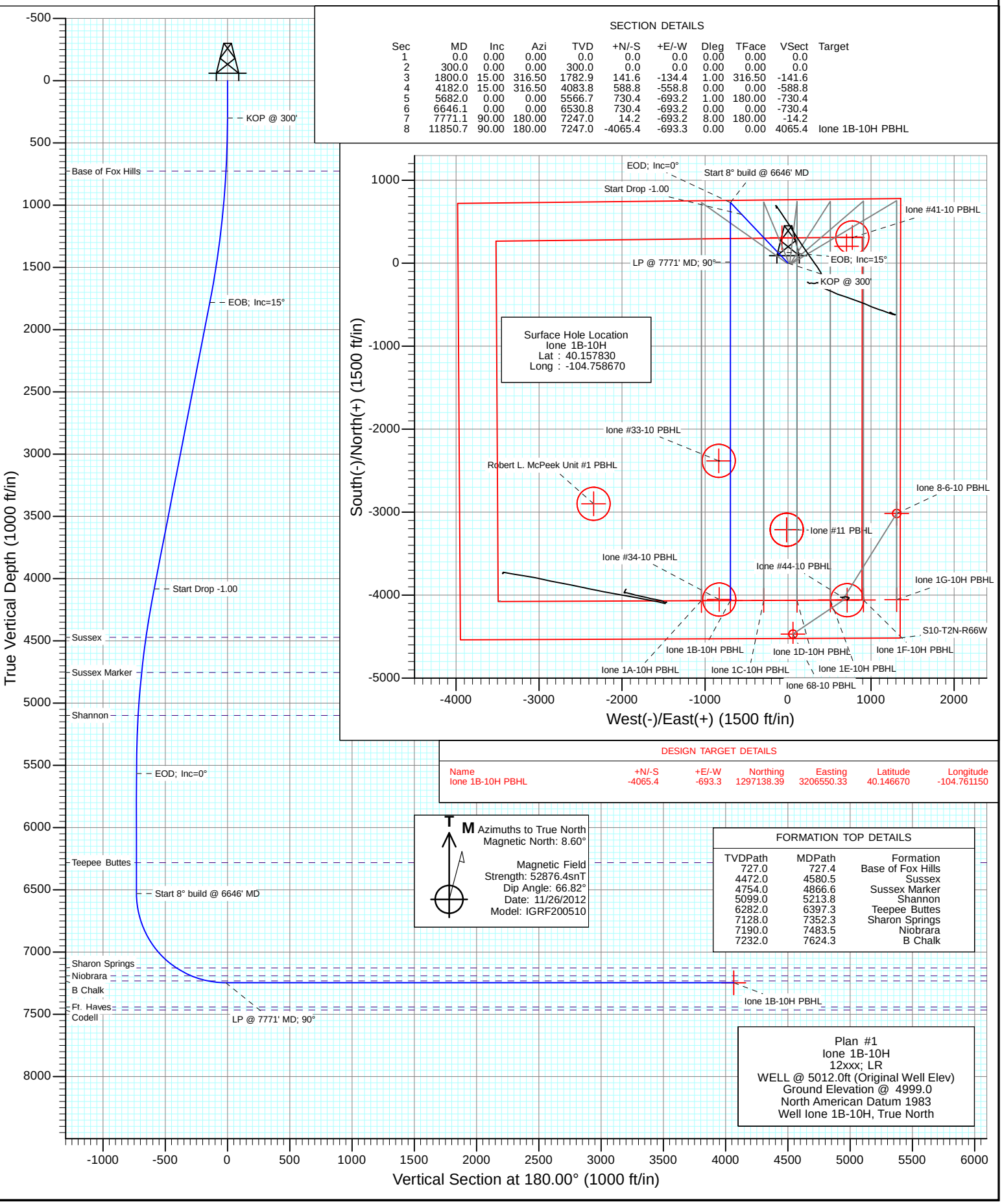
encana

Project: DJ Wattenberg
Site: S10-T2N-R66W (Ione)
Well: Ione 1B-10H
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	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	1800.0	15.00	316.50	1782.9	141.6	-134.4	1.00	316.50	-141.6	
4	4182.0	15.00	316.50	4083.8	588.8	-558.8	0.00	0.00	-588.8	
5	5682.0	0.00	0.00	5566.7	730.4	-693.2	1.00	180.00	-730.4	
6	6646.1	0.00	0.00	6530.8	730.4	-693.2	0.00	0.00	-730.4	
7	7771.1	90.00	180.00	7247.0	14.2	-693.2	8.00	180.00	-14.2	
8	11850.7	90.00	180.00	7247.0	-4065.4	-693.3	0.00	0.00	4065.4	Ione 1B-10H PBHL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Ione 1B-10H PBHL	-4065.4	-693.3	1297138.39	3206550.33	40.146670	-104.761150

T M Azimuths to True North
Magnetic North: 8.60°

Magnetic Field
Strength: 52876.4snT
Dip Angle: 66.82°
Date: 11/26/2012
Model: IGRF200510

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
727.0	727.4	Base of Fox Hills
4472.0	4580.5	Sussex
4754.0	4866.6	Sussex Marker
5099.0	5213.8	Shannon
6282.0	6397.3	Teepee Buttes
7128.0	7352.3	Sharon Springs
7190.0	7483.5	Niobrara
7232.0	7624.3	B Chalk

Plan #1
Ione 1B-10H
12xxx; LR
WELL @ 5012.0ft (Original Well Elev)
Ground Elevation @ 4999.0
North American Datum 1983
Well Ione 1B-10H, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site:	S10-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione)

Site Position:		**Northing:**	1,297,164.02 ft	**Latitude:**	40.146710
From:	Lat/Long	**Easting:**	3,207,875.24 ft	**Longitude:**	-104.756410
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.48 °

Well Ione 1B-10H

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,301,209.40 ft	**Latitude:**	40.157830
	+E/-W	0.0 ft	**Easting:**	3,207,209.61 ft	**Longitude:**	-104.758670
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,999.0 ft

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/26/2012	8.60	66.82	52,876

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,800.0	15.00	316.50	1,782.9	141.6	-134.4	1.00	1.00	0.00	316.50	
4,182.0	15.00	316.50	4,083.8	588.8	-558.8	0.00	0.00	0.00	0.00	
5,682.0	0.00	0.00	5,566.7	730.4	-693.2	1.00	-1.00	0.00	180.00	
6,646.1	0.00	0.00	6,530.8	730.4	-693.2	0.00	0.00	0.00	0.00	
7,771.1	90.00	180.00	7,247.0	14.2	-693.2	8.00	8.00	0.00	180.00	
11,850.7	90.00	180.00	7,247.0	-4,065.4	-693.3	0.00	0.00	0.00	0.00	Ione 1B-10H PBHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 1B-10H
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Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site:	S10-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1B-10H	**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	KOP @ 300'
400.0	1.00	316.50	400.0	0.6	-0.6	-0.6	1.00	1.00	
500.0	2.00	316.50	500.0	2.5	-2.4	-2.5	1.00	1.00	
600.0	3.00	316.50	599.9	5.7	-5.4	-5.7	1.00	1.00	
700.0	4.00	316.50	699.7	10.1	-9.6	-10.1	1.00	1.00	
727.4	4.27	316.50	727.0	11.6	-11.0	-11.6	1.00	1.00	Base of Fox Hills
800.0	5.00	316.50	799.4	15.8	-15.0	-15.8	1.00	1.00	
900.0	6.00	316.50	898.9	22.8	-21.6	-22.8	1.00	1.00	
1,000.0	7.00	316.50	998.3	31.0	-29.4	-31.0	1.00	1.00	
1,100.0	8.00	316.50	1,097.4	40.4	-38.4	-40.4	1.00	1.00	
1,200.0	9.00	316.50	1,196.3	51.2	-48.6	-51.2	1.00	1.00	
1,300.0	10.00	316.50	1,294.9	63.1	-59.9	-63.1	1.00	1.00	
1,400.0	11.00	316.50	1,393.3	76.4	-72.5	-76.4	1.00	1.00	
1,500.0	12.00	316.50	1,491.2	90.8	-86.2	-90.8	1.00	1.00	
1,600.0	13.00	316.50	1,588.9	106.5	-101.1	-106.5	1.00	1.00	
1,700.0	14.00	316.50	1,686.1	123.5	-117.2	-123.5	1.00	1.00	
1,800.0	15.00	316.50	1,782.9	141.6	-134.4	-141.6	1.00	1.00	EOB; Inc=15°
1,900.0	15.00	316.50	1,879.5	160.4	-152.2	-160.4	0.00	0.00	
2,000.0	15.00	316.50	1,976.1	179.2	-170.0	-179.2	0.00	0.00	
2,100.0	15.00	316.50	2,072.7	197.9	-187.8	-197.9	0.00	0.00	
2,200.0	15.00	316.50	2,169.3	216.7	-205.7	-216.7	0.00	0.00	
2,300.0	15.00	316.50	2,265.9	235.5	-223.5	-235.5	0.00	0.00	
2,400.0	15.00	316.50	2,362.5	254.3	-241.3	-254.3	0.00	0.00	
2,500.0	15.00	316.50	2,459.1	273.0	-259.1	-273.0	0.00	0.00	
2,600.0	15.00	316.50	2,555.7	291.8	-276.9	-291.8	0.00	0.00	
2,700.0	15.00	316.50	2,652.3	310.6	-294.7	-310.6	0.00	0.00	
2,800.0	15.00	316.50	2,748.8	329.4	-312.5	-329.4	0.00	0.00	
2,900.0	15.00	316.50	2,845.4	348.1	-330.4	-348.1	0.00	0.00	
3,000.0	15.00	316.50	2,942.0	366.9	-348.2	-366.9	0.00	0.00	
3,100.0	15.00	316.50	3,038.6	385.7	-366.0	-385.7	0.00	0.00	
3,200.0	15.00	316.50	3,135.2	404.5	-383.8	-404.5	0.00	0.00	
3,300.0	15.00	316.50	3,231.8	423.2	-401.6	-423.2	0.00	0.00	
3,400.0	15.00	316.50	3,328.4	442.0	-419.4	-442.0	0.00	0.00	
3,500.0	15.00	316.50	3,425.0	460.8	-437.3	-460.8	0.00	0.00	
3,600.0	15.00	316.50	3,521.6	479.5	-455.1	-479.5	0.00	0.00	
3,700.0	15.00	316.50	3,618.2	498.3	-472.9	-498.3	0.00	0.00	
3,800.0	15.00	316.50	3,714.8	517.1	-490.7	-517.1	0.00	0.00	
3,900.0	15.00	316.50	3,811.4	535.9	-508.5	-535.9	0.00	0.00	
4,000.0	15.00	316.50	3,908.0	554.6	-526.3	-554.6	0.00	0.00	
4,100.0	15.00	316.50	4,004.6	573.4	-544.2	-573.4	0.00	0.00	
4,182.0	15.00	316.50	4,083.8	588.8	-558.8	-588.8	0.00	0.00	Start Drop -1.00
4,200.0	14.82	316.50	4,101.2	592.2	-562.0	-592.2	1.00	-1.00	
4,300.0	13.82	316.50	4,198.0	610.1	-579.0	-610.1	1.00	-1.00	
4,400.0	12.82	316.50	4,295.4	626.8	-594.8	-626.8	1.00	-1.00	
4,500.0	11.82	316.50	4,393.0	642.3	-609.5	-642.3	1.00	-1.00	
4,580.5	11.01	316.50	4,472.0	653.9	-620.5	-653.9	1.00	-1.00	Sussex
4,600.0	10.82	316.50	4,491.1	656.5	-623.0	-656.5	1.00	-1.00	
4,700.0	9.82	316.50	4,589.5	669.5	-635.4	-669.5	1.00	-1.00	
4,800.0	8.82	316.50	4,688.2	681.3	-646.5	-681.3	1.00	-1.00	

