ione #42-2 - DD - Plan #1	9,200.0	7,310.0	477.6	432.2	10.514	SF
Ione 1A-2H - HZ - Plan #1	200.0	200.0	47.5	46.9	72.776	CC, ES
Ione 1A-2H - HZ - Plan #1	500.0	493.0	75.8	74.1	44.377	SF
Ione 1B-2H - HZ - Plan #1	200.0	200.0	39.1	38.5	59.934	CC, ES
Ione 1B-2H - HZ - Plan #1	500.0	498.4	55.0	53.3	32.318	SF
Ione 1C-2H - HZ - Plan #1	200.0	200.0	27.9	27.3	42.810	CC, ES
Ione 1C-2H - HZ - Plan #1	500.0	499.5	43.0	41.3	25.280	SF
Ione 1D-2H - HZ - Plan #1	200.0	200.0	19.6	18.9	29.967	CC, ES
Ione 1D-2H - HZ - Plan #1	400.0	399.8	26.2	24.8	19.389	SF
Ione 1E-2H - HZ - Plan #1	200.0	200.0	8.4	7.7	12.843	CC, ES
Ione 1E-2H - HZ - Plan #1	300.0	300.0	10.0	9.0	10.014	SF
Ione 2A-2H - HZ - Plan #1						Out of range
Ione 2B-2H - HZ - Plan #1						Out of range
Ione 2C-2H - HZ - Plan #1						Out of range
Ione 2D-2H - HZ - Plan #1						Out of range
Ione 2E-2H - HZ - Plan #1						Out of range
Ione 2F-2H - HZ - Plan #1						Out of range
Ione 2G-2H - HZ - Plan #1						Out of range
Ione 41-2 - DD - DD	4,703.3	4,721.0	380.8	353.5	13.969	CC, ES
Ione 41-2 - DD - DD	7,700.0	7,373.5	392.3	363.1	13.453	SF
Ione 43-2 - Wellbore #1 - Wellbore #1	10,235.5	7,272.0	293.3	237.1	5.217	CC, ES, SF
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	9,866.6	7,611.9	97.4	26.7	1.378	Level 3, CC, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 #31-2 (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
0.0	0.0	5.0	5.0	0.0	0.0	-110.91	-173.8	-454.9	487.0				
100.0	100.0	105.0	105.0	0.2	0.2	-110.91	-173.8	-454.9	487.0	486.7	0.31	1,576.416	
200.0	200.0	205.0	205.0	0.3	0.3	-110.91	-173.8	-454.9	487.0	486.3	0.66	740.122	CC, ES
300.0	300.0	305.0	305.0	0.5	0.5	-179.67	-173.8	-454.9	488.7	487.7	1.01	485.506	
400.0	399.8	404.8	404.8	0.7	0.7	-179.68	-173.8	-454.9	494.0	492.6	1.35	364.800	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 #42-2 - 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
9,000.0	7,317.0	7,310.0	7,310.0	35.8	12.7	90.00	-1,558.4	676.9	496.8	454.5	42.25	11.759	
9,100.0	7,317.0	7,310.0	7,310.0	37.1	12.7	90.00	-1,558.4	676.9	476.9	433.1	43.83	10.881	
9,146.6	7,317.0	7,310.0	7,310.0	37.8	12.7	90.00	-1,558.4	676.9	474.7	430.1	44.58	10.648	CC, ES
9,200.0	7,317.0	7,310.0	7,310.0	38.5	12.7	90.00	-1,558.4	676.9	477.6	432.2	45.43	10.514	SF
9,300.0	7,317.0	7,310.0	7,310.0	39.9	12.7	90.00	-1,558.4	676.9	498.8	451.8	47.05	10.603	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 1A-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	-90.00	0.0	-47.5	47.5				
100.0	100.0	100.0	100.0	0.2	0.2	-90.00	0.0	-47.5	47.5	47.2	0.30	156.427	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-47.5	47.5	46.9	0.65	72.776	CC, ES
300.0	300.0	298.4	298.4	0.5	0.5	-158.58	0.8	-49.0	50.7	49.7	1.00	50.661	
400.0	399.8	396.3	396.2	0.7	0.7	-158.12	3.1	-53.5	60.1	58.8	1.35	44.503	
500.0	499.5	493.0	492.5	0.9	0.9	-157.59	6.8	-60.8	75.8	74.1	1.71	44.377	SF
600.0	598.7	588.6	587.4	1.2	1.2	-157.12	11.9	-70.9	97.5	95.5	2.07	47.041	
700.0	697.5	685.2	683.3	1.5	1.4	-157.16	17.6	-81.9	123.3	120.9	2.45	50.338	
800.0	795.9	781.3	778.6	1.8	1.7	-157.62	23.2	-92.9	150.9	148.1	2.84	53.238	
900.0	894.3	877.4	873.9	2.2	1.9	-157.95	28.8	-103.8	178.6	175.4	3.22	55.389	
1,000.0	992.7	973.5	969.2	2.5	2.2	-158.20	34.4	-114.8	206.3	202.6	3.62	57.049	
