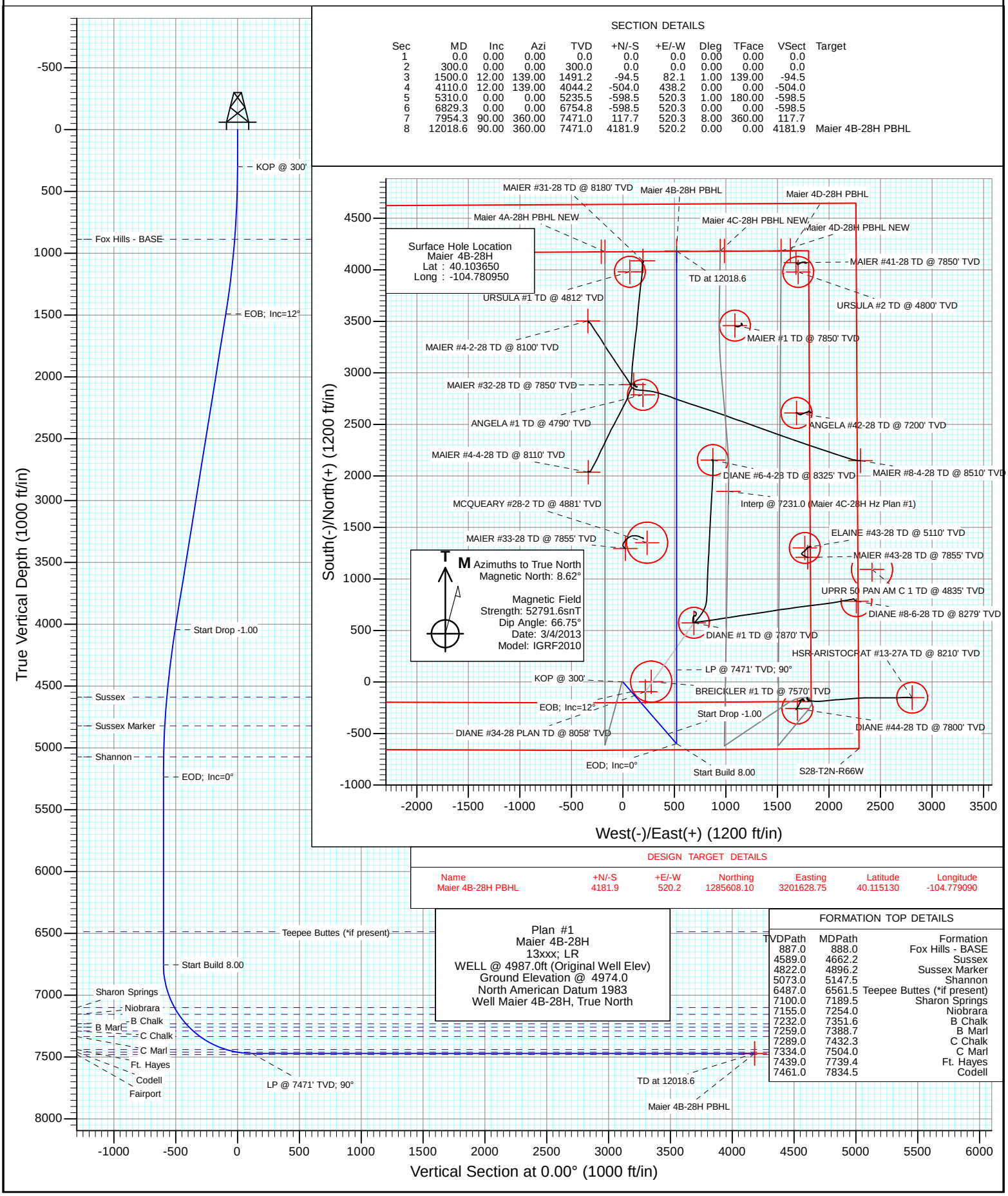
Project: DJ Wattenberg
Site: S28-T2N-R66W (Maier)
Well: Maier 4B-28H
Wellbore: Hz
Design: Plan #1

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	1500.0	12.00	139.00	1491.2	-94.5	82.1	1.00	139.00	-94.5	
4	4110.0	12.00	139.00	4044.2	-504.0	438.2	0.00	0.00	-504.0	
5	5310.0	0.00	0.00	5235.5	-598.5	520.3	1.00	180.00	-598.5	
6	6829.3	0.00	0.00	6754.8	-598.5	520.3	0.00	0.00	-598.5	
7	7954.3	90.00	360.00	7471.0	117.7	520.3	8.00	360.00	117.7	
8	12018.6	90.00	360.00	7471.0	4181.9	520.2	0.00	0.00	4181.9	Maier 4B-28H PBHL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Maier 4B-28H PBHL	4181.9	520.2	1285608.10	3201628.75	40.115130	-104.779090

Plan #1
Maier 4B-28H
13xxx; LR
WELL @ 4987.0ft (Original Well Elev)
Ground Elevation @ 4974.0
North American Datum 1983
Well Maier 4B-28H, True North

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
887.0	888.0	Fox Hills - BASE
4589.0	4662.2	Sussex
4822.0	4896.2	Sussex Marker
5073.0	5147.5	Shannon
6487.0	6561.5	Teepee Buttes (*if present)
7100.0	7189.5	Sharon Springs
7155.0	7254.0	Niobrara
7232.0	7351.6	B Chalk
7259.0	7388.7	B Marl
7289.0	7432.3	C Chalk
7334.0	7504.0	C Marl
7439.0	7739.4	Ft. Hayes
7461.0	7834.5	Codell

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site:	S28-T2N-R66W (Maier)	**North Reference:**	True
Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier)

Site Position:		**Northing:**	1,281,422.02 ft	**Latitude:**	40.103650
From:	Lat/Long	**Easting:**	3,201,134.08 ft	**Longitude:**	-104.780980
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.46 °

Well Maier 4B-28H

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,281,422.07 ft	**Latitude:**	40.103650
	+E/-W	0.0 ft	**Easting:**	3,201,142.47 ft	**Longitude:**	-104.780950
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,974.0 ft