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Site:	S10-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1B-10H	**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
4,866.6	8.15	316.50	4,754.0	688.4	-653.3	-688.4	1.00	-1.00	Sussex Marker
4,900.0	7.82	316.50	4,787.1	691.8	-656.5	-691.8	1.00	-1.00	
5,000.0	6.82	316.50	4,886.3	701.0	-665.2	-701.0	1.00	-1.00	
5,100.0	5.82	316.50	4,985.7	709.0	-672.8	-709.0	1.00	-1.00	
5,200.0	4.82	316.50	5,085.3	715.7	-679.2	-715.7	1.00	-1.00	
5,213.8	4.68	316.50	5,099.0	716.6	-680.0	-716.6	1.00	-1.00	Shannon
5,300.0	3.82	316.50	5,185.0	721.2	-684.4	-721.2	1.00	-1.00	
5,400.0	2.82	316.50	5,284.8	725.4	-688.4	-725.4	1.00	-1.00	
5,500.0	1.82	316.50	5,384.7	728.3	-691.2	-728.3	1.00	-1.00	
5,600.0	0.82	316.50	5,484.7	730.0	-692.7	-730.0	1.00	-1.00	
5,682.0	0.00	0.00	5,566.7	730.4	-693.2	-730.4	1.00	-1.00	EOD; Inc=0°
5,700.0	0.00	0.00	5,584.7	730.4	-693.2	-730.4	0.00	0.00	
5,800.0	0.00	0.00	5,684.7	730.4	-693.2	-730.4	0.00	0.00	
5,900.0	0.00	0.00	5,784.7	730.4	-693.2	-730.4	0.00	0.00	
6,000.0	0.00	0.00	5,884.7	730.4	-693.2	-730.4	0.00	0.00	
6,100.0	0.00	0.00	5,984.7	730.4	-693.2	-730.4	0.00	0.00	
6,200.0	0.00	0.00	6,084.7	730.4	-693.2	-730.4	0.00	0.00	
6,300.0	0.00	0.00	6,184.7	730.4	-693.2	-730.4	0.00	0.00	
6,397.3	0.00	0.00	6,282.0	730.4	-693.2	-730.4	0.00	0.00	Teepee Buttes
6,400.0	0.00	0.00	6,284.7	730.4	-693.2	-730.4	0.00	0.00	
6,500.0	0.00	0.00	6,384.7	730.4	-693.2	-730.4	0.00	0.00	
6,600.0	0.00	0.00	6,484.7	730.4	-693.2	-730.4	0.00	0.00	
6,646.1	0.00	0.00	6,530.8	730.4	-693.2	-730.4	0.00	0.00	Start 8° build @ 6646' MD
6,700.0	4.31	180.00	6,584.6	728.4	-693.2	-728.4	8.00	8.00	
6,800.0	12.31	180.00	6,683.5	714.0	-693.2	-714.0	8.00	8.00	
6,900.0	20.31	180.00	6,779.4	685.9	-693.2	-685.9	8.00	8.00	
7,000.0	28.31	180.00	6,870.5	644.8	-693.2	-644.8	8.00	8.00	
7,100.0	36.31	180.00	6,954.9	591.4	-693.2	-591.4	8.00	8.00	
7,200.0	44.31	180.00	7,031.1	526.7	-693.2	-526.7	8.00	8.00	
7,300.0	52.31	180.00	7,097.6	452.1	-693.2	-452.1	8.00	8.00	
7,352.3	56.50	180.00	7,128.0	409.6	-693.2	-409.6	8.00	8.00	Sharon Springs
7,400.0	60.31	180.00	7,153.0	369.0	-693.2	-369.0	8.00	8.00	
7,483.5	66.99	180.00	7,190.0	294.2	-693.2	-294.2	8.00	8.00	Niobrara
7,500.0	68.31	180.00	7,196.3	278.9	-693.2	-278.9	8.00	8.00	
7,600.0	76.31	180.00	7,226.7	183.7	-693.2	-183.7	8.00	8.00	
7,624.3	78.25	180.00	7,232.0	160.0	-693.2	-160.0	8.00	8.00	B Chalk
7,700.0	84.31	180.00	7,243.5	85.2	-693.2	-85.2	8.00	8.00	
7,771.1	90.00	180.00	7,247.0	14.2	-693.2	-14.2	8.00	8.00	LP @ 7771' MD; 90°
7,800.0	90.00	180.00	7,247.0	-14.6	-693.2	14.6	0.00	0.00	
7,900.0	90.00	180.00	7,247.0	-114.6	-693.2	114.6	0.00	0.00	
8,000.0	90.00	180.00	7,247.0	-214.6	-693.2	214.6	0.00	0.00	
8,100.0	90.00	180.00	7,247.0	-314.6	-693.2	314.6	0.00	0.00	
8,200.0	90.00	180.00	7,247.0	-414.6	-693.2	414.6	0.00	0.00	
8,300.0	90.00	180.00	7,247.0	-514.6	-693.2	514.6	0.00	0.00	
8,400.0	90.00	180.00	7,247.0	-614.6	-693.2	614.6	0.00	0.00	
8,500.0	90.00	180.00	7,247.0	-714.6	-693.2	714.6	0.00	0.00	
8,600.0	90.00	180.00	7,247.0	-814.6	-693.2	814.6	0.00	0.00	
8,700.0	90.00	180.00	7,247.0	-914.6	-693.2	914.6	0.00	0.00	
8,800.0	90.00	180.00	7,247.0	-1,014.6	-693.2	1,014.6	0.00	0.00	
8,900.0	90.00	180.00	7,247.0	-1,114.6	-693.2	1,114.6	0.00	0.00	
9,000.0	90.00	180.00	7,247.0	-1,214.6	-693.2	1,214.6	0.00	0.00	
9,100.0	90.00	180.00	7,247.0	-1,314.6	-693.2	1,314.6	0.00	0.00	

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Well:	Ione 1B-10H	**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	7,247.0	-1,414.6	-693.2	1,414.6	0.00	0.00	
9,300.0	90.00	180.00	7,247.0	-1,514.6	-693.2	1,514.6	0.00	0.00	
9,400.0	90.00	180.00	7,247.0	-1,614.6	-693.2	1,614.6	0.00	0.00	
9,500.0	90.00	180.00	7,247.0	-1,714.6	-693.2	1,714.6	0.00	0.00	
9,600.0	90.00	180.00	7,247.0	-1,814.6	-693.2	1,814.6	0.00	0.00	
9,700.0	90.00	180.00	7,247.0	-1,914.6	-693.2	1,914.6	0.00	0.00	
9,800.0	90.00	180.00	7,247.0	-2,014.6	-693.2	2,014.6	0.00	0.00	
9,900.0	90.00	180.00	7,247.0	-2,114.6	-693.2	2,114.6	0.00	0.00	
10,000.0	90.00	180.00	7,247.0	-2,214.6	-693.2	2,214.6	0.00	0.00	
10,100.0	90.00	180.00	7,247.0	-2,314.6	-693.2	2,314.6	0.00	0.00	
10,200.0	90.00	180.00	7,247.0	-2,414.6	-693.2	2,414.6	0.00	0.00	
10,300.0	90.00	180.00	7,247.0	-2,514.6	-693.2	2,514.6	0.00	0.00	
10,400.0	90.00	180.00	7,247.0	-2,614.6	-693.2	2,614.6	0.00	0.00	
10,500.0	90.00	180.00	7,247.0	-2,714.6	-693.2	2,714.6	0.00	0.00	
10,600.0	90.00	180.00	7,247.0	-2,814.6	-693.3	2,814.6	0.00	0.00	
10,700.0	90.00	180.00	7,247.0	-2,914.6	-693.3	2,914.6	0.00	0.00	
10,800.0	90.00	180.00	7,247.0	-3,014.6	-693.3	3,014.6	0.00	0.00	
10,900.0	90.00	180.00	7,247.0	-3,114.6	-693.3	3,114.6	0.00	0.00	
11,000.0	90.00	180.00	7,247.0	-3,214.6	-693.3	3,214.6	0.00	0.00	
11,100.0	90.00	180.00	7,247.0	-3,314.6	-693.3	3,314.6	0.00	0.00	
11,200.0	90.00	180.00	7,247.0	-3,414.6	-693.3	3,414.6	0.00	0.00	
11,300.0	90.00	180.00	7,247.0	-3,514.6	-693.3	3,514.6	0.00	0.00	
11,400.0	90.00	180.00	7,247.0	-3,614.6	-693.3	3,614.6	0.00	0.00	
11,500.0	90.00	180.00	7,247.0	-3,714.6	-693.3	3,714.6	0.00	0.00	
11,600.0	90.00	180.00	7,247.0	-3,814.6	-693.3	3,814.6	0.00	0.00	
11,700.0	90.00	180.00	7,247.0	-3,914.6	-693.3	3,914.6	0.00	0.00	
11,800.0	90.00	180.00	7,247.0	-4,014.6	-693.3	4,014.6	0.00	0.00	
11,850.7	90.00	180.00	7,247.0	-4,065.4	-693.3	4,065.4	0.00	0.00	TD at 11850.7 - Ione 1B-10H PBHL

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 1B-10H PBHL - plan hits target center - Point	0.00	0.00	7,247.0	-4,065.4	-693.3	1,297,138.39	3,206,550.33	40.146670	-104.761150

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site:	S10-T2N-R66W (Ione)	**North Reference:**	True
Well:	Ione 1B-10H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
727.4	727.0	Base of Fox Hills			
4,580.5	4,472.0	Sussex			
4,866.6	4,754.0	Sussex Marker			
5,213.8	5,099.0	Shannon			
6,397.3	6,282.0	Teepee Buttes			
7,352.3	7,128.0	Sharon Springs			
7,483.5	7,190.0	Niobrara			
7,624.3	7,232.0	B Chalk			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
300.0	300.0	0.0	0.0	KOP @ 300'
1,800.0	1,782.9	141.6	-134.4	EOB; Inc=15°
4,182.0	4,083.8	588.8	-558.8	Start Drop -1.00
5,682.0	5,566.7	730.4	-693.2	EOD; Inc=0°
6,646.1	6,530.8	730.4	-693.2	Start 8° build @ 6646' MD
7,771.1	7,247.0	14.2	-693.2	LP @ 7771' MD; 90°
11,850.7	7,247.0	-4,065.4	-693.3	TD at 11850.7

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S10-T2N-R66W (Ione)
Ione 1B-10H
Hz
Plan #1

Anticollision Report

26 November, 2012

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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** 11/26/2012

