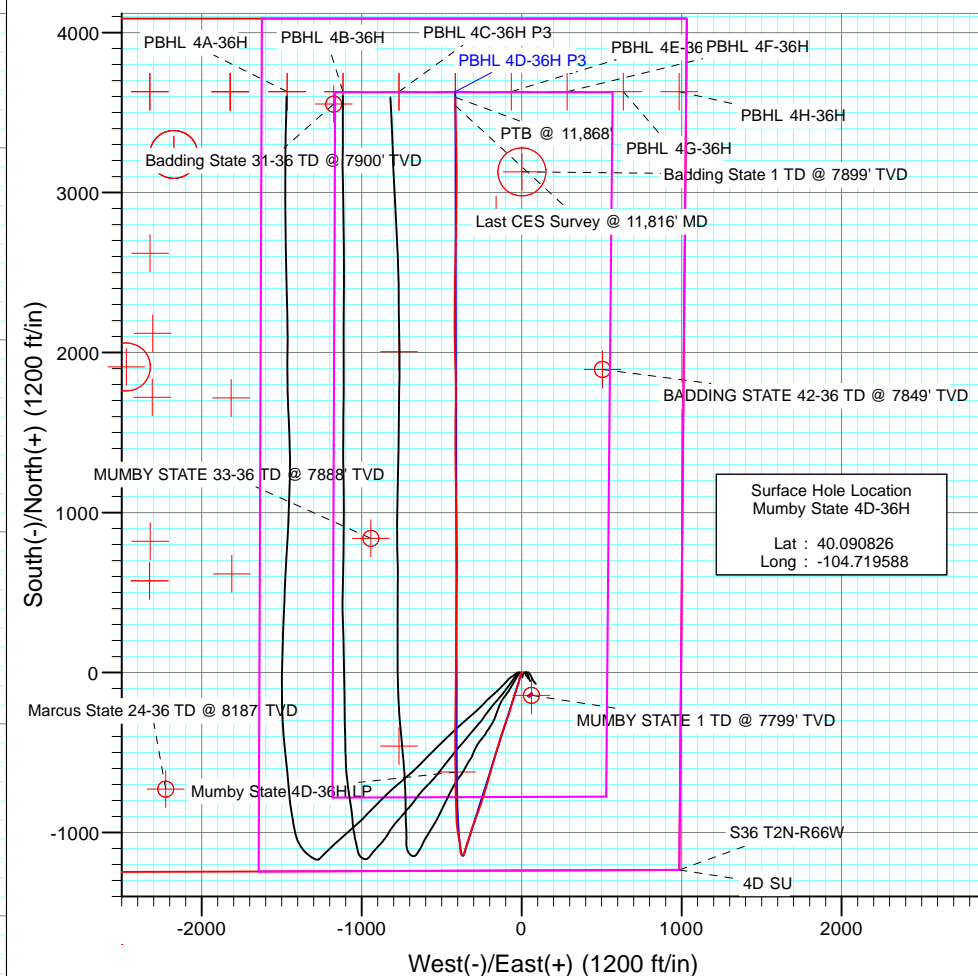