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/4/2013	8.62	66.75	52,792

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	0.00

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	
1,500.0	12.00	139.00	1,491.2	-94.5	82.1	1.00	1.00	0.00	139.00	
4,110.0	12.00	139.00	4,044.2	-504.0	438.2	0.00	0.00	0.00	0.00	
5,310.0	0.00	0.00	5,235.5	-598.5	520.3	1.00	-1.00	0.00	180.00	
6,829.3	0.00	0.00	6,754.8	-598.5	520.3	0.00	0.00	0.00	0.00	
7,954.3	90.00	360.00	7,471.0	117.7	520.3	8.00	8.00	0.00	360.00	
12,018.6	90.00	360.00	7,471.0	4,181.9	520.2	0.00	0.00	0.00	0.00	Maier 4B-28H PBHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site:	S28-T2N-R66W (Maier)	**North Reference:**	True
Well:	Maier 4B-28H	**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	139.00	400.0	-0.7	0.6	-0.7	1.00	1.00	
500.0	2.00	139.00	500.0	-2.6	2.3	-2.6	1.00	1.00	
600.0	3.00	139.00	599.9	-5.9	5.2	-5.9	1.00	1.00	
700.0	4.00	139.00	699.7	-10.5	9.2	-10.5	1.00	1.00	
800.0	5.00	139.00	799.4	-16.5	14.3	-16.5	1.00	1.00	
888.0	5.88	139.00	887.0	-22.8	19.8	-22.8	1.00	1.00	Fox Hills - BASE
900.0	6.00	139.00	898.9	-23.7	20.6	-23.7	1.00	1.00	
1,000.0	7.00	139.00	998.3	-32.2	28.0	-32.2	1.00	1.00	
1,100.0	8.00	139.00	1,097.4	-42.1	36.6	-42.1	1.00	1.00	
1,200.0	9.00	139.00	1,196.3	-53.2	46.3	-53.2	1.00	1.00	
1,300.0	10.00	139.00	1,294.9	-65.7	57.1	-65.7	1.00	1.00	
1,400.0	11.00	139.00	1,393.3	-79.4	69.1	-79.4	1.00	1.00	
1,500.0	12.00	139.00	1,491.2	-94.5	82.1	-94.5	1.00	1.00	EOB; Inc=12°
1,600.0	12.00	139.00	1,589.1	-110.2	95.8	-110.2	0.00	0.00	
1,700.0	12.00	139.00	1,686.9	-125.9	109.4	-125.9	0.00	0.00	
1,800.0	12.00	139.00	1,784.7	-141.6	123.1	-141.6	0.00	0.00	
1,900.0	12.00	139.00	1,882.5	-157.3	136.7	-157.3	0.00	0.00	
2,000.0	12.00	139.00	1,980.3	-172.9	150.3	-172.9	0.00	0.00	
2,100.0	12.00	139.00	2,078.1	-188.6	164.0	-188.6	0.00	0.00	
2,200.0	12.00	139.00	2,175.9	-204.3	177.6	-204.3	0.00	0.00	
2,300.0	12.00	139.00	2,273.8	-220.0	191.3	-220.0	0.00	0.00	
2,400.0	12.00	139.00	2,371.6	-235.7	204.9	-235.7	0.00	0.00	
2,500.0	12.00	139.00	2,469.4	-251.4	218.5	-251.4	0.00	0.00	
2,600.0	12.00	139.00	2,567.2	-267.1	232.2	-267.1	0.00	0.00	
2,700.0	12.00	139.00	2,665.0	-282.8	245.8	-282.8	0.00	0.00	
2,800.0	12.00	139.00	2,762.8	-298.5	259.5	-298.5	0.00	0.00	
2,900.0	12.00	139.00	2,860.7	-314.2	273.1	-314.2	0.00	0.00	
3,000.0	12.00	139.00	2,958.5	-329.9	286.7	-329.9	0.00	0.00	
3,100.0	12.00	139.00	3,056.3	-345.6	300.4	-345.6	0.00	0.00	
3,200.0	12.00	139.00	3,154.1	-361.2	314.0	-361.2	0.00	0.00	
3,300.0	12.00	139.00	3,251.9	-376.9	327.7	-376.9	0.00	0.00	
3,400.0	12.00	139.00	3,349.7	-392.6	341.3	-392.6	0.00	0.00	
3,500.0	12.00	139.00	3,447.5	-408.3	354.9	-408.3	0.00	0.00	
3,600.0	12.00	139.00	3,545.4	-424.0	368.6	-424.0	0.00	0.00	
3,700.0	12.00	139.00	3,643.2	-439.7	382.2	-439.7	0.00	0.00	
3,800.0	12.00	139.00	3,741.0	-455.4	395.9	-455.4	0.00	0.00	
3,900.0	12.00	139.00	3,838.8	-471.1	409.5	-471.1	0.00	0.00	
4,000.0	12.00	139.00	3,936.6	-486.8	423.1	-486.8	0.00	0.00	
4,100.0	12.00	139.00	4,034.4	-502.5	436.8	-502.5	0.00	0.00	
4,110.0	12.00	139.00	4,044.2	-504.0	438.2	-504.0	0.00	0.00	Start Drop -1.00
4,200.0	11.10	139.00	4,132.4	-517.6	450.0	-517.6	1.00	-1.00	
4,300.0	10.10	139.00	4,230.7	-531.5	462.0	-531.5	1.00	-1.00	
4,400.0	9.10	139.00	4,329.3	-544.1	473.0	-544.1	1.00	-1.00	
4,500.0	8.10	139.00	4,428.2	-555.4	482.8	-555.4	1.00	-1.00	
4,600.0	7.10	139.00	4,527.3	-565.4	491.5	-565.4	1.00	-1.00	
4,662.2	6.48	139.00	4,589.0	-570.9	496.3	-570.9	1.00	-1.00	Sussex
4,700.0	6.10	139.00	4,626.6	-574.0	499.0	-574.0	1.00	-1.00	
4,800.0	5.10	139.00	4,726.1	-581.4	505.4	-581.4	1.00	-1.00	