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,850.3	Plan #1 (Hz)	MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S10-T2N-R66W (Ione)						
HSR McPeek 13-10A (Existing) - Existing - Existing						Out of range
Ione #11 (Existing) - Existing - Existing						Out of range
Ione #2 (Exsiting) - Hz - Hz	100.0	88.6	438.1	437.8	1,911.303	CC
Ione #2 (Exsiting) - Hz - Hz	300.0	288.0	438.3	437.5	582.294	ES
Ione #2 (Exsiting) - Hz - Hz	1,100.0	1,089.8	489.9	487.0	170.984	SF
Ione #33-10 (Existing) - Existing - Existing	10,167.4	7,231.0	141.4	83.2	2.428	CC, ES, SF
Ione #34-10 (Existing) - Existing - Existing	11,838.7	7,225.0	135.6	48.8	1.563	CC, ES, SF
Ione #41-10 (Existing) - Existing - Existing						Out of range
Ione #44-10 (Existing) - Existing - Existing						Out of range
Ione #8-2-10 (Exsiting) - Existing - Existing	124.1	129.1	497.5	497.1	1,184.444	CC, ES
Ione #8-2-10 (Exsiting) - Existing - Existing	200.0	197.1	498.1	497.4	740.059	SF
Ione 1A-10H - Hz - Plan #1	200.0	200.0	11.2	10.5	17.128	CC, ES
Ione 1A-10H - Hz - Plan #1	11,850.7	12,108.5	415.1	288.4	3.278	SF
Ione 1C-10H - Hz - Plan #1	300.0	300.0	11.2	10.2	11.160	CC, ES
Ione 1C-10H - Hz - Plan #1	11,850.7	12,043.6	458.3	327.2	3.496	SF
Ione 1D-10H - Hz - Plan #1	300.0	300.0	19.6	18.6	19.530	CC, ES
Ione 1D-10H - Hz - Plan #1	600.0	599.9	25.5	23.5	12.435	SF
Ione 1E-10H - Hz - Plan #1	300.0	300.0	30.7	29.7	30.690	CC, ES
Ione 1E-10H - Hz - Plan #1	700.0	698.7	44.7	42.3	18.464	SF
Ione 1F-10H - Hz - Plan #1	300.0	300.0	39.1	38.1	39.060	CC, ES
Ione 1F-10H - Hz - Plan #1	700.0	696.9	59.2	56.8	24.413	SF
Ione 1G-10H - Hz - Plan #1	200.0	200.0	50.3	49.7	77.075	CC, ES
Ione 1G-10H - Hz - Plan #1	700.0	694.4	78.4	76.0	32.305	SF
Ione 4-2-10 (Existing) - Existing - Existing	300.0	284.0	493.8	492.8	495.380	CC, ES
Ione 4-2-10 (Existing) - Existing - Existing	500.0	484.0	497.2	495.5	293.431	SF
Ione 6-0-10 (Existing) - Existing - Existing	2,049.9	2,180.6	413.1	404.6	48.636	CC
Ione 6-0-10 (Existing) - Existing - Existing	2,100.0	2,227.9	413.3	404.5	47.093	ES
Ione 6-0-10 (Existing) - Existing - Existing	4,500.0	4,585.3	481.3	457.3	20.112	SF
Ione 6-8-10 (Existing) - DD - Plan #1						Out of range
Ione 8-6-10 (Existing) - DD - Plan #1						Out of range
McPeek #14-10 (Existing) - Existing - Existing						Out of range
McPeek #24-10 (Existing) - Existing - Existing						Out of range
Robert L. McPeek Unit #1 (Existing) - Existing - Existing						Out of range

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione #2 (Exsiting) - Hz - Hz

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	121.65	-229.9	372.9	438.2				
100.0	100.0	88.6	88.6	0.2	0.1	121.68	-230.0	372.8	438.1	437.8	0.23	1,911.303	CC
200.0	200.0	188.7	188.7	0.3	0.2	121.77	-230.7	372.5	438.2	437.7	0.49	891.908	
300.0	300.0	288.0	288.0	0.5	0.3	121.92	-231.7	372.0	438.3	437.5	0.75	582.294	ES
400.0	400.0	389.4	389.4	0.7	0.3	165.63	-233.0	371.4	439.2	438.2	1.02	431.824	
500.0	500.0	488.3	488.3	0.9	0.4	165.87	-234.0	370.7	441.8	440.5	1.28	345.453	
600.0	599.9	589.4	589.4	1.0	0.5	166.16	-235.1	370.0	446.0	444.5	1.54	289.126	
700.0	699.7	690.6	690.6	1.2	0.6	166.49	-236.0	369.2	451.7	449.9	1.81	249.971	
800.0	799.4	791.1	791.1	1.4	0.7	166.82	-236.5	368.2	458.8	456.8	2.07	221.541	
900.0	898.9	891.5	891.5	1.7	0.8	167.17	-236.8	367.2	467.5	465.2	2.34	200.149	
1,000.0	998.3	990.8	990.7	1.9	0.9	167.55	-237.1	366.1	477.8	475.2	2.60	183.754	
1,100.0	1,097.4	1,089.8	1,089.8	2.2	1.0	167.95	-237.4	365.1	489.9	487.0	2.87	170.984	SF

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 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione #33-10 (Existing) - Existing - Existing

Offset Site Error: 0.0 ft

Survey Program: 8215-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
9,700.0	7,247.0	7,231.0	7,231.0	39.7	12.6	90.00	-2,382.0	-834.7	488.3	437.8	50.50	9.670	
9,800.0	7,247.0	7,231.0	7,231.0	41.3	12.6	90.00	-2,382.0	-834.7	393.7	341.5	52.14	7.550	
9,900.0	7,247.0	7,231.0	7,231.0	42.9	12.6	90.00	-2,382.0	-834.7	302.5	248.7	53.79	5.623	
10,000.0	7,247.0	7,231.0	7,231.0	44.5	12.6	90.00	-2,382.0	-834.7	219.1	163.7	55.45	3.952	
10,100.0	7,247.0	7,231.0	7,231.0	46.1	12.6	90.00	-2,382.0	-834.7	156.7	99.6	57.12	2.743	
10,167.4	7,247.0	7,231.0	7,231.0	47.2	12.6	90.00	-2,382.0	-834.7	141.4	83.2	58.24	2.428	CC, ES, SF
10,200.0	7,247.0	7,231.0	7,231.0	47.7	12.6	90.00	-2,382.0	-834.7	145.2	86.4	58.79	2.469	
10,300.0	7,247.0	7,231.0	7,231.0	49.3	12.6	90.00	-2,382.0	-834.7	193.9	133.4	60.47	3.207	
10,400.0	7,247.0	7,231.0	7,231.0	51.0	12.6	90.00	-2,382.0	-834.7	272.3	210.1	62.15	4.380	
10,500.0	7,247.0	7,231.0	7,231.0	52.6	12.6	90.00	-2,382.0	-834.7	361.5	297.6	63.84	5.662	
10,600.0	7,247.0	7,231.0	7,231.0	54.3	12.6	90.00	-2,382.0	-834.7	455.2	389.6	65.54	6.945	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione #34-10 (Existing) - Existing - Existing

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
11,400.0	7,247.0	7,225.0	7,225.0	67.7	12.6	90.00	-4,053.3	-828.9	459.2	380.0	79.19	5.799	
11,500.0	7,247.0	7,225.0	7,225.0	69.4	12.6	90.00	-4,053.3	-828.9	364.8	283.9	80.90	4.509	
11,600.0	7,247.0	7,225.0	7,225.0	71.0	12.6	90.00	-4,053.3	-828.9	274.5	191.9	82.62	3.322	
11,700.0	7,247.0	7,225.0	7,225.0	72.7	12.6	90.00	-4,053.3	-828.9	194.0	109.6	84.34	2.300	
11,800.0	7,247.0	7,225.0	7,225.0	74.4	12.6	90.00	-4,053.3	-828.9	141.0	54.9	86.07	1.638	
11,838.7	7,247.0	7,225.0	7,225.0	75.1	12.6	90.00	-4,053.3	-828.9	135.6	48.8	86.74	1.563	CC, ES, SF
11,850.7	7,247.0	7,225.0	7,225.0	75.3	12.6	90.00	-4,053.3	-828.9	136.1	49.2	86.94	1.566	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione #8-2-10 (Exsiting) - 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
0.0	0.0	5.2	5.2	0.0	0.0	126.02	-292.9	402.8	498.0				
100.0	100.0	107.4	107.4	0.2	0.2	125.94	-292.0	402.8	497.5	497.2	0.34	1,465.146	
124.1	124.1	129.1	129.1	0.2	0.2	125.91	-291.8	402.9	497.5	497.1	0.42	1,184.444	CC, ES
200.0	200.0	197.1	197.1	0.3	0.3	125.82	-291.4	403.8	498.1	497.4	0.67	740.059	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1A-10H - 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	36.815	
200.0	200.0	200.0	200.0	0.3	0.3	-89.96	0.0	-11.2	11.2	10.5	0.65	17.128	CC, ES
300.0	300.0	299.8	299.8	0.5	0.5	-87.54	0.5	-11.9	11.9	10.9	1.00	11.884	
400.0	400.0	399.6	399.6	0.7	0.7	-40.59	2.0	-14.0	13.5	12.1	1.35	9.982	
500.0	500.0	499.4	499.3	0.9	0.9	-38.96	4.5	-17.6	15.3	13.6	1.70	8.978	
600.0	599.9	599.1	598.8	1.0	1.1	-38.63	8.0	-22.5	17.3	15.2	2.06	8.390	
700.0	699.7	698.8	698.2	1.2	1.3	-39.21	12.5	-28.9	19.5	17.1	2.43	8.022	
800.0	799.4	798.5	797.4	1.4	1.5	-40.41	18.1	-36.7	21.9	19.1	2.81	7.781	
900.0	898.9	898.1	896.4	1.7	1.8	-42.02	24.6	-45.8	24.4	21.2	3.21	7.614	
1,000.0	998.3	997.7	995.1	1.9	2.0	-43.89	32.0	-56.4	27.2	23.6	3.64	7.488	
1,100.0	1,097.4	1,097.2	1,093.5	2.2	2.3	-45.90	40.5	-68.4	30.3	26.2	4.10	7.384	
1,200.0	1,196.3	1,196.7	1,191.7	2.5	2.7	-47.97	50.0	-81.8	33.5	28.9	4.60	7.288	
1,300.0	1,294.9	1,296.1	1,289.5	2.8	3.0	-50.05	60.4	-96.5	37.1	31.9	5.15	7.194	
1,400.0	1,393.3	1,395.5	1,386.9	3.1	3.4	-52.08	71.8	-112.6	40.9	35.1	5.76	7.099	
1,500.0	1,491.2	1,494.9	1,483.9	3.5	3.8	-54.05	84.2	-130.1	45.0	38.6	6.43	7.001	
1,600.0	1,588.9	1,594.2	1,580.5	3.9	4.2	-55.94	97.5	-148.9	49.4	42.2	7.16	6.902	
1,700.0	1,686.1	1,693.4	1,676.6	4.4	4.7	-57.73	111.8	-169.1	54.1	46.2	7.95	6.804	
1,800.0	1,782.9	1,793.3	1,773.0	4.8	5.1	-59.99	126.8	-190.2	58.6	49.8	8.83	6.636	
1,900.0	1,879.5	1,893.1	1,869.5	5.3	5.6	-62.66	141.7	-211.3	62.8	53.0	9.78	6.421	
2,000.0	1,976.1	1,993.0	1,966.0	5.7	6.1	-65.00	156.6	-232.4	67.1	56.4	10.74	6.246	
2,100.0	2,072.7	2,092.9	2,062.4	6.2	6.6	-67.04	171.6	-253.5	71.5	59.8	11.72	6.102	
2,200.0	2,169.3	2,192.8	2,158.9	6.7	7.1	-68.85	186.5	-274.6	76.0	63.3	12.70	5.982	
2,300.0	2,265.9	2,292.6	2,255.4	7.2	7.5	-70.46	201.5	-295.7	80.5	66.8	13.69	5.883	
2,400.0	2,362.5	2,392.5	2,351.8	7.6	8.0	-71.89	216.4	-316.8	85.1	70.5	14.68	5.799	
2,500.0	2,459.1	2,492.4	2,448.3	8.1	8.5	-73.18	231.3	-337.9	89.8	74.1	15.67	5.729	
2,600.0	2,555.7	2,592.2	2,544.8	8.6	9.0	-74.34	246.3	-359.0	94.5	77.8	16.67	5.669	
2,700.0	2,652.3	2,692.1	2,641.2	9.1	9.5	-75.39	261.2	-380.1	99.2	81.6	17.66	5.617	
2,800.0	2,748.8	2,792.0	2,737.7	9.6	10.0	-76.34	276.1	-401.2	104.0	85.3	18.66	5.573	
2,900.0	2,845.4	2,891.9	2,834.2	10.1	10.5	-77.21	291.1	-422.3	108.8	89.1	19.65	5.534	
3,000.0	2,942.0	2,991.7	2,930.6	10.5	10.9	-78.00	306.0	-443.4	113.6	92.9	20.65	5.500	
3,100.0	3,038.6	3,091.6	3,027.1	11.0	11.4	-78.73	321.0	-464.5	118.4	96.8	21.64	5.471	
3,200.0	3,135.2	3,191.5	3,123.6	11.5	11.9	-79.41	335.9	-485.6	123.2	100.6	22.64	5.445	
3,300.0	3,231.8	3,291.4	3,220.1	12.0	12.4	-80.03	350.8	-506.7	128.1	104.5	23.63	5.422	
3,400.0	3,328.4	3,391.2	3,316.5	12.5	12.9	-80.61	365.8	-527.8	133.0	108.4	24.62	5.401	
3,500.0	3,425.0	3,491.1	3,413.0	13.0	13.4	-81.14	380.7	-548.9	137.9	112.3	25.61	5.383	
3,600.0	3,521.6	3,591.0	3,509.5	13.5	13.9	-81.64	395.6	-569.9	142.8	116.2	26.61	5.366	
3,700.0	3,618.2	3,690.8	3,605.9	13.9	14.4	-82.11	410.6	-591.0	147.7	120.1	27.60	5.351	
3,800.0	3,714.8	3,790.7	3,702.4	14.4	14.9	-82.54	425.5	-612.1	152.6	124.0	28.59	5.338	
3,900.0	3,811.4	3,890.6	3,798.9	14.9	15.4	-82.95	440.4	-633.2	157.5	128.0	29.58	5.326	
4,000.0	3,908.0	3,990.5	3,895.3	15.4	15.8	-83.34	455.4	-654.3	162.5	131.9	30.57	5.315	
4,100.0	4,004.6	4,090.3	3,991.8	15.9	16.3	-83.70	470.3	-675.4	167.4	135.8	31.56	5.305	
4,200.0	4,101.2	4,190.2	4,088.3	16.4	16.8	-84.04	485.3	-696.5	172.4	139.8	32.55	5.296	
4,300.0	4,198.0	4,290.1	4,184.7	16.8	17.3	-84.03	500.2	-717.6	177.4	144.0	33.47	5.301	
4,400.0	4,295.4	4,389.9	4,281.2	17.3	17.8	-83.48	515.1	-738.7	182.7	148.4	34.31	5.325	
4,500.0	4,393.0	4,489.7	4,377.6	17.7	18.3	-82.44	530.1	-759.8	188.2	153.1	35.07	5.367	
4,600.0	4,491.1	4,589.4	4,473.9	18.0	18.8	-80.96	545.0	-780.8	194.0	158.3	35.72	5.433	
4,700.0	4,589.5	4,689.0	4,570.1	18.4	19.3	-79.08	559.9	-801.9	200.3	164.1	36.26	5.526	
4,800.0	4,688.2	4,788.4	4,666.1	18.7	19.8	-76.86	574.7	-822.9	207.2	170.6	36.66	5.652	
4,900.0	4,787.1	4,887.7	4,762.0	19.0	20.3	-74.36	589.6	-843.8	214.9	178.0	36.93	5.820	
5,000.0	4,886.3	4,986.7	4,857.6	19.3	20.7	-71.62	604.4	-864.8	223.5	186.5	37.04	6.035	
5,100.0	4,985.7	5,085.7	4,953.3	19.5	21.2	-68.72	619.2	-885.7	233.3	196.3	36.99	6.307	