1,100.0	1,091.1	1,069.6	1,064.5	2.9	2.5	-158.39	40.0	-125.8	233.9	229.9	4.01	58.368	
1,200.0	1,189.6	1,165.7	1,159.8	3.2	2.7	-158.53	45.6	-136.7	261.6	257.2	4.40	59.439	
1,300.0	1,288.0	1,261.8	1,255.1	3.6	3.0	-158.65	51.2	-147.7	289.3	284.5	4.79	60.326	
1,400.0	1,386.4	1,357.9	1,350.4	3.9	3.3	-158.75	56.8	-158.7	316.9	311.7	5.19	61.073	
1,500.0	1,484.8	1,454.0	1,445.7	4.3	3.6	-158.83	62.4	-169.6	344.6	339.0	5.58	61.709	
1,600.0	1,583.2	1,550.1	1,541.0	4.7	3.8	-158.90	68.0	-180.6	372.3	366.3	5.98	62.258	
1,700.0	1,681.6	1,646.2	1,636.3	5.0	4.1	-158.96	73.6	-191.6	399.9	393.6	6.37	62.737	
1,800.0	1,780.1	1,742.3	1,731.6	5.4	4.4	-159.02	79.2	-202.5	427.6	420.8	6.77	63.157	
1,900.0	1,878.5	1,838.4	1,826.9	5.7	4.6	-159.06	84.8	-213.5	455.3	448.1	7.17	63.530	
2,000.0	1,976.9	1,934.5	1,922.2	6.1	4.9	-159.10	90.4	-224.5	482.9	475.4	7.56	63.862	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 1B-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	-159.65	0.0	-39.1	40.8	39.8	1.00	40.676	
400.0	399.8	399.8	399.8	0.7	0.7	-161.91	0.0	-39.1	45.7	44.3	1.35	33.814	
500.0	499.5	498.4	498.4	0.9	0.8	-163.19	1.3	-40.2	55.0	53.3	1.70	32.318	SF
600.0	598.7	596.2	596.0	1.2	1.0	-162.49	5.3	-43.3	69.5	67.4	2.06	33.711	
700.0	697.5	693.8	693.4	1.5	1.2	-161.25	11.3	-47.9	88.7	86.3	2.43	36.450	
800.0	795.9	791.6	790.8	1.8	1.4	-160.81	17.4	-52.7	110.0	107.2	2.82	39.017	
900.0	894.3	889.3	888.2	2.2	1.6	-160.52	23.6	-57.5	131.3	128.1	3.21	40.901	
1,000.0	992.7	986.9	985.6	2.5	1.8	-160.31	29.7	-62.3	152.6	149.0	3.61	42.338	
1,100.0	1,091.1	1,084.6	1,083.0	2.9	2.1	-160.16	35.8	-67.1	174.0	170.0	4.00	43.466	
1,200.0	1,189.6	1,182.3	1,180.3	3.2	2.3	-160.04	42.0	-71.9	195.3	190.9	4.40	44.374	
1,300.0	1,288.0	1,280.0	1,277.7	3.6	2.5	-159.94	48.1	-76.6	216.6	211.8	4.80	45.119	
1,400.0	1,386.4	1,377.7	1,375.1	3.9	2.7	-159.86	54.2	-81.4	237.9	232.7	5.20	45.741	
1,500.0	1,484.8	1,475.4	1,472.5	4.3	2.9	-159.79	60.4	-86.2	259.3	253.7	5.60	46.267	
1,600.0	1,583.2	1,573.1	1,569.9	4.7	3.1	-159.73	66.5	-91.0	280.6	274.6	6.01	46.719	
1,700.0	1,681.6	1,670.8	1,667.3	5.0	3.3	-159.68	72.7	-95.8	301.9	295.5	6.41	47.110	
1,800.0	1,780.1	1,768.5	1,764.7	5.4	3.6	-159.64	78.8	-100.6	323.3	316.4	6.81	47.451	
1,900.0	1,878.5	1,866.2	1,862.1	5.7	3.8	-159.60	84.9	-105.4	344.6	337.4	7.22	47.753	
2,000.0	1,976.9	1,963.9	1,959.5	6.1	4.0	-159.57	91.1	-110.1	365.9	358.3	7.62	48.020	
2,100.0	2,075.3	2,061.6	2,056.8	6.4	4.2	-159.54	97.2	-114.9	387.2	379.2	8.02	48.259	
2,200.0	2,173.7	2,159.3	2,154.2	6.8	4.4	-159.52	103.4	-119.7	408.6	400.1	8.43	48.474	
2,300.0	2,272.1	2,257.0	2,251.6	7.2	4.6	-159.49	109.5	-124.5	429.9	421.1	8.83	48.669	
2,400.0	2,370.6	2,354.7	2,349.0	7.5	4.9	-159.47	115.6	-129.3	451.2	442.0	9.24	48.845	
2,500.0	2,469.0	2,452.4	2,446.4	7.9	5.1	-159.45	121.8	-134.1	472.6	462.9	9.64	49.006	
2,600.0	2,567.4	2,550.1	2,543.8	8.2	5.3	-159.43	127.9	-138.8	493.9	483.8	10.05	49.154	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 1C-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	-90.03	0.0	-27.9	27.9				
100.0	100.0	100.0	100.0	0.2	0.2	-90.03	0.0	-27.9	27.9	27.6	0.30	92.016	
200.0	200.0	200.0	200.0	0.3	0.3	-90.03	0.0	-27.9	27.9	27.3	0.65	42.810	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	-160.01	0.0	-27.9	29.6	28.6	1.00	29.522	
400.0	399.8	399.8	399.8	0.7	0.7	-162.95	0.0	-27.9	34.5	33.2	1.35	25.566	