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Project:	DJ Wattenberg	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site:	S28-T2N-R66W (Maier)	**North Reference:**	True
Well:	Maier 4B-28H	**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
4,896.2	4.14	139.00	4,822.0	-587.3	510.5	-587.3	1.00	-1.00	Sussex Marker
4,900.0	4.10	139.00	4,825.8	-587.5	510.7	-587.5	1.00	-1.00	
5,000.0	3.10	139.00	4,925.6	-592.2	514.8	-592.2	1.00	-1.00	
5,100.0	2.10	139.00	5,025.5	-595.6	517.8	-595.6	1.00	-1.00	
5,147.5	1.62	139.00	5,073.0	-596.8	518.8	-596.8	1.00	-1.00	Shannon
5,200.0	1.10	139.00	5,125.5	-597.7	519.6	-597.7	1.00	-1.00	
5,300.0	0.10	139.00	5,225.5	-598.5	520.3	-598.5	1.00	-1.00	
5,310.0	0.00	0.00	5,235.5	-598.5	520.3	-598.5	1.00	-1.00	EOD; Inc=0°
5,400.0	0.00	0.00	5,325.5	-598.5	520.3	-598.5	0.00	0.00	
5,500.0	0.00	0.00	5,425.5	-598.5	520.3	-598.5	0.00	0.00	
5,600.0	0.00	0.00	5,525.5	-598.5	520.3	-598.5	0.00	0.00	
5,700.0	0.00	0.00	5,625.5	-598.5	520.3	-598.5	0.00	0.00	
5,800.0	0.00	0.00	5,725.5	-598.5	520.3	-598.5	0.00	0.00	
5,900.0	0.00	0.00	5,825.5	-598.5	520.3	-598.5	0.00	0.00	
6,000.0	0.00	0.00	5,925.5	-598.5	520.3	-598.5	0.00	0.00	
6,100.0	0.00	0.00	6,025.5	-598.5	520.3	-598.5	0.00	0.00	
6,200.0	0.00	0.00	6,125.5	-598.5	520.3	-598.5	0.00	0.00	
6,300.0	0.00	0.00	6,225.5	-598.5	520.3	-598.5	0.00	0.00	
6,400.0	0.00	0.00	6,325.5	-598.5	520.3	-598.5	0.00	0.00	
6,500.0	0.00	0.00	6,425.5	-598.5	520.3	-598.5	0.00	0.00	
6,561.5	0.00	0.00	6,487.0	-598.5	520.3	-598.5	0.00	0.00	Teepee Buttes (*if present)
6,600.0	0.00	0.00	6,525.5	-598.5	520.3	-598.5	0.00	0.00	
6,700.0	0.00	0.00	6,625.5	-598.5	520.3	-598.5	0.00	0.00	
6,800.0	0.00	0.00	6,725.5	-598.5	520.3	-598.5	0.00	0.00	
6,829.3	0.00	0.00	6,754.8	-598.5	520.3	-598.5	0.00	0.00	Start Build 8.00
6,900.0	5.65	360.00	6,825.3	-595.0	520.3	-595.0	8.00	8.00	
7,000.0	13.65	360.00	6,923.8	-578.3	520.3	-578.3	8.00	8.00	
7,100.0	21.65	360.00	7,019.1	-548.0	520.3	-548.0	8.00	8.00	
7,189.5	28.82	360.00	7,100.0	-509.8	520.3	-509.8	8.00	8.00	Sharon Springs
7,200.0	29.65	360.00	7,109.1	-504.7	520.3	-504.7	8.00	8.00	
7,254.0	33.97	360.00	7,155.0	-476.3	520.3	-476.3	8.00	8.00	Niobrara
7,300.0	37.65	360.00	7,192.3	-449.4	520.3	-449.4	8.00	8.00	
7,351.6	41.78	360.00	7,232.0	-416.4	520.3	-416.4	8.00	8.00	B Chalk
7,388.7	44.75	360.00	7,259.0	-391.0	520.3	-391.0	8.00	8.00	B Marl
7,400.0	45.65	360.00	7,267.0	-383.0	520.3	-383.0	8.00	8.00	
7,432.3	48.23	360.00	7,289.0	-359.4	520.3	-359.4	8.00	8.00	C Chalk
7,500.0	53.65	360.00	7,331.7	-306.8	520.3	-306.8	8.00	8.00	
7,504.0	53.97	360.00	7,334.0	-303.6	520.3	-303.6	8.00	8.00	C Marl
7,600.0	61.65	360.00	7,385.1	-222.4	520.3	-222.4	8.00	8.00	
7,700.0	69.65	360.00	7,426.3	-131.4	520.3	-131.4	8.00	8.00	
7,739.4	72.81	360.00	7,439.0	-94.0	520.3	-94.0	8.00	8.00	Ft. Hayes
7,800.0	77.65	360.00	7,454.4	-35.5	520.3	-35.5	8.00	8.00	
7,834.5	80.41	360.00	7,461.0	-1.6	520.3	-1.6	8.00	8.00	Codell
7,900.0	85.65	360.00	7,468.9	63.4	520.3	63.4	8.00	8.00	
7,954.3	90.00	360.00	7,471.0	117.7	520.3	117.7	8.00	8.00	LP @ 7471' TVD; 90°
8,000.0	90.00	360.00	7,471.0	163.3	520.3	163.3	0.00	0.00	
8,100.0	90.00	360.00	7,471.0	263.3	520.3	263.3	0.00	0.00	
8,200.0	90.00	360.00	7,471.0	363.3	520.3	363.3	0.00	0.00	
8,300.0	90.00	360.00	7,471.0	463.3	520.3	463.3	0.00	0.00	
8,400.0	90.00	360.00	7,471.0	563.3	520.3	563.3	0.00	0.00	
8,500.0	90.00	360.00	7,471.0	663.3	520.3	663.3	0.00	0.00	
8,600.0	90.00	360.00	7,471.0	763.3	520.3	763.3	0.00	0.00	