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 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1A-10H - 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	5,085.3	5,186.8	5,051.2	19.7	21.7	-65.82	633.7	-906.2	243.7	206.9	36.81	6.621	
5,300.0	5,185.0	5,288.2	5,149.8	19.9	22.1	-63.14	647.3	-925.3	254.5	217.9	36.56	6.961	
5,400.0	5,284.8	5,389.8	5,249.1	20.1	22.5	-60.63	659.8	-943.1	265.4	229.2	36.24	7.323	
5,500.0	5,384.7	5,491.8	5,349.1	20.2	22.9	-58.29	671.4	-959.4	276.6	240.7	35.88	7.707	
5,600.0	5,484.7	5,594.1	5,449.7	20.3	23.3	-56.09	682.0	-974.4	287.8	252.4	35.48	8.112	
5,700.0	5,584.7	5,696.7	5,551.0	20.4	23.6	-97.51	691.6	-987.9	299.2	264.2	35.06	8.535	
5,800.0	5,684.7	5,799.8	5,653.0	20.5	23.9	-95.64	700.1	-1,000.0	310.0	275.3	34.68	8.940	
5,900.0	5,784.7	5,903.3	5,755.7	20.5	24.2	-94.10	707.7	-1,010.7	319.6	285.3	34.39	9.295	
6,000.0	5,884.7	6,007.3	5,859.1	20.6	24.4	-92.85	714.2	-1,019.8	328.1	293.9	34.19	9.594	
6,100.0	5,984.7	6,111.7	5,963.1	20.7	24.6	-91.86	719.6	-1,027.5	335.2	301.1	34.08	9.835	
6,200.0	6,084.7	6,216.4	6,067.5	20.8	24.8	-91.09	723.9	-1,033.6	340.9	306.9	34.05	10.013	
6,300.0	6,184.7	6,321.4	6,172.3	20.9	25.0	-90.54	727.2	-1,038.2	345.3	311.2	34.09	10.127	
6,400.0	6,284.7	6,426.5	6,277.3	21.0	25.1	-90.19	729.3	-1,041.2	348.1	313.9	34.20	10.178	
6,500.0	6,384.7	6,531.7	6,382.5	21.1	25.2	-90.02	730.3	-1,042.6	349.5	315.1	34.38	10.167	
6,600.0	6,484.7	6,633.8	6,484.7	21.2	25.3	-90.00	730.4	-1,042.8	349.6	315.0	34.60	10.103	
6,649.1	6,533.8	6,682.9	6,533.8	21.2	25.3	90.14	730.4	-1,042.8	349.6	315.0	34.63	10.094	
6,700.0	6,584.6	6,733.8	6,584.6	21.2	25.3	90.33	730.4	-1,042.8	349.6	315.0	34.66	10.088	
6,800.0	6,683.5	6,832.7	6,683.5	21.1	25.4	92.63	730.4	-1,042.8	350.0	316.2	33.76	10.366	
6,900.0	6,779.4	6,930.2	6,781.0	20.9	25.5	96.82	729.9	-1,042.8	352.4	320.3	32.04	10.997	
7,000.0	6,870.5	7,033.9	6,884.0	20.6	25.4	101.55	718.7	-1,042.8	357.6	327.5	30.07	11.890	
7,100.0	6,954.9	7,143.0	6,989.4	20.2	25.3	106.06	690.9	-1,042.8	365.1	336.9	28.26	12.919	
7,200.0	7,031.1	7,258.1	7,094.7	19.8	25.0	110.22	644.6	-1,042.8	374.4	347.7	26.72	14.013	
7,300.0	7,097.6	7,379.6	7,196.2	19.3	24.6	113.93	578.2	-1,042.8	384.5	359.0	25.50	15.082	
7,400.0	7,153.0	7,507.7	7,289.5	18.9	24.1	117.10	490.6	-1,042.8	394.6	369.9	24.61	16.032	
7,500.0	7,196.3	7,642.1	7,369.0	18.5	23.6	119.63	382.5	-1,042.8	403.5	379.4	24.06	16.766	
7,600.0	7,226.7	7,781.9	7,428.8	18.3	23.2	121.43	256.4	-1,042.8	410.3	386.5	23.86	17.194	
7,700.0	7,243.5	7,925.6	7,463.6	18.2	23.0	122.44	117.2	-1,042.8	414.3	390.3	24.01	17.255	
7,800.0	7,247.0	8,057.8	7,471.0	18.3	23.1	122.65	-14.7	-1,042.8	415.2	390.7	24.47	16.968	
7,900.0	7,247.0	8,157.8	7,471.0	18.6	23.3	122.65	-114.7	-1,042.8	415.2	390.0	25.18	16.490	
8,000.0	7,247.0	8,257.8	7,471.0	19.0	23.6	122.65	-214.7	-1,042.8	415.2	389.0	26.19	15.850	
8,100.0	7,247.0	8,357.8	7,471.0	19.5	24.0	122.65	-314.7	-1,042.8	415.2	387.7	27.49	15.101	
8,200.0	7,247.0	8,457.8	7,471.0	20.2	24.6	122.65	-414.7	-1,042.8	415.2	386.1	29.04	14.298	
8,300.0	7,247.0	8,557.8	7,471.0	21.1	25.3	122.65	-514.7	-1,042.7	415.2	384.4	30.79	13.485	
8,400.0	7,247.0	8,657.8	7,471.0	22.0	26.1	122.65	-614.7	-1,042.7	415.2	382.5	32.72	12.691	
8,500.0	7,247.0	8,757.8	7,471.0	23.1	26.9	122.65	-714.7	-1,042.7	415.2	380.4	34.79	11.934	
8,600.0	7,247.0	8,857.8	7,471.0	24.2	27.9	122.65	-814.7	-1,042.7	415.2	378.2	36.98	11.226	
8,700.0	7,247.0	8,957.8	7,471.0	25.4	28.9	122.65	-914.7	-1,042.7	415.2	375.9	39.28	10.571	
8,800.0	7,247.0	9,057.8	7,471.0	26.7	30.1	122.65	-1,014.7	-1,042.7	415.2	373.5	41.65	9.967	
8,900.0	7,247.0	9,157.8	7,471.0	28.0	31.2	122.65	-1,114.7	-1,042.7	415.2	371.1	44.10	9.413	
9,000.0	7,247.0	9,257.8	7,471.0	29.3	32.5	122.65	-1,214.7	-1,042.7	415.2	368.5	46.61	8.907	
9,100.0	7,247.0	9,357.8	7,471.0	30.7	33.7	122.65	-1,314.7	-1,042.7	415.2	366.0	49.17	8.443	
9,200.0	7,247.0	9,457.8	7,471.0	32.2	35.0	122.65	-1,414.7	-1,042.7	415.1	363.4	51.77	8.019	
9,300.0	7,247.0	9,557.8	7,471.0	33.6	36.4	122.65	-1,514.7	-1,042.7	415.1	360.7	54.41	7.630	
9,400.0	7,247.0	9,657.8	7,471.0	35.1	37.8	122.65	-1,614.7	-1,042.7	415.1	358.1	57.08	7.273	
9,500.0	7,247.0	9,757.8	7,471.0	36.7	39.2	122.65	-1,714.7	-1,042.7	415.1	355.4	59.78	6.944	
9,600.0	7,247.0	9,857.8	7,471.0	38.2	40.6	122.66	-1,814.7	-1,042.7	415.1	352.6	62.50	6.642	
9,700.0	7,247.0	9,957.8	7,471.0	39.7	42.1	122.66	-1,914.7	-1,042.7	415.1	349.9	65.24	6.363	
9,800.0	7,247.0	10,057.8	7,471.0	41.3	43.6	122.66	-2,014.7	-1,042.7	415.1	347.1	68.01	6.104	
9,900.0	7,247.0	10,157.8	7,471.0	42.9	45.1	122.66	-2,114.7	-1,042.7	415.1	344.3	70.78	5.865	
10,000.0	7,247.0	10,257.8	7,471.0	44.5	46.6	122.66	-2,214.7	-1,042.7	415.1	341.6	73.57	5.642	
10,100.0	7,247.0	10,357.8	7,471.0	46.1	48.2	122.66	-2,314.7	-1,042.7	415.1	338.7	76.38	5.435	
10,200.0	7,247.0	10,457.8	7,471.0	47.7	49.7	122.66	-2,414.7	-1,042.7	415.1	335.9	79.19	5.242	