500.0	499.5	499.5	499.5	0.9	0.8	-166.32	0.0	-27.9	43.0	41.3	1.70	25.280	SF
600.0	598.7	598.7	598.7	1.2	1.0	-169.29	0.0	-27.9	54.9	52.8	2.04	26.846	
700.0	697.5	697.5	697.5	1.5	1.2	-171.61	0.0	-27.9	70.3	67.9	2.38	29.481	
800.0	795.9	795.9	795.9	1.8	1.4	-173.29	0.0	-27.9	87.9	85.1	2.73	32.189	
900.0	894.3	894.3	894.3	2.2	1.5	-174.41	0.0	-27.9	105.5	102.4	3.07	34.305	
1,000.0	992.7	992.7	992.7	2.5	1.7	-175.22	0.0	-27.9	123.1	119.7	3.42	36.005	
1,100.0	1,091.1	1,091.1	1,091.1	2.9	1.9	-175.82	0.0	-27.9	140.8	137.0	3.77	37.398	
1,200.0	1,189.6	1,190.3	1,190.2	3.2	2.1	-175.77	1.4	-28.2	158.3	154.2	4.11	38.474	
1,300.0	1,288.0	1,289.5	1,289.4	3.6	2.2	-174.61	6.2	-28.9	175.3	170.8	4.47	39.189	
1,400.0	1,386.4	1,388.0	1,387.6	3.9	2.4	-173.05	12.9	-30.0	192.2	187.4	4.84	39.683	
1,500.0	1,484.8	1,486.4	1,485.8	4.3	2.6	-171.73	19.7	-31.1	209.2	204.0	5.22	40.074	
1,600.0	1,583.2	1,584.9	1,584.0	4.7	2.8	-170.62	26.5	-32.2	226.3	220.7	5.60	40.385	
1,700.0	1,681.6	1,683.3	1,682.2	5.0	3.0	-169.66	33.3	-33.3	243.5	237.5	5.99	40.637	
1,800.0	1,780.1	1,781.8	1,780.4	5.4	3.2	-168.83	40.0	-34.4	260.8	254.4	6.38	40.841	
1,900.0	1,878.5	1,880.2	1,878.6	5.7	3.4	-168.10	46.8	-35.5	278.0	271.3	6.78	41.008	
2,000.0	1,976.9	1,978.6	1,976.8	6.1	3.6	-167.45	53.6	-36.5	295.4	288.2	7.18	41.147	
2,100.0	2,075.3	2,077.1	2,075.0	6.4	3.8	-166.88	60.4	-37.6	312.7	305.1	7.58	41.263	
2,200.0	2,173.7	2,175.5	2,173.2	6.8	4.0	-166.37	67.2	-38.7	330.1	322.1	7.98	41.361	
2,300.0	2,272.1	2,273.9	2,271.4	7.2	4.2	-165.91	73.9	-39.8	347.5	339.1	8.38	41.443	
2,400.0	2,370.6	2,372.4	2,369.6	7.5	4.4	-165.49	80.7	-40.9	364.9	356.1	8.79	41.514	
2,500.0	2,469.0	2,470.8	2,467.8	7.9	4.6	-165.11	87.5	-42.0	382.4	373.2	9.20	41.574	
2,600.0	2,567.4	2,569.3	2,566.0	8.2	4.8	-164.76	94.3	-43.1	399.8	390.2	9.60	41.626	
2,700.0	2,665.8	2,667.7	2,664.2	8.6	5.0	-164.45	101.0	-44.1	417.3	407.3	10.01	41.671	
2,800.0	2,764.2	2,766.1	2,762.4	8.9	5.2	-164.15	107.8	-45.2	434.8	424.3	10.42	41.711	
2,900.0	2,862.7	2,864.6	2,860.6	9.3	5.4	-163.88	114.6	-46.3	452.2	441.4	10.83	41.745	
3,000.0	2,961.1	2,963.0	2,958.8	9.7	5.6	-163.64	121.4	-47.4	469.7	458.5	11.24	41.776	
3,100.0	3,059.5	3,061.4	3,057.0	10.0	5.8	-163.40	128.2	-48.5	487.3	475.6	11.66	41.803	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 1D-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	-90.07	0.0	-19.6	19.6				
100.0	100.0	100.0	100.0	0.2	0.2	-90.07	0.0	-19.6	19.6	19.3	0.30	64.411	
200.0	200.0	200.0	200.0	0.3	0.3	-90.07	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	-160.53	0.0	-19.6	21.2	20.2	1.00	21.158	
400.0	399.8	399.8	399.8	0.7	0.7	-164.32	0.0	-19.6	26.2	24.8	1.35	19.389	SF
500.0	499.5	499.5	499.5	0.9	0.8	-168.18	0.0	-19.6	34.7	33.0	1.70	20.415	
600.0	598.7	598.7	598.7	1.2	1.0	-171.21	0.0	-19.6	46.7	44.6	2.04	22.853	
700.0	697.5	699.3	699.3	1.5	1.2	-172.60	1.2	-18.3	60.7	58.3	2.39	25.433	
800.0	795.9	800.5	800.3	1.8	1.4	-172.32	4.9	-14.5	73.8	71.1	2.74	26.895	
900.0	894.3	901.6	901.1	2.2	1.6	-170.92	10.9	-8.3	84.0	80.9	3.11	26.994	
1,000.0	992.7	1,001.2	1,000.2	2.5	1.8	-169.54	17.6	-1.5	93.6	90.1	3.49	26.823	
1,100.0	1,091.1	1,100.7	1,099.2	2.9	2.0	-168.42	24.2	5.3	103.1	99.2	3.87	26.651	
1,200.0	1,189.6	1,200.2	1,198.3	3.2	2.2	-167.48	30.8	12.1	112.7	108.5	4.26	26.484	