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Site:	S28-T2N-R66W (Maier)	**North Reference:**	True
Well:	Maier 4B-28H	**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
8,700.0	90.00	360.00	7,471.0	863.3	520.3	863.3	0.00	0.00	
8,800.0	90.00	360.00	7,471.0	963.3	520.3	963.3	0.00	0.00	
8,900.0	90.00	360.00	7,471.0	1,063.3	520.3	1,063.3	0.00	0.00	
9,000.0	90.00	360.00	7,471.0	1,163.3	520.3	1,163.3	0.00	0.00	
9,100.0	90.00	360.00	7,471.0	1,263.3	520.3	1,263.3	0.00	0.00	
9,200.0	90.00	360.00	7,471.0	1,363.3	520.3	1,363.3	0.00	0.00	
9,300.0	90.00	360.00	7,471.0	1,463.3	520.3	1,463.3	0.00	0.00	
9,400.0	90.00	360.00	7,471.0	1,563.3	520.3	1,563.3	0.00	0.00	
9,500.0	90.00	360.00	7,471.0	1,663.3	520.3	1,663.3	0.00	0.00	
9,600.0	90.00	360.00	7,471.0	1,763.3	520.3	1,763.3	0.00	0.00	
9,700.0	90.00	360.00	7,471.0	1,863.3	520.2	1,863.3	0.00	0.00	
9,800.0	90.00	360.00	7,471.0	1,963.3	520.2	1,963.3	0.00	0.00	
9,900.0	90.00	360.00	7,471.0	2,063.3	520.2	2,063.3	0.00	0.00	
10,000.0	90.00	360.00	7,471.0	2,163.3	520.2	2,163.3	0.00	0.00	
10,100.0	90.00	360.00	7,471.0	2,263.3	520.2	2,263.3	0.00	0.00	
10,200.0	90.00	360.00	7,471.0	2,363.3	520.2	2,363.3	0.00	0.00	
10,300.0	90.00	360.00	7,471.0	2,463.3	520.2	2,463.3	0.00	0.00	
10,400.0	90.00	360.00	7,471.0	2,563.3	520.2	2,563.3	0.00	0.00	
10,500.0	90.00	360.00	7,471.0	2,663.3	520.2	2,663.3	0.00	0.00	
10,600.0	90.00	360.00	7,471.0	2,763.3	520.2	2,763.3	0.00	0.00	
10,700.0	90.00	360.00	7,471.0	2,863.3	520.2	2,863.3	0.00	0.00	
10,800.0	90.00	360.00	7,471.0	2,963.3	520.2	2,963.3	0.00	0.00	
10,900.0	90.00	360.00	7,471.0	3,063.3	520.2	3,063.3	0.00	0.00	
11,000.0	90.00	360.00	7,471.0	3,163.3	520.2	3,163.3	0.00	0.00	
11,100.0	90.00	360.00	7,471.0	3,263.3	520.2	3,263.3	0.00	0.00	
11,200.0	90.00	360.00	7,471.0	3,363.3	520.2	3,363.3	0.00	0.00	
11,300.0	90.00	360.00	7,471.0	3,463.3	520.2	3,463.3	0.00	0.00	
11,400.0	90.00	360.00	7,471.0	3,563.3	520.2	3,563.3	0.00	0.00	
11,500.0	90.00	360.00	7,471.0	3,663.3	520.2	3,663.3	0.00	0.00	
11,600.0	90.00	360.00	7,471.0	3,763.3	520.2	3,763.3	0.00	0.00	
11,700.0	90.00	360.00	7,471.0	3,863.3	520.2	3,863.3	0.00	0.00	
11,800.0	90.00	360.00	7,471.0	3,963.3	520.2	3,963.3	0.00	0.00	
11,900.0	90.00	360.00	7,471.0	4,063.3	520.2	4,063.3	0.00	0.00	
12,000.0	90.00	360.00	7,471.0	4,163.3	520.2	4,163.3	0.00	0.00	
12,018.6	90.00	360.00	7,471.0	4,181.9	520.2	4,181.9	0.00	0.00	TD at 12018.6 - Maier 4B-28H 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
Maier 4B-28H PBHL - plan hits target center - Point	0.00	0.00	7,471.0	4,181.9	520.2	1,285,608.10	3,201,628.75	40.115130	-104.779090

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Project:	DJ Wattenberg	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site:	S28-T2N-R66W (Maier)	**North Reference:**	True
Well:	Maier 4B-28H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
888.0	887.0	Fox Hills - BASE			
4,662.2	4,589.0	Sussex			
4,896.2	4,822.0	Sussex Marker			
5,147.5	5,073.0	Shannon			
6,561.5	6,487.0	Teepee Buttes (*if present)			
7,189.5	7,100.0	Sharon Springs			
7,254.0	7,155.0	Niobrara			
7,351.6	7,232.0	B Chalk			
7,388.7	7,259.0	B Marl			
7,432.3	7,289.0	C Chalk			
7,504.0	7,334.0	C Marl			
7,739.4	7,439.0	Ft. Hayes			
7,834.5	7,461.0	Codell			

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'
1,500.0	1,491.2	-94.5	82.1	EOB; Inc=12°
4,110.0	4,044.2	-504.0	438.2	Start Drop -1.00
5,310.0	5,235.5	-598.5	520.3	EOD; Inc=0°
6,829.3	6,754.8	-598.5	520.3	Start Build 8.00
7,954.3	7,471.0	117.7	520.3	LP @ 7471' TVD; 90°
12,018.6	7,471.0	4,181.9	520.2	TD at 12018.6

EnCana Oil & Gas (USA) Inc

DJ Wattenberg
S28-T2N-R66W (Maier)
Maier 4B-28H
Hz
Plan #1

Anticollision Report

06 March, 2013

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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** 3/6/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,018.6	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
S28-T2N-R66W (Maier)						
ANGELA #1 (EXISTING) - EXISTING - NO SURVEYS						Out of range
ANGELA #42-28 (EXISTING) - EXISTING - GYRO						Out of range
BREICKLER #1 (EXISTING) - EXISTING - NO SURVEY	1,753.1	1,723.8	209.0	201.5	27.882	CC
BREICKLER #1 (EXISTING) - EXISTING - NO SURVEY	1,800.0	1,769.7	209.2	201.5	26.980	ES
BREICKLER #1 (EXISTING) - EXISTING - NO SURVEY	7,839.1	7,446.7	245.9	219.1	9.196	SF
DIANE #1 (EXISTING) - EXISTING - GYRO	8,411.8	7,444.6	162.0	137.3	6.579	CC, ES, SF
DIANE #34-28 (EXISTING) - DD - Plan #1	7,738.2	7,514.8	302.7	271.6	9.710	CC, ES, SF
DIANE #44-28 (EXISTING) - EXISTING - GYRO						Out of range
DIANE #6-4-28 (EXISTING) - EXISTING - SURVEYS	9,991.0	7,735.6	346.9	274.4	4.786	CC
DIANE #6-4-28 (EXISTING) - EXISTING - SURVEYS	10,000.0	7,735.6	347.0	274.4	4.778	ES, SF
DIANE #8-6-28 (EXISTING) - EXISTING - SURVEYS						Out of range
ELAINE #43-28 (EXISTING) - EXISTING - NO SURVEYS						Out of range
HSR-ARISTOCRAT #13-27A (EXISTING) - EXISTING - S						Out of range
MAIER #1 (EXISTING) - EXISTING - GYRO						Out of range
MAIER #31-28 (EXISTING) - EXISTING - SURVEYS	11,915.0	7,574.2	320.8	221.5	3.229	CC, ES, SF
MAIER #32-28 (EXISTING) - EXISTING - GYRO	10,719.7	7,414.4	416.5	355.9	6.877	CC, ES
MAIER #32-28 (EXISTING) - EXISTING - GYRO	10,800.0	7,414.7	424.2	362.2	6.850	SF
MAIER #33-28 (EXISTING) - EXISTING - GYRO						Out of range
MAIER #41-28 (EXISTING) - EXISTING - GYRO						Out of range
MAIER #4-2-28 (EXISTING) - EXISTING - SURVEYS						Out of range
MAIER #43-28 (EXISTING) - EXISTING - GYRO						Out of range
MAIER #4-4-28 (EXISTING) - EXISTING - SURVEYS						Out of range
MAIER #8-4-28 (EXISTING) - EXISTING - SURVEYS						Out of range
Maier 4A-28H - Hz - Plan #1	300.0	300.0	8.4	7.4	8.377	CC, ES
Maier 4A-28H - Hz - Plan #1	400.0	400.0	9.2	7.8	6.801	SF
Maier 4C-28H - Hz - Plan #1	6,718.6	6,765.1	465.1	435.1	15.522	CC
Maier 4C-28H - Hz - Plan #1	12,018.6	11,829.0	494.4	360.1	3.681	ES, SF
Maier 4D-28H - Hz - Plan #1						Out of range
MCQUEARY #28-2 (EXISTING) - EXISTING - NO SURV						Out of range
UPRR 50 PAN AM C 1 (EXISTING) - EXISTING - NO SU						Out of range
URSULA #1 (EXISTING) - EXISTING - NO SURVEYS						Out of range
URSULA #2 (EXISTING) - EXISTING - NO SURVEYS						Out of range

