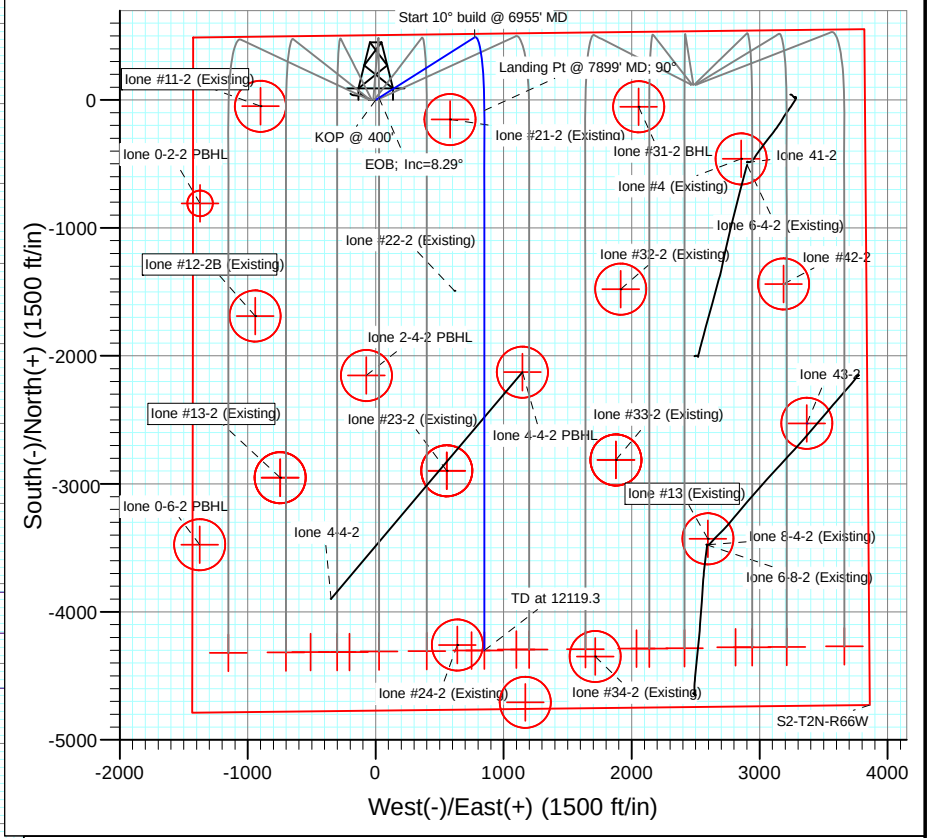
encana natural gas

Project: DJ Wattenberg
Site: NWNE S2-T2N-R66W (Ione)
Well: Ione 2F-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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	814.5	8.29	57.70	813.0	16.0	25.3	2.00	57.70	-16.0	
4	6955.1	8.29	57.70	6889.5	489.1	773.6	0.00	0.00	-489.1	
5	7899.3	90.00	180.00	7502.0	-82.1	849.0	10.00	122.03	82.1	
6	12119.3	90.00	180.00	7502.0	-4302.1	849.0	0.00	0.00	4302.1	Ione 2F-2H PBHL (460' FSL, 2,175' FWL) NEW



Surface Hole Location
Ione 2F-2H
(510' FNL, 1,420' FWL)
Lat : 40.173110
Long : -104.748690

DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Ione 2F-2H PBHL (460' FSL, 2,175' FWL)	-4302.1	749.0	1302503.26	3210737.28	40.161300	-104.746010
Ione 2F-2H PBHL (460' FSL, 2,175' FWL) NEW	-4302.1	849.0	1302504.11	3210837.24	40.161300	-104.745652

T M Azimuths to True North
Magnetic North: 8.64°

Magnetic Field
Strength: 52916.1snT
Dip Angle: 66.84°
Date: 8/8/2012
Model: IGRF200510

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4554.0	4594.9	Sussex
4811.0	4854.7	Sussex Marker
5154.0	5201.3	Shannon
6498.0	6559.5	Teepee Buttes
7139.0	7211.3	Sharon Springs
7211.0	7291.6	Niobrara
7253.0	7341.3	B Chalk
7475.0	7722.0	Ft. Hayes
7497.0	7823.3	Codell

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

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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 2F-2H

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,306,798.89 ft	**Latitude:**	40.173110
	+E/-W	0.0 ft	**Easting:**	3,209,951.82 ft	**Longitude:**	-104.748690
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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
814.5	8.29	57.70	813.0	16.0	25.3	2.00	2.00	0.00	57.70	
6,955.1	8.29	57.70	6,889.5	489.1	773.6	0.00	0.00	0.00	0.00	
7,899.3	90.00	180.00	7,502.0	-82.1	849.0	10.00	8.65	12.95	122.03	
12,119.3	90.00	180.00	7,502.0	-4,302.1	849.0	0.00	0.00	0.00	0.00	Ione 2F-2H PBHL (46

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 400'
500.0	2.00	57.70	500.0	0.9	1.5	-0.9	2.00	2.00	
600.0	4.00	57.70	599.8	3.7	5.9	-3.7	2.00	2.00	
700.0	6.00	57.70	699.5	8.4	13.3	-8.4	2.00	2.00	
800.0	8.00	57.70	798.7	14.9	23.6	-14.9	2.00	2.00	
814.5	8.29	57.70	813.0	16.0	25.3	-16.0	2.00	2.00	EOB; Inc=8.29°
900.0	8.29	57.70	897.7	22.6	35.7	-22.6	0.00	0.00	
1,000.0	8.29	57.70	996.6	30.3	47.9	-30.3	0.00	0.00	
1,100.0	8.29	57.70	1,095.6	38.0	60.1	-38.0	0.00	0.00	
1,200.0	8.29	57.70	1,194.5	45.7	72.3	-45.7	0.00	0.00	
1,300.0	8.29	57.70	1,293.5	53.4	84.5	-53.4	0.00	0.00	
1,400.0	8.29	57.70	1,392.4	61.1	96.6	-61.1	0.00	0.00	
1,500.0	8.29	57.70	1,491.4	68.8	108.8	-68.8	0.00	0.00	
1,600.0	8.29	57.70	1,590.3	76.5	121.0	-76.5	0.00	0.00	
1,700.0	8.29	57.70	1,689.3	84.2	133.2	-84.2	0.00	0.00	
1,800.0	8.29	57.70	1,788.3	91.9	145.4	-91.9	0.00	0.00	
1,900.0	8.29	57.70	1,887.2	99.6	157.6	-99.6	0.00	0.00	
2,000.0	8.29	57.70	1,986.2	107.3	169.8	-107.3	0.00	0.00	
2,100.0	8.29	57.70	2,085.1	115.0	181.9	-115.0	0.00	0.00	
2,200.0	8.29	57.70	2,184.1	122.7	194.1	-122.7	0.00	0.00	
2,300.0	8.29	57.70	2,283.0	130.5	206.3	-130.5	0.00	0.00	
2,400.0	8.29	57.70	2,382.0	138.2	218.5	-138.2	0.00	0.00	
2,500.0	8.29	57.70	2,480.9	145.9	230.7	-145.9	0.00	0.00	
2,600.0	8.29	57.70	2,579.9	153.6	242.9	-153.6	0.00	0.00	
2,700.0	8.29	57.70	2,678.9	161.3	255.1	-161.3	0.00	0.00	
2,800.0	8.29	57.70	2,777.8	169.0	267.2	-169.0	0.00	0.00	
2,900.0	8.29	57.70	2,876.8	176.7	279.4	-176.7	0.00	0.00	
3,000.0	8.29	57.70	2,975.7	184.4	291.6	-184.4	0.00	0.00	
3,100.0	8.29	57.70	3,074.7	192.1	303.8	-192.1	0.00	0.00	
3,200.0	8.29	57.70	3,173.6	199.8	316.0	-199.8	0.00	0.00	
3,300.0	8.29	57.70	3,272.6	207.5	328.2	-207.5	0.00	0.00	
3,400.0	8.29	57.70	3,371.5	215.2	340.4	-215.2	0.00	0.00	
3,500.0	8.29	57.70	3,470.5	222.9	352.5	-222.9	0.00	0.00	
3,600.0	8.29	57.70	3,569.5	230.6	364.7	-230.6	0.00	0.00	
3,700.0	8.29	57.70	3,668.4	238.3	376.9	-238.3	0.00	0.00	
3,800.0	8.29	57.70	3,767.4	246.0	389.1	-246.0	0.00	0.00	
3,900.0	8.29	57.70	3,866.3	253.7	401.3	-253.7	0.00	0.00	
4,000.0	8.29	57.70	3,965.3	261.4	413.5	-261.4	0.00	0.00	
4,100.0	8.29	57.70	4,064.2	269.1	425.7	-269.1	0.00	0.00	
4,200.0	8.29	57.70	4,163.2	276.8	437.8	-276.8	0.00	0.00	
4,300.0	8.29	57.70	4,262.1	284.6	450.0	-284.6	0.00	0.00	
4,400.0	8.29	57.70	4,361.1	292.3	462.2	-292.3	0.00	0.00	
4,500.0	8.29	57.70	4,460.1	300.0	474.4	-300.0	0.00	0.00	
4,594.9	8.29	57.70	4,554.0	307.3	486.0	-307.3	0.00	0.00	Sussex
4,600.0	8.29	57.70	4,559.0	307.7	486.6	-307.7	0.00	0.00	
4,700.0	8.29	57.70	4,658.0	315.4	498.8	-315.4	0.00	0.00	
4,800.0	8.29	57.70	4,756.9	323.1	511.0	-323.1	0.00	0.00	
4,854.7	8.29	57.70	4,811.0	327.3	517.6	-327.3	0.00	0.00	Sussex Marker