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 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1A-10H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	7,247.0	10,557.8	7,471.0	49.3	51.3	122.66	-2,514.7	-1,042.7	415.1	333.1	82.02	5.061	
10,400.0	7,247.0	10,657.8	7,471.0	51.0	52.8	122.66	-2,614.7	-1,042.7	415.1	330.3	84.85	4.892	
10,500.0	7,247.0	10,757.8	7,471.0	52.6	54.4	122.66	-2,714.7	-1,042.7	415.1	327.4	87.70	4.733	
10,600.0	7,247.0	10,857.8	7,471.0	54.3	56.0	122.66	-2,814.7	-1,042.7	415.1	324.6	90.55	4.584	
10,700.0	7,247.0	10,957.8	7,471.0	55.9	57.6	122.66	-2,914.7	-1,042.7	415.1	321.7	93.41	4.444	
10,800.0	7,247.0	11,057.8	7,471.0	57.6	59.3	122.66	-3,014.7	-1,042.7	415.1	318.8	96.27	4.312	
10,900.0	7,247.0	11,157.8	7,471.0	59.3	60.9	122.66	-3,114.7	-1,042.7	415.1	316.0	99.14	4.187	
11,000.0	7,247.0	11,257.8	7,471.0	60.9	62.5	122.66	-3,214.7	-1,042.7	415.1	313.1	102.01	4.069	
11,100.0	7,247.0	11,357.8	7,471.0	62.6	64.1	122.66	-3,314.7	-1,042.7	415.1	310.2	104.89	3.957	
11,200.0	7,247.0	11,457.8	7,471.0	64.3	65.8	122.66	-3,414.7	-1,042.7	415.1	307.3	107.78	3.851	
11,300.0	7,247.0	11,557.8	7,471.0	66.0	67.4	122.66	-3,514.7	-1,042.7	415.1	304.4	110.66	3.751	
11,400.0	7,247.0	11,657.8	7,471.0	67.7	69.1	122.66	-3,614.7	-1,042.7	415.1	301.5	113.56	3.655	
11,500.0	7,247.0	11,757.8	7,471.0	69.4	70.8	122.66	-3,714.7	-1,042.7	415.1	298.6	116.45	3.564	
11,600.0	7,247.0	11,857.8	7,471.0	71.0	72.4	122.66	-3,814.7	-1,042.7	415.1	295.7	119.35	3.478	
11,700.0	7,247.0	11,957.8	7,471.0	72.7	74.1	122.66	-3,914.7	-1,042.7	415.1	292.8	122.25	3.395	
11,800.0	7,247.0	12,057.8	7,471.0	74.4	75.8	122.66	-4,014.7	-1,042.7	415.1	289.9	125.15	3.316	
11,848.7	7,247.0	12,106.5	7,471.0	75.3	76.6	122.66	-4,063.3	-1,042.7	415.1	288.5	126.57	3.279	
11,850.7	7,247.0	12,108.5	7,471.0	75.3	76.6	122.66	-4,065.3	-1,042.7	415.1	288.4	126.63	3.278	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1C-10H - 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	90.04	0.0	11.2	11.2				
100.0	100.0	100.0	100.0	0.2	0.2	90.04	0.0	11.2	11.2	10.9	0.30	36.815	
200.0	200.0	200.0	200.0	0.3	0.3	90.04	0.0	11.2	11.2	10.5	0.65	17.128	
300.0	300.0	300.0	300.0	0.5	0.5	90.04	0.0	11.2	11.2	10.2	1.00	11.160	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	136.61	0.0	11.2	11.8	10.4	1.35	8.732	
500.0	500.0	500.1	500.1	0.9	0.9	140.94	0.8	10.8	13.4	11.7	1.70	7.850	
600.0	599.9	600.2	600.1	1.0	1.0	142.71	3.2	9.8	15.4	13.4	2.06	7.509	
700.0	699.7	700.3	700.2	1.2	1.2	142.65	7.3	8.2	18.0	15.6	2.42	7.439	
800.0	799.4	800.4	800.1	1.4	1.4	141.43	12.9	5.8	21.0	18.3	2.80	7.519	
900.0	898.9	900.6	899.9	1.7	1.6	139.55	20.2	2.8	24.6	21.4	3.20	7.683	
1,000.0	998.3	1,000.7	999.6	1.9	1.8	137.36	29.1	-0.9	28.6	25.0	3.63	7.891	
1,100.0	1,097.4	1,100.8	1,099.1	2.2	2.1	135.07	39.5	-5.2	33.2	29.1	4.09	8.116	
1,200.0	1,196.3	1,200.9	1,198.3	2.5	2.3	132.81	51.6	-10.2	38.4	33.8	4.60	8.341	
1,300.0	1,294.9	1,301.0	1,297.3	2.8	2.6	130.66	65.3	-15.9	44.2	39.0	5.16	8.553	
1,400.0	1,393.3	1,401.0	1,396.0	3.1	2.9	128.64	80.6	-22.2	50.5	44.7	5.77	8.748	
1,500.0	1,491.2	1,501.1	1,494.3	3.5	3.3	126.79	97.4	-29.2	57.5	51.0	6.44	8.922	
1,600.0	1,588.9	1,601.0	1,592.3	3.9	3.6	125.08	115.9	-36.8	65.0	57.9	7.17	9.076	
1,700.0	1,686.1	1,701.0	1,689.8	4.4	4.0	123.53	135.9	-45.1	73.2	65.3	7.95	9.211	
1,800.0	1,782.9	1,800.9	1,786.9	4.8	4.5	122.10	157.4	-54.0	82.0	73.2	8.79	9.329	
1,900.0	1,879.5	1,900.4	1,883.6	5.3	4.9	120.96	179.7	-63.2	91.1	81.5	9.65	9.443	
2,000.0	1,976.1	2,000.0	1,980.2	5.7	5.3	120.03	201.9	-72.5	100.3	89.7	10.52	9.532	
2,100.0	2,072.7	2,099.6	2,076.8	6.2	5.8	119.25	224.2	-81.7	109.4	98.0	11.40	9.602	
2,200.0	2,169.3	2,199.1	2,173.4	6.7	6.2	118.60	246.4	-90.9	118.6	106.3	12.28	9.659	
2,300.0	2,265.9	2,298.7	2,270.0	7.2	6.6	118.03	268.7	-100.1	127.8	114.6	13.17	9.706	
2,400.0	2,362.5	2,398.3	2,366.6	7.6	7.1	117.55	290.9	-109.3	137.0	123.0	14.06	9.745	
2,500.0	2,459.1	2,497.8	2,463.2	8.1	7.5	117.12	313.2	-118.6	146.2	131.3	14.96	9.778	
2,600.0	2,555.7	2,597.4	2,559.8	8.6	8.0	116.75	335.5	-127.8	155.5	139.6	15.85	9.806	
2,700.0	2,652.3	2,697.0	2,656.5	9.1	8.4	116.41	357.7	-137.0	164.7	147.9	16.75	9.830	
2,800.0	2,748.8	2,796.6	2,753.1	9.6	8.9	116.12	380.0	-146.2	173.9	156.3	17.66	9.851	
2,900.0	2,845.4	2,896.1	2,849.7	10.1	9.3	115.85	402.2	-155.4	183.2	164.6	18.56	9.869	
3,000.0	2,942.0	2,995.7	2,946.3	10.5	9.8	115.61	424.5	-164.6	192.4	172.9	19.46	9.885	
3,100.0	3,038.6	3,095.3	3,042.9	11.0	10.2	115.39	446.7	-173.9	201.6	181.3	20.37	9.899	
3,200.0	3,135.2	3,194.8	3,139.5	11.5	10.7	115.19	469.0	-183.1	210.9	189.6	21.28	9.912	
3,300.0	3,231.8	3,294.4	3,236.1	12.0	11.1	115.00	491.2	-192.3	220.1	198.0	22.19	9.923	
3,400.0	3,328.4	3,394.0	3,332.7	12.5	11.6	114.83	513.5	-201.5	229.4	206.3	23.09	9.933	
3,500.0	3,425.0	3,493.5	3,429.3	13.0	12.0	114.68	535.7	-210.7	238.6	214.6	24.00	9.942	
3,600.0	3,521.6	3,593.1	3,526.0	13.5	12.5	114.53	558.0	-220.0	247.9	223.0	24.91	9.950	
3,700.0	3,618.2	3,692.6	3,622.5	13.9	12.9	114.40	580.2	-229.2	257.2	231.3	25.82	9.958	
3,800.0	3,714.8	3,791.9	3,719.1	14.4	13.3	114.51	601.4	-238.0	266.5	239.8	26.68	9.988	
3,900.0	3,811.4	3,891.0	3,815.9	14.9	13.7	114.97	621.1	-246.1	276.0	248.5	27.48	10.042	
4,000.0	3,908.0	3,990.1	3,913.0	15.4	14.1	115.74	639.2	-253.6	285.6	257.4	28.21	10.122	
4,100.0	4,004.6	4,088.9	4,010.2	15.9	14.5	116.79	655.7	-260.4	295.5	266.6	28.88	10.231	
4,200.0	4,101.2	4,187.5	4,107.5	16.4	14.8	118.10	670.6	-266.6	305.7	276.2	29.47	10.371	
4,300.0	4,198.0	4,286.0	4,204.9	16.8	15.1	119.52	683.9	-272.1	315.7	285.7	29.99	10.528	
4,400.0	4,295.4	4,384.3	4,302.4	17.3	15.3	120.88	695.7	-277.0	325.3	294.9	30.44	10.688	
4,500.0	4,393.0	4,482.6	4,400.0	17.7	15.6	122.19	705.9	-281.2	334.5	303.7	30.82	10.851	
4,600.0	4,491.1	4,580.7	4,497.7	18.0	15.8	123.46	714.6	-284.8	343.2	312.1	31.15	11.018	
4,700.0	4,589.5	4,678.7	4,595.4	18.4	16.0	124.71	721.7	-287.8	351.6	320.1	31.42	11.188	
4,800.0	4,688.2	4,776.6	4,693.1	18.7	16.1	125.93	727.2	-290.1	359.4	327.8	31.64	11.362	
4,900.0	4,787.1	4,874.4	4,790.8	19.0	16.3	127.13	731.3	-291.7	366.9	335.1	31.79	11.540	
5,000.0	4,886.3	4,972.0	4,888.4	19.3	16.4	128.32	733.7	-292.7	373.9	342.0	31.90	11.724	
5,100.0	4,985.7	5,069.5	4,985.9	19.5	16.5	129.49	734.7	-293.1	380.6	348.6	31.95	11.911	