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier) - BREICKLER #1 (EXISTING) - EXISTING - NO SURVEYS

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	89.39	2.9	274.4	274.8				
100.0	100.0	85.0	85.0	0.2	0.1	89.39	2.9	274.4	274.4	274.1	0.30	914.072	
200.0	200.0	185.0	185.0	0.3	0.3	89.39	2.9	274.4	274.4	273.8	0.65	422.678	
300.0	300.0	285.0	285.0	0.5	0.5	89.39	2.9	274.4	274.4	273.4	1.00	274.888	
400.0	400.0	385.0	385.0	0.7	0.7	-49.75	2.9	274.4	273.9	272.5	1.35	203.204	
500.0	500.0	485.0	485.0	0.9	0.8	-50.19	2.9	274.4	272.2	270.5	1.70	160.196	
600.0	599.9	584.9	584.9	1.0	1.0	-50.92	2.9	274.4	269.4	267.4	2.05	131.132	
700.0	699.7	684.7	684.7	1.2	1.2	-51.97	2.9	274.4	265.6	263.2	2.42	109.901	
800.0	799.4	784.4	784.4	1.4	1.4	-53.36	2.9	274.4	260.8	258.0	2.79	93.525	
900.0	898.9	883.9	883.9	1.7	1.5	-55.13	2.9	274.4	255.2	252.0	3.17	80.387	
1,000.0	998.3	983.3	983.3	1.9	1.7	-57.31	2.9	274.4	248.9	245.3	3.58	69.541	
1,100.0	1,097.4	1,082.4	1,082.4	2.2	1.9	-59.96	2.9	274.4	242.1	238.0	4.01	60.413	
1,200.0	1,196.3	1,181.3	1,181.3	2.5	2.1	-63.12	2.9	274.4	234.9	230.5	4.46	52.642	
1,300.0	1,294.9	1,279.9	1,279.9	2.8	2.2	-66.84	2.9	274.4	227.9	222.9	4.95	46.004	
1,400.0	1,393.3	1,378.3	1,378.3	3.1	2.4	-71.18	2.9	274.4	221.3	215.8	5.48	40.364	
1,500.0	1,491.2	1,476.2	1,476.2	3.5	2.6	-76.16	2.9	274.4	215.5	209.5	6.05	35.643	
1,600.0	1,589.1	1,574.1	1,574.1	3.9	2.7	-81.53	2.9	274.4	211.4	204.8	6.62	31.920	
1,700.0	1,686.9	1,671.9	1,671.9	4.3	2.9	-87.04	2.9	274.4	209.3	202.1	7.20	29.083	
1,753.1	1,738.8	1,723.8	1,723.8	4.5	3.0	-90.00	2.9	274.4	209.0	201.5	7.50	27.882	CC
1,800.0	1,784.7	1,769.7	1,769.7	4.7	3.1	-92.61	2.9	274.4	209.2	201.5	7.76	26.980	ES
1,900.0	1,882.5	1,867.5	1,867.5	5.1	3.3	-98.13	2.9	274.4	211.2	202.9	8.29	25.483	
2,000.0	1,980.3	1,965.3	1,965.3	5.5	3.4	-103.51	2.9	274.4	215.2	206.4	8.79	24.484	
2,100.0	2,078.1	2,063.1	2,063.1	5.8	3.6	-108.65	2.9	274.4	221.1	211.9	9.26	23.887	
2,200.0	2,175.9	2,160.9	2,160.9	6.2	3.8	-113.50	2.9	274.4	228.7	219.0	9.69	23.614	
2,300.0	2,273.8	2,258.8	2,258.8	6.6	3.9	-118.02	2.9	274.4	237.9	227.9	10.08	23.596	
2,400.0	2,371.6	2,356.6	2,356.6	7.0	4.1	-122.19	2.9	274.4	248.5	238.1	10.45	23.779	
2,500.0	2,469.4	2,454.4	2,454.4	7.4	4.3	-126.01	2.9	274.4	260.4	249.6	10.80	24.116	
2,600.0	2,567.2	2,552.2	2,552.2	7.8	4.5	-129.49	2.9	274.4	273.3	262.2	11.12	24.569	
2,700.0	2,665.0	2,650.0	2,650.0	8.2	4.6	-132.65	2.9	274.4	287.1	275.7	11.44	25.108	
2,800.0	2,762.8	2,747.8	2,747.8	8.6	4.8	-135.53	2.9	274.4	301.8	290.0	11.74	25.709	
2,900.0	2,860.7	2,845.7	2,845.7	9.0	5.0	-138.14	2.9	274.4	317.1	305.1	12.03	26.352	
3,000.0	2,958.5	2,943.5	2,943.5	9.4	5.1	-140.50	2.9	274.4	333.0	320.7	12.32	27.023	
3,100.0	3,056.3	3,041.3	3,041.3	9.8	5.3	-142.65	2.9	274.4	349.4	336.8	12.61	27.709	
3,200.0	3,154.1	3,139.1	3,139.1	10.2	5.5	-144.61	2.9	274.4	366.3	353.4	12.90	28.402	
3,300.0	3,251.9	3,236.9	3,236.9	10.6	5.6	-146.40	2.9	274.4	383.6	370.4	13.18	29.094	
3,400.0	3,349.7	3,334.7	3,334.7	11.0	5.8	-148.03	2.9	274.4	401.2	387.7	13.47	29.780	
3,500.0	3,447.5	3,432.5	3,432.5	11.5	6.0	-149.53	2.9	274.4	419.0	405.3	13.76	30.457	
3,600.0	3,545.4	3,530.4	3,530.4	11.9	6.2	-150.90	2.9	274.4	437.2	423.1	14.05	31.120	
3,700.0	3,643.2	3,628.2	3,628.2	12.3	6.3	-152.17	2.9	274.4	455.6	441.2	14.34	31.769	
3,800.0	3,741.0	3,726.0	3,726.0	12.7	6.5	-153.34	2.9	274.4	474.1	459.5	14.63	32.401	
3,900.0	3,838.8	3,823.8	3,823.8	13.1	6.7	-154.42	2.9	274.4	492.9	477.9	14.93	33.016	
7,400.0	7,267.0	7,252.0	7,252.0	17.1	12.7	-42.35	2.9	274.4	457.6	434.9	22.69	20.170	
7,500.0	7,331.7	7,316.7	7,316.7	16.8	12.8	-53.25	2.9	274.4	395.5	372.0	23.49	16.837	
7,600.0	7,385.1	7,370.1	7,370.1	16.5	12.9	-66.48	2.9	274.4	333.5	308.6	24.92	13.382	
7,700.0	7,426.3	7,411.3	7,411.3	16.4	12.9	-79.25	2.9	274.4	280.2	254.1	26.08	10.741	
7,800.0	7,454.4	7,439.4	7,439.4	16.4	13.0	-88.09	2.9	274.4	248.9	222.3	26.59	9.358	
7,839.1	7,461.7	7,446.7	7,446.7	16.4	13.0	-90.00	2.9	274.4	245.9	219.1	26.74	9.196	SF
7,900.0	7,468.9	7,453.9	7,453.9	16.6	13.0	-91.07	2.9	274.4	253.2	226.3	26.91	9.408	
8,000.0	7,471.0	7,456.0	7,456.0	17.0	13.0	-90.00	2.9	274.4	293.6	266.2	27.38	10.723	
8,100.0	7,471.0	7,456.0	7,456.0	17.5	13.0	-90.00	2.9	274.4	358.1	330.1	28.04	12.774	
8,200.0	7,471.0	7,456.0	7,456.0	18.2	13.0	-90.00	2.9	274.4	436.3	407.4	28.86	15.116	