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Well:	Ione 2F-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	8.29	57.70	4,855.9	330.8	523.1	-330.8	0.00	0.00	
5,000.0	8.29	57.70	4,954.8	338.5	535.3	-338.5	0.00	0.00	
5,100.0	8.29	57.70	5,053.8	346.2	547.5	-346.2	0.00	0.00	
5,200.0	8.29	57.70	5,152.7	353.9	559.7	-353.9	0.00	0.00	
5,201.3	8.29	57.70	5,154.0	354.0	559.9	-354.0	0.00	0.00	Shannon
5,300.0	8.29	57.70	5,251.7	361.6	571.9	-361.6	0.00	0.00	
5,400.0	8.29	57.70	5,350.6	369.3	584.1	-369.3	0.00	0.00	
5,500.0	8.29	57.70	5,449.6	377.0	596.3	-377.0	0.00	0.00	
5,600.0	8.29	57.70	5,548.6	384.7	608.4	-384.7	0.00	0.00	
5,700.0	8.29	57.70	5,647.5	392.4	620.6	-392.4	0.00	0.00	
5,800.0	8.29	57.70	5,746.5	400.1	632.8	-400.1	0.00	0.00	
5,900.0	8.29	57.70	5,845.4	407.8	645.0	-407.8	0.00	0.00	
6,000.0	8.29	57.70	5,944.4	415.5	657.2	-415.5	0.00	0.00	
6,100.0	8.29	57.70	6,043.3	423.2	669.4	-423.2	0.00	0.00	
6,200.0	8.29	57.70	6,142.3	430.9	681.6	-430.9	0.00	0.00	
6,300.0	8.29	57.70	6,241.2	438.7	693.7	-438.7	0.00	0.00	
6,400.0	8.29	57.70	6,340.2	446.4	705.9	-446.4	0.00	0.00	
6,500.0	8.29	57.70	6,439.2	454.1	718.1	-454.1	0.00	0.00	
6,559.5	8.29	57.70	6,498.0	458.6	725.4	-458.6	0.00	0.00	Teepee Buttes
6,600.0	8.29	57.70	6,538.1	461.8	730.3	-461.8	0.00	0.00	
6,700.0	8.29	57.70	6,637.1	469.5	742.5	-469.5	0.00	0.00	
6,800.0	8.29	57.70	6,736.0	477.2	754.7	-477.2	0.00	0.00	
6,900.0	8.29	57.70	6,835.0	484.9	766.9	-484.9	0.00	0.00	
6,955.1	8.29	57.70	6,889.5	489.1	773.6	-489.1	0.00	0.00	Start 10° build @ 6955' MD
7,000.0	7.02	90.56	6,934.0	490.8	779.1	-490.8	10.00	-2.83	
7,100.0	12.25	145.46	7,032.8	482.0	791.2	-482.0	10.00	5.23	
7,200.0	21.21	161.50	7,128.5	456.0	803.0	-456.0	10.00	8.96	
7,211.3	22.28	162.51	7,139.0	452.0	804.3	-452.0	10.00	9.44	Sharon Springs
7,291.6	29.99	167.68	7,211.0	417.9	813.2	-417.9	10.00	9.60	Niobrara
7,300.0	30.80	168.08	7,218.3	413.7	814.1	-413.7	10.00	9.70	
7,341.3	34.83	169.81	7,253.0	391.7	818.3	-391.7	10.00	9.74	B Chalk
7,400.0	40.58	171.73	7,299.4	356.3	824.0	-356.3	10.00	9.80	
7,500.0	50.43	174.16	7,369.4	285.6	832.7	-285.6	10.00	9.85	
7,600.0	60.32	175.97	7,426.2	203.8	839.7	-203.8	10.00	9.89	
7,700.0	70.22	177.46	7,467.9	113.2	844.8	-113.2	10.00	9.91	
7,722.0	72.41	177.76	7,475.0	92.3	845.7	-92.3	10.00	9.92	Ft. Hayes
7,800.0	80.14	178.77	7,493.5	16.7	848.0	-16.7	10.00	9.92	
7,823.3	82.45	179.07	7,497.0	-6.3	848.4	6.3	10.00	9.92	Codell
7,899.3	90.00	180.00	7,502.0	-82.1	849.0	82.1	10.00	9.92	Landing Pt @ 7899' MD; 90°
7,900.0	90.00	180.00	7,502.0	-82.8	849.0	82.8	0.00	0.00	
8,000.0	90.00	180.00	7,502.0	-182.8	849.0	182.8	0.00	0.00	
8,100.0	90.00	180.00	7,502.0	-282.8	849.0	282.8	0.00	0.00	
8,200.0	90.00	180.00	7,502.0	-382.8	849.0	382.8	0.00	0.00	
8,300.0	90.00	180.00	7,502.0	-482.8	849.0	482.8	0.00	0.00	
8,400.0	90.00	180.00	7,502.0	-582.8	849.0	582.8	0.00	0.00	
8,500.0	90.00	180.00	7,502.0	-682.8	849.0	682.8	0.00	0.00	
8,600.0	90.00	180.00	7,502.0	-782.8	849.0	782.8	0.00	0.00	
8,700.0	90.00	180.00	7,502.0	-882.8	849.0	882.8	0.00	0.00	
8,800.0	90.00	180.00	7,502.0	-982.8	849.0	982.8	0.00	0.00	
8,900.0	90.00	180.00	7,502.0	-1,082.8	849.0	1,082.8	0.00	0.00	
9,000.0	90.00	180.00	7,502.0	-1,182.8	849.0	1,182.8	0.00	0.00	
9,100.0	90.00	180.00	7,502.0	-1,282.8	849.0	1,282.8	0.00	0.00	

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Well:	Ione 2F-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
9,200.0	90.00	180.00	7,502.0	-1,382.8	849.0	1,382.8	0.00	0.00	
9,300.0	90.00	180.00	7,502.0	-1,482.8	849.0	1,482.8	0.00	0.00	
9,400.0	90.00	180.00	7,502.0	-1,582.8	849.0	1,582.8	0.00	0.00	
9,500.0	90.00	180.00	7,502.0	-1,682.8	849.0	1,682.8	0.00	0.00	
9,600.0	90.00	180.00	7,502.0	-1,782.8	849.0	1,782.8	0.00	0.00	
9,700.0	90.00	180.00	7,502.0	-1,882.8	849.0	1,882.8	0.00	0.00	
9,800.0	90.00	180.00	7,502.0	-1,982.8	849.0	1,982.8	0.00	0.00	
9,900.0	90.00	180.00	7,502.0	-2,082.8	849.0	2,082.8	0.00	0.00	
10,000.0	90.00	180.00	7,502.0	-2,182.8	849.0	2,182.8	0.00	0.00	
10,100.0	90.00	180.00	7,502.0	-2,282.8	849.0	2,282.8	0.00	0.00	
10,200.0	90.00	180.00	7,502.0	-2,382.8	849.0	2,382.8	0.00	0.00	
10,300.0	90.00	180.00	7,502.0	-2,482.8	849.0	2,482.8	0.00	0.00	
10,400.0	90.00	180.00	7,502.0	-2,582.8	849.0	2,582.8	0.00	0.00	
10,500.0	90.00	180.00	7,502.0	-2,682.8	849.0	2,682.8	0.00	0.00	
10,600.0	90.00	180.00	7,502.0	-2,782.8	849.0	2,782.8	0.00	0.00	
10,700.0	90.00	180.00	7,502.0	-2,882.8	849.0	2,882.8	0.00	0.00	
10,800.0	90.00	180.00	7,502.0	-2,982.8	849.0	2,982.8	0.00	0.00	
10,900.0	90.00	180.00	7,502.0	-3,082.8	849.0	3,082.8	0.00	0.00	
11,000.0	90.00	180.00	7,502.0	-3,182.8	849.0	3,182.8	0.00	0.00	
11,100.0	90.00	180.00	7,502.0	-3,282.8	849.0	3,282.8	0.00	0.00	
11,200.0	90.00	180.00	7,502.0	-3,382.8	849.0	3,382.8	0.00	0.00	
11,300.0	90.00	180.00	7,502.0	-3,482.8	849.0	3,482.8	0.00	0.00	
11,400.0	90.00	180.00	7,502.0	-3,582.8	849.0	3,582.8	0.00	0.00	
11,500.0	90.00	180.00	7,502.0	-3,682.8	849.0	3,682.8	0.00	0.00	
11,600.0	90.00	180.00	7,502.0	-3,782.8	849.0	3,782.8	0.00	0.00	
11,700.0	90.00	180.00	7,502.0	-3,882.8	849.0	3,882.8	0.00	0.00	
11,800.0	90.00	180.00	7,502.0	-3,982.8	849.0	3,982.8	0.00	0.00	
11,900.0	90.00	180.00	7,502.0	-4,082.8	849.0	4,082.8	0.00	0.00	
12,000.0	90.00	180.00	7,502.0	-4,182.8	849.0	4,182.8	0.00	0.00	
12,100.0	90.00	180.00	7,502.0	-4,282.8	849.0	4,282.8	0.00	0.00	
12,119.3	90.00	180.00	7,502.0	-4,302.1	849.0	4,302.1	0.00	0.00	TD at 12119.3 - Ione 2F-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 2F-2H PBHL (460' I - plan misses target center by 100.0ft at 12119.3ft MD (7502.0 TVD, -4302.1 N, 849.0 E) - Point	0.00	0.00	7,502.0	-4,302.1	749.0	1,302,503.26	3,210,737.28	40.161300	-104.746010
Ione 2F-2H PBHL (460' I - plan hits target center - Point	0.00	0.00	7,502.0	-4,302.1	849.0	1,302,504.11	3,210,837.24	40.161300	-104.745652

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,594.9	4,554.0	Sussex			
4,854.7	4,811.0	Sussex Marker			
5,201.3	5,154.0	Shannon			
6,559.5	6,498.0	Teepee Buttes			
7,211.3	7,139.0	Sharon Springs			
7,291.6	7,211.0	Niobrara			
7,341.3	7,253.0	B Chalk			
7,722.0	7,475.0	Ft. Hayes			
7,823.3	7,497.0	Codell			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP @ 400'
814.5	813.0	16.0	25.3	EOB; Inc=8.29°
6,955.1	6,889.5	489.1	773.6	Start 10° build @ 6955' MD
7,899.3	7,502.0	-82.1	849.0	Landing Pt @ 7899' MD; 90°
12,119.3	7,502.0	-4,302.1	849.0	TD at 12119.3