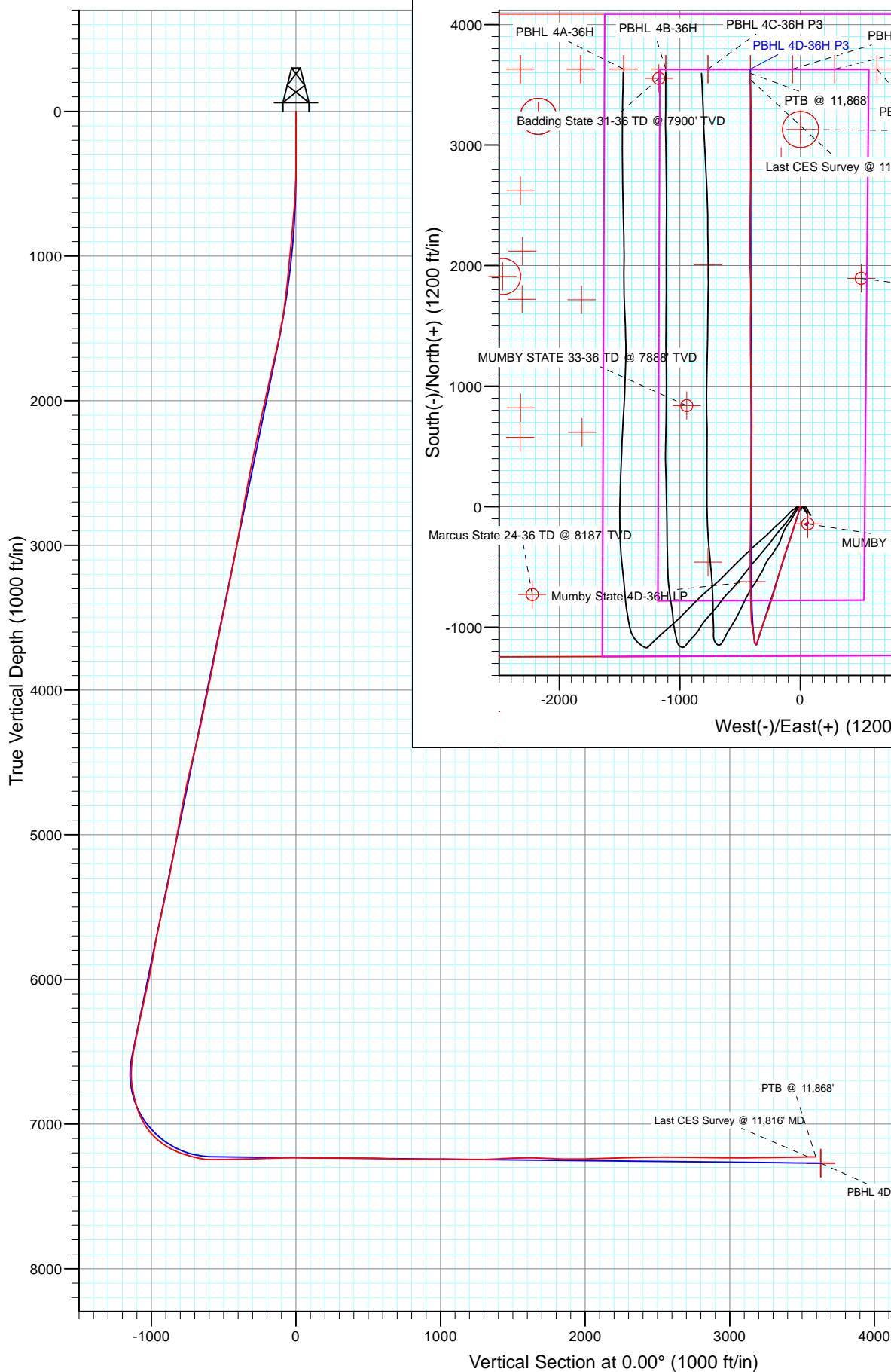