1,300.0	1,288.0	1,299.7	1,297.4	3.6	2.5	-166.70	37.4	18.9	122.3	117.7	4.65	26.325	
1,400.0	1,386.4	1,399.3	1,396.4	3.9	2.7	-166.03	44.0	25.6	132.0	126.9	5.04	26.175	
1,500.0	1,484.8	1,498.8	1,495.5	4.3	2.9	-165.45	50.6	32.4	141.6	136.2	5.44	26.034	
1,600.0	1,583.2	1,598.3	1,594.6	4.7	3.2	-164.94	57.2	39.2	151.3	145.4	5.84	25.904	
1,700.0	1,681.6	1,697.8	1,693.7	5.0	3.4	-164.50	63.8	46.0	161.0	154.7	6.24	25.782	
1,800.0	1,780.1	1,797.3	1,792.7	5.4	3.6	-164.10	70.4	52.8	170.7	164.0	6.65	25.669	
1,900.0	1,878.5	1,896.9	1,891.8	5.7	3.9	-163.75	77.0	59.6	180.3	173.3	7.05	25.564	
2,000.0	1,976.9	1,996.4	1,990.9	6.1	4.1	-163.43	83.7	66.4	190.0	182.6	7.46	25.466	
2,100.0	2,075.3	2,095.9	2,089.9	6.4	4.3	-163.15	90.3	73.2	199.7	191.9	7.87	25.376	
2,200.0	2,173.7	2,195.4	2,189.0	6.8	4.6	-162.89	96.9	80.0	209.5	201.2	8.28	25.291	
2,300.0	2,272.1	2,295.0	2,288.1	7.2	4.8	-162.65	103.5	86.8	219.2	210.5	8.69	25.213	
2,400.0	2,370.6	2,394.5	2,387.2	7.5	5.0	-162.44	110.1	93.5	228.9	219.8	9.10	25.139	
2,500.0	2,469.0	2,494.0	2,486.2	7.9	5.3	-162.24	116.7	100.3	238.6	229.1	9.52	25.070	
2,600.0	2,567.4	2,593.5	2,585.3	8.2	5.5	-162.05	123.3	107.1	248.3	238.4	9.93	25.006	
2,700.0	2,665.8	2,693.1	2,684.4	8.6	5.7	-161.89	129.9	113.9	258.1	247.7	10.34	24.946	
2,800.0	2,764.2	2,792.6	2,783.4	8.9	6.0	-161.73	136.5	120.7	267.8	257.0	10.76	24.889	
2,900.0	2,862.7	2,892.1	2,882.5	9.3	6.2	-161.58	143.1	127.5	277.5	266.3	11.17	24.836	
3,000.0	2,961.1	2,991.6	2,981.6	9.7	6.5	-161.45	149.8	134.3	287.2	275.6	11.59	24.785	
3,100.0	3,059.5	3,091.1	3,080.7	10.0	6.7	-161.32	156.4	141.1	297.0	285.0	12.00	24.738	
3,200.0	3,157.9	3,190.7	3,179.7	10.4	6.9	-161.20	163.0	147.9	306.7	294.3	12.42	24.693	
3,300.0	3,256.3	3,290.2	3,278.8	10.7	7.2	-161.09	169.6	154.6	316.4	303.6	12.84	24.650	
3,400.0	3,354.7	3,389.7	3,377.9	11.1	7.4	-160.98	176.2	161.4	326.2	312.9	13.25	24.610	
3,500.0	3,453.2	3,489.2	3,476.9	11.4	7.7	-160.89	182.8	168.2	335.9	322.2	13.67	24.572	
3,600.0	3,551.6	3,588.8	3,576.0	11.8	7.9	-160.79	189.4	175.0	345.6	331.6	14.09	24.536	
3,700.0	3,650.0	3,688.3	3,675.1	12.2	8.1	-160.70	196.0	181.8	355.4	340.9	14.50	24.501	
3,800.0	3,748.4	3,787.8	3,774.2	12.5	8.4	-160.62	202.6	188.6	365.1	350.2	14.92	24.468	
3,900.0	3,846.8	3,887.3	3,873.2	12.9	8.6	-160.54	209.2	195.4	374.9	359.5	15.34	24.437	
4,000.0	3,945.2	3,986.9	3,972.3	13.2	8.8	-160.47	215.9	202.2	384.6	368.8	15.76	24.407	
4,100.0	4,043.7	4,086.4	4,071.4	13.6	9.1	-160.39	222.5	209.0	394.3	378.2	16.18	24.378	
4,200.0	4,142.1	4,185.9	4,170.4	14.0	9.3	-160.33	229.1	215.7	404.1	387.5	16.59	24.351	
4,300.0	4,240.5	4,285.4	4,269.5	14.3	9.6	-160.26	235.7	222.5	413.8	396.8	17.01	24.325	
4,400.0	4,338.9	4,385.0	4,368.6	14.7	9.8	-160.20	242.3	229.3	423.6	406.1	17.43	24.300	
4,500.0	4,437.3	4,484.5	4,467.7	15.0	10.0	-160.14	248.9	236.1	433.3	415.5	17.85	24.276	
4,600.0	4,535.7	4,584.0	4,566.7	15.4	10.3	-160.08	255.5	242.9	443.0	424.8	18.27	24.253	
4,700.0	4,634.2	4,683.5	4,665.8	15.7	10.5	-160.03	262.1	249.7	452.8	434.1	18.69	24.231	
4,800.0	4,732.6	4,783.0	4,764.9	16.1	10.8	-159.98	268.7	256.5	462.5	443.4	19.11	24.209	
4,900.0	4,831.0	4,882.6	4,863.9	16.5	11.0	-159.93	275.4	263.3	472.3	452.7	19.52	24.189	
5,000.0	4,929.4	4,982.1	4,963.0	16.8	11.2	-159.88	282.0	270.1	482.0	462.1	19.94	24.169	