EnCana Oil & Gas (USA) Inc

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

Anticollision Report

15 August, 2012

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	12,119.3	Plan #1 (HZ)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	7,970.5	7,503.0	268.6	241.3	9.843	CC, ES, SF
Ione #22-2 (Existing) - DD - Plan #1	9,307.4	7,521.0	234.5	190.4	5.319	CC, ES, SF
Ione #23-2 (Existing) - DD - Plan #1	10,714.7	7,517.0	294.0	226.6	4.364	CC, ES, SF
Ione #24-2 (Existing) - DD - Plan #1	12,076.0	7,535.0	211.2	120.4	2.327	CC, ES, SF
Ione #3 (Existing) - DD - DD	0.0	0.0	50.3			
Ione #3 (Existing) - DD - DD	700.0	697.0	68.3	66.5	37.832	SF
Ione #3 (Existing) - DD - Plan #1	400.0	398.0	50.3	49.0	37.428	CC, ES
Ione #3 (Existing) - DD - Plan #1	700.0	697.5	64.1	61.7	26.778	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 2A-2H - HZ - Plan #1	200.0	200.0	50.3	49.6	77.058	CC, ES
Ione 2A-2H - HZ - Plan #1	500.0	494.2	66.0	64.3	38.833	SF
Ione 2B-2H - HZ - Plan #1	400.0	400.0	41.9	40.6	31.029	CC, ES
Ione 2B-2H - HZ - Plan #1	600.0	597.1	53.2	51.2	25.930	SF
Ione 2C-2H - HZ - Plan #1	400.0	400.0	30.7	29.4	22.755	CC, ES
Ione 2C-2H - HZ - Plan #1	600.0	599.8	36.8	34.8	17.966	SF
Ione 2D-2H - HZ - Plan #1	400.0	400.0	19.6	18.2	14.480	CC, ES
Ione 2D-2H - HZ - Plan #1	500.0	500.0	21.1	19.4	12.387	SF
Ione 2E-2H - HZ - Plan #1	400.0	400.0	11.2	9.8	8.274	CC, ES
Ione 2E-2H - HZ - Plan #1	500.0	500.0	12.7	11.0	7.463	SF
Ione 2G-2H - HZ - Plan #1	200.0	200.0	8.4	7.7	12.843	CC, ES
Ione 2G-2H - HZ - Plan #1	12,119.3	11,943.3	416.7	283.6	3.131	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	9,944.5	7,967.7	296.8	220.7	3.904	CC, ES, SF
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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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 #21-2 (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
1,800.0	1,788.3	1,789.3	1,789.3	4.4	3.1	61.97	-153.3	580.4	499.4	492.1	7.27	68.716	
1,900.0	1,887.2	1,888.2	1,888.2	4.7	3.3	63.44	-153.3	580.4	492.7	485.0	7.75	63.603	
2,000.0	1,986.2	1,987.2	1,987.2	5.0	3.4	64.94	-153.3	580.4	486.4	478.2	8.23	59.094	
2,100.0	2,085.1	2,086.1	2,086.1	5.3	3.6	66.49	-153.3	580.4	480.4	471.7	8.72	55.098	
2,200.0	2,184.1	2,185.1	2,185.1	5.6	3.8	68.07	-153.3	580.4	474.8	465.6	9.21	51.545	
2,300.0	2,283.0	2,284.0	2,284.0	5.9	4.0	69.69	-153.3	580.4	469.6	459.8	9.71	48.375	
2,400.0	2,382.0	2,383.0	2,383.0	6.3	4.1	71.34	-153.3	580.4	464.7	454.5	10.20	45.538	
2,500.0	2,480.9	2,481.9	2,481.9	6.6	4.3	73.02	-153.3	580.4	460.2	449.5	10.70	42.994	
2,600.0	2,579.9	2,580.9	2,580.9	6.9	4.5	74.74	-153.3	580.4	456.2	445.0	11.21	40.709	
2,700.0	2,678.9	2,679.9	2,679.9	7.2	4.7	76.48	-153.3	580.4	452.6	440.9	11.71	38.654	
2,800.0	2,777.8	2,778.8	2,778.8	7.5	4.8	78.25	-153.3	580.4	449.4	437.2	12.21	36.804	
2,900.0	2,876.8	2,877.8	2,877.8	7.8	5.0	80.04	-153.3	580.4	446.7	433.9	12.71	35.137	
3,000.0	2,975.7	2,976.7	2,976.7	8.1	5.2	81.86	-153.3	580.4	444.4	431.2	13.21	33.635	
3,100.0	3,074.7	3,075.7	3,075.7	8.4	5.3	83.69	-153.3	580.4	442.5	428.8	13.71	32.282	
3,200.0	3,173.6	3,174.6	3,174.6	8.7	5.5	85.53	-153.3	580.4	441.2	427.0	14.20	31.063	
3,300.0	3,272.6	3,273.6	3,273.6	9.0	5.7	87.38	-153.3	580.4	440.3	425.6	14.69	29.967	
3,400.0	3,371.5	3,372.5	3,372.5	9.3	5.9	89.24	-153.3	580.4	439.8	424.7	15.18	28.982	
3,441.1	3,412.2	3,413.2	3,413.2	9.4	5.9	90.00	-153.3	580.4	439.8	424.4	15.37	28.607	
3,500.0	3,470.5	3,471.5	3,471.5	9.6	6.0	91.09	-153.3	580.4	439.9	424.2	15.65	28.098	
3,600.0	3,569.5	3,570.5	3,570.5	9.9	6.2	92.95	-153.3	580.4	440.4	424.3	16.13	27.307	
3,700.0	3,668.4	3,669.4	3,669.4	10.2	6.4	94.80	-153.3	580.4	441.4	424.8	16.59	26.600	
3,800.0	3,767.4	3,768.4	3,768.4	10.5	6.6	96.64	-153.3	580.4	442.8	425.8	17.05	25.970	
3,900.0	3,866.3	3,867.3	3,867.3	10.9	6.7	98.47	-153.3	580.4	444.7	427.2	17.50	25.411	
4,000.0	3,965.3	3,966.3	3,966.3	11.2	6.9	100.28	-153.3	580.4	447.1	429.2	17.94	24.918	
4,100.0	4,064.2	4,065.2	4,065.2	11.5	7.1	102.06	-153.3	580.4	449.9	431.6	18.38	24.483	
4,200.0	4,163.2	4,164.2	4,164.2	11.8	7.2	103.83	-153.3	580.4	453.2	434.4	18.80	24.103	
4,300.0	4,262.1	4,263.1	4,263.1	12.1	7.4	105.57	-153.3	580.4	456.9	437.7	19.22	23.773	
4,400.0	4,361.1	4,362.1	4,362.1	12.4	7.6	107.28	-153.3	580.4	461.0	441.4	19.63	23.489	
4,500.0	4,460.1	4,461.1	4,461.1	12.7	7.8	108.96	-153.3	580.4	465.5	445.5	20.03	23.246	
4,600.0	4,559.0	4,560.0	4,560.0	13.0	7.9	110.60	-153.3	580.4	470.5	450.0	20.42	23.042	
4,700.0	4,658.0	4,659.0	4,659.0	13.3	8.1	112.21	-153.3	580.4	475.8	455.0	20.80	22.873	
4,800.0	4,756.9	4,757.9	4,757.9	13.6	8.3	113.79	-153.3	580.4	481.5	460.3	21.18	22.736	
4,900.0	4,855.9	4,856.9	4,856.9	13.9	8.5	115.33	-153.3	580.4	487.5	466.0	21.54	22.628	
5,000.0	4,954.8	4,955.8	4,955.8	14.2	8.6	116.83	-153.3	580.4	493.9	472.0	21.90	22.547	
7,600.0	7,426.2	7,427.2	7,427.2	20.2	12.9	59.46	-153.3	580.4	441.3	417.2	24.13	18.288	
7,700.0	7,467.9	7,468.9	7,468.9	20.1	13.0	72.67	-153.3	580.4	375.4	350.0	25.45	14.754	
7,800.0	7,493.5	7,494.5	7,494.5	20.2	13.1	84.08	-153.3	580.4	317.0	290.6	26.44	11.988	
7,900.0	7,502.0	7,503.0	7,503.0	20.4	13.1	90.00	-153.3	580.4	277.7	250.8	26.93	10.312	
7,970.5	7,502.0	7,503.0	7,503.0	20.6	13.1	90.00	-153.3	580.4	268.6	241.3	27.29	9.843	CC, ES, SF
8,000.0	7,502.0	7,503.0	7,503.0	20.8	13.1	90.00	-153.3	580.4	270.2	242.8	27.44	9.849	
8,100.0	7,502.0	7,503.0	7,503.0	21.2	13.1	90.00	-153.3	580.4	298.2	270.0	28.13	10.599	
8,200.0	7,502.0	7,503.0	7,503.0	21.9	13.1	90.00	-153.3	580.4	353.3	324.3	28.99	12.186	
8,300.0	7,502.0	7,503.0	7,503.0	22.6	13.1	90.00	-153.3	580.4	425.1	395.1	29.99	14.175	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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 #22-2 (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
8,900.0	7,502.0	7,521.0	7,521.0	28.9	13.1	90.00	-1,490.3	614.5	470.1	432.3	37.84	12.423	
9,000.0	7,502.0	7,521.0	7,521.0	30.2	13.1	90.00	-1,490.3	614.5	386.7	347.3	39.33	9.831	
9,100.0	7,502.0	7,521.0	7,521.0	31.5	13.1	90.00	-1,490.3	614.5	313.1	272.2	40.85	7.664	
9,200.0	7,502.0	7,521.0	7,521.0	32.9	13.1	90.00	-1,490.3	614.5	257.9	215.5	42.39	6.084	
9,300.0	7,502.0	7,521.0	7,521.0	34.3	13.1	90.00	-1,490.3	614.5	234.6	190.6	43.96	5.336	
9,307.4	7,502.0	7,521.0	7,521.0	34.4	13.1	90.00	-1,490.3	614.5	234.5	190.4	44.08	5.319	CC, ES, SF
9,400.0	7,502.0	7,521.0	7,521.0	35.7	13.1	90.00	-1,490.3	614.5	252.1	206.5	45.55	5.534	
9,500.0	7,502.0	7,521.0	7,521.0	37.2	13.1	90.00	-1,490.3	614.5	303.4	256.2	47.15	6.435	
9,600.0	7,502.0	7,521.0	7,521.0	38.7	13.1	90.00	-1,490.3	614.5	374.9	326.1	48.77	7.688	
9,700.0	7,502.0	7,521.0	7,521.0	40.2	13.1	90.00	-1,490.3	614.5	457.2	406.8	50.40	9.073	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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 #23-2 (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
10,400.0	7,502.0	7,517.0	7,517.0	51.2	13.1	90.00	-2,897.5	555.0	430.6	368.6	62.04	6.941	
10,500.0	7,502.0	7,517.0	7,517.0	52.8	13.1	90.00	-2,897.5	555.0	364.0	300.3	63.73	5.712	
10,600.0	7,502.0	7,517.0	7,517.0	54.4	13.1	90.00	-2,897.5	555.0	315.5	250.1	65.42	4.823	
10,700.0	7,502.0	7,517.0	7,517.0	56.0	13.1	90.00	-2,897.5	555.0	294.3	227.2	67.12	4.385	
10,714.7	7,502.0	7,517.0	7,517.0	56.3	13.1	90.00	-2,897.5	555.0	294.0	226.6	67.37	4.364	CC, ES, SF
10,800.0	7,502.0	7,517.0	7,517.0	57.7	13.1	90.00	-2,897.5	555.0	306.1	237.3	68.82	4.448	
10,900.0	7,502.0	7,517.0	7,517.0	59.3	13.1	90.00	-2,897.5	555.0	347.5	277.0	70.52	4.928	
11,000.0	7,502.0	7,517.0	7,517.0	61.0	13.1	90.00	-2,897.5	555.0	409.7	337.4	72.23	5.672	
11,100.0	7,502.0	7,517.0	7,517.0	62.6	13.1	90.00	-2,897.5	555.0	484.7	410.7	73.94	6.555	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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 #24-2 (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
11,700.0	7,502.0	7,535.0	7,535.0	72.7	13.1	90.00	-4,258.8	637.8	431.2	347.0	84.27	5.117	
11,800.0	7,502.0	7,535.0	7,535.0	74.4	13.1	90.00	-4,258.8	637.8	347.5	261.5	85.99	4.041	
11,900.0	7,502.0	7,535.0	7,535.0	76.1	13.1	90.00	-4,258.8	637.8	274.9	187.2	87.72	3.134	
12,000.0	7,502.0	7,535.0	7,535.0	77.8	13.1	90.00	-4,258.8	637.8	224.5	135.0	89.44	2.509	
12,076.0	7,502.0	7,535.0	7,535.0	79.0	13.1	90.00	-4,258.8	637.8	211.2	120.4	90.75	2.327	CC, ES, SF
12,100.0	7,502.0	7,535.0	7,535.0	79.5	13.1	90.00	-4,258.8	637.8	212.6	121.4	91.17	2.332	
12,119.3	7,502.0	7,535.0	7,535.0	79.8	13.1	90.00	-4,258.8	637.8	215.6	124.1	91.50	2.356	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	-89.96	0.0	-50.3	50.3				
100.0	100.0	97.2	97.2	0.2	0.1	-89.77	0.2	-51.0	51.0	50.8	0.22	227.046	
200.0	200.0	197.6	197.6	0.3	0.2	-89.16	0.8	-52.2	52.2	51.7	0.49	107.126	
300.0	300.0	297.9	297.9	0.5	0.2	-88.35	1.5	-52.6	52.6	51.9	0.75	70.292	
400.0	400.0	397.7	397.7	0.7	0.3	-88.15	1.7	-53.1	53.1	52.1	1.01	52.529	
500.0	500.0	497.6	497.6	0.9	0.4	-146.71	1.9	-53.7	55.2	53.9	1.27	43.389	
600.0	599.8	597.6	597.6	1.0	0.5	-148.60	2.7	-54.3	60.2	58.7	1.54	39.146	
700.0	699.5	697.0	696.9	1.3	0.6	-151.68	3.5	-54.9	68.3	66.5	1.81	37.832	SF
800.0	798.7	796.3	796.2	1.5	0.7	-155.19	4.1	-55.7	80.0	77.9	2.08	38.473	
900.0	897.7	895.2	895.1	1.8	0.8	-158.30	5.0	-56.4	93.8	91.4	2.35	39.917	
1,000.0	996.6	994.3	994.3	2.1	0.9	-160.66	5.8	-57.0	107.7	105.1	2.62	41.149	
1,100.0	1,095.6	1,093.3	1,093.2	2.3	0.9	-162.45	6.6	-57.5	121.7	118.9	2.89	42.187	
1,200.0	1,194.5	1,193.2	1,193.2	2.6	1.0	-164.21	6.9	-57.5	135.5	132.4	3.15	43.016	
1,300.0	1,293.5	1,292.2	1,292.2	2.9	1.1	-165.71	7.0	-57.1	149.0	145.5	3.41	43.646	
1,400.0	1,392.4	1,390.3	1,390.2	3.2	1.2	-166.67	7.8	-57.2	162.8	159.1	3.68	44.283	
1,500.0	1,491.4	1,489.0	1,488.9	3.5	1.3	-167.55	8.3	-57.6	177.1	173.1	3.94	44.957	
1,600.0	1,590.3	1,588.1	1,588.0	3.8	1.4	-168.29	8.8	-58.0	191.4	187.2	4.20	45.556	
1,700.0	1,689.3	1,687.1	1,687.1	4.1	1.5	-168.90	9.4	-58.4	205.7	201.2	4.46	46.070	
1,800.0	1,788.3	1,785.9	1,785.9	4.4	1.5	-169.43	10.1	-58.8	220.0	215.3	4.73	46.537	
1,900.0	1,887.2	1,883.7	1,883.6	4.7	1.6	-169.90	10.5	-59.4	234.6	229.6	4.99	47.021	
2,000.0	1,986.2	1,983.1	1,983.0	5.0	1.7	-170.33	10.9	-60.3	249.4	244.2	5.25	47.494	
2,100.0	2,085.1	2,081.8	2,081.7	5.3	1.8	-170.67	11.5	-61.0	264.1	258.6	5.51	47.893	
2,200.0	2,184.1	2,180.0	2,179.9	5.6	1.9	-170.94	12.2	-62.0	279.0	273.2	5.78	48.289	
2,300.0	2,283.0	2,278.3	2,278.2	5.9	2.0	-171.18	12.8	-63.2	294.1	288.0	6.04	48.690	
2,400.0	2,382.0	2,376.8	2,376.7	6.3	2.1	-171.44	13.1	-64.4	309.3	303.0	6.30	49.084	
2,500.0	2,480.9	2,475.1	2,475.0	6.6	2.2	-171.67	13.4	-65.7	324.7	318.1	6.56	49.468	
2,600.0	2,579.9	2,574.7	2,574.6	6.9	2.2	-171.89	13.7	-67.1	340.1	333.3	6.83	49.820	
2,700.0	2,678.9	2,672.9	2,672.8	7.2	2.3	-172.05	14.2	-68.4	355.4	348.3	7.09	50.125	
2,800.0	2,777.8	2,771.6	2,771.5	7.5	2.4	-172.16	14.9	-70.0	370.8	363.5	7.35	50.432	
2,900.0	2,876.8	2,869.4	2,869.3	7.8	2.5	-172.25	15.6	-71.7	386.4	378.7	7.62	50.726	