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 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1C-10H - 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	5,085.3	5,168.9	5,085.3	19.7	16.6	130.59	734.7	-293.1	386.5	354.5	31.99	12.083	
5,300.0	5,185.0	5,268.6	5,185.0	19.9	16.7	131.47	734.7	-293.1	391.5	359.4	32.06	12.213	
5,400.0	5,284.8	5,368.4	5,284.8	20.1	16.8	132.12	734.7	-293.1	395.4	363.2	32.15	12.297	
5,500.0	5,384.7	5,468.3	5,384.7	20.2	16.9	132.57	734.7	-293.1	398.1	365.8	32.28	12.333	
5,600.0	5,484.7	5,568.3	5,484.7	20.3	17.0	132.83	734.7	-293.1	399.6	367.2	32.43	12.322	
5,700.0	5,584.7	5,668.3	5,584.7	20.4	17.1	89.39	734.7	-293.1	400.0	367.4	32.62	12.263	
5,800.0	5,684.7	5,768.3	5,684.7	20.5	17.2	89.39	734.7	-293.1	400.0	367.2	32.83	12.184	
5,900.0	5,784.7	5,868.3	5,784.7	20.5	17.3	89.39	734.7	-293.1	400.0	367.0	33.05	12.104	
6,000.0	5,884.7	5,968.3	5,884.7	20.6	17.4	89.39	734.7	-293.1	400.0	366.8	33.27	12.025	
6,100.0	5,984.7	6,068.3	5,984.7	20.7	17.5	89.39	734.7	-293.1	400.0	366.6	33.49	11.946	
6,200.0	6,084.7	6,168.3	6,084.7	20.8	17.6	89.39	734.7	-293.1	400.0	366.3	33.71	11.867	
6,300.0	6,184.7	6,268.3	6,184.7	20.9	17.7	89.39	734.7	-293.1	400.0	366.1	33.93	11.789	
6,400.0	6,284.7	6,368.3	6,284.7	21.0	17.8	89.39	734.7	-293.1	400.0	365.9	34.16	11.711	
6,500.0	6,384.7	6,468.3	6,384.7	21.1	17.9	89.39	734.7	-293.1	400.0	365.7	34.39	11.633	
6,600.0	6,484.7	6,568.3	6,484.7	21.2	18.0	89.39	734.7	-293.1	400.0	365.4	34.62	11.556	
6,633.6	6,518.3	6,601.9	6,518.3	21.2	18.1	-90.67	734.7	-293.1	400.0	365.4	34.69	11.531	
6,700.0	6,584.6	6,668.3	6,584.6	21.2	18.1	-90.90	734.7	-293.1	400.1	365.2	34.87	11.474	
6,800.0	6,683.5	6,767.1	6,683.5	21.1	18.2	-92.90	734.7	-293.1	400.6	365.3	35.30	11.348	
6,900.0	6,779.4	6,864.8	6,781.2	20.9	18.3	-96.55	734.2	-293.1	402.9	367.2	35.78	11.262	
7,000.0	6,870.5	6,969.2	6,884.9	20.6	18.3	-100.69	722.8	-293.1	407.8	372.0	35.80	11.390	
7,100.0	6,954.9	7,079.1	6,991.0	20.2	18.0	-104.65	694.6	-293.1	414.7	379.5	35.20	11.783	
7,200.0	7,031.1	7,195.1	7,096.9	19.8	17.6	-108.33	647.7	-293.1	423.1	389.1	33.98	12.449	
7,300.0	7,097.6	7,317.5	7,198.9	19.3	17.0	-111.63	580.3	-293.1	432.1	399.8	32.27	13.389	
7,400.0	7,153.0	7,446.5	7,292.4	18.9	16.3	-114.45	491.7	-293.1	441.0	410.7	30.28	14.564	
7,500.0	7,196.3	7,581.7	7,371.7	18.5	15.6	-116.70	382.3	-293.2	448.8	420.5	28.31	15.854	
7,600.0	7,226.7	7,722.2	7,430.8	18.3	15.1	-118.28	255.2	-293.2	454.7	428.0	26.75	16.998	
7,700.0	7,243.5	7,866.2	7,464.4	18.2	14.8	-119.12	115.4	-293.2	457.9	432.0	25.99	17.620	
7,800.0	7,247.0	7,996.6	7,471.0	18.3	14.9	-119.25	-14.7	-293.2	458.4	432.2	26.21	17.493	
7,900.0	7,247.0	8,096.6	7,471.0	18.6	15.3	-119.25	-114.7	-293.2	458.4	431.5	26.89	17.050	
8,000.0	7,247.0	8,196.6	7,471.0	19.0	15.8	-119.25	-214.7	-293.2	458.4	430.5	27.89	16.437	
8,100.0	7,247.0	8,296.6	7,471.0	19.5	16.5	-119.25	-314.7	-293.2	458.4	429.2	29.18	15.710	
8,200.0	7,247.0	8,396.6	7,471.0	20.2	17.4	-119.25	-414.7	-293.2	458.4	427.7	30.72	14.920	
8,300.0	7,247.0	8,496.6	7,471.0	21.1	18.3	-119.25	-514.7	-293.2	458.4	425.9	32.49	14.111	
8,400.0	7,247.0	8,596.6	7,471.0	22.0	19.4	-119.25	-614.7	-293.2	458.4	424.0	34.43	13.314	
8,500.0	7,247.0	8,696.6	7,471.0	23.1	20.6	-119.25	-714.7	-293.3	458.4	421.9	36.53	12.549	
8,600.0	7,247.0	8,796.6	7,471.0	24.2	21.9	-119.25	-814.7	-293.3	458.4	419.6	38.76	11.827	
8,700.0	7,247.0	8,896.6	7,471.0	25.4	23.2	-119.25	-914.7	-293.3	458.4	417.3	41.09	11.155	
8,800.0	7,247.0	8,996.6	7,471.0	26.7	24.6	-119.25	-1,014.7	-293.3	458.4	414.9	43.52	10.533	
8,900.0	7,247.0	9,096.6	7,471.0	28.0	26.0	-119.25	-1,114.7	-293.3	458.4	412.4	46.02	9.960	
9,000.0	7,247.0	9,196.6	7,471.0	29.3	27.5	-119.25	-1,214.7	-293.3	458.4	409.8	48.59	9.433	
9,100.0	7,247.0	9,296.6	7,471.0	30.7	28.9	-119.25	-1,314.7	-293.3	458.4	407.2	51.21	8.950	
9,200.0	7,247.0	9,396.6	7,471.0	32.2	30.5	-119.25	-1,414.7	-293.3	458.4	404.5	53.88	8.507	
9,300.0	7,247.0	9,496.6	7,471.0	33.6	32.0	-119.26	-1,514.7	-293.3	458.4	401.8	56.59	8.099	
9,400.0	7,247.0	9,596.6	7,471.0	35.1	33.6	-119.26	-1,614.7	-293.3	458.4	399.0	59.34	7.724	
9,500.0	7,247.0	9,696.6	7,471.0	36.7	35.2	-119.26	-1,714.7	-293.3	458.4	396.2	62.11	7.379	
9,600.0	7,247.0	9,796.6	7,471.0	38.2	36.8	-119.26	-1,814.7	-293.3	458.3	393.4	64.91	7.061	
9,700.0	7,247.0	9,896.6	7,471.0	39.7	38.4	-119.26	-1,914.7	-293.4	458.3	390.6	67.74	6.766	
9,800.0	7,247.0	9,996.6	7,471.0	41.3	40.0	-119.26	-2,014.7	-293.4	458.3	387.8	70.58	6.494	
9,900.0	7,247.0	10,096.6	7,471.0	42.9	41.6	-119.26	-2,114.7	-293.4	458.3	384.9	73.44	6.241	
10,000.0	7,247.0	10,196.6	7,471.0	44.5	43.3	-119.26	-2,214.7	-293.4	458.3	382.0	76.32	6.005	
10,100.0	7,247.0	10,296.6	7,471.0	46.1	44.9	-119.26	-2,314.7	-293.4	458.3	379.1	79.21	5.786	
10,200.0	7,247.0	10,396.6	7,471.0	47.7	46.6	-119.26	-2,414.7	-293.4	458.3	376.2	82.12	5.581	