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 Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Hz	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier) - DIANE #1 (EXISTING) - EXISTING - GYRO

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
8,000.0	7,471.0	7,453.5	7,451.8	17.0	6.6	91.69	574.9	682.4	442.4	421.5	20.91	21.154	
8,100.0	7,471.0	7,451.3	7,449.6	17.5	6.6	90.93	575.0	682.4	351.3	329.7	21.58	16.278	
8,200.0	7,471.0	7,449.2	7,447.5	18.2	6.6	90.18	575.0	682.3	266.6	244.2	22.41	11.894	
8,300.0	7,471.0	7,447.1	7,445.4	19.1	6.6	89.42	575.1	682.2	196.8	173.4	23.39	8.414	
8,400.0	7,471.0	7,444.9	7,443.2	20.1	6.6	88.66	575.1	682.2	162.4	137.9	24.48	6.634	
8,411.8	7,471.0	7,444.6	7,442.9	20.2	6.6	88.57	575.1	682.2	162.0	137.3	24.62	6.579	CC, ES, SF
8,500.0	7,471.0	7,442.7	7,441.0	21.1	6.6	87.89	575.2	682.1	184.4	158.7	25.67	7.185	
8,600.0	7,471.0	7,440.6	7,438.9	22.3	6.6	87.13	575.2	682.1	248.3	221.3	26.93	9.218	
8,700.0	7,471.0	7,438.4	7,436.7	23.5	6.6	86.36	575.3	682.0	330.5	302.3	28.26	11.696	
8,800.0	7,471.0	7,436.2	7,434.5	24.8	6.6	85.59	575.3	682.0	420.5	390.9	29.64	14.190	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier) - DIANE #34-28 (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
7,300.0	7,192.3	7,268.5	7,188.3	17.5	19.1	-47.19	-95.2	217.6	465.9	436.6	29.33	15.888	
7,400.0	7,267.0	7,343.1	7,263.0	17.1	19.2	-56.40	-95.2	217.6	417.7	387.8	29.85	13.992	
7,500.0	7,331.7	7,407.8	7,327.7	16.8	19.3	-67.49	-95.2	217.6	369.4	338.7	30.63	12.061	
7,600.0	7,385.1	7,461.3	7,381.1	16.5	19.4	-78.71	-95.2	217.6	328.4	297.2	31.13	10.548	
7,700.0	7,426.3	7,502.5	7,422.3	16.4	19.4	-87.62	-95.2	217.6	304.9	273.7	31.18	9.778	
7,738.2	7,438.6	7,514.8	7,434.6	16.3	19.4	-90.00	-95.2	217.6	302.7	271.6	31.18	9.710	CC, ES, SF
7,800.0	7,454.4	7,530.6	7,450.4	16.4	19.4	-92.41	-95.2	217.6	308.6	277.4	31.16	9.901	
7,900.0	7,468.9	7,545.1	7,464.9	16.6	19.5	-92.27	-95.2	217.6	341.7	310.3	31.47	10.859	
8,000.0	7,471.0	7,547.2	7,467.0	17.0	19.5	-90.00	-95.2	217.6	398.1	366.1	31.97	12.452	
8,100.0	7,471.0	7,547.2	7,467.0	17.5	19.5	-90.00	-95.2	217.6	469.2	436.6	32.63	14.380	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier) - DIANE #6-4-28 (EXISTING) - EXISTING - SURVEYS

Offset Site Error: 0.0 ft

Survey Program: 89-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	7,471.0	7,735.5	7,462.4	38.1	30.8	89.25	2,154.3	867.1	452.8	385.1	67.69	6.689	
9,800.0	7,471.0	7,735.5	7,462.5	39.7	30.8	89.26	2,154.3	867.1	396.0	326.7	69.33	5.712	
9,900.0	7,471.0	7,735.6	7,462.5	41.3	30.8	89.26	2,154.3	867.1	358.6	287.6	70.97	5.053	
9,991.0	7,471.0	7,735.6	7,462.6	42.8	30.8	89.27	2,154.3	867.1	346.9	274.4	72.48	4.786	CC
10,000.0	7,471.0	7,735.6	7,462.6	43.0	30.8	89.27	2,154.3	867.1	347.0	274.4	72.63	4.778	ES, SF
10,100.0	7,471.0	7,735.7	7,462.6	44.6	30.8	89.28	2,154.3	867.1	363.6	289.3	74.29	4.895	
10,200.0	7,471.0	7,735.7	7,462.7	46.2	30.8	89.29	2,154.3	867.1	405.0	329.0	75.96	5.332	
10,300.0	7,471.0	7,735.8	7,462.7	47.9	30.8	89.30	2,154.3	867.1	464.6	386.9	77.64	5.984	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier) - MAIER #31-28 (EXISTING) - EXISTING - SURVEYS