5,100.0	5,027.8	5,081.6	5,062.1	17.2	11.5	-159.84	288.6	276.8	491.8	471.4	20.36	24.150	

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 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 1E-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	-90.23	0.0	-8.4	8.4				
100.0	100.0	100.0	100.0	0.2	0.2	-90.23	0.0	-8.4	8.4	8.1	0.30	27.605	
200.0	200.0	200.0	200.0	0.3	0.3	-90.23	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	-162.56	0.0	-8.4	10.0	9.0	1.00	10.014	SF
400.0	399.8	399.8	399.8	0.7	0.7	-168.50	0.0	-8.4	15.1	13.8	1.35	11.191	
500.0	499.5	500.2	500.2	0.9	0.9	-171.34	0.9	-6.9	22.1	20.4	1.70	12.991	
600.0	598.7	600.8	600.6	1.2	1.0	-171.61	3.6	-2.4	29.2	27.1	2.05	14.240	
700.0	697.5	701.6	701.1	1.5	1.3	-170.80	8.2	5.2	36.4	34.0	2.40	15.144	
800.0	795.9	801.9	800.6	1.8	1.5	-169.49	14.2	15.0	43.0	40.3	2.77	15.536	
900.0	894.3	901.6	899.7	2.2	1.7	-168.44	20.4	25.0	49.5	46.4	3.14	15.751	
1,000.0	992.7	1,001.4	998.8	2.5	2.0	-167.64	26.5	35.1	56.0	52.5	3.52	15.904	
1,100.0	1,091.1	1,101.2	1,097.9	2.9	2.2	-167.00	32.6	45.1	62.5	58.6	3.91	16.014	
1,200.0	1,189.6	1,201.0	1,197.0	3.2	2.5	-166.49	38.7	55.1	69.1	64.8	4.29	16.095	
1,300.0	1,288.0	1,300.8	1,296.1	3.6	2.8	-166.06	44.8	65.1	75.6	70.9	4.68	16.156	
1,400.0	1,386.4	1,400.6	1,395.2	3.9	3.0	-165.70	50.9	75.1	82.1	77.0	5.07	16.203	
1,500.0	1,484.8	1,500.4	1,494.3	4.3	3.3	-165.39	57.0	85.1	88.6	83.2	5.46	16.239	
1,600.0	1,583.2	1,600.1	1,593.4	4.7	3.6	-165.13	63.1	95.2	95.2	89.3	5.85	16.267	
1,700.0	1,681.6	1,699.9	1,692.5	5.0	3.8	-164.90	69.2	105.2	101.7	95.4	6.24	16.289	
1,800.0	1,780.1	1,799.7	1,791.6	5.4	4.1	-164.70	75.3	115.2	108.2	101.6	6.64	16.306	
1,900.0	1,878.5	1,899.5	1,890.7	5.7	4.3	-164.52	81.4	125.2	114.8	107.7	7.03	16.320	
2,000.0	1,976.9	1,999.3	1,989.7	6.1	4.6	-164.36	87.6	135.2	121.3	113.9	7.43	16.332	
2,100.0	2,075.3	2,099.1	2,088.8	6.4	4.9	-164.21	93.7	145.2	127.8	120.0	7.82	16.341	
2,200.0	2,173.7	2,198.9	2,187.9	6.8	5.1	-164.08	99.8	155.3	134.4	126.1	8.22	16.348	
2,300.0	2,272.1	2,298.6	2,287.0	7.2	5.4	-163.96	105.9	165.3	140.9	132.3	8.62	16.354	
2,400.0	2,370.6	2,398.4	2,386.1	7.5	5.7	-163.86	112.0	175.3	147.4	138.4	9.01	16.359	
2,500.0	2,469.0	2,498.2	2,485.2	7.9	6.0	-163.76	118.1	185.3	154.0	144.6	9.41	16.363	
2,600.0	2,567.4	2,598.0	2,584.3	8.2	6.2	-163.67	124.2	195.3	160.5	150.7	9.81	16.366	
2,700.0	2,665.8	2,697.8	2,683.4	8.6	6.5	-163.59	130.3	205.3	167.1	156.8	10.21	16.369	
2,800.0	2,764.2	2,797.6	2,782.5	8.9	6.8	-163.51	136.4	215.4	173.6	163.0	10.60	16.371	
2,900.0	2,862.7	2,897.4	2,881.6	9.3	7.0	-163.44	142.5	225.4	180.1	169.1	11.00	16.372	
3,000.0	2,961.1	2,997.1	2,980.7	9.7	7.3	-163.37	148.7	235.4	186.7	175.3	11.40	16.374	
3,100.0	3,059.5	3,096.9	3,079.8	10.0	7.6	-163.31	154.8	245.4	193.2	181.4	11.80	16.375	
3,200.0	3,157.9	3,196.7	3,178.9	10.4	7.8	-163.25	160.9	255.4	199.7	187.6	12.20	16.375	
3,300.0	3,256.3	3,296.5	3,278.0	10.7	8.1	-163.20	167.0	265.4	206.3	193.7	12.60	16.376	
3,400.0	3,354.7	3,396.3	3,377.1	11.1	8.4	-163.15	173.1	275.5	212.8	199.8	13.00	16.376	
3,500.0	3,453.2	3,496.1	3,476.1	11.4	8.6	-163.10	179.2	285.5	219.4	206.0	13.40	16.376	
3,600.0	3,551.6	3,595.9	3,575.2	11.8	8.9	-163.05	185.3	295.5	225.9	212.1	13.79	16.376	
3,700.0	3,650.0	3,695.6	3,674.3	12.2	9.2	-163.01	191.4	305.5	232.5	218.3	14.19	16.376	