3,000.0	2,975.7	2,967.8	2,967.6	8.1	2.6	-172.32	16.2	-73.6	402.2	394.3	7.88	51.032	
3,100.0	3,074.7	3,067.3	3,067.1	8.4	2.7	-172.39	16.9	-75.6	417.9	409.7	8.15	51.304	
3,200.0	3,173.6	3,167.6	3,167.4	8.7	2.8	-172.45	17.8	-77.2	433.3	424.9	8.41	51.520	
3,300.0	3,272.6	3,265.7	3,265.4	9.0	2.9	-172.49	18.8	-78.8	448.6	439.9	8.68	51.710	
3,400.0	3,371.5	3,365.9	3,365.7	9.3	2.9	-172.54	19.6	-80.4	464.0	455.1	8.94	51.897	
3,500.0	3,470.5	3,466.5	3,466.2	9.6	3.0	-172.54	21.1	-81.7	478.9	469.7	9.21	52.008	
3,600.0	3,569.5	3,562.9	3,562.6	9.9	3.1	-172.50	22.8	-83.2	493.8	484.3	9.47	52.126	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	-89.96	0.0	-50.3	50.3				
100.0	100.0	98.0	98.0	0.2	0.1	-89.96	0.0	-50.3	50.3	50.0	0.30	169.228	
200.0	200.0	198.0	198.0	0.3	0.3	-89.96	0.0	-50.3	50.3	49.7	0.65	77.891	
300.0	300.0	298.0	298.0	0.5	0.5	-89.96	0.0	-50.3	50.3	49.3	0.99	50.561	
400.0	400.0	398.0	398.0	0.7	0.7	-89.96	0.0	-50.3	50.3	49.0	1.34	37.428	CC, ES
500.0	500.0	498.0	498.0	0.9	0.8	-148.67	0.0	-50.3	51.8	50.1	1.69	30.585	
600.0	599.8	597.8	597.8	1.0	1.0	-151.40	0.0	-50.3	56.3	54.3	2.04	27.563	
700.0	699.5	697.5	697.5	1.3	1.2	-155.06	0.0	-50.3	64.1	61.7	2.39	26.778	SF
800.0	798.7	796.7	796.7	1.5	1.4	-158.89	0.0	-50.3	75.3	72.6	2.74	27.465	
900.0	897.7	895.7	895.7	1.8	1.5	-162.21	0.0	-50.3	88.9	85.8	3.09	28.746	
1,000.0	996.6	994.6	994.6	2.1	1.7	-164.67	0.0	-50.3	102.8	99.3	3.44	29.847	
1,100.0	1,095.6	1,093.6	1,093.6	2.3	1.9	-166.54	0.0	-50.3	116.7	112.9	3.79	30.793	
1,200.0	1,194.5	1,192.5	1,192.5	2.6	2.1	-168.01	0.0	-50.3	130.8	126.7	4.14	31.610	
1,300.0	1,293.5	1,291.5	1,291.5	2.9	2.2	-169.19	0.0	-50.3	144.9	140.5	4.48	32.319	
1,400.0	1,392.4	1,390.4	1,390.4	3.2	2.4	-170.16	0.0	-50.3	159.1	154.3	4.83	32.939	
1,500.0	1,491.4	1,489.4	1,489.4	3.5	2.6	-170.98	0.0	-50.3	173.4	168.2	5.18	33.484	
1,600.0	1,590.3	1,588.3	1,588.3	3.8	2.7	-171.67	0.0	-50.3	187.6	182.1	5.52	33.968	
1,700.0	1,689.3	1,687.3	1,687.3	4.1	2.9	-172.26	0.0	-50.3	201.9	196.0	5.87	34.398	
1,800.0	1,788.3	1,786.3	1,786.3	4.4	3.1	-172.78	0.0	-50.3	216.2	210.0	6.22	34.784	
1,900.0	1,887.2	1,885.2	1,885.2	4.7	3.3	-173.23	0.0	-50.3	230.5	223.9	6.56	35.132	
2,000.0	1,986.2	1,984.2	1,984.2	5.0	3.4	-173.62	0.0	-50.3	244.8	237.9	6.91	35.447	
2,100.0	2,085.1	2,083.1	2,083.1	5.3	3.6	-173.98	0.0	-50.3	259.2	251.9	7.25	35.733	
2,200.0	2,184.1	2,182.1	2,182.1	5.6	3.8	-174.29	0.0	-50.3	273.5	265.9	7.60	35.994	
2,300.0	2,283.0	2,281.0	2,281.0	5.9	4.0	-174.58	0.0	-50.3	287.9	279.9	7.94	36.233	
2,400.0	2,382.0	2,380.0	2,380.0	6.3	4.1	-174.84	0.0	-50.3	302.2	293.9	8.29	36.453	
2,500.0	2,480.9	2,478.9	2,478.9	6.6	4.3	-175.07	0.0	-50.3	316.6	307.9	8.64	36.656	
2,600.0	2,579.9	2,577.9	2,577.9	6.9	4.5	-175.29	0.0	-50.3	330.9	322.0	8.98	36.843	
2,700.0	2,678.9	2,676.9	2,676.9	7.2	4.6	-175.48	0.0	-50.3	345.3	336.0	9.33	37.017	
2,800.0	2,777.8	2,775.8	2,775.8	7.5	4.8	-175.66	0.0	-50.3	359.7	350.0	9.67	37.179	
2,900.0	2,876.8	2,874.8	2,874.8	7.8	5.0	-175.83	0.0	-50.3	374.1	364.1	10.02	37.330	
3,000.0	2,975.7	2,973.7	2,973.7	8.1	5.2	-175.99	0.0	-50.3	388.5	378.1	10.37	37.471	
3,100.0	3,074.7	3,072.7	3,072.7	8.4	5.3	-176.13	0.0	-50.3	402.8	392.1	10.71	37.604	
3,200.0	3,173.6	3,171.6	3,171.6	8.7	5.5	-176.26	0.0	-50.3	417.2	406.2	11.06	37.728	
3,300.0	3,272.6	3,270.6	3,270.6	9.0	5.7	-176.39	0.0	-50.3	431.6	420.2	11.40	37.844	
3,400.0	3,371.5	3,369.5	3,369.5	9.3	5.9	-176.50	0.0	-50.3	446.0	434.2	11.75	37.954	
3,500.0	3,470.5	3,468.5	3,468.5	9.6	6.0	-176.61	0.0	-50.3	460.4	448.3	12.10	38.058	
3,600.0	3,569.5	3,567.5	3,567.5	9.9	6.2	-176.72	0.0	-50.3	474.8	462.3	12.44	38.156	
3,700.0	3,668.4	3,666.4	3,666.4	10.2	6.4	-176.81	0.0	-50.3	489.2	476.4	12.79	38.249	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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 2A-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	-50.3	50.3				
100.0	100.0	100.0	100.0	0.2	0.2	-89.99	0.0	-50.3	50.3	50.0	0.30	165.630	
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-50.3	50.3	49.6	0.65	77.058	CC, ES
300.0	300.0	298.4	298.4	0.5	0.5	-89.19	0.7	-51.8	51.9	50.9	1.00	51.727	
400.0	400.0	396.6	396.4	0.7	0.7	-87.08	2.9	-56.4	56.6	55.2	1.37	41.374	
500.0	500.0	494.2	493.6	0.9	0.9	-142.76	6.4	-64.0	66.0	64.3	1.70	38.833	SF
600.0	599.8	590.6	589.4	1.0	1.2	-141.91	11.3	-74.4	81.3	79.2	2.05	39.574	
700.0	699.5	685.5	683.2	1.3	1.5	-141.80	17.5	-87.5	102.4	100.0	2.42	42.312	
800.0	798.7	781.5	777.7	1.5	1.8	-142.23	24.6	-102.6	128.3	125.5	2.80	45.739	
900.0	897.7	877.5	872.3	1.8	2.1	-143.19	31.7	-117.8	155.9	152.7	3.21	48.635	
1,000.0	996.6	973.6	966.9	2.1	2.4	-143.90	38.9	-133.0	183.6	180.0	3.61	50.802	
1,100.0	1,095.6	1,069.7	1,061.4	2.3	2.8	-144.42	46.0	-148.3	211.3	207.3	4.03	52.481	
1,200.0	1,194.5	1,165.8	1,156.0	2.6	3.1	-144.82	53.1	-163.5	239.0	234.6	4.44	53.817	
1,300.0	1,293.5	1,261.8	1,250.6	2.9	3.4	-145.14	60.3	-178.7	266.7	261.9	4.86	54.903	
1,400.0	1,392.4	1,357.9	1,345.2	3.2	3.8	-145.40	67.4	-193.9	294.5	289.2	5.28	55.802	
1,500.0	1,491.4	1,454.0	1,439.8	3.5	4.1	-145.62	74.6	-209.1	322.2	316.5	5.70	56.557	
1,600.0	1,590.3	1,550.0	1,534.4	3.8	4.4	-145.80	81.7	-224.4	349.9	343.8	6.12	57.200	
1,700.0	1,689.3	1,646.1	1,629.0	4.1	4.8	-145.95	88.9	-239.6	377.7	371.1	6.54	57.754	
1,800.0	1,788.3	1,742.2	1,723.6	4.4	5.1	-146.08	96.0	-254.8	405.4	398.5	6.96	58.236	
1,900.0	1,887.2	1,838.2	1,818.1	4.7	5.5	-146.20	103.2	-270.0	433.2	425.8	7.38	58.659	
2,000.0	1,986.2	1,934.3	1,912.7	5.0	5.8	-146.30	110.3	-285.2	460.9	453.1	7.81	59.033	
2,100.0	2,085.1	2,030.4	2,007.3	5.3	6.1	-146.39	117.5	-300.5	488.7	480.4	8.23	59.366	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	-89.97	0.0	-41.9	41.9				
100.0	100.0	100.0	100.0	0.2	0.2	-89.97	0.0	-41.9	41.9	41.6	0.30	138.025	
200.0	200.0	200.0	200.0	0.3	0.3	-89.97	0.0	-41.9	41.9	41.3	0.65	64.215	
300.0	300.0	300.0	300.0	0.5	0.5	-89.97	0.0	-41.9	41.9	40.9	1.00	41.840	
400.0	400.0	400.0	400.0	0.7	0.7	-89.97	0.0	-41.9	41.9	40.6	1.35	31.029	CC, ES
500.0	500.0	498.8	498.8	0.9	0.8	-147.46	1.1	-43.3	44.7	43.0	1.70	26.339	
600.0	599.8	597.1	596.9	1.0	1.0	-146.98	4.2	-47.2	53.2	51.2	2.05	25.930	SF
700.0	699.5	694.5	694.0	1.3	1.2	-146.42	9.4	-53.8	67.3	64.9	2.42	27.821	
800.0	798.7	791.6	790.4	1.5	1.5	-146.06	16.3	-62.6	86.6	83.8	2.80	30.896	
900.0	897.7	889.3	887.4	1.8	1.7	-146.46	23.6	-71.8	108.0	104.8	3.20	33.730	
1,000.0	996.6	987.0	984.4	2.1	2.0	-146.76	30.8	-80.9	129.4	125.8	3.61	35.868	
1,100.0	1,095.6	1,084.6	1,081.4	2.3	2.2	-146.97	38.1	-90.1	150.9	146.9	4.02	37.527	
1,200.0	1,194.5	1,182.3	1,178.3	2.6	2.5	-147.13	45.3	-99.3	172.3	167.9	4.44	38.848	
1,300.0	1,293.5	1,280.0	1,275.3	2.9	2.7	-147.26	52.5	-108.5	193.8	188.9	4.85	39.921	
1,400.0	1,392.4	1,377.6	1,372.3	3.2	3.0	-147.36	59.8	-117.7	215.3	210.0	5.27	40.809	
1,500.0	1,491.4	1,475.3	1,469.2	3.5	3.2	-147.44	67.0	-126.8	236.7	231.0	5.70	41.555	
1,600.0	1,590.3	1,573.0	1,566.2	3.8	3.5	-147.51	74.3	-136.0	258.2	252.1	6.12	42.190	
1,700.0	1,689.3	1,670.6	1,663.2	4.1	3.8	-147.57	81.5	-145.2	279.6	273.1	6.54	42.736	
1,800.0	1,788.3	1,768.3	1,760.1	4.4	4.0	-147.62	88.7	-154.4	301.1	294.1	6.97	43.211	
1,900.0	1,887.2	1,866.0	1,857.1	4.7	4.3	-147.66	96.0	-163.5	322.5	315.2	7.39	43.628	
2,000.0	1,986.2	1,963.7	1,954.1	5.0	4.5	-147.70	103.2	-172.7	344.0	336.2	7.82	43.996	
2,100.0	2,085.1	2,061.3	2,051.0	5.3	4.8	-147.73	110.5	-181.9	365.5	357.2	8.25	44.324	
2,200.0	2,184.1	2,159.0	2,148.0	5.6	5.1	-147.76	117.7	-191.1	386.9	378.3	8.67	44.617	
2,300.0	2,283.0	2,256.7	2,245.0	5.9	5.3	-147.79	124.9	-200.3	408.4	399.3	9.10	44.881	
2,400.0	2,382.0	2,354.3	2,341.9	6.3	5.6	-147.81	132.2	-209.4	429.8	420.3	9.53	45.121	
2,500.0	2,480.9	2,452.0	2,438.9	6.6	5.9	-147.83	139.4	-218.6	451.3	441.4	9.95	45.338	
2,600.0	2,579.9	2,549.7	2,535.9	6.9	6.1	-147.85	146.7	-227.8	472.8	462.4	10.38	45.536	
2,700.0	2,678.9	2,647.3	2,632.8	7.2	6.4	-147.87	153.9	-237.0	494.2	483.4	10.81	45.718	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	-89.97	0.0	-30.7	30.7				
100.0	100.0	100.0	100.0	0.2	0.2	-89.97	0.0	-30.7	30.7	30.4	0.30	101.218	
200.0	200.0	200.0	200.0	0.3	0.3	-89.97	0.0	-30.7	30.7	30.1	0.65	47.091	
300.0	300.0	300.0	300.0	0.5	0.5	-89.97	0.0	-30.7	30.7	29.7	1.00	30.683	
400.0	400.0	400.0	400.0	0.7	0.7	-89.97	0.0	-30.7	30.7	29.4	1.35	22.755	CC, ES
500.0	500.0	500.0	500.0	0.9	0.8	-149.31	0.0	-30.7	32.2	30.5	1.70	18.957	
600.0	599.8	599.8	599.8	1.0	1.0	-153.43	0.0	-30.7	36.8	34.8	2.05	17.966	SF
700.0	699.5	699.5	699.5	1.3	1.2	-158.36	0.0	-30.7	44.8	42.4	2.40	18.675	
800.0	798.7	798.7	798.7	1.5	1.4	-162.86	0.0	-30.7	56.3	53.6	2.74	20.521	
900.0	897.7	897.7	897.7	1.8	1.5	-166.31	0.0	-30.7	70.2	67.1	3.09	22.706	
1,000.0	996.6	996.6	996.6	2.1	1.7	-168.63	0.0	-30.7	84.3	80.8	3.44	24.510	
1,100.0	1,095.6	1,095.6	1,095.6	2.3	1.9	-170.29	0.0	-30.7	98.5	94.7	3.78	26.012	
1,200.0	1,194.5	1,194.5	1,194.5	2.6	2.1	-171.52	0.0	-30.7	112.7	108.6	4.13	27.278	
1,300.0	1,293.5	1,293.3	1,293.3	2.9	2.2	-171.79	1.4	-31.4	127.0	122.6	4.48	28.353	
1,400.0	1,392.4	1,391.9	1,391.8	3.2	2.4	-170.61	5.7	-33.6	141.6	136.7	4.84	29.244	
1,500.0	1,491.4	1,490.2	1,489.7	3.5	2.6	-168.41	13.1	-37.4	156.5	151.3	5.22	29.970	
1,600.0	1,590.3	1,588.8	1,587.8	3.8	2.8	-166.05	21.9	-41.9	171.8	166.2	5.62	30.573	
1,700.0	1,689.3	1,687.4	1,685.9	4.1	3.0	-164.08	30.8	-46.4	187.4	181.4	6.03	31.082	
1,800.0	1,788.3	1,786.0	1,784.0	4.4	3.2	-162.41	39.6	-50.8	203.1	196.7	6.45	31.515	
1,900.0	1,887.2	1,884.6	1,882.1	4.7	3.4	-160.98	48.4	-55.3	219.0	212.2	6.87	31.886	
2,000.0	1,986.2	1,983.2	1,980.2	5.0	3.6	-159.74	57.2	-59.8	235.0	227.7	7.30	32.208	
2,100.0	2,085.1	2,081.8	2,078.3	5.3	3.9	-158.67	66.0	-64.3	251.2	243.4	7.73	32.489	
2,200.0	2,184.1	2,180.4	2,176.4	5.6	4.1	-157.72	74.9	-68.8	267.3	259.2	8.17	32.736	
2,300.0	2,283.0	2,278.9	2,274.5	5.9	4.3	-156.88	83.7	-73.2	283.6	275.0	8.60	32.956	
2,400.0	2,382.0	2,377.5	2,372.6	6.3	4.5	-156.13	92.5	-77.7	299.9	290.8	9.05	33.152	
2,500.0	2,480.9	2,476.1	2,470.7	6.6	4.8	-155.46	101.3	-82.2	316.2	306.7	9.49	33.328	
2,600.0	2,579.9	2,574.7	2,568.7	6.9	5.0	-154.85	110.2	-86.7	332.6	322.7	9.93	33.487	
2,700.0	2,678.9	2,673.3	2,666.8	7.2	5.2	-154.30	119.0	-91.2	349.0	338.6	10.38	33.632	
2,800.0	2,777.8	2,771.9	2,764.9	7.5	5.5	-153.80	127.8	-95.7	365.5	354.6	10.82	33.764	
2,900.0	2,876.8	2,870.5	2,863.0	7.8	5.7	-153.35	136.6	-100.1	381.9	370.7	11.27	33.885	
3,000.0	2,975.7	2,969.1	2,961.1	8.1	5.9	-152.93	145.4	-104.6	398.4	386.7	11.72	33.996	
3,100.0	3,074.7	3,067.7	3,059.2	8.4	6.2	-152.54	154.3	-109.1	414.9	402.8	12.17	34.098	
3,200.0	3,173.6	3,166.3	3,157.3	8.7	6.4	-152.19	163.1	-113.6	431.4	418.8	12.62	34.193	
3,300.0	3,272.6	3,264.9	3,255.4	9.0	6.6	-151.86	171.9	-118.1	448.0	434.9	13.07	34.281	
3,400.0	3,371.5	3,363.4	3,353.5	9.3	6.9	-151.55	180.7	-122.5	464.5	451.0	13.52	34.363	
3,500.0	3,470.5	3,462.0	3,451.6	9.6	7.1	-151.27	189.5	-127.0	481.1	467.1	13.97	34.440	
3,600.0	3,569.5	3,560.6	3,549.7	9.9	7.4	-151.00	198.4	-131.5	497.7	483.3	14.42	34.511	

