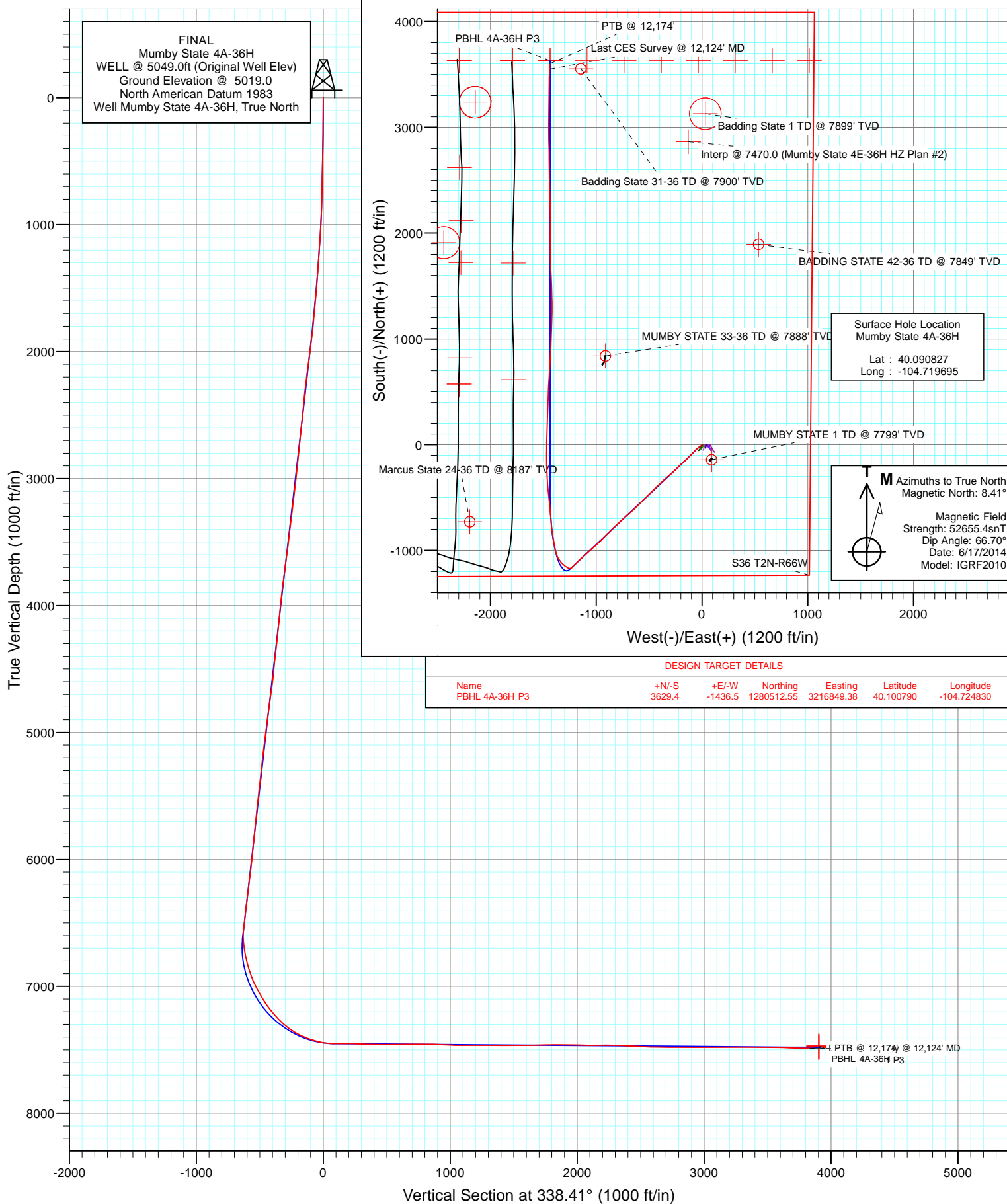


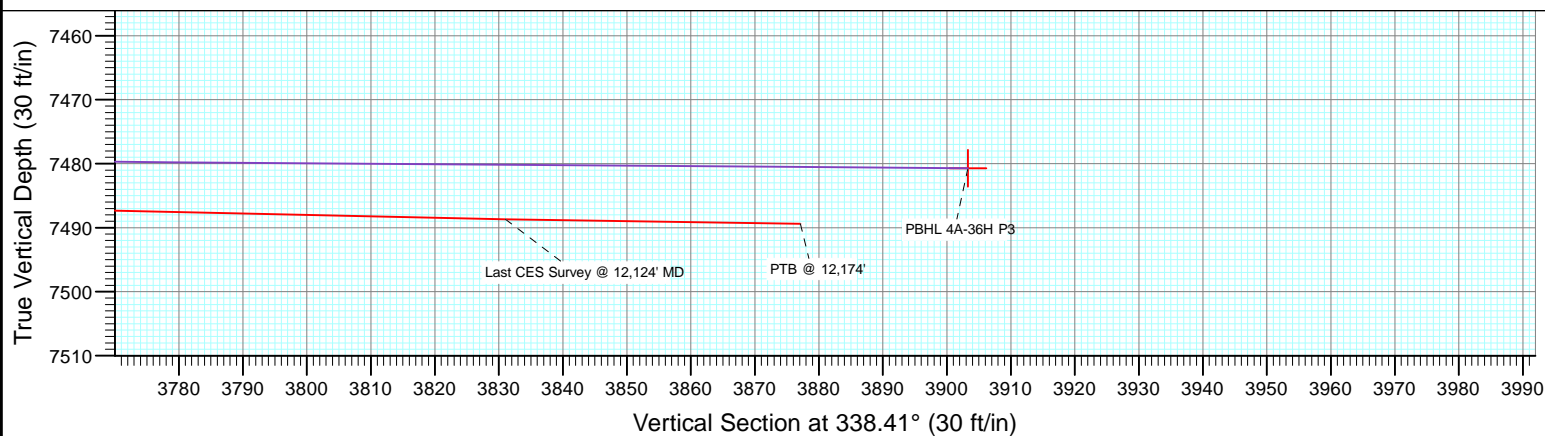
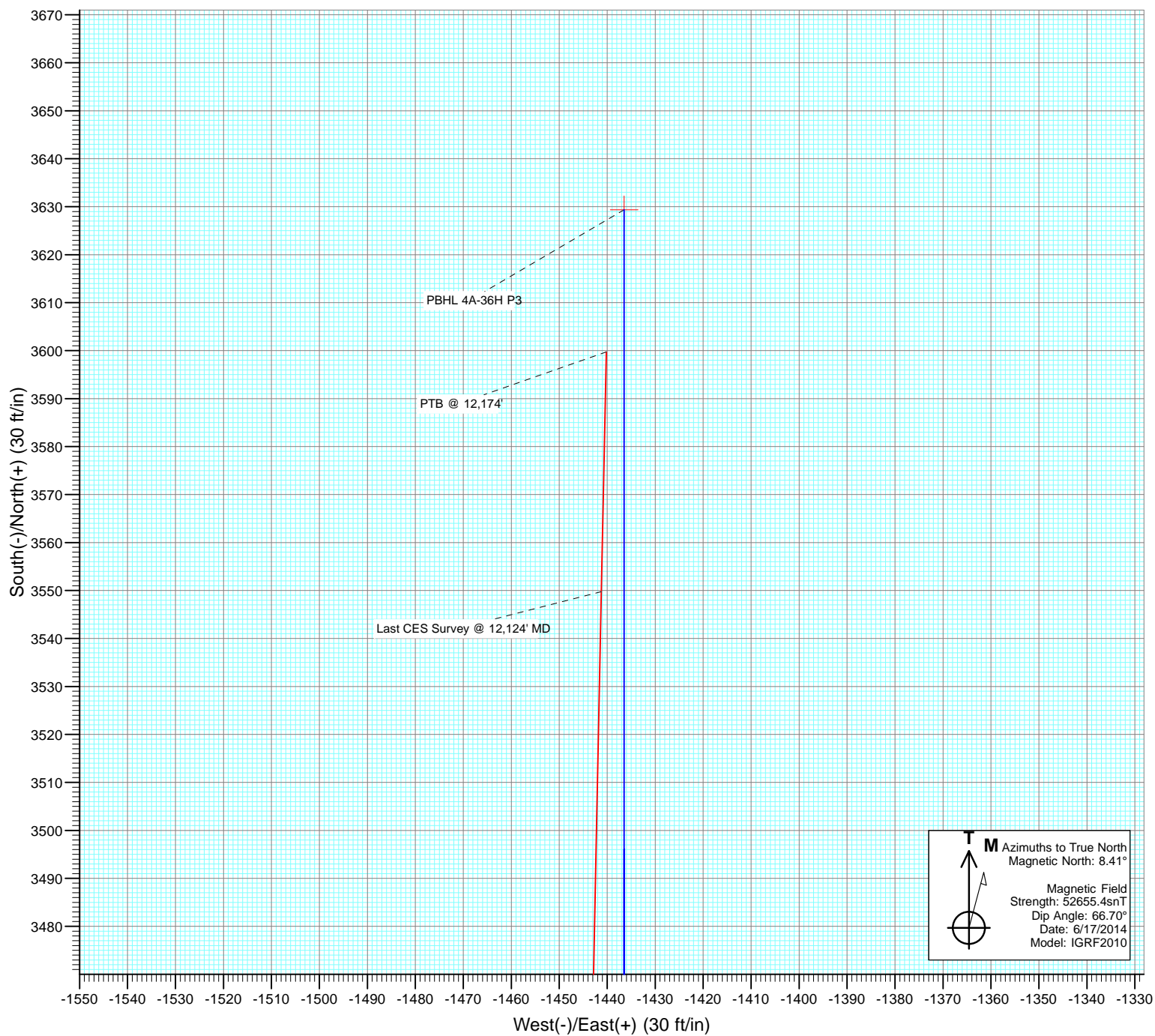


Project: DJ Wattenberg  
Site: S36 T2N-R66W (Marcus State, Mumby State)  
Well: Mumby State 4A-36H  
Wellbore: HZ  
Design: FINAL





Project: DJ Wattenberg  
Site: S36 T2N-R66W (Marcus State, Mumby State)  
Well: Mumby State 4A-36H  
Wellbore: HZ  
Design: FINAL



## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4A-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Well:</b>	Mumby State 4A-36H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	DJ Wattenberg		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		S36 T2N-R66W (Marcus State, Mumby State)			
Site Position:		Northing:	1,275,942.66 ft	Latitude:	40.088280
From:	Lat/Long	Easting:	3,215,403.58 ft	Longitude:	-104.730140
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.50 °

Well	Mumby State 4A-36H					
Well Position	+N/-S	0.0 ft	Northing:	1,276,895.97 ft	Latitude:	40.090827
	+E/-W	0.0 ft	Easting:	3,218,317.72 ft	Longitude:	-104.719695
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,019.0 ft