3,800.0	3,748.4	3,795.4	3,773.4	12.5	9.4	-162.97	197.5	315.5	239.0	224.4	14.59	16.376	
3,900.0	3,846.8	3,895.2	3,872.5	12.9	9.7	-162.93	203.6	325.5	245.5	230.5	14.99	16.376	
4,000.0	3,945.2	3,995.0	3,971.6	13.2	10.0	-162.90	209.7	335.6	252.1	236.7	15.39	16.376	
4,100.0	4,043.7	4,094.8	4,070.7	13.6	10.2	-162.86	215.9	345.6	258.6	242.8	15.79	16.375	
4,200.0	4,142.1	4,194.6	4,169.8	14.0	10.5	-162.83	222.0	355.6	265.2	249.0	16.19	16.375	
4,300.0	4,240.5	4,294.4	4,268.9	14.3	10.8	-162.80	228.1	365.6	271.7	255.1	16.59	16.375	
4,400.0	4,338.9	4,394.1	4,368.0	14.7	11.1	-162.77	234.2	375.6	278.2	261.2	16.99	16.374	
4,500.0	4,437.3	4,493.9	4,467.1	15.0	11.3	-162.74	240.3	385.6	284.8	267.4	17.39	16.374	
4,600.0	4,535.7	4,593.7	4,566.2	15.4	11.6	-162.72	246.4	395.7	291.3	273.5	17.79	16.373	
4,700.0	4,634.2	4,693.5	4,665.3	15.7	11.9	-162.69	252.5	405.7	297.9	279.7	18.19	16.373	
4,800.0	4,732.6	4,793.3	4,764.4	16.1	12.1	-162.66	258.6	415.7	304.4	285.8	18.59	16.372	
4,900.0	4,831.0	4,893.1	4,863.5	16.5	12.4	-162.64	264.7	425.7	310.9	292.0	18.99	16.372	
5,000.0	4,929.4	4,992.9	4,962.6	16.8	12.7	-162.62	270.8	435.7	317.5	298.1	19.39	16.371	
5,100.0	5,027.8	5,092.6	5,061.6	17.2	12.9	-162.60	276.9	445.7	324.0	304.2	19.79	16.371	

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 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 1E-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	5,126.3	5,192.4	5,160.7	17.5	13.2	-162.58	283.1	455.8	330.6	310.4	20.19	16.370	
5,300.0	5,224.7	5,292.2	5,259.8	17.9	13.5	-162.56	289.2	465.8	337.1	316.5	20.59	16.370	
5,400.0	5,323.1	5,392.0	5,358.9	18.3	13.7	-162.54	295.3	475.8	343.7	322.7	20.99	16.369	
5,500.0	5,421.5	5,491.8	5,458.0	18.6	14.0	-162.52	301.4	485.8	350.2	328.8	21.39	16.369	
5,600.0	5,519.9	5,591.6	5,557.1	19.0	14.3	-162.50	307.5	495.8	356.7	334.9	21.80	16.368	
5,700.0	5,618.3	5,691.4	5,656.2	19.3	14.6	-162.48	313.6	505.8	363.3	341.1	22.20	16.368	
5,800.0	5,716.8	5,791.1	5,755.3	19.7	14.8	-162.47	319.7	515.9	369.8	347.2	22.60	16.367	
5,900.0	5,815.2	5,890.9	5,854.4	20.0	15.1	-162.45	325.8	525.9	376.4	353.4	23.00	16.366	
6,000.0	5,913.6	5,990.7	5,953.5	20.4	15.4	-162.44	331.9	535.9	382.9	359.5	23.40	16.366	
6,100.0	6,012.0	6,090.5	6,052.6	20.8	15.6	-162.42	338.0	545.9	389.5	365.7	23.80	16.365	
6,200.0	6,110.4	6,190.3	6,151.7	21.1	15.9	-162.41	344.2	555.9	396.0	371.8	24.20	16.365	
6,300.0	6,208.8	6,290.1	6,250.8	21.5	16.2	-162.39	350.3	565.9	402.5	377.9	24.60	16.364	
6,400.0	6,307.3	6,389.9	6,349.9	21.8	16.4	-162.38	356.4	576.0	409.1	384.1	25.00	16.364	
6,500.0	6,405.7	6,489.6	6,449.0	22.2	16.7	-162.37	362.5	586.0	415.6	390.2	25.40	16.363	
6,600.0	6,504.1	6,589.4	6,548.0	22.6	17.0	-162.35	368.6	596.0	422.2	396.4	25.80	16.363	
6,700.0	6,602.5	6,689.2	6,647.1	22.9	17.2	-162.34	374.7	606.0	428.7	402.5	26.20	16.362	
6,800.0	6,700.9	6,789.0	6,746.2	23.3	17.5	-162.33	380.8	616.0	435.2	408.6	26.60	16.362	
6,900.0	6,799.4	6,888.5	6,845.0	23.6	17.8	150.44	386.9	626.0	441.5	414.5	27.01	16.344	
7,000.0	6,896.5	6,985.5	6,941.3	23.8	18.0	122.61	392.8	635.8	447.4	419.7	27.76	16.119	
7,100.0	6,989.2	7,080.4	7,035.7	23.9	18.3	114.87	396.6	645.3	455.4	426.8	28.59	15.924	
7,200.0	7,074.6	7,182.8	7,136.8	24.0	18.4	113.35	385.0	655.5	466.1	437.2	28.97	16.090	
7,300.0	7,150.3	7,294.3	7,242.6	24.0	18.4	114.12	352.1	666.2	479.2	450.4	28.71	16.687	