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	-90.00	0.0	-19.6	19.6				
100.0	100.0	100.0	100.0	0.2	0.2	-90.00	0.0	-19.6	19.6	19.3	0.30	64.412	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-19.6	19.6	18.9	0.65	29.967	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-19.6	19.6	18.6	1.00	19.525	
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-19.6	19.6	18.2	1.35	14.480	CC, ES
500.0	500.0	500.0	500.0	0.9	0.8	-150.22	0.0	-19.6	21.1	19.4	1.70	12.387	SF
600.0	599.8	599.8	599.8	1.0	1.0	-155.98	0.0	-19.6	25.7	23.7	2.05	12.558	
700.0	699.5	699.5	699.5	1.3	1.2	-161.94	0.0	-19.6	33.9	31.5	2.40	14.140	
800.0	798.7	798.7	798.7	1.5	1.4	-166.63	0.0	-19.6	45.6	42.9	2.74	16.659	
900.0	897.7	898.6	898.5	1.8	1.5	-168.36	1.7	-19.4	59.0	55.9	3.09	19.087	
1,000.0	996.6	998.8	998.6	2.1	1.7	-166.91	6.9	-19.0	70.9	67.4	3.45	20.521	
1,100.0	1,095.6	1,098.4	1,098.0	2.3	1.9	-164.16	14.7	-18.3	81.8	78.0	3.84	21.329	
1,200.0	1,194.5	1,197.8	1,197.0	2.6	2.1	-161.96	22.7	-17.7	92.9	88.6	4.23	21.952	
1,300.0	1,293.5	1,297.1	1,296.0	2.9	2.3	-160.22	30.6	-17.0	104.0	99.4	4.63	22.448	
1,400.0	1,392.4	1,396.5	1,395.0	3.2	2.5	-158.83	38.6	-16.3	115.2	110.2	5.04	22.848	
1,500.0	1,491.4	1,495.8	1,494.0	3.5	2.7	-157.68	46.6	-15.6	126.5	121.0	5.46	23.175	
1,600.0	1,590.3	1,595.1	1,593.0	3.8	2.9	-156.72	54.5	-15.0	137.8	131.9	5.88	23.444	
1,700.0	1,689.3	1,694.5	1,692.1	4.1	3.2	-155.90	62.5	-14.3	149.1	142.8	6.30	23.670	
1,800.0	1,788.3	1,793.8	1,791.1	4.4	3.4	-155.21	70.5	-13.6	160.5	153.8	6.73	23.860	
1,900.0	1,887.2	1,893.1	1,890.1	4.7	3.6	-154.60	78.5	-13.0	171.9	164.7	7.15	24.022	
2,000.0	1,986.2	1,992.5	1,989.1	5.0	3.8	-154.07	86.4	-12.3	183.3	175.7	7.59	24.162	
2,100.0	2,085.1	2,091.8	2,088.1	5.3	4.0	-153.60	94.4	-11.6	194.7	186.7	8.02	24.283	
2,200.0	2,184.1	2,191.1	2,187.1	5.6	4.2	-153.18	102.4	-10.9	206.1	197.7	8.45	24.389	
2,300.0	2,283.0	2,290.5	2,286.1	5.9	4.4	-152.81	110.4	-10.3	217.5	208.7	8.89	24.482	
2,400.0	2,382.0	2,389.8	2,385.1	6.3	4.7	-152.47	118.3	-9.6	229.0	219.7	9.32	24.565	
2,500.0	2,480.9	2,489.1	2,484.1	6.6	4.9	-152.17	126.3	-8.9	240.4	230.7	9.76	24.639	
2,600.0	2,579.9	2,588.5	2,583.2	6.9	5.1	-151.89	134.3	-8.3	251.9	241.7	10.20	24.705	
2,700.0	2,678.9	2,687.8	2,682.2	7.2	5.3	-151.64	142.2	-7.6	263.4	252.7	10.63	24.764	
2,800.0	2,777.8	2,787.1	2,781.2	7.5	5.5	-151.41	150.2	-6.9	274.8	263.8	11.07	24.818	
2,900.0	2,876.8	2,886.5	2,880.2	7.8	5.8	-151.19	158.2	-6.3	286.3	274.8	11.51	24.867	
3,000.0	2,975.7	2,985.8	2,979.2	8.1	6.0	-151.00	166.2	-5.6	297.8	285.8	11.95	24.912	
3,100.0	3,074.7	3,085.1	3,078.2	8.4	6.2	-150.82	174.1	-4.9	309.3	296.9	12.39	24.952	
3,200.0	3,173.6	3,184.5	3,177.2	8.7	6.4	-150.65	182.1	-4.2	320.7	307.9	12.83	24.990	
3,300.0	3,272.6	3,283.8	3,276.2	9.0	6.6	-150.49	190.1	-3.6	332.2	318.9	13.28	25.024	
3,400.0	3,371.5	3,383.1	3,375.3	9.3	6.9	-150.34	198.0	-2.9	343.7	330.0	13.72	25.056	
3,500.0	3,470.5	3,482.5	3,474.3	9.6	7.1	-150.21	206.0	-2.2	355.2	341.0	14.16	25.086	
3,600.0	3,569.5	3,581.8	3,573.3	9.9	7.3	-150.08	214.0	-1.6	366.7	352.1	14.60	25.113	
3,700.0	3,668.4	3,681.1	3,672.3	10.2	7.5	-149.96	222.0	-0.9	378.2	363.1	15.04	25.139	
3,800.0	3,767.4	3,780.5	3,771.3	10.5	7.7	-149.84	229.9	-0.2	389.7	374.2	15.49	25.162	
3,900.0	3,866.3	3,879.8	3,870.3	10.9	8.0	-149.74	237.9	0.5	401.2	385.2	15.93	25.185	
4,000.0	3,965.3	3,979.1	3,969.3	11.2	8.2	-149.64	245.9	1.1	412.7	396.3	16.37	25.205	
4,100.0	4,064.2	4,078.5	4,068.3	11.5	8.4	-149.54	253.8	1.8	424.2	407.3	16.82	25.225	
4,200.0	4,163.2	4,177.8	4,167.3	11.8	8.6	-149.45	261.8	2.5	435.7	418.4	17.26	25.243	
4,300.0	4,262.1	4,277.2	4,266.4	12.1	8.9	-149.36	269.8	3.1	447.2	429.5	17.70	25.261	
4,400.0	4,361.1	4,376.5	4,365.4	12.4	9.1	-149.28	277.8	3.8	458.7	440.5	18.15	25.277	
4,500.0	4,460.1	4,475.8	4,464.4	12.7	9.3	-149.20	285.7	4.5	470.2	451.6	18.59	25.292	
4,600.0	4,559.0	4,575.2	4,563.4	13.0	9.5	-149.13	293.7	5.1	481.7	462.6	19.03	25.307	
4,700.0	4,658.0	4,674.5	4,662.4	13.3	9.7	-149.06	301.7	5.8	493.2	473.7	19.48	25.321	