<b>Wellbore</b>	HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	6/17/2014	8.41	66.70	52,655

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	0.00	

<b>Survey Program</b>	<b>Date</b>	6/24/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
141.0	12,174.0	Survey #1 (HZ)	Geolink MWD	Geolink MWD	

<b>Survey</b>									
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
141.0	0.66	113.79	141.0	-0.3	0.7	-0.3	0.47	0.47	
233.0	0.70	186.60	233.0	-1.1	1.2	-1.1	0.88	0.04	
325.0	1.80	227.60	325.0	-2.6	0.0	-2.6	1.47	1.20	
417.0	3.00	232.20	416.9	-5.1	-2.9	-5.1	1.32	1.30	
509.0	4.60	227.70	508.7	-9.0	-7.6	-9.0	1.77	1.74	
601.0	4.90	234.90	600.4	-13.8	-13.5	-13.8	0.72	0.33	
693.0	5.10	235.30	692.0	-18.4	-20.1	-18.4	0.22	0.22	
785.0	5.40	237.20	783.6	-23.0	-27.1	-23.0	0.38	0.33	
877.0	6.70	233.60	875.1	-28.6	-35.0	-28.6	1.47	1.41	
969.0	9.20	228.70	966.2	-36.6	-44.9	-36.6	2.81	2.72	
1,061.0	9.40	225.90	1,057.0	-46.7	-55.8	-46.7	0.54	0.22	
1,087.0	9.20	224.70	1,082.7	-49.7	-58.8	-49.7	1.07	-0.77	

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4A-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Well:</b>	Mumby State 4A-36H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

### Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,201.0	8.90	222.50	1,195.3	-62.6	-71.2	-62.6	0.40	-0.26	
1,293.0	8.20	225.10	1,286.2	-72.5	-80.6	-72.5	0.87	-0.76	
1,385.0	10.20	223.70	1,377.0	-83.0	-90.9	-83.0	2.19	2.17	
1,476.0	11.50	221.80	1,466.4	-95.6	-102.5	-95.6	1.48	1.43	
1,568.0	12.30	227.40	1,556.4	-109.1	-115.8	-109.1	1.53	0.87	
1,660.0	13.70	225.50	1,646.1	-123.4	-130.8	-123.4	1.59	1.52	
1,752.0	14.80	230.20	1,735.3	-138.5	-147.6	-138.5	1.73	1.20	
1,844.0	17.80	228.20	1,823.6	-155.4	-167.1	-155.4	3.32	3.26	
1,936.0	18.00	225.40	1,911.1	-174.8	-187.7	-174.8	0.96	0.22	
2,028.0	18.30	224.40	1,998.5	-195.1	-208.0	-195.1	0.47	0.33	
2,120.0	18.10	222.30	2,085.9	-216.0	-227.7	-216.0	0.75	-0.22	
2,212.0	18.00	226.30	2,173.4	-236.4	-247.6	-236.4	1.35	-0.11	
2,304.0	18.40	230.30	2,260.8	-255.4	-269.0	-255.4	1.43	0.43	
2,396.0	18.00	229.40	2,348.2	-274.0	-291.0	-274.0	0.53	-0.43	
2,488.0	17.30	229.40	2,435.9	-292.1	-312.2	-292.1	0.76	-0.76	
2,579.0	16.60	229.40	2,522.9	-309.4	-332.3	-309.4	0.77	-0.77	
2,671.0	16.70	229.00	2,611.0	-326.6	-352.3	-326.6	0.17	0.11	
2,763.0	16.70	224.80	2,699.2	-344.7	-371.6	-344.7	1.31	0.00	
2,856.0	16.40	227.30	2,788.3	-363.1	-390.6	-363.1	0.83	-0.32	
2,948.0	15.60	228.80	2,876.8	-380.0	-409.5	-380.0	0.98	-0.87	
3,039.0	14.30	225.30	2,964.7	-396.0	-426.7	-396.0	1.74	-1.43	
3,131.0	16.40	224.20	3,053.4	-413.3	-443.8	-413.3	2.30	2.28	
3,223.0	17.70	225.40	3,141.3	-432.4	-462.8	-432.4	1.46	1.41	
3,318.0	16.40	225.80	3,232.2	-451.9	-482.7	-451.9	1.37	-1.37	
3,412.0	17.10	224.20	3,322.2	-471.1	-501.9	-471.1	0.89	0.74	
3,507.0	17.30	227.40	3,412.9	-490.6	-522.0	-490.6	1.02	0.21	
3,601.0	17.20	225.10	3,502.7	-509.9	-542.1	-509.9	0.73	-0.11	
3,696.0	19.20	225.00	3,592.9	-530.9	-563.1	-530.9	2.11	2.11	
3,790.0	17.40	221.90	3,682.2	-552.3	-583.5	-552.3	2.18	-1.91	
3,885.0	17.80	225.20	3,772.7	-573.1	-603.3	-573.1	1.13	0.42	
3,979.0	16.20	225.60	3,862.6	-592.4	-622.8	-592.4	1.71	-1.70	
4,074.0	16.70	225.00	3,953.7	-611.3	-641.9	-611.3	0.56	0.53	
4,169.0	17.50	231.40	4,044.6	-629.9	-662.8	-629.9	2.15	0.84	
4,263.0	15.70	230.00	4,134.6	-646.9	-683.5	-646.9	1.96	-1.91	
4,358.0	16.80	227.30	4,225.8	-664.4	-703.5	-664.4	1.40	1.16	
4,452.0	19.90	229.10	4,315.0	-684.1	-725.6	-684.1	3.35	3.30	
4,547.0	18.80	229.50	4,404.7	-704.6	-749.4	-704.6	1.17	-1.16	
4,641.0	16.50	229.90	4,494.3	-723.1	-771.2	-723.1	2.45	-2.45	
4,735.0	18.00	227.90	4,584.0	-741.4	-792.1	-741.4	1.72	1.60	
4,830.0	18.90	224.40	4,674.1	-762.3	-813.8	-762.3	1.50	0.95	
4,924.0	17.80	223.90	4,763.4	-783.5	-834.4	-783.5	1.18	-1.17	
5,019.0	19.00	225.40	4,853.5	-804.8	-855.5	-804.8	1.36	1.26	
5,114.0	18.90	225.10	4,943.4	-826.5	-877.4	-826.5	0.15	-0.11	
5,208.0	18.20	225.90	5,032.5	-847.5	-898.7	-847.5	0.79	-0.74	
5,303.0	17.00	224.90	5,123.0	-867.6	-919.2	-867.6	1.30	-1.26	
5,397.0	15.60	222.90	5,213.2	-886.6	-937.5	-886.6	1.60	-1.49	
5,492.0	14.50	221.90	5,305.0	-904.9	-954.1	-904.9	1.19	-1.16	
5,587.0	15.40	226.40	5,396.8	-922.4	-971.2	-922.4	1.55	0.95	
5,681.0	17.40	228.10	5,486.9	-940.4	-990.7	-940.4	2.19	2.13	
5,776.0	15.30	226.70	5,578.1	-958.5	-1,010.4	-958.5	2.25	-2.21	
5,870.0	17.10	229.30	5,668.4	-976.0	-1,029.9	-976.0	2.06	1.91	
5,965.0	16.50	228.80	5,759.3	-994.0	-1,050.7	-994.0	0.65	-0.63	
6,059.0	17.80	229.50	5,849.1	-1,012.1	-1,071.6	-1,012.1	1.40	1.38	

# Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4A-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Well:</b>	Mumby State 4A-36H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,154.0	18.90	230.00	5,939.3	-1,031.4	-1,094.5	-1,031.4	1.17	1.16	
6,249.0	15.80	226.70	6,030.0	-1,050.2	-1,115.7	-1,050.2	3.42	-3.26	
6,343.0	17.70	225.60	6,120.0	-1,069.0	-1,135.2	-1,069.0	2.05	2.02	
6,438.0	18.40	224.90	6,210.3	-1,089.7	-1,156.1	-1,089.7	0.77	0.74	
6,532.0	18.30	227.80	6,299.5	-1,110.1	-1,177.5	-1,110.1	0.98	-0.11	
6,627.0	15.60	225.60	6,390.4	-1,129.1	-1,197.7	-1,129.1	2.92	-2.84	
6,721.0	16.70	225.60	6,480.7	-1,147.4	-1,216.3	-1,147.4	1.17	1.17	
6,768.0	15.50	224.40	6,525.8	-1,156.6	-1,225.6	-1,156.6	2.65	-2.55	
6,816.0	14.50	226.20	6,572.2	-1,165.3	-1,234.4	-1,165.3	2.30	-2.08	
6,863.0	11.80	256.00	6,618.0	-1,170.6	-1,243.3	-1,170.6	15.31	-5.74	
6,911.0	11.60	286.10	6,665.0	-1,170.4	-1,252.7	-1,170.4	12.58	-0.42	
6,958.0	11.90	291.00	6,711.1	-1,167.4	-1,261.8	-1,167.4	2.22	0.64	
7,005.0	14.10	300.30	6,756.9	-1,162.8	-1,271.3	-1,162.8	6.45	4.68	
7,052.0	17.50	305.50	6,802.1	-1,155.8	-1,282.0	-1,155.8	7.83	7.23	
7,100.0	19.20	306.90	6,847.6	-1,146.8	-1,294.1	-1,146.8	3.66	3.54	
7,147.0	20.40	306.90	6,891.9	-1,137.3	-1,306.9	-1,137.3	2.55	2.55	
7,194.0	21.90	313.70	6,935.7	-1,126.3	-1,319.8	-1,126.3	6.11	3.19	
7,241.0	26.80	320.50	6,978.5	-1,112.1	-1,332.9	-1,112.1	12.00	10.43	
7,289.0	30.20	325.20	7,020.7	-1,093.8	-1,346.6	-1,093.8	8.48	7.08	
7,336.0	30.70	329.40	7,061.2	-1,073.7	-1,359.5	-1,073.7	4.65	1.06	
7,383.0	30.50	336.20	7,101.7	-1,052.5	-1,370.4	-1,052.5	7.37	-0.43	
7,430.0	34.40	344.50	7,141.4	-1,028.8	-1,378.8	-1,028.8	12.58	8.30	
7,478.0	38.00	348.20	7,180.1	-1,001.2	-1,385.4	-1,001.2	8.77	7.50	
7,525.0	41.90	348.50	7,216.1	-971.7	-1,391.5	-971.7	8.31	8.30	
7,572.0	44.30	350.70	7,250.4	-940.1	-1,397.3	-940.1	6.02	5.11	
7,619.0	46.50	350.50	7,283.4	-907.1	-1,402.8	-907.1	4.69	4.68	
7,667.0	50.50	350.90	7,315.2	-871.6	-1,408.6	-871.6	8.36	8.33	
7,714.0	56.40	351.40	7,343.2	-834.3	-1,414.4	-834.3	12.58	12.55	
7,761.0	62.20	353.60	7,367.2	-794.3	-1,419.6	-794.3	12.98	12.34	
7,809.0	66.10	354.80	7,388.1	-751.3	-1,424.0	-751.3	8.43	8.12	
7,856.0	68.70	355.60	7,406.2	-708.1	-1,427.6	-708.1	5.75	5.53	
7,903.0	72.90	355.10	7,421.6	-663.8	-1,431.2	-663.8	8.99	8.94	
7,950.0	76.00	354.60	7,434.2	-618.7	-1,435.3	-618.7	6.67	6.60	
7,998.0	79.90	354.50	7,444.3	-572.0	-1,439.7	-572.0	8.13	8.12	
8,052.0	86.60	353.10	7,450.6	-518.7	-1,445.5	-518.7	12.67	12.41	
8,108.0	90.70	354.70	7,451.9	-463.1	-1,451.5	-463.1	7.86	7.32	
8,172.0	90.70	354.50	7,451.1	-399.4	-1,457.5	-399.4	0.31	0.00	
8,266.0	87.40	357.20	7,452.7	-305.7	-1,464.3	-305.7	4.54	-3.51	
8,360.0	88.20	358.30	7,456.3	-211.8	-1,468.0	-211.8	1.45	0.85	
8,455.0	89.10	359.40	7,458.5	-116.9	-1,469.9	-116.9	1.50	0.95	
8,549.0	90.20	1.70	7,459.1	-22.9	-1,469.0	-22.9	2.71	1.17	
8,644.0	90.50	2.30	7,458.5	72.1	-1,465.7	72.1	0.71	0.32	
8,738.0	90.70	1.10	7,457.5	166.0	-1,462.9	166.0	1.29	0.21	
8,832.0	90.60	1.20	7,456.5	260.0	-1,461.0	260.0	0.15	-0.11	
8,927.0	88.20	2.80	7,457.5	354.9	-1,457.7	354.9	3.04	-2.53	
9,021.0	87.60	2.10	7,460.9	448.8	-1,453.7	448.8	0.98	-0.64	
9,116.0	88.60	2.30	7,464.1	543.7	-1,450.0	543.7	1.07	1.05	
9,210.0	90.50	3.70	7,464.8	637.5	-1,445.1	637.5	2.51	2.02	
9,304.0	90.10	3.00	7,464.3	731.4	-1,439.6	731.4	0.86	-0.43	
9,399.0	89.60	3.30	7,464.6	826.2	-1,434.4	826.2	0.61	-0.53	
9,494.0	89.00	2.80	7,465.7	921.1	-1,429.3	921.1	0.82	-0.63	
9,588.0	91.30	2.30	7,465.5	1,015.0	-1,425.1	1,015.0	2.50	2.45	
9,682.0	89.90	2.40	7,464.5	1,108.9	-1,421.3	1,108.9	1.49	-1.49	