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 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1C-10H - Hz - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
10,300.0	7,247.0	10,496.6	7,471.0	49.3	48.2	-119.26	-2,514.7	-293.4	458.3	373.3	85.03	5.390	
10,400.0	7,247.0	10,596.6	7,471.0	51.0	49.9	-119.26	-2,614.7	-293.4	458.3	370.3	87.96	5.210	
10,500.0	7,247.0	10,696.6	7,471.0	52.6	51.6	-119.26	-2,714.7	-293.4	458.3	367.4	90.90	5.042	
10,600.0	7,247.0	10,796.6	7,471.0	54.3	53.3	-119.26	-2,814.7	-293.4	458.3	364.5	93.84	4.884	
10,700.0	7,247.0	10,896.6	7,471.0	55.9	55.0	-119.26	-2,914.7	-293.4	458.3	361.5	96.79	4.735	
10,800.0	7,247.0	10,996.6	7,471.0	57.6	56.7	-119.26	-3,014.7	-293.4	458.3	358.5	99.75	4.594	
10,900.0	7,247.0	11,096.6	7,471.0	59.3	58.3	-119.26	-3,114.7	-293.5	458.3	355.6	102.71	4.462	
11,000.0	7,247.0	11,196.6	7,471.0	60.9	60.0	-119.26	-3,214.7	-293.5	458.3	352.6	105.68	4.336	
11,100.0	7,247.0	11,296.6	7,471.0	62.6	61.7	-119.26	-3,314.7	-293.5	458.3	349.6	108.66	4.218	
11,200.0	7,247.0	11,396.6	7,471.0	64.3	63.5	-119.26	-3,414.7	-293.5	458.3	346.6	111.64	4.105	
11,300.0	7,247.0	11,496.6	7,471.0	66.0	65.2	-119.26	-3,514.7	-293.5	458.3	343.6	114.62	3.998	
11,400.0	7,247.0	11,596.6	7,471.0	67.7	66.9	-119.26	-3,614.7	-293.5	458.3	340.6	117.61	3.896	
11,500.0	7,247.0	11,696.6	7,471.0	69.4	68.6	-119.26	-3,714.7	-293.5	458.3	337.6	120.61	3.800	
11,600.0	7,247.0	11,796.6	7,471.0	71.0	70.3	-119.26	-3,814.7	-293.5	458.3	334.6	123.60	3.707	
11,700.0	7,247.0	11,896.6	7,471.0	72.7	72.0	-119.26	-3,914.7	-293.5	458.2	331.6	126.60	3.620	
11,800.0	7,247.0	11,996.6	7,471.0	74.4	73.7	-119.26	-4,014.7	-293.5	458.2	328.6	129.61	3.536	
11,837.7	7,247.0	12,034.2	7,471.0	75.1	74.4	-119.26	-4,052.3	-293.5	458.2	327.5	130.74	3.505	
11,850.7	7,247.0	12,043.6	7,471.0	75.3	74.5	-119.26	-4,061.7	-293.5	458.3	327.2	131.07	3.496	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1D-10H - 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	90.05	0.0	19.6	19.6				
100.0	100.0	100.0	100.0	0.2	0.2	90.05	0.0	19.6	19.6	19.3	0.30	64.426	
200.0	200.0	200.0	200.0	0.3	0.3	90.05	0.0	19.6	19.6	18.9	0.65	29.974	
300.0	300.0	300.0	300.0	0.5	0.5	90.05	0.0	19.6	19.6	18.6	1.00	19.530	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	135.34	0.0	19.6	20.2	18.8	1.35	14.933	
500.0	500.0	500.0	500.0	0.9	0.8	140.10	0.0	19.6	22.1	20.4	1.70	12.997	
600.0	599.9	599.9	599.9	1.0	1.0	144.41	0.8	19.7	25.5	23.5	2.05	12.435	SF
700.0	699.7	699.8	699.8	1.2	1.2	146.17	3.4	20.0	30.3	27.9	2.41	12.581	
800.0	799.4	799.7	799.6	1.4	1.4	146.19	7.8	20.5	36.4	33.6	2.78	13.104	
900.0	898.9	899.5	899.2	1.7	1.6	145.19	13.8	21.2	43.8	40.6	3.16	13.840	
1,000.0	998.3	999.2	998.5	1.9	1.8	143.67	21.6	22.2	52.4	48.8	3.57	14.690	
1,100.0	1,097.4	1,098.7	1,097.6	2.2	2.0	141.94	31.0	23.3	62.4	58.4	4.00	15.590	
1,200.0	1,196.3	1,198.1	1,196.3	2.5	2.2	140.18	42.2	24.6	73.7	69.3	4.47	16.494	
1,300.0	1,294.9	1,297.2	1,294.6	2.8	2.5	138.47	55.0	26.2	86.5	81.5	4.98	17.372	
1,400.0	1,393.3	1,396.1	1,392.5	3.1	2.8	136.87	69.4	27.9	100.6	95.1	5.53	18.203	
1,500.0	1,491.2	1,494.7	1,489.7	3.5	3.1	135.38	85.5	29.8	116.2	110.0	6.12	18.977	
1,600.0	1,588.9	1,593.1	1,586.4	3.9	3.4	134.02	103.2	32.0	133.1	126.4	6.76	19.688	
1,700.0	1,686.1	1,691.1	1,682.5	4.4	3.7	132.77	122.5	34.3	151.5	144.0	7.45	20.335	
1,800.0	1,782.9	1,788.7	1,777.9	4.8	4.1	131.62	143.3	36.8	171.2	163.1	8.19	20.922	
1,900.0	1,879.5	1,886.5	1,873.2	5.3	4.5	130.73	165.1	39.4	191.8	182.8	8.94	21.439	
2,000.0	1,976.1	1,984.3	1,968.5	5.7	4.9	130.00	187.0	42.0	212.3	202.6	9.71	21.856	
2,100.0	2,072.7	2,082.2	2,063.8	6.2	5.3	129.40	208.8	44.7	232.9	222.4	10.49	22.198	
2,200.0	2,169.3	2,180.0	2,159.1	6.7	5.7	128.90	230.7	47.3	253.5	242.2	11.28	22.482	
2,300.0	2,265.9	2,277.8	2,254.5	7.2	6.1	128.47	252.5	49.9	274.1	262.1	12.07	22.721	
2,400.0	2,362.5	2,375.7	2,349.8	7.6	6.5	128.11	274.4	52.5	294.8	281.9	12.86	22.925	
2,500.0	2,459.1	2,473.5	2,445.1	8.1	6.9	127.79	296.2	55.1	315.4	301.8	13.65	23.100	
2,600.0	2,555.7	2,571.3	2,540.4	8.6	7.3	127.51	318.1	57.8	336.1	321.6	14.45	23.252	
2,700.0	2,652.3	2,669.2	2,635.8	9.1	7.7	127.26	339.9	60.4	356.7	341.5	15.25	23.385	
2,800.0	2,748.8	2,767.0	2,731.1	9.6	8.1	127.04	361.8	63.0	377.4	361.3	16.06	23.502	
2,900.0	2,845.4	2,864.8	2,826.4	10.1	8.5	126.84	383.6	65.6	398.1	381.2	16.86	23.606	
3,000.0	2,942.0	2,962.7	2,921.7	10.5	9.0	126.66	405.5	68.3	418.7	401.1	17.67	23.698	
3,100.0	3,038.6	3,060.5	3,017.1	11.0	9.4	126.50	427.3	70.9	439.4	420.9	18.48	23.781	
3,200.0	3,135.2	3,158.3	3,112.4	11.5	9.8	126.36	449.2	73.5	460.1	440.8	19.29	23.856	
3,300.0	3,231.8	3,256.2	3,207.7	12.0	10.2	126.22	471.0	76.1	480.8	460.7	20.10	23.924	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1E-10H - 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	90.05	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.2	0.2	90.05	0.0	30.7	30.7	30.4	0.30	101.241	
200.0	200.0	200.0	200.0	0.3	0.3	90.05	0.0	30.7	30.7	30.1	0.65	47.101	
300.0	300.0	300.0	300.0	0.5	0.5	90.05	0.0	30.7	30.7	29.7	1.00	30.690	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	134.70	0.0	30.7	31.4	30.0	1.35	23.205	
500.0	500.0	499.7	499.7	0.9	0.8	136.58	0.7	31.2	33.7	32.0	1.70	19.783	
600.0	599.9	599.3	599.2	1.0	1.0	137.65	2.9	32.6	38.1	36.1	2.06	18.534	
700.0	699.7	698.7	698.6	1.2	1.2	137.98	6.5	35.0	44.7	42.3	2.42	18.464	SF
800.0	799.4	797.9	797.6	1.4	1.4	137.81	11.6	38.2	53.4	50.6	2.80	19.078	
900.0	898.9	896.9	896.2	1.7	1.6	137.35	18.1	42.4	64.2	61.0	3.19	20.097	
1,000.0	998.3	995.4	994.4	1.9	1.8	136.76	26.0	47.4	77.1	73.5	3.61	21.350	
1,100.0	1,097.4	1,093.6	1,091.9	2.2	2.1	136.12	35.3	53.4	92.1	88.0	4.05	22.724	
1,200.0	1,196.3	1,191.3	1,188.8	2.5	2.3	135.49	45.9	60.2	109.2	104.6	4.52	24.145	
1,300.0	1,294.9	1,288.4	1,284.8	2.8	2.6	134.89	57.8	67.9	128.3	123.3	5.02	25.561	
1,400.0	1,393.3	1,384.9	1,380.1	3.1	2.9	134.32	71.0	76.4	149.5	144.0	5.55	26.941	
1,500.0	1,491.2	1,480.8	1,474.4	3.5	3.2	133.79	85.5	85.7	172.7	166.6	6.11	28.263	
1,600.0	1,588.9	1,575.9	1,567.7	3.9	3.6	133.29	101.2	95.7	198.0	191.3	6.71	29.515	
1,700.0	1,686.1	1,670.3	1,659.9	4.4	3.9	132.83	118.0	106.5	225.3	217.9	7.34	30.692	
1,800.0	1,782.9	1,763.8	1,751.0	4.8	4.3	132.39	135.9	118.0	254.5	246.5	8.00	31.793	
1,900.0	1,879.5	1,858.2	1,842.6	5.3	4.7	132.13	155.0	130.3	285.0	276.3	8.70	32.767	
2,000.0	1,976.1	1,953.4	1,935.0	5.7	5.1	131.90	174.4	142.7	315.5	306.1	9.40	33.562	
2,100.0	2,072.7	2,048.6	2,027.4	6.2	5.5	131.71	193.8	155.2	346.0	335.9	10.11	34.224	
2,200.0	2,169.3	2,143.9	2,119.8	6.7	6.0	131.55	213.2	167.6	376.6	365.7	10.83	34.783	
2,300.0	2,265.9	2,239.1	2,212.1	7.2	6.4	131.42	232.6	180.1	407.1	395.6	11.55	35.259	
2,400.0	2,362.5	2,334.3	2,304.5	7.6	6.8	131.30	252.0	192.5	437.7	425.4	12.27	35.669	
2,500.0	2,459.1	2,429.5	2,396.9	8.1	7.2	131.20	271.3	205.0	468.2	455.2	13.00	36.025	
2,600.0	2,555.7	2,524.7	2,489.3	8.6	7.7	131.11	290.7	217.4	498.8	485.0	13.73	36.337	

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 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1F-10H - 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	90.05	0.0	39.1	39.1				
100.0	100.0	100.0	100.0	0.2	0.2	90.05	0.0	39.1	39.1	38.8	0.30	128.852	
200.0	200.0	200.0	200.0	0.3	0.3	90.05	0.0	39.1	39.1	38.5	0.65	59.947	
300.0	300.0	300.0	300.0	0.5	0.5	90.05	0.0	39.1	39.1	38.1	1.00	39.060	CC, ES
400.0	400.0	399.5	399.5	0.7	0.7	133.63	0.5	39.8	40.4	39.0	1.35	29.906	
500.0	500.0	498.8	498.8	0.9	0.9	133.85	2.2	41.7	44.2	42.5	1.70	25.945	
600.0	599.9	598.0	597.9	1.0	1.0	134.14	5.0	45.0	50.5	48.4	2.06	24.492	
700.0	699.7	696.9	696.6	1.2	1.2	134.44	8.9	49.6	59.2	56.8	2.43	24.413	SF
800.0	799.4	795.5	794.8	1.4	1.4	134.70	13.9	55.4	70.5	67.7	2.81	25.138	
900.0	898.9	893.5	892.5	1.7	1.7	134.91	20.0	62.4	84.3	81.1	3.20	26.345	
1,000.0	998.3	991.0	989.4	1.9	1.9	135.06	27.1	70.7	100.6	96.9	3.61	27.838	
1,100.0	1,097.4	1,087.9	1,085.4	2.2	2.2	135.17	35.2	80.1	119.2	115.2	4.04	29.488	
1,200.0	1,196.3	1,184.1	1,180.6	2.5	2.4	135.23	44.4	90.7	140.3	135.8	4.50	31.211	
1,300.0	1,294.9	1,279.4	1,274.7	2.8	2.7	135.26	54.4	102.4	163.9	158.9	4.97	32.949	
1,400.0	1,393.3	1,373.9	1,367.6	3.1	3.1	135.25	65.4	115.2	189.7	184.3	5.47	34.665	
1,500.0	1,491.2	1,467.4	1,459.4	3.5	3.4	135.22	77.3	129.0	217.9	211.9	6.00	36.333	
1,600.0	1,588.9	1,559.9	1,549.8	3.9	3.8	135.17	89.9	143.7	248.5	241.9	6.55	37.938	
1,700.0	1,686.1	1,651.4	1,638.9	4.4	4.1	135.09	103.4	159.4	281.3	274.1	7.13	39.470	
1,800.0	1,782.9	1,741.6	1,726.5	4.8	4.5	134.99	117.6	175.9	316.3	308.6	7.73	40.927	
1,900.0	1,879.5	1,830.9	1,812.8	5.3	5.0	135.06	132.6	193.3	353.0	344.6	8.36	42.234	
2,000.0	1,976.1	1,919.4	1,898.0	5.7	5.4	134.96	148.2	211.5	390.7	381.7	9.00	43.400	
2,100.0	2,072.7	2,007.5	1,982.4	6.2	5.9	134.75	164.7	230.6	429.4	419.7	9.66	44.450	
2,200.0	2,169.3	2,099.5	2,070.3	6.7	6.3	134.50	182.2	251.0	468.5	458.2	10.34	45.322	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 1G-10H - 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	90.05	0.0	50.3	50.3				
100.0	100.0	100.0	100.0	0.2	0.2	90.05	0.0	50.3	50.3	50.0	0.30	165.667	
200.0	200.0	200.0	200.0	0.3	0.3	90.05	0.0	50.3	50.3	49.7	0.65	77.075	CC, ES
300.0	300.0	299.2	299.2	0.5	0.5	89.55	0.4	51.0	51.1	50.1	1.00	50.987	
400.0	400.0	398.4	398.4	0.7	0.7	132.31	1.7	53.3	53.9	52.5	1.35	39.924	
500.0	500.0	497.4	497.3	0.9	0.9	132.07	3.9	56.9	59.4	57.7	1.70	34.899	
600.0	599.9	596.1	595.8	1.0	1.1	132.23	7.0	62.1	67.6	65.5	2.06	32.799	
700.0	699.7	694.4	693.8	1.2	1.3	132.63	10.9	68.6	78.4	76.0	2.43	32.305	SF
800.0	799.4	792.3	791.2	1.4	1.5	133.15	15.7	76.5	91.9	89.1	2.81	32.758	
900.0	898.9	889.5	887.8	1.7	1.7	133.70	21.3	85.9	108.0	104.8	3.20	33.791	
1,000.0	998.3	986.1	983.6	1.9	2.0	134.23	27.6	96.5	126.8	123.2	3.60	35.179	
1,100.0	1,097.4	1,081.8	1,078.3	2.2	2.3	134.70	34.8	108.4	148.1	144.1	4.03	36.778	
1,200.0	1,196.3	1,176.7	1,171.9	2.5	2.6	135.11	42.6	121.5	172.1	167.6	4.47	38.493	
1,300.0	1,294.9	1,270.6	1,264.3	2.8	2.9	135.45	51.2	135.9	198.5	193.6	4.93	40.260	
1,400.0	1,393.3	1,363.4	1,355.4	3.1	3.3	135.74	60.4	151.3	227.5	222.1	5.41	42.034	
1,500.0	1,491.2	1,455.1	1,445.1	3.5	3.6	135.97	70.3	167.8	258.9	253.0	5.91	43.785	
1,600.0	1,588.9	1,545.6	1,533.3	3.9	4.0	136.15	80.8	185.2	292.8	286.4	6.44	45.494	
1,700.0	1,686.1	1,634.8	1,619.9	4.4	4.4	136.28	91.8	203.6	329.1	322.1	6.98	47.148	
1,800.0	1,782.9	1,722.7	1,704.9	4.8	4.8	136.37	103.3	222.9	367.7	360.2	7.54	48.740	
1,900.0	1,879.5	1,809.5	1,788.4	5.3	5.3	136.64	115.4	243.0	408.0	399.9	8.13	50.174	
2,000.0	1,976.1	1,895.3	1,870.7	5.7	5.7	136.76	127.9	263.9	449.5	440.8	8.73	51.475	
2,100.0	2,072.7	1,985.7	1,957.1	6.2	6.2	136.80	141.5	286.6	491.5	482.2	9.35	52.564	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 4-2-10 (Existing) - Existing - Existing