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 2F-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 2F-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	-89.96	0.0	-11.2	11.2				
100.0	100.0	100.0	100.0	0.2	0.2	-89.96	0.0	-11.2	11.2	10.9	0.30	36.807	
200.0	200.0	200.0	200.0	0.3	0.3	-89.96	0.0	-11.2	11.2	10.5	0.65	17.124	
300.0	300.0	300.0	300.0	0.5	0.5	-89.96	0.0	-11.2	11.2	10.2	1.00	11.157	
400.0	400.0	400.0	400.0	0.7	0.7	-89.96	0.0	-11.2	11.2	9.8	1.35	8.274	CC, ES
500.0	500.0	500.0	500.0	0.9	0.8	-151.86	0.0	-11.2	12.7	11.0	1.70	7.463	SF
600.0	599.8	599.8	599.8	1.0	1.0	-159.94	0.0	-11.2	17.5	15.4	2.05	8.533	
700.0	699.5	700.2	700.1	1.3	1.2	-164.30	1.4	-10.1	24.4	22.0	2.40	10.186	
800.0	798.7	800.7	800.5	1.5	1.4	-164.67	5.6	-6.9	31.9	29.2	2.75	11.606	
900.0	897.7	901.4	900.8	1.8	1.6	-162.76	12.6	-1.5	38.7	35.6	3.12	12.397	
1,000.0	996.6	1,001.2	1,000.1	2.1	1.8	-160.18	20.7	4.7	44.4	40.9	3.51	12.632	
1,100.0	1,095.6	1,101.0	1,099.4	2.3	2.0	-158.19	28.9	11.0	50.1	46.2	3.91	12.799	
1,200.0	1,194.5	1,200.9	1,198.7	2.6	2.3	-156.61	37.1	17.2	55.9	51.5	4.33	12.916	
1,300.0	1,293.5	1,300.7	1,298.0	2.9	2.5	-155.33	45.3	23.5	61.7	56.9	4.74	12.999	
1,400.0	1,392.4	1,400.5	1,397.3	3.2	2.7	-154.27	53.4	29.8	67.5	62.3	5.17	13.057	
1,500.0	1,491.4	1,500.3	1,496.6	3.5	3.0	-153.37	61.6	36.0	73.4	67.8	5.60	13.098	
1,600.0	1,590.3	1,600.2	1,595.9	3.8	3.2	-152.61	69.8	42.3	79.2	73.2	6.03	13.127	
1,700.0	1,689.3	1,700.0	1,695.2	4.1	3.5	-151.95	77.9	48.5	85.1	78.6	6.47	13.146	
1,800.0	1,788.3	1,799.8	1,794.5	4.4	3.7	-151.38	86.1	54.8	91.0	84.1	6.91	13.159	
1,900.0	1,887.2	1,899.6	1,893.7	4.7	3.9	-150.88	94.3	61.1	96.9	89.5	7.36	13.168	
2,000.0	1,986.2	1,999.4	1,993.0	5.0	4.2	-150.44	102.5	67.3	102.8	95.0	7.80	13.173	
2,100.0	2,085.1	2,099.3	2,092.3	5.3	4.4	-150.04	110.6	73.6	108.7	100.4	8.25	13.175	
2,200.0	2,184.1	2,199.1	2,191.6	5.6	4.7	-149.69	118.8	79.9	114.6	105.9	8.70	13.175	
2,300.0	2,283.0	2,298.9	2,290.9	5.9	4.9	-149.37	127.0	86.1	120.5	111.4	9.15	13.174	
2,400.0	2,382.0	2,398.7	2,390.2	6.3	5.2	-149.08	135.1	92.4	126.4	116.8	9.60	13.172	
2,500.0	2,480.9	2,498.6	2,489.5	6.6	5.4	-148.81	143.3	98.6	132.4	122.3	10.05	13.169	
2,600.0	2,579.9	2,598.4	2,588.8	6.9	5.7	-148.57	151.5	104.9	138.3	127.8	10.50	13.166	
2,700.0	2,678.9	2,698.2	2,688.1	7.2	5.9	-148.35	159.7	111.2	144.2	133.2	10.96	13.162	
2,800.0	2,777.8	2,798.0	2,787.4	7.5	6.2	-148.14	167.8	117.4	150.1	138.7	11.41	13.158	
2,900.0	2,876.8	2,897.8	2,886.6	7.8	6.4	-147.95	176.0	123.7	156.1	144.2	11.86	13.154	
3,000.0	2,975.7	2,997.7	2,985.9	8.1	6.7	-147.78	184.2	129.9	162.0	149.7	12.32	13.149	
3,100.0	3,074.7	3,097.5	3,085.2	8.4	6.9	-147.62	192.3	136.2	167.9	155.2	12.78	13.145	
3,200.0	3,173.6	3,197.3	3,184.5	8.7	7.2	-147.46	200.5	142.5	173.9	160.6	13.23	13.140	
3,300.0	3,272.6	3,297.1	3,283.8	9.0	7.4	-147.32	208.7	148.7	179.8	166.1	13.69	13.136	
3,400.0	3,371.5	3,397.0	3,383.1	9.3	7.7	-147.19	216.9	155.0	185.7	171.6	14.14	13.131	
3,500.0	3,470.5	3,496.8	3,482.4	9.6	7.9	-147.07	225.0	161.3	191.7	177.1	14.60	13.127	
3,600.0	3,569.5	3,596.6	3,581.7	9.9	8.2	-146.95	233.2	167.5	197.6	182.6	15.06	13.123	
3,700.0	3,668.4	3,696.4	3,681.0	10.2	8.4	-146.84	241.4	173.8	203.6	188.0	15.52	13.119	
3,800.0	3,767.4	3,796.2	3,780.3	10.5	8.6	-146.74	249.5	180.0	209.5	193.5	15.97	13.115	
3,900.0	3,866.3	3,896.1	3,879.5	10.9	8.9	-146.64	257.7	186.3	215.4	199.0	16.43	13.111	
4,000.0	3,965.3	3,995.9	3,978.8	11.2	9.1	-146.54	265.9	192.6	221.4	204.5	16.89	13.107	
4,100.0	4,064.2	4,095.7	4,078.1	11.5	9.4	-146.46	274.1	198.8	227.3	210.0	17.35	13.103	
4,200.0	4,163.2	4,195.5	4,177.4	11.8	9.6	-146.37	282.2	205.1	233.3	215.5	17.81	13.099	
4,300.0	4,262.1	4,295.4	4,276.7	12.1	9.9	-146.29	290.4	211.3	239.2	220.9	18.27	13.096	
4,400.0	4,361.1	4,395.2	4,376.0	12.4	10.1	-146.22	298.6	217.6	245.1	226.4	18.72	13.092	
4,500.0	4,460.1	4,495.0	4,475.3	12.7	10.4	-146.15	306.7	223.9	251.1	231.9	19.18	13.089	
4,600.0	4,559.0	4,594.8	4,574.6	13.0	10.6	-146.08	314.9	230.1	257.0	237.4	19.64	13.085	
4,700.0	4,658.0	4,694.7	4,673.9	13.3	10.9	-146.01	323.1	236.4	263.0	242.9	20.10	13.082	
4,800.0	4,756.9	4,794.5	4,773.2	13.6	11.1	-145.95	331.3	242.7	268.9	248.4	20.56	13.079	
4,900.0	4,855.9	4,894.3	4,872.5	13.9	11.4	-145.89	339.4	248.9	274.9	253.8	21.02	13.076	
5,000.0	4,954.8	4,994.1	4,971.7	14.2	11.6	-145.83	347.6	255.2	280.8	259.3	21.48	13.073	
5,100.0	5,053.8	5,093.9	5,071.0	14.5	11.9	-145.78	355.8	261.4	286.8	264.8	21.94	13.070	