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
11,600.0	7,471.0	7,567.2	7,415.6	69.7	24.9	-87.78	4,078.1	199.6	449.5	355.7	93.87	4.789	
11,700.0	7,471.0	7,569.4	7,417.8	71.4	24.9	-88.18	4,078.2	199.5	386.2	290.5	95.62	4.039	
11,800.0	7,471.0	7,571.6	7,420.0	73.1	24.9	-88.58	4,078.2	199.5	340.8	243.4	97.36	3.500	
11,900.0	7,471.0	7,573.8	7,422.3	74.9	24.9	-88.98	4,078.3	199.4	321.2	222.1	99.10	3.241	
11,915.0	7,471.0	7,574.2	7,422.6	75.1	24.9	-89.04	4,078.3	199.4	320.8	221.5	99.36	3.229	CC, ES, SF
12,000.0	7,471.0	7,576.1	7,424.5	76.6	24.9	-89.38	4,078.3	199.4	331.9	231.0	100.84	3.291	
12,018.6	7,471.0	7,576.5	7,425.0	76.9	24.9	-89.46	4,078.3	199.4	337.1	236.0	101.16	3.333	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier) - MAIER #32-28 (EXISTING) - EXISTING - GYRO

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
10,500.0	7,471.0	7,413.7	7,412.1	51.2	6.5	-89.88	2,883.0	103.7	470.9	414.0	56.84	8.285	
10,600.0	7,471.0	7,414.0	7,412.4	52.8	6.5	-89.92	2,883.0	103.7	433.3	374.8	58.53	7.404	
10,700.0	7,471.0	7,414.4	7,412.7	54.5	6.5	-89.97	2,883.0	103.7	417.0	356.7	60.22	6.923	
10,719.7	7,471.0	7,414.4	7,412.8	54.8	6.5	-89.97	2,883.0	103.7	416.5	355.9	60.56	6.877	CC, ES
10,800.0	7,471.0	7,414.7	7,413.1	56.2	6.5	-90.01	2,883.0	103.7	424.2	362.2	61.92	6.850	SF
10,900.0	7,471.0	7,415.0	7,413.4	57.9	6.5	-90.05	2,883.0	103.7	453.8	390.2	63.63	7.133	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier) - Maier 4A-28H - 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	-89.94	0.0	-8.4	8.4				
100.0	100.0	100.0	100.0	0.2	0.2	-89.94	0.0	-8.4	8.4	8.1	0.30	27.633	
200.0	200.0	200.0	200.0	0.3	0.3	-89.94	0.0	-8.4	8.4	7.7	0.65	12.856	
300.0	300.0	300.0	300.0	0.5	0.5	-89.94	0.0	-8.4	8.4	7.4	1.00	8.377	CC, ES
400.0	400.0	400.0	400.0	0.7	0.7	129.90	-0.8	-8.6	9.2	7.8	1.35	6.801	SF
500.0	500.0	499.9	499.8	0.9	0.9	127.40	-3.4	-9.3	11.6	9.9	1.71	6.803	
600.0	599.9	599.7	599.6	1.0	1.0	124.94	-7.6	-10.4	15.7	13.6	2.07	7.561	
700.0	699.7	699.4	699.1	1.2	1.2	123.06	-13.4	-12.0	21.4	18.9	2.46	8.708	
800.0	799.4	799.0	798.3	1.4	1.4	121.73	-21.0	-14.0	28.7	25.9	2.86	10.049	
900.0	898.9	898.3	897.2	1.7	1.7	120.79	-30.1	-16.5	37.7	34.4	3.29	11.467	
1,000.0	998.3	997.4	995.7	1.9	1.9	120.11	-40.9	-19.4	48.3	44.6	3.75	12.889	
1,100.0	1,097.4	1,096.3	1,093.7	2.2	2.2	119.61	-53.3	-22.8	60.5	56.3	4.24	14.270	
1,200.0	1,196.3	1,194.8	1,191.2	2.5	2.5	119.21	-67.3	-26.6	74.4	69.6	4.77	15.582	
1,300.0	1,294.9	1,293.0	1,288.0	2.8	2.8	118.89	-82.9	-30.8	89.8	84.4	5.34	16.809	
1,400.0	1,393.3	1,390.8	1,384.2	3.1	3.1	118.62	-99.9	-35.4	106.8	100.8	5.95	17.945	
1,500.0	1,491.2	1,488.2	1,479.7	3.5	3.5	118.39	-118.5	-40.4	125.4	118.8	6.60	18.988	
1,600.0	1,589.1	1,586.1	1,575.5	3.9	3.8	118.28	-138.2	-45.7	144.8	137.6	7.27	19.912	
1,700.0	1,686.9	1,684.2	1,671.4	4.3	4.2	118.19	-157.9	-51.0	164.3	156.3	7.95	20.656	
1,800.0	1,784.7	1,782.3	1,767.4	4.7	4.6	118.12	-177.5	-56.3	183.8	175.1	8.64	21.267	
1,900.0	1,882.5	1,880.4	1,863.3	5.1	5.0	118.06	-197.2	-61.6	203.2	193.9	9.33	21.775	
2,000.0	1,980.3	1,978.5	1,959.3	5.5	5.4	118.01	-216.9	-66.9	222.7	212.6	10.03	22.204	
2,100.0	2,078.1	2,076.6	2,055.2	5.8	5.7	117.98	-236.6	-72.2	242.1	231.4	10.73	22.569	
2,200.0	2,175.9	2,174.7	2,151.2	6.2	6.1	117.94	-256.3	-77.5	261.6	250.2	11.43	22.885	
2,300.0	2,273.8	2,272.7	2,247.1	6.6	6.5	117.91	-276.0	-82.9	281.0	268.9	12.14	23.159	
2,400.0	2,371.6	2,370.8	2,343.0	7.0	6.9	117.89	-295.7	-88.2	300.5	287.7	12.84	23.400	
2,500.0	2,469.4	2,468.9	2,439.0	7.4	7.3	117.87	-315.4	-93.5	320.0	306.4	13.55	23.613	
2,600.0	2,567.2	2,567.0	2,534.9	7.8	7.7	117.85	-335.1	-98.8	339.4	325.2	14.26	23.803	
2,700.0	2,665.0	2,665.1	2,630.9	8.2	8.1	117.83	-354.7	-104.1	358.9	343.9	14.97	23.972	
2,800.0	2,762.8	2,763.2	2,726.8	8.6	8.5	117.81	-374.4	-109.4	378.3	362.7	15.68	24.125	
2,900.0	2,860.7	2,861.3	2,822.8	9.0	8.8	117.80	-394.1	-114.7	397.8	381.4	16.40	24.263	
3,000.0	2,958.5	2,959.4	2,918.7	9.4	9.2	117.79	-413.8	-120.1	417.3	400.2	17.11	24.389	
3,100.0	3,056.3	3,057.4	3,014.7	9.8	9.6	117.78	-433.5	-125.4	436.7	418.9	17.82	24.503	
3,200.0	3,154.1	3,155.5	3,110.6	10.2	10.0	117.77	-453.2	-130.7	456.2	437.6	18.54	24.608	
3,300.0	3,251.9	3,253.6	3,206.5	10.6	10.4	117.76	-472.9	-136.0	475.6	456.4	19.25	24.705	