Project: DJ Wattenberg  
Site: S36 T2N-R66W (Marcus State, Mumby State)  
Well: Mumby State 4D-36H  
Wellbore: HZ  
Design: FINAL



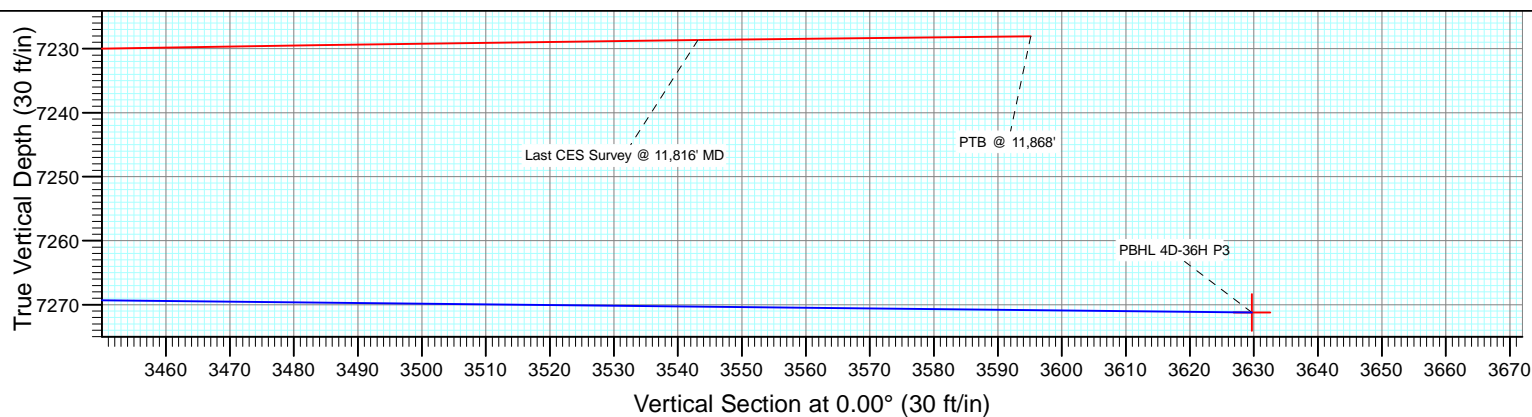
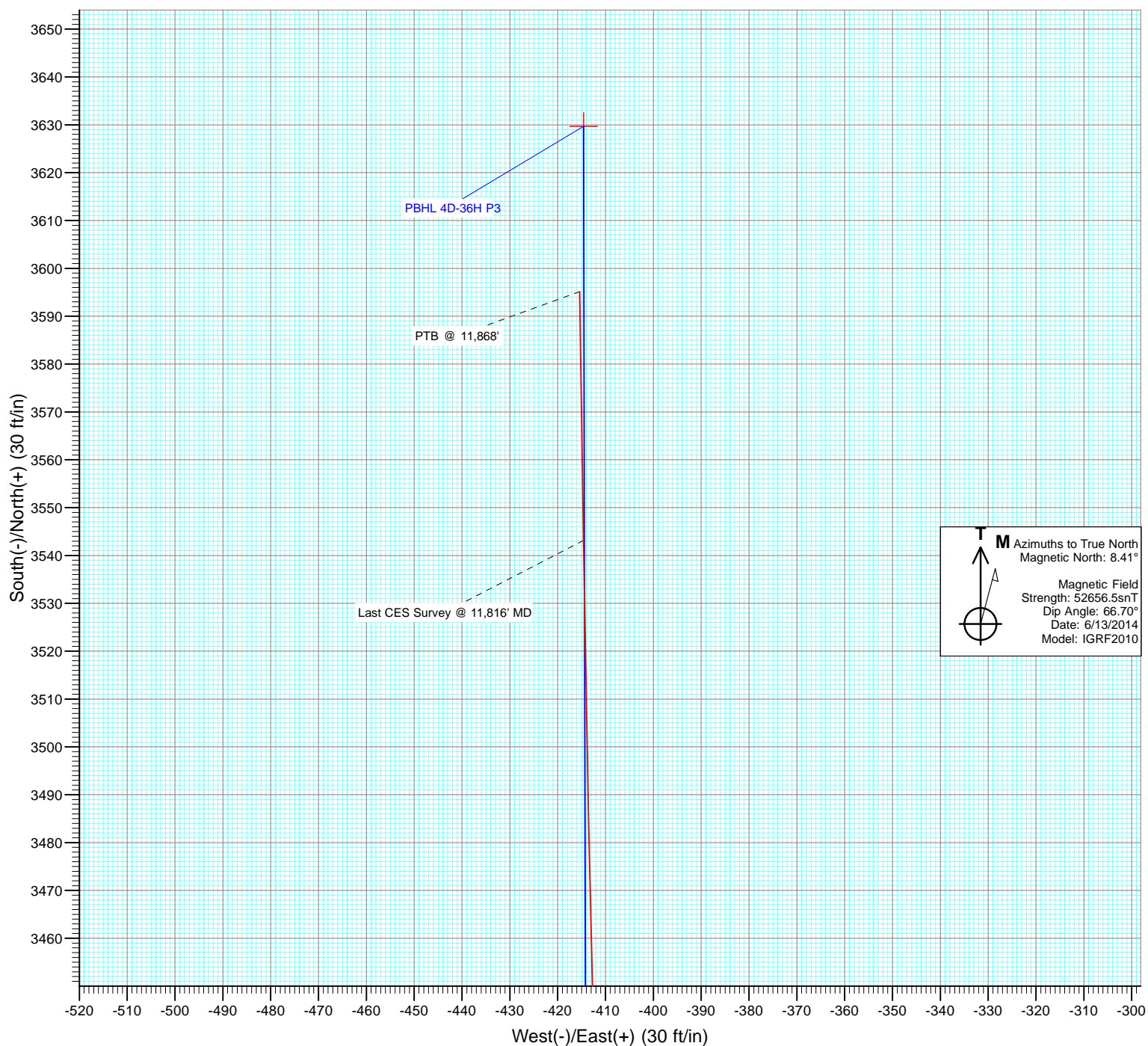
Surface Hole Location  
Mumby State 4D-36H  
Lat : 40.090826  
Long : -104.719588