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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
5,200.0	5,152.7	5,193.8	5,170.3	14.8	12.1	-145.73	363.9	267.7	292.7	270.3	22.40	13.067	
5,300.0	5,251.7	5,293.6	5,269.6	15.2	12.4	-145.67	372.1	274.0	298.6	275.8	22.86	13.065	
5,400.0	5,350.6	5,393.4	5,368.9	15.5	12.6	-145.63	380.3	280.2	304.6	281.3	23.32	13.062	
5,500.0	5,449.6	5,493.2	5,468.2	15.8	12.9	-145.58	388.5	286.5	310.5	286.8	23.78	13.059	
5,600.0	5,548.6	5,593.1	5,567.5	16.1	13.1	-145.53	396.6	292.7	316.5	292.2	24.24	13.057	
5,700.0	5,647.5	5,692.9	5,666.8	16.4	13.4	-145.49	404.8	299.0	322.4	297.7	24.70	13.054	
5,800.0	5,746.5	5,792.7	5,766.1	16.7	13.6	-145.45	413.0	305.3	328.4	303.2	25.16	13.052	
5,900.0	5,845.4	5,892.5	5,865.4	17.0	13.9	-145.41	421.1	311.5	334.3	308.7	25.62	13.050	
6,000.0	5,944.4	5,992.3	5,964.6	17.3	14.1	-145.37	429.3	317.8	340.3	314.2	26.08	13.047	
6,100.0	6,043.3	6,092.2	6,063.9	17.6	14.4	-145.33	437.5	324.1	346.2	319.7	26.54	13.045	
6,200.0	6,142.3	6,192.0	6,163.2	17.9	14.6	-145.30	445.7	330.3	352.2	325.2	27.00	13.043	
6,300.0	6,241.2	6,291.8	6,262.5	18.2	14.9	-145.26	453.8	336.6	358.1	330.7	27.46	13.041	
6,400.0	6,340.2	6,391.6	6,361.8	18.5	15.1	-145.23	462.0	342.8	364.1	336.1	27.92	13.039	
6,500.0	6,439.2	6,491.5	6,461.1	18.8	15.4	-145.19	470.2	349.1	370.0	341.6	28.38	13.037	
6,600.0	6,538.1	6,591.3	6,560.4	19.1	15.6	-145.16	478.3	355.4	376.0	347.1	28.84	13.035	
6,700.0	6,637.1	6,691.6	6,660.2	19.5	15.9	-145.16	486.3	361.7	381.9	352.6	29.29	13.038	
6,800.0	6,736.0	6,792.9	6,761.1	19.8	16.0	-146.87	482.9	368.0	387.5	358.3	29.24	13.254	
6,900.0	6,835.0	6,887.5	6,853.5	20.1	15.9	-150.73	463.6	373.8	394.0	365.4	28.58	13.785	
7,000.0	6,934.0	6,972.4	6,932.6	20.4	15.8	171.23	433.6	378.8	404.3	376.7	27.55	14.676	
7,100.0	7,032.8	7,050.0	7,000.4	20.5	15.6	111.32	396.2	383.1	418.3	391.7	26.53	15.765	
7,200.0	7,128.5	7,128.5	7,063.2	20.5	15.4	90.68	349.4	387.1	434.3	408.6	25.78	16.849	
7,300.0	7,218.3	7,200.0	7,114.3	20.5	15.2	80.42	299.6	390.3	451.0	425.7	25.32	17.814	
7,400.0	7,299.4	7,274.6	7,160.7	20.4	15.0	73.68	241.3	393.2	467.0	442.0	25.01	18.674	
7,500.0	7,369.4	7,350.0	7,199.5	20.2	14.9	68.94	176.7	395.7	481.4	456.6	24.76	19.441	
7,600.0	7,426.2	7,415.0	7,225.8	20.2	14.9	65.77	117.4	397.3	493.2	468.6	24.56	20.079	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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	90.06	0.0	8.4	8.4				
100.0	100.0	100.0	100.0	0.2	0.2	90.06	0.0	8.4	8.4	8.1	0.30	27.605	
200.0	200.0	200.0	200.0	0.3	0.3	90.06	0.0	8.4	8.4	7.7	0.65	12.843	CC, ES
300.0	300.0	299.7	299.7	0.5	0.5	85.90	0.7	10.0	10.0	9.0	1.00	9.965	
400.0	400.0	399.1	399.0	0.7	0.7	78.92	2.9	14.7	15.0	13.6	1.36	11.009	
500.0	500.0	498.3	497.7	0.9	0.9	17.53	6.5	22.5	21.8	20.1	1.70	12.852	
600.0	599.8	597.2	595.9	1.0	1.2	16.51	11.4	33.4	28.8	26.8	2.05	14.060	
700.0	699.5	695.8	693.4	1.3	1.5	16.61	17.8	47.3	35.8	33.4	2.40	14.924	
800.0	798.7	795.0	790.8	1.5	1.8	17.37	25.5	64.0	42.5	39.7	2.76	15.387	
900.0	897.7	894.8	888.9	1.8	2.2	18.69	33.3	81.1	47.5	44.3	3.14	15.129	
1,000.0	996.6	994.7	986.9	2.1	2.6	19.78	41.2	98.3	52.4	48.9	3.52	14.889	
1,100.0	1,095.6	1,094.6	1,085.0	2.3	2.9	20.68	49.0	115.4	57.4	53.5	3.91	14.676	
1,200.0	1,194.5	1,194.5	1,183.1	2.6	3.3	21.43	56.9	132.6	62.4	58.1	4.31	14.486	
1,300.0	1,293.5	1,294.3	1,281.2	2.9	3.7	22.08	64.8	149.7	67.4	62.7	4.71	14.316	
1,400.0	1,392.4	1,394.2	1,379.2	3.2	4.0	22.63	72.6	166.9	72.4	67.3	5.11	14.164	
1,500.0	1,491.4	1,494.1	1,477.3	3.5	4.4	23.11	80.5	184.1	77.4	71.9	5.52	14.027	
1,600.0	1,590.3	1,593.9	1,575.4	3.8	4.8	23.54	88.3	201.2	82.4	76.5	5.93	13.904	
1,700.0	1,689.3	1,693.8	1,673.4	4.1	5.2	23.91	96.2	218.4	87.5	81.1	6.34	13.791	
1,800.0	1,788.3	1,793.7	1,771.5	4.4	5.5	24.24	104.1	235.5	92.5	85.7	6.76	13.689	
1,900.0	1,887.2	1,893.6	1,869.6	4.7	5.9	24.54	111.9	252.7	97.5	90.3	7.17	13.596	
2,000.0	1,986.2	1,993.4	1,967.7	5.0	6.3	24.81	119.8	269.9	102.5	95.0	7.59	13.511	
2,100.0	2,085.1	2,093.3	2,065.7	5.3	6.7	25.06	127.6	287.0	107.6	99.6	8.01	13.433	
2,200.0	2,184.1	2,193.2	2,163.8	5.6	7.0	25.28	135.5	304.2	112.6	104.2	8.43	13.361	
2,300.0	2,283.0	2,293.1	2,261.9	5.9	7.4	25.49	143.4	321.3	117.7	108.8	8.85	13.294	
2,400.0	2,382.0	2,392.9	2,360.0	6.3	7.8	25.67	151.2	338.5	122.7	113.4	9.27	13.233	
2,500.0	2,480.9	2,492.8	2,458.0	6.6	8.2	25.85	159.1	355.6	127.7	118.0	9.69	13.175	
2,600.0	2,579.9	2,592.7	2,556.1	6.9	8.5	26.01	166.9	372.8	132.8	122.6	10.12	13.122	
2,700.0	2,678.9	2,692.5	2,654.2	7.2	8.9	26.15	174.8	390.0	137.8	127.3	10.54	13.072	
2,800.0	2,777.8	2,792.4	2,752.2	7.5	9.3	26.29	182.7	407.1	142.8	131.9	10.97	13.026	
2,900.0	2,876.8	2,892.3	2,850.3	7.8	9.7	26.42	190.5	424.3	147.9	136.5	11.39	12.982	
3,000.0	2,975.7	2,992.2	2,948.4	8.1	10.0	26.54	198.4	441.4	152.9	141.1	11.82	12.942	
3,100.0	3,074.7	3,092.0	3,046.5	8.4	10.4	26.65	206.2	458.6	158.0	145.7	12.24	12.903	
3,200.0	3,173.6	3,191.9	3,144.5	8.7	10.8	26.76	214.1	475.8	163.0	150.4	12.67	12.867	
3,300.0	3,272.6	3,291.8	3,242.6	9.0	11.2	26.85	222.0	492.9	168.1	155.0	13.10	12.833	
3,400.0	3,371.5	3,391.6	3,340.7	9.3	11.5	26.95	229.8	510.1	173.1	159.6	13.52	12.801	
3,500.0	3,470.5	3,491.5	3,438.8	9.6	11.9	27.03	237.7	527.2	178.2	164.2	13.95	12.770	
3,600.0	3,569.5	3,591.4	3,536.8	9.9	12.3	27.12	245.5	544.4	183.2	168.8	14.38	12.741	
3,700.0	3,668.4	3,691.3	3,634.9	10.2	12.7	27.20	253.4	561.5	188.2	173.4	14.81	12.714	
3,800.0	3,767.4	3,791.1	3,733.0	10.5	13.0	27.27	261.3	578.7	193.3	178.1	15.23	12.688	
3,900.0	3,866.3	3,891.0	3,831.0	10.9	13.4	27.34	269.1	595.9	198.3	182.7	15.66	12.663	
4,000.0	3,965.3	3,990.9	3,929.1	11.2	13.8	27.41	277.0	613.0	203.4	187.3	16.09	12.640	
4,100.0	4,064.2	4,090.8	4,027.2	11.5	14.2	27.47	284.8	630.2	208.4	191.9	16.52	12.617	
4,200.0	4,163.2	4,190.6	4,125.3	11.8	14.6	27.53	292.7	647.3	213.5	196.5	16.95	12.596	
4,300.0	4,262.1	4,290.5	4,223.3	12.1	14.9	27.59	300.6	664.5	218.5	201.2	17.38	12.575	
4,400.0	4,361.1	4,390.4	4,321.4	12.4	15.3	27.65	308.4	681.7	223.6	205.8	17.81	12.555	
4,500.0	4,460.1	4,490.2	4,419.5	12.7	15.7	27.70	316.3	698.8	228.6	210.4	18.24	12.537	
4,600.0	4,559.0	4,590.1	4,517.6	13.0	16.1	27.75	324.1	716.0	233.7	215.0	18.67	12.519	
4,700.0	4,658.0	4,690.0	4,615.6	13.3	16.4	27.80	332.0	733.1	238.7	219.6	19.10	12.501	
4,800.0	4,756.9	4,789.9	4,713.7	13.6	16.8	27.84	339.9	750.3	243.8	224.2	19.53	12.485	
4,900.0	4,855.9	4,889.7	4,811.8	13.9	17.2	27.89	347.7	767.4	248.8	228.9	19.96	12.469	
5,000.0	4,954.8	4,989.6	4,909.8	14.2	17.6	27.93	355.6	784.6	253.9	233.5	20.39	12.454	
5,100.0	5,053.8	5,089.5	5,007.9	14.5	17.9	27.97	363.4	801.8	258.9	238.1	20.82	12.439	