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4A-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Well:</b>	Mumby State 4A-36H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
9,777.0	90.50	359.90	7,464.2	1,203.9	-1,419.4	1,203.9	2.71	0.63	
9,871.0	91.80	0.90	7,462.3	1,297.8	-1,418.7	1,297.8	1.74	1.38	
9,966.0	89.80	358.50	7,460.9	1,392.8	-1,419.2	1,392.8	3.29	-2.11	
10,060.0	89.50	358.00	7,461.5	1,486.8	-1,422.1	1,486.8	0.62	-0.32	
10,155.0	88.90	357.90	7,462.8	1,581.7	-1,425.5	1,581.7	0.64	-0.63	
10,249.0	89.60	357.00	7,464.1	1,675.6	-1,429.7	1,675.6	1.21	0.74	
10,344.0	90.00	358.50	7,464.4	1,770.5	-1,433.4	1,770.5	1.63	0.42	
10,438.0	89.80	359.90	7,464.6	1,864.5	-1,434.7	1,864.5	1.50	-0.21	
10,533.0	88.40	0.80	7,466.1	1,959.5	-1,434.1	1,959.5	1.75	-1.47	
10,627.0	86.00	0.30	7,470.7	2,053.4	-1,433.2	2,053.4	2.61	-2.55	
10,722.0	87.30	359.50	7,476.2	2,148.2	-1,433.4	2,148.2	1.61	1.37	
10,816.0	89.30	358.80	7,479.0	2,242.1	-1,434.8	2,242.1	2.25	2.13	
10,911.0	89.90	358.40	7,479.7	2,337.1	-1,437.1	2,337.1	0.76	0.63	
11,005.0	89.70	358.40	7,480.0	2,431.1	-1,439.7	2,431.1	0.21	-0.21	
11,100.0	89.20	358.60	7,480.9	2,526.0	-1,442.2	2,526.0	0.57	-0.53	
11,195.0	91.10	0.00	7,480.7	2,621.0	-1,443.4	2,621.0	2.48	2.00	
11,289.0	90.40	359.20	7,479.4	2,715.0	-1,444.0	2,715.0	1.13	-0.74	
11,384.0	89.00	358.00	7,479.9	2,810.0	-1,446.4	2,810.0	1.94	-1.47	
11,478.0	91.00	0.00	7,479.9	2,903.9	-1,448.0	2,903.9	3.01	2.13	
11,573.0	90.10	359.00	7,479.0	2,998.9	-1,448.8	2,998.9	1.42	-0.95	
11,667.0	89.30	1.10	7,479.5	3,092.9	-1,448.8	3,092.9	2.39	-0.85	
11,761.0	89.30	1.00	7,480.6	3,186.9	-1,447.0	3,186.9	0.11	0.00	
11,856.0	89.10	0.30	7,482.0	3,281.9	-1,446.0	3,281.9	0.77	-0.21	
11,951.0	88.10	1.20	7,484.3	3,376.8	-1,444.7	3,376.8	1.42	-1.05	
12,045.0	88.50	1.10	7,487.1	3,470.8	-1,442.8	3,470.8	0.44	0.43	
12,124.0	89.20	1.20	7,488.7	3,549.8	-1,441.2	3,549.8	0.90	0.89	Last CES Survey @ 12,124' MD
12,174.0	89.20	1.20	7,489.4	3,599.7	-1,440.2	3,599.7	0.00	0.00	PTB @ 12,174'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL 4A-36H P3	0.00	0.00	7,480.7	3,629.4	-1,436.5	1,280,512.55	3,216,849.38	40.100790	-104.724830
- actual wellpath misses target center by 31.1ft at 12174.0ft MD (7489.4 TVD, 3599.7 N, -1440.2 E)									
- Point									
PBHL 4A-36H	0.00	0.00	7,470.0	3,629.4	-1,436.5	1,280,512.55	3,216,849.38	40.100790	-104.724830
- actual wellpath misses target center by 35.6ft at 12174.0ft MD (7489.4 TVD, 3599.7 N, -1440.2 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
12,124.0	7,488.7	3,549.8	-1,441.2	Last CES Survey @ 12,124' MD	
12,174.0	7,489.4	3,599.7	-1,440.2	PTB @ 12,174'	

Checked By: _____	Approved By: _____	Date: _____
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# **EnCana Oil & Gas (USA) Inc**

**DJ Wattenberg**

**S36 T2N-R66W (Marcus State, Mumby State)**

**Mumby State 4A-36H**

**HZ**

**Design: FINAL**

## **Survey Report - Geographic**

**24 June, 2014**

# Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4A-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Well:</b>	Mumby State 4A-36H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	DJ Wattenberg		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site	S36 T2N-R66W (Marcus State, Mumby State)				
Site Position:		Northing:	1,275,942.66 ft	Latitude:	40.088280
From:	Lat/Long	Easting:	3,215,403.58 ft	Longitude:	-104.730140
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.50 °

Well	Mumby State 4A-36H					
Well Position	+N/-S	0.0 ft	Northing:	1,276,895.97 ft	Latitude:	40.090827
	+E/-W	0.0 ft	Easting:	3,218,317.72 ft	Longitude:	-104.719695
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,019.0 ft

<b>Wellbore</b>	HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	6/17/2014	8.41	66.70	52,655

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	0.00	

<b>Survey Program</b>	<b>Date</b>	6/24/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
141.0	12,174.0	Survey #1 (HZ)	Geolink MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Map Northing (ft)</b>	<b>Map Easting (ft)</b>	<b>Latitude</b>	<b>Longitude</b>	
0.0	0.00	0.00	0.0	0.0	0.0	1,276,895.97	3,218,317.72	40.090827	-104.719695	
141.0	0.66	113.79	141.0	-0.3	0.7	1,276,895.65	3,218,318.47	40.090826	-104.719693	
233.0	0.70	186.60	233.0	-1.1	1.2	1,276,894.88	3,218,318.90	40.090824	-104.719691	
325.0	1.80	227.60	325.0	-2.6	0.0	1,276,893.34	3,218,317.78	40.090820	-104.719695	
417.0	3.00	232.20	416.9	-5.1	-2.9	1,276,890.86	3,218,314.83	40.090813	-104.719706	
509.0	4.60	227.70	508.7	-9.0	-7.6	1,276,886.87	3,218,310.24	40.090802	-104.719722	
601.0	4.90	234.90	600.4	-13.8	-13.5	1,276,882.07	3,218,304.33	40.090789	-104.719744	
693.0	5.10	235.30	692.0	-18.4	-20.1	1,276,877.43	3,218,297.80	40.090777	-104.719767	
785.0	5.40	237.20	783.6	-23.0	-27.1	1,276,872.69	3,218,290.84	40.090764	-104.719792	
877.0	6.70	233.60	875.1	-28.6	-35.0	1,276,867.09	3,218,282.93	40.090749	-104.719821	
969.0	9.20	228.70	966.2	-36.6	-44.9	1,276,858.97	3,218,273.15	40.090727	-104.719856	
1,061.0	9.40	225.90	1,057.0	-46.7	-55.8	1,276,848.79	3,218,262.32	40.090699	-104.719895	



# Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4A-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Well:</b>	Mumby State 4A-36H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
1,087.0	9.20	224.70	1,082.7	-49.7	-58.8	1,276,845.81	3,218,259.36	40.090691	-104.719905
1,201.0	8.90	222.50	1,195.3	-62.6	-71.2	1,276,832.72	3,218,247.11	40.090655	-104.719950
1,293.0	8.20	225.10	1,286.2	-72.5	-80.6	1,276,822.76	3,218,237.74	40.090628	-104.719983
1,385.0	10.20	223.70	1,377.0	-83.0	-90.9	1,276,812.15	3,218,227.56	40.090599	-104.720020
1,476.0	11.50	221.80	1,466.4	-95.6	-102.5	1,276,799.46	3,218,216.05	40.090565	-104.720062
1,568.0	12.30	227.40	1,556.4	-109.1	-115.8	1,276,785.87	3,218,202.85	40.090528	-104.720109
1,660.0	13.70	225.50	1,646.1	-123.4	-130.8	1,276,771.47	3,218,187.99	40.090488	-104.720163
1,752.0	14.80	230.20	1,735.3	-138.5	-147.6	1,276,756.16	3,218,171.32	40.090447	-104.720223
1,844.0	17.80	228.20	1,823.6	-155.4	-167.1	1,276,739.09	3,218,151.96	40.090400	-104.720293
1,936.0	18.00	225.40	1,911.1	-174.8	-187.7	1,276,719.56	3,218,131.52	40.090347	-104.720366
2,028.0	18.30	224.40	1,998.5	-195.1	-208.0	1,276,699.08	3,218,111.48	40.090292	-104.720439
2,120.0	18.10	222.30	2,085.9	-216.0	-227.7	1,276,678.02	3,218,091.94	40.090234	-104.720509
2,212.0	18.00	226.30	2,173.4	-236.4	-247.6	1,276,657.45	3,218,072.22	40.090178	-104.720580
2,304.0	18.40	230.30	2,260.8	-255.4	-269.0	1,276,638.17	3,218,050.94	40.090126	-104.720657
2,396.0	18.00	229.40	2,348.2	-274.0	-291.0	1,276,619.45	3,218,029.14	40.090075	-104.720735
2,488.0	17.30	229.40	2,435.9	-292.1	-312.2	1,276,601.11	3,218,008.12	40.090025	-104.720811
2,579.0	16.60	229.40	2,522.9	-309.4	-332.3	1,276,583.67	3,217,988.13	40.089978	-104.720883
2,671.0	16.70	229.00	2,611.0	-326.6	-352.3	1,276,566.27	3,217,968.33	40.089930	-104.720954
2,763.0	16.70	224.80	2,699.2	-344.7	-371.6	1,276,548.05	3,217,949.20	40.089881	-104.721023
2,856.0	16.40	227.30	2,788.3	-363.1	-390.6	1,276,529.50	3,217,930.30	40.089830	-104.721091
2,948.0	15.60	228.80	2,876.8	-380.0	-409.5	1,276,512.37	3,217,911.59	40.089784	-104.721159
3,039.0	14.30	225.30	2,964.7	-396.0	-426.7	1,276,496.26	3,217,894.54	40.089740	-104.721220
3,131.0	16.40	224.20	3,053.4	-413.3	-443.8	1,276,478.80	3,217,877.56	40.089693	-104.721282
3,223.0	17.70	225.40	3,141.3	-432.4	-462.8	1,276,459.50	3,217,858.71	40.089640	-104.721350
3,318.0	16.40	225.80	3,232.2	-451.9	-482.7	1,276,439.84	3,217,838.99	40.089587	-104.721421
3,412.0	17.10	224.20	3,322.2	-471.1	-501.9	1,276,420.51	3,217,820.01	40.089534	-104.721489
3,507.0	17.30	227.40	3,412.9	-490.6	-522.0	1,276,400.76	3,217,800.05	40.089480	-104.721561
3,601.0	17.20	225.10	3,502.7	-509.9	-542.1	1,276,381.31	3,217,780.08	40.089427	-104.721633
3,696.0	19.20	225.00	3,592.9	-530.9	-563.1	1,276,360.17	3,217,759.27	40.089370	-104.721708
3,790.0	17.40	221.90	3,682.2	-552.3	-583.5	1,276,338.60	3,217,739.14	40.089311	-104.721781
3,885.0	17.80	225.20	3,772.7	-573.1	-603.3	1,276,317.62	3,217,719.54	40.089254	-104.721851
3,979.0	16.20	225.60	3,862.6	-592.4	-622.8	1,276,298.15	3,217,700.14	40.089201	-104.721921
4,074.0	16.70	225.00	3,953.7	-611.3	-641.9	1,276,279.05	3,217,681.19	40.089149	-104.721990
4,169.0	17.50	231.40	4,044.6	-629.9	-662.8	1,276,260.31	3,217,660.54	40.089098	-104.722064
4,263.0	15.70	230.00	4,134.6	-646.9	-683.5	1,276,243.13	3,217,639.90	40.089051	-104.722138
4,358.0	16.80	227.30	4,225.8	-664.4	-703.5	1,276,225.38	3,217,620.12	40.089003	-104.722210
4,452.0	19.90	229.10	4,315.0	-684.1	-725.6	1,276,205.50	3,217,598.21	40.088949	-104.722289
4,547.0	18.80	229.50	4,404.7	-704.6	-749.4	1,276,184.76	3,217,574.53	40.088893	-104.722374
4,641.0	16.50	229.90	4,494.3	-723.1	-771.2	1,276,166.13	3,217,552.96	40.088842	-104.722451
4,735.0	18.00	227.90	4,584.0	-741.4	-792.1	1,276,147.61	3,217,532.13	40.088792	-104.722526
4,830.0	18.90	224.40	4,674.1	-762.3	-813.8	1,276,126.59	3,217,510.66	40.088735	-104.722604
4,924.0	17.80	223.90	4,763.4	-783.5	-834.4	1,276,105.18	3,217,490.23	40.088676	-104.722678
5,019.0	19.00	225.40	4,853.5	-804.8	-855.5	1,276,083.67	3,217,469.34	40.088618	-104.722753
5,114.0	18.90	225.10	4,943.4	-826.5	-877.4	1,276,061.76	3,217,447.62	40.088558	-104.722831
5,208.0	18.20	225.90	5,032.5	-847.5	-898.7	1,276,040.61	3,217,426.48	40.088501	-104.722907
5,303.0	17.00	224.90	5,123.0	-867.6	-919.2	1,276,020.27	3,217,406.20	40.088445	-104.722981
5,397.0	15.60	222.90	5,213.2	-886.6	-937.5	1,276,001.11	3,217,388.07	40.088393	-104.723046
5,492.0	14.50	221.90	5,305.0	-904.9	-954.1	1,275,982.76	3,217,371.59	40.088343	-104.723105
5,587.0	15.40	226.40	5,396.8	-922.4	-971.2	1,275,965.06	3,217,354.67	40.088295	-104.723166
5,681.0	17.40	228.10	5,486.9	-940.4	-990.7	1,275,946.89	3,217,335.32	40.088245	-104.723236
5,776.0	15.30	226.70	5,578.1	-958.5	-1,010.4	1,275,928.63	3,217,315.79	40.088196	-104.723307
5,870.0	17.10	229.30	5,668.4	-976.0	-1,029.9	1,275,910.94	3,217,296.44	40.088148	-104.723376
5,965.0	16.50	228.80	5,759.3	-994.0	-1,050.7	1,275,892.77	3,217,275.86	40.088098	-104.723450
6,059.0	17.80	229.50	5,849.1	-1,012.1	-1,071.6	1,275,874.46	3,217,255.05	40.088049	-104.723525
6,154.0	18.90	230.00	5,939.3	-1,031.4	-1,094.5	1,275,854.94	3,217,232.39	40.087996	-104.723607

# Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4A-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Well:</b>	Mumby State 4A-36H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
6,249.0	15.80	226.70	6,030.0	-1,050.2	-1,115.7	1,275,835.99	3,217,211.35	40.087944	-104.723683
6,343.0	17.70	225.60	6,120.0	-1,069.0	-1,135.2	1,275,817.04	3,217,191.99	40.087892	-104.723752
6,438.0	18.40	224.90	6,210.3	-1,089.7	-1,156.1	1,275,796.13	3,217,171.27	40.087836	-104.723827
6,532.0	18.30	227.80	6,299.5	-1,110.1	-1,177.5	1,275,775.52	3,217,150.05	40.087780	-104.723904
6,627.0	15.60	225.60	6,390.4	-1,129.1	-1,197.7	1,275,756.39	3,217,130.04	40.087727	-104.723976
6,721.0	16.70	225.60	6,480.7	-1,147.4	-1,216.3	1,275,737.93	3,217,111.52	40.087677	-104.724043
6,768.0	15.50	224.40	6,525.8	-1,156.6	-1,225.6	1,275,728.64	3,217,102.38	40.087652	-104.724076
6,816.0	14.50	226.20	6,572.2	-1,165.3	-1,234.4	1,275,719.82	3,217,093.63	40.087628	-104.724107
6,863.0	11.80	256.00	6,618.0	-1,170.6	-1,243.3	1,275,714.50	3,217,084.76	40.087614	-104.724139
6,911.0	11.60	286.10	6,665.0	-1,170.4	-1,252.7	1,275,714.56	3,217,075.35	40.087614	-104.724173
6,958.0	11.90	291.00	6,711.1	-1,167.4	-1,261.8	1,275,717.53	3,217,066.26	40.087622	-104.724205
7,005.0	14.10	300.30	6,756.9	-1,162.8	-1,271.3	1,275,722.07	3,217,056.75	40.087635	-104.724239
7,052.0	17.50	305.50	6,802.1	-1,155.8	-1,282.0	1,275,728.97	3,217,045.99	40.087654	-104.724277
7,100.0	19.20	306.90	6,847.6	-1,146.8	-1,294.1	1,275,737.80	3,217,033.72	40.087679	-104.724321
7,147.0	20.40	306.90	6,891.9	-1,137.3	-1,306.9	1,275,747.24	3,217,020.91	40.087705	-104.724366
7,194.0	21.90	313.70	6,935.7	-1,126.3	-1,319.8	1,275,758.11	3,217,007.92	40.087735	-104.724412
7,241.0	26.80	320.50	6,978.5	-1,112.1	-1,332.9	1,275,772.23	3,216,994.71	40.087774	-104.724459
7,289.0	30.20	325.20	7,020.7	-1,093.8	-1,346.6	1,275,790.38	3,216,980.77	40.087824	-104.724508
7,336.0	30.70	329.40	7,061.2	-1,073.7	-1,359.5	1,275,810.30	3,216,967.74	40.087879	-104.724554
7,383.0	30.50	336.20	7,101.7	-1,052.5	-1,370.4	1,275,831.45	3,216,956.63	40.087938	-104.724593
7,430.0	34.40	344.50	7,141.4	-1,028.8	-1,378.8	1,275,855.11	3,216,948.05	40.088003	-104.724623
7,478.0	38.00	348.20	7,180.1	-1,001.2	-1,385.4	1,275,882.59	3,216,941.16	40.088078	-104.724647
7,525.0	41.90	348.50	7,216.1	-971.7	-1,391.5	1,275,912.09	3,216,934.81	40.088160	-104.724669
7,572.0	44.30	350.70	7,250.4	-940.1	-1,397.3	1,275,943.62	3,216,928.75	40.088246	-104.724689
7,619.0	46.50	350.50	7,283.4	-907.1	-1,402.8	1,275,976.58	3,216,922.99	40.088337	-104.724709
7,667.0	50.50	350.90	7,315.2	-871.6	-1,408.6	1,276,012.00	3,216,916.88	40.088434	-104.724730
7,714.0	56.40	351.40	7,343.2	-834.3	-1,414.4	1,276,049.24	3,216,910.75	40.088537	-104.724750
7,761.0	62.20	353.60	7,367.2	-794.3	-1,419.6	1,276,089.24	3,216,905.15	40.088647	-104.724769
7,809.0	66.10	354.80	7,388.1	-751.3	-1,424.0	1,276,132.17	3,216,900.41	40.088765	-104.724785
7,856.0	68.70	355.60	7,406.2	-708.1	-1,427.6	1,276,175.37	3,216,896.41	40.088883	-104.724798
7,903.0	72.90	355.10	7,421.6	-663.8	-1,431.2	1,276,219.57	3,216,892.42	40.089005	-104.724811
7,950.0	76.00	354.60	7,434.2	-618.7	-1,435.3	1,276,264.62	3,216,887.96	40.089128	-104.724825
7,998.0	79.90	354.50	7,444.3	-572.0	-1,439.7	1,276,311.30	3,216,883.09	40.089257	-104.724841
8,052.0	86.60	353.10	7,450.6	-518.7	-1,445.5	1,276,364.53	3,216,876.83	40.089403	-104.724862
8,108.0	90.70	354.70	7,451.9	-463.1	-1,451.5	1,276,420.13	3,216,870.39	40.089556	-104.724883
8,172.0	90.70	354.50	7,451.1	-399.4	-1,457.5	1,276,483.78	3,216,863.81	40.089731	-104.724905
8,266.0	87.40	357.20	7,452.7	-305.7	-1,464.3	1,276,577.44	3,216,856.18	40.089988	-104.724929
8,360.0	88.20	358.30	7,456.3	-211.8	-1,468.0	1,276,671.26	3,216,851.67	40.090246	-104.724942
8,455.0	89.10	359.40	7,458.5	-116.9	-1,469.9	1,276,766.19	3,216,848.93	40.090506	-104.724949
8,549.0	90.20	1.70	7,459.1	-22.9	-1,469.0	1,276,860.18	3,216,849.00	40.090764	-104.724946
8,644.0	90.50	2.30	7,458.5	72.1	-1,465.7	1,276,955.14	3,216,851.48	40.091025	-104.724934
8,738.0	90.70	1.10	7,457.5	166.0	-1,462.9	1,277,049.12	3,216,853.44	40.091283	-104.724924
8,832.0	90.60	1.20	7,456.5	260.0	-1,461.0	1,277,143.11	3,216,854.50	40.091541	-104.724917
8,927.0	88.20	2.80	7,457.5	354.9	-1,457.7	1,277,238.06	3,216,856.98	40.091801	-104.724905
9,021.0	87.60	2.10	7,460.9	448.8	-1,453.7	1,277,331.94	3,216,860.17	40.092059	-104.724891
9,116.0	88.60	2.30	7,464.1	543.7	-1,450.0	1,277,426.84	3,216,862.98	40.092319	-104.724878
9,210.0	90.50	3.70	7,464.8	637.5	-1,445.1	1,277,520.75	3,216,867.07	40.092577	-104.724860
9,304.0	90.10	3.00	7,464.3	731.4	-1,439.6	1,277,614.63	3,216,871.74	40.092835	-104.724841
9,399.0	89.60	3.30	7,464.6	826.2	-1,434.4	1,277,709.53	3,216,876.13	40.093095	-104.724822
9,494.0	89.00	2.80	7,465.7	921.1	-1,429.3	1,277,804.42	3,216,880.35	40.093355	-104.724804
9,588.0	91.30	2.30	7,465.5	1,015.0	-1,425.1	1,277,898.36	3,216,883.70	40.093613	-104.724789
9,682.0	89.90	2.40	7,464.5	1,108.9	-1,421.3	1,277,992.30	3,216,886.73	40.093871	-104.724776
9,777.0	90.50	359.90	7,464.2	1,203.9	-1,419.4	1,278,087.29	3,216,887.80	40.094132	-104.724769
9,871.0	91.80	0.90	7,462.3	1,297.8	-1,418.7	1,278,181.26	3,216,887.63	40.094390	-104.724766
9,966.0	89.80	358.50	7,460.9	1,392.8	-1,419.2	1,278,276.23	3,216,886.29	40.094650	-104.724768

# Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4A-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5049.0ft (Original Well Elev)
<b>Well:</b>	Mumby State 4A-36H	<b>North Reference:</b>	True
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
10,060.0	89.50	358.00	7,461.5	1,486.8	-1,422.1	1,278,370.16	3,216,882.60	40.094908	-104.724778
10,155.0	88.90	357.90	7,462.8	1,581.7	-1,425.5	1,278,465.05	3,216,878.36	40.095169	-104.724791
10,249.0	89.60	357.00	7,464.1	1,675.6	-1,429.7	1,278,558.91	3,216,873.36	40.095427	-104.724806
10,344.0	90.00	358.50	7,464.4	1,770.5	-1,433.4	1,278,653.80	3,216,868.79	40.095687	-104.724819
10,438.0	89.80	359.90	7,464.6	1,864.5	-1,434.7	1,278,747.77	3,216,866.65	40.095945	-104.724824
10,533.0	88.40	0.80	7,466.1	1,959.5	-1,434.1	1,278,842.76	3,216,866.40	40.096206	-104.724822
10,627.0	86.00	0.30	7,470.7	2,053.4	-1,433.2	1,278,936.64	3,216,866.47	40.096464	-104.724818
10,722.0	87.30	359.50	7,476.2	2,148.2	-1,433.4	1,279,031.47	3,216,865.47	40.096724	-104.724819
10,816.0	89.30	358.80	7,479.0	2,242.1	-1,434.8	1,279,125.39	3,216,863.25	40.096982	-104.724824
10,911.0	89.90	358.40	7,479.7	2,337.1	-1,437.1	1,279,220.34	3,216,860.09	40.097243	-104.724832
11,005.0	89.70	358.40	7,480.0	2,431.1	-1,439.7	1,279,314.27	3,216,856.64	40.097501	-104.724842
11,100.0	89.20	358.60	7,480.9	2,526.0	-1,442.2	1,279,409.21	3,216,853.32	40.097761	-104.724851
11,195.0	91.10	0.00	7,480.7	2,621.0	-1,443.4	1,279,504.18	3,216,851.32	40.098022	-104.724855
11,289.0	90.40	359.20	7,479.4	2,715.0	-1,444.0	1,279,598.16	3,216,849.84	40.098280	-104.724857
11,384.0	89.00	358.00	7,479.9	2,810.0	-1,446.4	1,279,693.10	3,216,846.68	40.098541	-104.724865
11,478.0	91.00	0.00	7,479.9	2,903.9	-1,448.0	1,279,787.06	3,216,844.22	40.098799	-104.724871
11,573.0	90.10	359.00	7,479.0	2,998.9	-1,448.8	1,279,882.04	3,216,842.55	40.099059	-104.724874
11,667.0	89.30	1.10	7,479.5	3,092.9	-1,448.8	1,279,976.03	3,216,841.81	40.099318	-104.724874
11,761.0	89.30	1.00	7,480.6	3,186.9	-1,447.0	1,280,070.02	3,216,842.70	40.099575	-104.724868
11,856.0	89.10	0.30	7,482.0	3,281.9	-1,446.0	1,280,165.01	3,216,842.94	40.099836	-104.724864
11,951.0	88.10	1.20	7,484.3	3,376.8	-1,444.7	1,280,259.98	3,216,843.35	40.100097	-104.724860
12,045.0	88.50	1.10	7,487.1	3,470.8	-1,442.8	1,280,353.93	3,216,844.41	40.100355	-104.724853
12,124.0	89.20	1.20	7,488.7	3,549.8	-1,441.2	1,280,432.91	3,216,845.30	40.100572	-104.724847
Last CES Survey @ 12,124' MD									
12,174.0	89.20	1.20	7,489.4	3,599.7	-1,440.2	1,280,482.90	3,216,845.91	40.100709	-104.724844
PTB @ 12,174'									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL 4A-36H P3	0.00	0.00	7,480.7	3,629.4	-1,436.5	1,280,512.55	3,216,849.38	40.100790	-104.724830
- hit/miss target									
- Shape									
- actual wellpath misses target center by 31.1ft at 12174.0ft MD (7489.4 TVD, 3599.7 N, -1440.2 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
12,124.0	7,488.7	3,549.8	-1,441.2	Last CES Survey @ 12,124' MD	
12,174.0	7,489.4	3,599.7	-1,440.2	PTB @ 12,174'	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_