3,400.0	3,349.7	3,351.8	3,302.6	11.0	10.8	117.75	-492.6	-141.3	495.1	475.1	19.97	24.794	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 S28-T2N-R66W (Maier) - Maier 4C-28H - 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
5,000.0	4,925.6	5,082.9	4,977.7	16.4	18.5	-47.61	-606.0	1,006.5	493.3	467.8	25.59	19.279	
5,100.0	5,025.5	5,175.9	5,070.4	16.5	18.7	-47.35	-610.5	999.8	483.2	457.3	25.93	18.636	
5,200.0	5,125.5	5,269.3	5,163.5	16.6	18.9	-47.06	-614.2	994.3	475.6	449.4	26.24	18.124	
5,300.0	5,225.5	5,362.9	5,257.0	16.7	19.0	-46.74	-617.1	990.1	470.5	444.0	26.53	17.737	
5,400.0	5,325.5	5,456.6	5,350.6	16.8	19.1	92.52	-619.1	987.2	467.5	440.7	26.79	17.445	
5,500.0	5,425.5	5,550.5	5,444.5	16.9	19.2	92.67	-620.2	985.5	465.7	438.7	27.05	17.217	
5,600.0	5,525.5	5,645.5	5,539.5	17.0	19.3	92.70	-620.5	985.1	465.3	438.0	27.30	17.046	
5,700.0	5,625.5	5,745.5	5,639.5	17.1	19.4	92.70	-620.5	985.1	465.3	437.7	27.55	16.890	
5,800.0	5,725.5	5,845.5	5,739.5	17.2	19.5	92.70	-620.5	985.1	465.3	437.5	27.80	16.736	
5,900.0	5,825.5	5,945.5	5,839.5	17.3	19.6	92.70	-620.5	985.1	465.3	437.2	28.06	16.583	
6,000.0	5,925.5	6,045.5	5,939.5	17.4	19.7	92.70	-620.5	985.1	465.3	437.0	28.32	16.432	
6,100.0	6,025.5	6,145.5	6,039.5	17.5	19.8	92.70	-620.5	985.1	465.3	436.7	28.57	16.283	
6,200.0	6,125.5	6,245.5	6,139.5	17.6	19.9	92.70	-620.5	985.1	465.3	436.4	28.84	16.135	
6,300.0	6,225.5	6,345.5	6,239.5	17.7	20.0	92.70	-620.5	985.1	465.3	436.2	29.10	15.989	
6,400.0	6,325.5	6,445.5	6,339.5	17.9	20.1	92.70	-620.5	985.1	465.3	435.9	29.37	15.845	
6,500.0	6,425.5	6,545.5	6,439.5	18.0	20.2	92.70	-620.5	985.1	465.3	435.6	29.63	15.702	
6,600.0	6,525.5	6,646.0	6,540.0	18.1	20.2	92.65	-620.0	985.1	465.3	435.4	29.89	15.567	
6,700.0	6,625.5	6,746.7	6,640.1	18.2	20.3	91.34	-609.4	985.2	465.1	435.1	29.97	15.519	
6,718.6	6,644.1	6,765.1	6,658.1	18.2	20.2	90.92	-606.0	985.3	465.1	435.1	29.96	15.522	CC
6,800.0	6,725.5	6,842.7	6,733.2	18.3	20.2	88.50	-586.4	985.6	465.5	435.6	29.90	15.570	
6,900.0	6,825.3	6,932.4	6,816.7	18.4	20.0	84.69	-553.8	986.1	468.2	438.5	29.73	15.750	
7,000.0	6,923.8	7,018.7	6,892.5	18.3	19.9	80.94	-512.8	986.8	473.2	443.8	29.45	16.071	
7,100.0	7,019.1	7,100.0	6,959.0	18.1	19.7	77.52	-466.1	987.5	480.1	451.0	29.10	16.500	
7,200.0	7,109.1	7,183.5	7,021.4	17.8	19.5	74.23	-410.6	988.4	488.2	459.5	28.69	17.019	
7,300.0	7,192.3	7,263.0	7,074.3	17.5	19.4	71.36	-351.4	989.4	497.1	468.9	28.19	17.631	
10,900.0	7,471.0	10,746.9	7,231.0	57.9	61.9	59.28	3,093.2	947.6	498.1	396.0	102.05	4.881	
11,000.0	7,471.0	10,839.9	7,231.0	59.6	63.5	58.94	3,185.9	941.9	492.8	388.3	104.54	4.714	
11,100.0	7,471.0	10,932.9	7,231.0	61.2	65.0	58.68	3,278.9	937.7	488.9	381.8	107.11	4.565	
11,200.0	7,471.0	11,026.1	7,231.0	62.9	66.6	58.52	3,372.1	935.0	486.4	376.7	109.76	4.432	
11,300.0	7,471.0	11,119.4	7,231.0	64.6	68.2	58.44	3,465.3	933.7	485.3	372.8	112.51	4.314	
11,329.5	7,471.0	11,146.8	7,231.0	65.1	68.6	58.44	3,492.8	933.7	485.2	371.9	113.34	4.282	
11,400.0	7,471.0	11,212.6	7,231.0	66.3	69.7	58.46	3,558.6	934.1	485.6	370.2	115.36	4.209	
11,500.0	7,471.0	11,310.4	7,231.0	68.0	71.4	58.56	3,656.3	935.6	487.0	368.6	118.37	4.114	
11,600.0	7,471.0	11,410.4	7,231.0	69.7	73.0	58.66	3,756.3	937.3	488.4	367.0	121.43	4.022	
11,700.0	7,471.0	11,510.4	7,231.0	71.4	74.7	58.76	3,856.3	939.0	489.8	365.3	124.50	3.934	
11,800.0	7,471.0	11,610.4	7,231.0	73.1	76.4	58.86	3,956.3	940.7	491.3	363.7	127.58	3.851	
11,900.0	7,471.0	11,710.4	7,231.0	74.9	78.1	58.96	4,056.2	942.3	492.7	362.0	130.66	3.771	
12,000.0	7,471.0	11,810.3	7,231.0	76.6	79.8	59.06	4,156.2	944.0	494.2	360.4	133.76	3.694	
12,018.6	7,471.0	11,829.0	7,231.0	76.9	80.1	59.08	4,174.8	944.3	494.4	360.1	134.33	3.681	ES, SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Maier 4B-28H
Project:	DJ Wattenberg	**TVD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Reference Site:	S28-T2N-R66W (Maier)	**MD Reference:**	WELL @ 4987.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Maier 4B-28H	**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 @ 4987.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Maier 4B-28H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.46°