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 2F-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 2F-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
5,200.0	5,152.7	5,189.3	5,106.0	14.8	18.3	28.01	371.3	818.9	264.0	242.7	21.25	12.425	
5,300.0	5,251.7	5,289.2	5,204.1	15.2	18.7	28.05	379.2	836.1	269.0	247.3	21.68	12.411	
5,400.0	5,350.6	5,389.1	5,302.1	15.5	19.1	28.09	387.0	853.2	274.1	252.0	22.11	12.398	
5,500.0	5,449.6	5,489.0	5,400.2	15.8	19.5	28.12	394.9	870.4	279.1	256.6	22.54	12.385	
5,600.0	5,548.6	5,588.8	5,498.3	16.1	19.8	28.16	402.7	887.6	284.2	261.2	22.97	12.373	
5,700.0	5,647.5	5,688.7	5,596.4	16.4	20.2	28.19	410.6	904.7	289.2	265.8	23.40	12.361	
5,800.0	5,746.5	5,788.6	5,694.4	16.7	20.6	28.22	418.5	921.9	294.3	270.4	23.83	12.350	
5,900.0	5,845.4	5,888.5	5,792.5	17.0	21.0	28.25	426.3	939.0	299.3	275.1	24.26	12.339	
6,000.0	5,944.4	5,988.3	5,890.6	17.3	21.3	28.28	434.2	956.2	304.4	279.7	24.69	12.328	
6,100.0	6,043.3	6,088.2	5,988.6	17.6	21.7	28.31	442.0	973.3	309.4	284.3	25.12	12.318	
6,200.0	6,142.3	6,188.1	6,086.7	17.9	22.1	28.34	449.9	990.5	314.5	288.9	25.55	12.308	
6,300.0	6,241.2	6,287.9	6,184.8	18.2	22.5	28.36	457.8	1,007.7	319.5	293.5	25.98	12.298	
6,400.0	6,340.2	6,387.8	6,282.9	18.5	22.8	28.39	465.6	1,024.8	324.6	298.2	26.41	12.289	
6,500.0	6,439.2	6,487.7	6,380.9	18.8	23.2	28.42	473.5	1,042.0	329.6	302.8	26.84	12.279	
6,600.0	6,538.1	6,587.6	6,479.0	19.1	23.6	28.44	481.4	1,059.1	334.7	307.4	27.27	12.271	
6,700.0	6,637.1	6,687.4	6,577.1	19.5	24.0	28.46	489.2	1,076.3	339.7	312.0	27.71	12.262	
6,800.0	6,736.0	6,787.6	6,675.5	19.8	24.3	28.50	497.0	1,093.5	344.8	316.6	28.14	12.253	
6,900.0	6,835.0	6,889.7	6,775.9	20.1	24.6	30.28	494.3	1,111.1	349.4	320.4	29.00	12.047	
7,000.0	6,934.0	6,985.8	6,868.5	20.4	24.8	1.97	475.3	1,127.3	354.7	324.1	30.53	11.617	
7,100.0	7,032.8	7,077.1	6,952.5	20.5	24.9	-47.68	442.8	1,142.0	361.9	330.1	31.84	11.369	
7,200.0	7,128.5	7,165.1	7,027.7	20.5	24.9	-58.86	399.2	1,155.1	370.7	338.2	32.47	11.416	
7,300.0	7,218.3	7,250.0	7,093.1	20.5	24.9	-61.05	346.5	1,166.6	380.1	347.8	32.31	11.765	
7,400.0	7,299.4	7,333.3	7,149.2	20.4	24.9	-60.80	285.7	1,176.4	389.5	358.1	31.37	12.417	
7,500.0	7,369.4	7,414.6	7,195.0	20.2	24.8	-59.85	219.2	1,184.4	398.2	368.3	29.83	13.346	
7,600.0	7,426.2	7,494.5	7,230.6	20.2	24.9	-58.80	148.0	1,190.6	405.6	377.6	28.05	14.462	
7,700.0	7,467.9	7,573.4	7,255.8	20.1	24.9	-57.90	73.4	1,195.0	411.4	384.9	26.47	15.541	
7,800.0	7,493.5	7,650.0	7,270.4	20.2	25.0	-57.29	-1.7	1,197.6	415.2	389.5	25.65	16.187	
7,900.0	7,502.0	7,731.3	7,275.0	20.4	25.1	-56.99	-82.8	1,198.4	416.7	390.7	25.97	16.047	
8,000.0	7,502.0	7,831.3	7,275.0	20.8	25.4	-56.99	-182.8	1,198.4	416.7	389.8	26.85	15.518	
8,100.0	7,502.0	7,931.3	7,275.0	21.2	25.8	-56.99	-282.8	1,198.4	416.7	388.7	28.01	14.877	
8,200.0	7,502.0	8,031.3	7,275.0	21.9	26.3	-56.99	-382.8	1,198.4	416.7	387.2	29.42	14.165	
8,300.0	7,502.0	8,131.3	7,275.0	22.6	26.9	-56.99	-482.8	1,198.4	416.7	385.6	31.04	13.423	
8,400.0	7,502.0	8,231.3	7,275.0	23.4	27.6	-56.99	-582.8	1,198.4	416.7	383.8	32.85	12.683	
8,500.0	7,502.0	8,331.3	7,275.0	24.4	28.4	-56.99	-682.8	1,198.4	416.7	381.8	34.82	11.967	
8,600.0	7,502.0	8,431.3	7,275.0	25.4	29.2	-56.99	-782.8	1,198.4	416.7	379.7	36.92	11.287	
8,700.0	7,502.0	8,531.3	7,275.0	26.5	30.2	-56.99	-882.8	1,198.4	416.7	377.5	39.12	10.650	
8,800.0	7,502.0	8,631.3	7,275.0	27.7	31.2	-56.99	-982.8	1,198.4	416.7	375.2	41.42	10.059	
8,900.0	7,502.0	8,731.3	7,275.0	28.9	32.3	-56.99	-1,082.8	1,198.4	416.7	372.9	43.80	9.512	
9,000.0	7,502.0	8,831.3	7,275.0	30.2	33.4	-56.99	-1,182.8	1,198.4	416.7	370.4	46.25	9.010	
9,100.0	7,502.0	8,931.3	7,275.0	31.5	34.6	-56.99	-1,282.8	1,198.4	416.7	367.9	48.75	8.548	
9,200.0	7,502.0	9,031.3	7,275.0	32.9	35.9	-56.99	-1,382.8	1,198.4	416.7	365.4	51.29	8.123	
9,300.0	7,502.0	9,131.3	7,275.0	34.3	37.2	-56.99	-1,482.8	1,198.4	416.7	362.8	53.88	7.733	
9,400.0	7,502.0	9,231.3	7,275.0	35.7	38.5	-56.99	-1,582.8	1,198.4	416.7	360.2	56.51	7.374	
9,500.0	7,502.0	9,331.3	7,275.0	37.2	39.8	-56.99	-1,682.8	1,198.4	416.7	357.5	59.16	7.043	
9,600.0	7,502.0	9,431.3	7,275.0	38.7	41.2	-56.99	-1,782.8	1,198.4	416.7	354.8	61.84	6.737	
9,700.0	7,502.0	9,531.3	7,275.0	40.2	42.6	-56.99	-1,882.8	1,198.4	416.7	352.1	64.55	6.455	
9,800.0	7,502.0	9,631.3	7,275.0	41.7	44.1	-56.99	-1,982.8	1,198.4	416.7	349.4	67.28	6.193	
9,900.0	7,502.0	9,731.3	7,275.0	43.2	45.5	-56.99	-2,082.8	1,198.4	416.7	346.6	70.02	5.951	
10,000.0	7,502.0	9,831.3	7,275.0	44.8	47.0	-56.99	-2,182.8	1,198.4	416.7	343.9	72.78	5.725	
10,100.0	7,502.0	9,931.3	7,275.0	46.4	48.5	-56.99	-2,282.8	1,198.4	416.7	341.1	75.55	5.515	
10,200.0	7,502.0	10,031.3	7,275.0	48.0	50.0	-56.99	-2,382.8	1,198.4	416.7	338.3	78.34	5.319	
10,300.0	7,502.0	10,131.3	7,275.0	49.6	51.6	-56.99	-2,482.8	1,198.4	416.7	335.5	81.14	5.135	

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 2F-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 2F-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
10,400.0	7,502.0	10,231.3	7,275.0	51.2	53.1	-56.99	-2,582.8	1,198.4	416.7	332.7	83.95	4.963	
10,500.0	7,502.0	10,331.3	7,275.0	52.8	54.7	-56.99	-2,682.8	1,198.4	416.7	329.9	86.77	4.802	
10,600.0	7,502.0	10,431.3	7,275.0	54.4	56.2	-56.99	-2,782.8	1,198.4	416.7	327.1	89.59	4.651	
10,700.0	7,502.0	10,531.3	7,275.0	56.0	57.8	-56.99	-2,882.8	1,198.4	416.7	324.2	92.43	4.508	
10,800.0	7,502.0	10,631.3	7,275.0	57.7	59.4	-56.99	-2,982.8	1,198.4	416.7	321.4	95.27	4.374	
10,900.0	7,502.0	10,731.3	7,275.0	59.3	61.0	-56.99	-3,082.8	1,198.4	416.7	318.5	98.12	4.247	
11,000.0	7,502.0	10,831.3	7,275.0	61.0	62.6	-56.99	-3,182.8	1,198.4	416.7	315.7	100.97	4.127	
11,100.0	7,502.0	10,931.3	7,275.0	62.6	64.2	-56.99	-3,282.8	1,198.4	416.7	312.8	103.83	4.013	
11,200.0	7,502.0	11,031.3	7,275.0	64.3	65.9	-56.99	-3,382.8	1,198.4	416.7	310.0	106.69	3.905	
11,300.0	7,502.0	11,131.3	7,275.0	66.0	67.5	-56.99	-3,482.8	1,198.4	416.7	307.1	109.56	3.803	
11,400.0	7,502.0	11,231.3	7,275.0	67.6	69.1	-56.99	-3,582.8	1,198.4	416.7	304.2	112.43	3.706	
11,500.0	7,502.0	11,331.3	7,275.0	69.3	70.8	-56.99	-3,682.8	1,198.4	416.7	301.4	115.31	3.613	
11,600.0	7,502.0	11,431.3	7,275.0	71.0	72.4	-56.99	-3,782.8	1,198.4	416.7	298.5	118.19	3.525	
11,700.0	7,502.0	11,531.3	7,275.0	72.7	74.1	-56.99	-3,882.8	1,198.4	416.7	295.6	121.07	3.441	
11,800.0	7,502.0	11,631.3	7,275.0	74.4	75.7	-56.99	-3,982.8	1,198.4	416.7	292.7	123.96	3.361	
11,900.0	7,502.0	11,731.3	7,275.0	76.1	77.4	-56.99	-4,082.8	1,198.4	416.7	289.8	126.85	3.285	
12,000.0	7,502.0	11,831.3	7,275.0	77.8	79.0	-56.99	-4,182.8	1,198.4	416.7	286.9	129.74	3.212	
12,100.0	7,502.0	11,931.3	7,275.0	79.5	80.7	-56.99	-4,282.8	1,198.4	416.7	284.0	132.64	3.141	
12,103.4	7,502.0	11,934.7	7,275.0	79.5	80.8	-56.99	-4,286.2	1,198.4	416.7	283.9	132.73	3.139	
12,119.3	7,502.0	11,943.3	7,275.0	79.8	80.9	-56.99	-4,294.8	1,198.4	416.7	283.6	133.09	3.131	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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 4-4-2 - Wellbore #1 - 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
9,600.0	7,502.0	7,967.7	7,503.0	38.7	43.9	-90.00	-2,127.3	1,145.8	454.7	384.3	70.35	6.463	
9,700.0	7,502.0	7,967.7	7,503.0	40.2	43.9	-90.00	-2,127.3	1,145.8	384.5	312.5	71.98	5.341	
9,800.0	7,502.0	7,967.7	7,503.0	41.7	43.9	-90.00	-2,127.3	1,145.8	330.1	256.4	73.62	4.483	
9,900.0	7,502.0	7,967.7	7,503.0	43.2	43.9	-90.00	-2,127.3	1,145.8	300.1	224.8	75.27	3.986	
9,944.5	7,502.0	7,967.7	7,503.0	43.9	43.9	-90.00	-2,127.3	1,145.8	296.8	220.7	76.01	3.904	CC, ES, SF
10,000.0	7,502.0	7,967.7	7,503.0	44.8	43.9	-90.00	-2,127.3	1,145.8	301.9	225.0	76.93	3.924	
10,100.0	7,502.0	7,967.7	7,503.0	46.4	43.9	-90.00	-2,127.3	1,145.8	335.0	256.4	78.60	4.263	
10,200.0	7,502.0	7,967.7	7,503.0	48.0	43.9	-90.00	-2,127.3	1,145.8	391.6	311.3	80.27	4.878	
10,300.0	7,502.0	7,967.7	7,503.0	49.6	43.9	-90.00	-2,127.3	1,145.8	463.1	381.1	81.95	5.651	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 2F-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 2F-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 2F-2H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.49°