7,400.0	7,213.8	7,416.8	7,349.1	24.1	18.4	115.84	293.0	677.0	493.3	465.4	27.86	17.706	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 41-2 - DD - DD

Offset Site Error: 0.0 ft

Survey Program: 122-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
3,400.0	3,354.7	3,473.3	3,427.8	11.1	10.0	90.26	-262.9	672.1	492.7	472.5	20.26	24.318	
3,500.0	3,453.2	3,564.6	3,517.3	11.4	10.4	90.42	-247.2	681.8	480.5	459.6	20.91	22.978	
3,600.0	3,551.6	3,661.9	3,612.6	11.8	10.7	90.58	-231.1	692.7	469.2	447.6	21.59	21.737	
3,700.0	3,650.0	3,760.3	3,709.0	12.2	11.1	90.70	-215.2	704.2	458.4	436.1	22.27	20.584	
3,800.0	3,748.4	3,862.1	3,808.7	12.5	11.5	90.77	-198.1	716.4	447.1	424.1	22.97	19.460	
3,900.0	3,846.8	3,961.5	3,905.8	12.9	11.9	90.80	-181.4	728.5	435.9	412.2	23.67	18.412	
4,000.0	3,945.2	4,059.5	4,001.8	13.2	12.3	90.91	-164.8	739.9	424.2	399.9	24.34	17.430	
4,100.0	4,043.7	4,151.4	4,092.2	13.6	12.6	91.36	-151.2	748.8	414.1	389.1	24.93	16.610	
4,200.0	4,142.1	4,246.0	4,185.8	14.0	12.9	92.09	-139.3	756.8	405.6	380.1	25.48	15.915	
4,300.0	4,240.5	4,342.8	4,281.6	14.3	13.2	93.07	-128.3	763.9	397.8	371.9	25.99	15.308	
4,400.0	4,338.9	4,437.9	4,376.1	14.7	13.4	94.37	-118.8	769.3	391.2	364.8	26.43	14.805	
4,500.0	4,437.3	4,533.7	4,471.5	15.0	13.6	96.06	-111.0	772.7	385.9	359.2	26.78	14.412	
4,600.0	4,535.7	4,626.7	4,564.2	15.4	13.8	98.03	-104.7	774.4	382.0	354.9	27.06	14.117	
4,700.0	4,634.2	4,717.9	4,655.4	15.7	13.9	100.23	-100.9	775.0	380.8	353.5	27.26	13.971	
4,703.3	4,637.4	4,721.0	4,658.5	15.8	13.9	100.31	-100.8	775.0	380.8	353.5	27.26	13.969	CC, ES
4,800.0	4,732.6	4,811.1	4,748.6	16.1	14.0	102.86	-98.7	773.2	381.7	354.4	27.35	13.956	
4,900.0	4,831.0	4,904.0	4,841.5	16.5	14.1	105.57	-98.1	771.0	385.2	357.8	27.41	14.053	
5,000.0	4,929.4	5,002.2	4,939.6	16.8	14.2	108.22	-98.0	769.6	390.2	362.7	27.46	14.208	
5,100.0	5,027.8	5,103.7	5,041.1	17.2	14.3	110.88	-97.4	768.4	395.6	368.1	27.50	14.386	
5,200.0	5,126.3	5,199.9	5,137.3	17.5	14.4	113.31	-96.2	767.3	401.1	373.6	27.54	14.567	
5,300.0	5,224.7	5,292.6	5,230.0	17.9	14.4	115.60	-96.5	766.1	408.9	381.3	27.58	14.826	
5,400.0	5,323.1	5,389.1	5,326.5	18.3	14.5	117.90	-97.5	764.7	418.2	390.6	27.61	15.147	
5,500.0	5,421.5	5,487.6	5,425.0	18.6	14.6	120.13	-98.7	763.4	428.3	400.6	27.65	15.489	
5,600.0	5,519.9	5,587.2	5,524.5	19.0	14.7	122.25	-99.7	762.3	438.8	411.0	27.70	15.837	
5,700.0	5,618.3	5,686.2	5,623.5	19.3	14.8	124.18	-100.5	761.9	449.5	421.7	27.79	16.175	
5,800.0	5,716.8	5,784.8	5,722.2	19.7	14.9	125.97	-101.3	761.9	460.6	432.7	27.89	16.513	
5,900.0	5,815.2	5,881.8	5,819.2	20.0	15.0	127.60	-102.3	762.2	472.2	444.2	28.02	16.850	
6,000.0	5,913.6	5,982.3	5,919.6	20.4	15.2	129.13	-103.6	763.2	484.2	456.1	28.18	17.186	
6,100.0	6,012.0	6,080.7	6,018.0	20.8	15.3	130.49	-104.7	764.7	496.2	467.9	28.36	17.499	
7,400.0	7,213.8	7,283.2	7,220.4	24.1	16.8	72.12	-102.5	761.9	459.3	432.8	26.49	17.339	
7,500.0	7,263.3	7,329.2	7,266.3	24.2	16.9	80.11	-101.1	760.6	422.8	395.2	27.63	15.305	
7,600.0	7,297.3	7,359.7	7,296.8	24.3	16.9	86.05	-100.2	759.7	398.2	369.6	28.55	13.947	
7,677.8	7,312.3	7,371.9	7,308.9	24.5	16.9	88.18	-99.8	759.3	391.8	362.7	29.06	13.483	
7,700.0	7,314.7	7,373.5	7,310.6	24.5	16.9	88.32	-99.7	759.2	392.3	363.1	29.16	13.453	SF