Offset Site Error: 0.0 ft

Survey Program: 8276-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	125.23	-284.9	403.3	494.0				
100.0	100.0	84.0	84.0	0.2	0.1	125.23	-284.9	403.3	493.8	493.5	0.30	1,653.388	
200.0	200.0	184.0	184.0	0.3	0.3	125.23	-284.9	403.3	493.8	493.1	0.65	762.349	
300.0	300.0	284.0	284.0	0.5	0.5	125.23	-284.9	403.3	493.8	492.8	1.00	495.380	CC, ES
400.0	400.0	384.0	384.0	0.7	0.7	168.75	-284.9	403.3	494.6	493.3	1.35	367.560	
500.0	500.0	484.0	484.0	0.9	0.8	168.80	-284.9	403.3	497.2	495.5	1.69	293.431	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Ione 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**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 S10-T2N-R66W (Ione) - Ione 6-0-10 (Existing) - Existing - Existing

Offset Site Error: 0.0 ft

Survey Program: 94-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	8.1	8.1	0.0	0.0	124.17	-273.2	402.5	486.4				
100.0	100.0	117.9	117.9	0.2	0.1	124.09	-271.6	401.4	484.7	484.5	0.24	1,987.770	
200.0	200.0	211.3	211.2	0.3	0.2	123.86	-269.2	401.3	483.2	482.7	0.50	966.529	
293.7	293.7	300.8	300.7	0.5	0.3	123.47	-266.3	402.8	482.9	482.1	0.74	649.550	
300.0	300.0	306.9	306.8	0.5	0.3	123.43	-266.0	403.0	482.9	482.1	0.76	635.212	
400.0	400.0	405.7	405.4	0.7	0.4	166.22	-261.0	406.6	484.0	483.0	1.05	462.339	
500.0	500.0	513.1	512.2	0.9	0.5	165.03	-251.9	412.2	486.5	485.1	1.36	358.861	
600.0	599.9	628.7	626.6	1.0	0.7	163.28	-236.5	418.0	488.2	486.5	1.70	287.241	
700.0	699.7	751.4	747.3	1.2	0.9	161.13	-214.8	421.3	487.7	485.7	2.08	234.362	
800.0	799.4	872.0	865.3	1.4	1.1	158.88	-189.5	420.6	485.2	482.7	2.48	195.921	
900.0	898.9	992.0	981.9	1.7	1.4	156.76	-162.2	414.3	479.5	476.7	2.88	166.507	
1,000.0	998.3	1,102.8	1,089.3	1.9	1.6	154.93	-136.3	405.2	473.2	469.9	3.28	144.240	
1,100.0	1,097.4	1,220.6	1,202.9	2.2	1.9	153.14	-108.3	391.6	465.5	461.8	3.70	125.760	
1,200.0	1,196.3	1,334.0	1,311.4	2.5	2.1	151.51	-80.2	374.4	455.9	451.7	4.13	110.354	
1,300.0	1,294.9	1,434.9	1,407.6	2.8	2.4	150.15	-55.0	357.4	446.4	441.8	4.56	97.975	
1,400.0	1,393.3	1,539.3	1,506.9	3.1	2.7	148.76	-28.5	339.0	437.8	432.8	5.02	87.305	
1,500.0	1,491.2	1,642.1	1,604.2	3.5	3.0	147.38	-1.6	320.2	430.0	424.5	5.50	78.118	
1,600.0	1,588.9	1,742.4	1,698.9	3.9	3.3	145.92	26.2	301.5	423.3	417.3	6.03	70.197	
1,700.0	1,686.1	1,840.5	1,791.4	4.4	3.5	144.61	53.1	283.4	418.4	411.9	6.57	63.709	
1,800.0	1,782.9	1,937.5	1,883.5	4.8	3.8	143.64	78.1	265.4	415.5	408.4	7.10	58.481	
1,900.0	1,879.5	2,035.0	1,976.4	5.3	4.1	142.92	101.6	247.9	414.3	406.6	7.65	54.170	
2,000.0	1,976.1	2,133.0	2,069.8	5.7	4.3	142.15	125.5	230.5	413.3	405.1	8.21	50.329	
2,049.9	2,024.3	2,180.6	2,115.3	6.0	4.4	141.77	137.1	222.3	413.1	404.6	8.49	48.636 CC	
2,100.0	2,072.7	2,227.9	2,160.5	6.2	4.6	141.42	148.4	214.4	413.3	404.5	8.78	47.093 ES	
2,200.0	2,169.3	2,325.3	2,254.0	6.7	4.8	140.75	171.3	199.0	414.5	405.1	9.35	44.326	
2,300.0	2,265.9	2,420.8	2,345.7	7.2	5.1	140.15	193.3	184.1	416.2	406.3	9.92	41.938	
2,400.0	2,362.5	2,520.3	2,441.4	7.6	5.3	139.54	216.0	169.8	419.0	408.5	10.52	39.823	
2,500.0	2,459.1	2,622.4	2,539.5	8.1	5.6	138.81	240.2	154.5	421.3	410.2	11.14	37.810	
2,600.0	2,555.7	2,719.6	2,633.1	8.6	5.8	138.34	261.6	139.8	423.7	412.0	11.72	36.139	
2,700.0	2,652.3	2,817.4	2,727.6	9.1	6.0	137.96	282.6	125.6	426.8	414.5	12.31	34.672	
2,800.0	2,748.8	2,922.9	2,829.2	9.6	6.3	137.37	306.5	110.1	429.6	416.6	12.95	33.173	
2,900.0	2,845.4	3,023.8	2,926.0	10.1	6.6	136.70	330.3	94.5	431.5	417.9	13.61	31.709	
3,000.0	2,942.0	3,125.8	3,023.4	10.5	6.9	135.80	356.0	78.4	433.1	418.8	14.33	30.234	
3,100.0	3,038.6	3,225.7	3,118.6	11.0	7.1	134.86	381.7	62.4	434.6	419.6	15.05	28.872	
3,200.0	3,135.2	3,324.9	3,212.9	11.5	7.4	133.86	407.7	46.6	436.2	420.4	15.80	27.602	
3,300.0	3,231.8	3,422.5	3,306.2	12.0	7.7	133.03	432.2	31.4	438.3	421.8	16.52	26.533	
3,400.0	3,328.4	3,522.3	3,401.9	12.5	7.9	132.39	455.9	16.0	440.7	423.5	17.22	25.589	
3,500.0	3,425.0	3,622.4	3,497.7	13.0	8.2	131.59	480.8	0.6	443.2	425.2	17.96	24.671	
3,600.0	3,521.6	3,723.1	3,594.2	13.5	8.5	130.96	504.6	-15.1	445.5	426.9	18.67	23.861	
3,700.0	3,618.2	3,822.0	3,689.3	13.9	8.7	130.49	526.8	-30.5	447.9	428.6	19.36	23.138	
3,800.0	3,714.8	3,924.7	3,787.9	14.4	9.0	129.88	551.0	-46.5	450.4	430.3	20.09	22.423	
3,900.0	3,811.4	4,018.8	3,878.2	14.9	9.2	129.35	572.9	-61.4	452.7	431.9	20.79	21.776	
4,000.0	3,908.0	4,116.6	3,972.4	15.4	9.4	128.89	595.2	-75.2	456.5	435.1	21.48	21.259	
4,100.0	4,004.6	4,213.3	4,066.3	15.9	9.7	128.82	614.2	-88.7	460.5	438.4	22.06	20.873	
4,200.0	4,101.2	4,307.7	4,158.5	16.4	9.8	129.09	630.3	-100.7	465.6	443.0	22.58	20.622	
4,300.0	4,198.0	4,404.4	4,253.1	16.8	10.0	129.31	646.6	-112.0	470.9	447.8	23.08	20.405	
4,400.0	4,295.4	4,500.6	4,347.6	17.3	10.2	129.50	661.8	-122.5	475.7	452.2	23.55	20.205	
4,500.0	4,393.0	4,585.3	4,431.1	17.7	10.3	129.79	673.2	-130.3	481.3	457.3	23.93	20.112 SF	
4,600.0	4,491.1	4,674.7	4,519.9	18.0	10.4	130.32	682.4	-135.4	488.8	464.6	24.22	20.180	
4,700.0	4,589.5	4,776.9	4,621.8	18.4	10.5	131.30	688.2	-140.3	496.1	471.8	24.35	20.373	

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 1B-10H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Reference Site:	S10-T2N-R66W (Ione)	**MD Reference:**	WELL @ 5012.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Ione 1B-10H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5012.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Ione 1B-10H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.48°