7,800.0	7,317.0	7,372.5	7,309.6	24.9	16.9	87.60	-99.8	759.3	408.2	378.5	29.71	13.743	
7,900.0	7,317.0	7,369.3	7,306.4	25.3	16.9	87.14	-99.9	759.4	446.2	415.7	30.44	14.655	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 43-2 - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 8083-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
9,900.0	7,317.0	7,272.0	7,272.0	48.6	6.3	90.00	-2,647.3	858.2	445.6	395.1	50.56	8.813	
10,000.0	7,317.0	7,272.0	7,272.0	50.2	6.3	90.00	-2,647.3	858.2	376.1	323.9	52.24	7.200	
10,100.0	7,317.0	7,272.0	7,272.0	51.7	6.3	90.00	-2,647.3	858.2	323.1	269.2	53.93	5.991	
10,200.0	7,317.0	7,272.0	7,272.0	53.3	6.3	90.00	-2,647.3	858.2	295.4	239.8	55.62	5.312	
10,235.5	7,317.0	7,272.0	7,272.0	53.8	6.3	90.00	-2,647.3	858.2	293.3	237.1	56.22	5.217	CC, ES, SF
10,300.0	7,317.0	7,272.0	7,272.0	54.8	6.3	90.00	-2,647.3	858.2	300.3	243.0	57.31	5.240	
10,400.0	7,317.0	7,272.0	7,272.0	56.4	6.3	90.00	-2,647.3	858.2	336.3	277.3	59.01	5.699	
10,500.0	7,317.0	7,272.0	7,272.0	58.0	6.3	90.00	-2,647.3	858.2	394.9	334.2	60.71	6.506	
10,600.0	7,317.0	7,272.0	7,272.0	59.6	6.3	90.00	-2,647.3	858.2	467.8	405.4	62.41	7.496	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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 8-4-2 (Existing) - Existing - Existing

Offset Site Error: 0.0 ft

Survey Program: 93-MWD

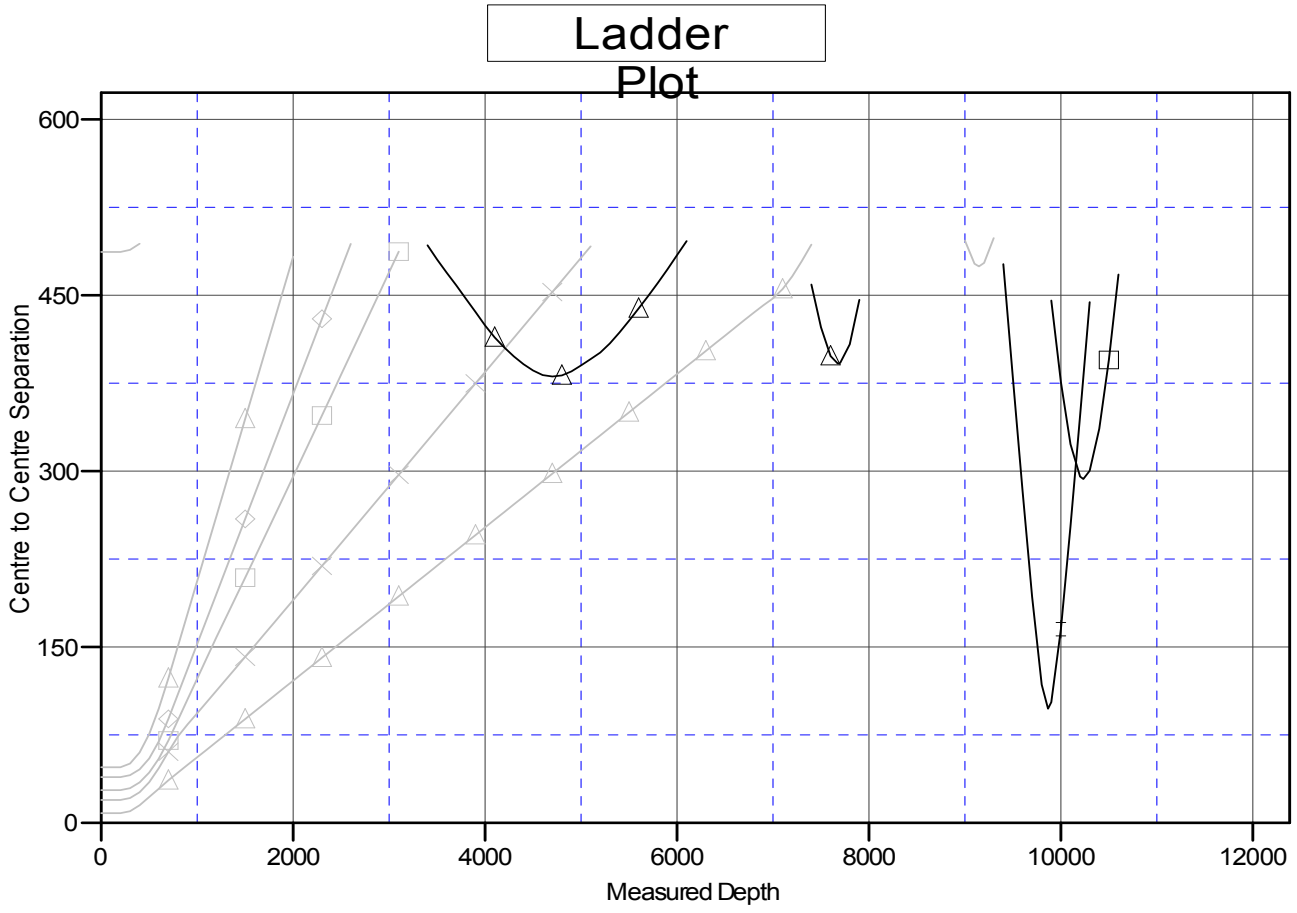
Offset Well Error: 0.0 ft

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
9,400.0	7,317.0	7,608.9	7,289.8	41.3	34.1	-88.73	-2,278.3	1,248.9	476.6	413.6	62.98	7.568	
9,500.0	7,317.0	7,609.6	7,290.5	42.7	34.1	-89.12	-2,278.3	1,248.9	379.3	314.7	64.61	5.870	
9,600.0	7,317.0	7,610.2	7,291.2	44.2	34.1	-89.50	-2,278.3	1,248.9	283.8	217.5	66.26	4.283	
9,700.0	7,317.0	7,610.9	7,291.8	45.6	34.1	-89.88	-2,278.3	1,248.9	192.9	125.0	67.91	2.841	
9,800.0	7,317.0	7,611.5	7,292.4	47.1	34.1	-90.26	-2,278.3	1,248.9	118.0	48.4	69.57	1.695	
9,866.6	7,317.0	7,611.9	7,292.9	48.1	34.1	-90.51	-2,278.4	1,248.9	97.4	26.7	70.68	1.378	Level 3, CC, ES, SF
9,900.0	7,317.0	7,612.2	7,293.1	48.6	34.1	-90.63	-2,278.4	1,248.9	102.9	31.7	71.24	1.445	Level 3
10,000.0	7,317.0	7,612.8	7,293.7	50.2	34.1	-91.00	-2,278.4	1,248.9	165.2	92.3	72.90	2.266	
10,100.0	7,317.0	7,613.4	7,294.3	51.7	34.1	-91.37	-2,278.4	1,248.9	252.9	178.3	74.57	3.392	
10,200.0	7,317.0	7,614.0	7,295.0	53.3	34.1	-91.74	-2,278.4	1,248.9	347.3	271.1	76.24	4.556	
10,300.0	7,317.0	7,614.7	7,295.6	54.8	34.1	-92.11	-2,278.4	1,248.8	444.2	366.3	77.91	5.702	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1F-2H
Project:	DJ Wattenberg	**TVD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Reference Site:	NWNE S2-T2N-R66W (Ione)	**MD Reference:**	KB=13' @ 5091.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1F-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' @ 5091.0ft (Original Well Elev
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Ione 1F-2H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.49°



LEGEND

- Ione #31-2 (Existing), DD, Plan #1 V0
- Ione #42-2, DD, Plan #1 V0
- Ione 1A-2H, HZ, Plan #1 V0
- Ione 1B-2H, HZ, Plan #1 V0
- Ione 1C-2H, HZ, Plan #1 V0
- Ione 1D-2H, HZ, Plan #1 V0
- Ione 1E-2H, HZ, Plan #1 V0
- Ione 41-2, DD, DD V0
- Ione 43-2, Wellbore #1, Wellbore #1 V0
- Ione 8-4-2 (Existing), Existing, Existing V0