**M** Azimuths to True North  
Magnetic North: 8.41°  
Magnetic Field  
Strength: 52656.5snT  
Dip Angle: 66.70°  
Date: 6/13/2014  
Model: IGRF2010

FINAL  
Mumby State 4D-36H  
15137 145177: LR  
WELL @ 5048.0ft (H&P 522)  
Ground Elevation @ 5018.0  
North American Datum 1983  
Well Mumby State 4D-36H, True North



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



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4D-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Well:</b>	Mumby State 4D-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 4D-36H					
Well Position	+N/-S	0.0 ft	Northing:	1,276,895.87 ft	Latitude:	40.090826
	+E/-W	0.0 ft	Easting:	3,218,347.66 ft	Longitude:	-104.719588
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,018.0 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	6/13/2014	8.41	66.70	52,657

<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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	0.00	

<b>Survey Program</b>	<b>Date</b>	7/23/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
141.0	11,868.0	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	0.12	78.99	141.0	0.0	0.1	0.0	0.09	0.09		
233.0	0.10	23.50	233.0	0.1	0.3	0.1	0.11	-0.02		
325.0	0.40	41.40	325.0	0.4	0.5	0.4	0.33	0.33		
417.0	1.00	221.00	417.0	0.1	0.2	0.1	1.52	0.65		
509.0	2.50	215.10	508.9	-2.2	-1.5	-2.2	1.64	1.63		
601.0	4.00	203.70	600.8	-6.8	-3.9	-6.8	1.77	1.63		
693.0	4.80	200.90	692.5	-13.3	-6.6	-13.3	0.90	0.87		
785.0	5.50	195.90	784.2	-21.1	-9.2	-21.1	0.90	0.76		
877.0	5.30	194.80	875.7	-29.5	-11.5	-29.5	0.24	-0.22		
969.0	5.70	193.80	967.3	-38.0	-13.6	-38.0	0.45	0.43		
1,061.0	6.00	194.50	1,058.8	-47.1	-15.9	-47.1	0.34	0.33		
1,105.0	5.80	193.90	1,102.6	-51.5	-17.0	-51.5	0.48	-0.45		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4D-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Well:</b>	Mumby State 4D-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
1,202.0	5.80	189.50	1,199.1	-61.1	-19.0	-61.1	0.46	0.00	
1,294.0	8.00	197.60	1,290.4	-71.8	-21.7	-71.8	2.61	2.39	
1,386.0	8.50	197.50	1,381.5	-84.4	-25.7	-84.4	0.54	0.54	
1,478.0	10.90	198.90	1,472.2	-99.1	-30.6	-99.1	2.62	2.61	
1,570.0	11.00	197.30	1,562.5	-115.7	-36.0	-115.7	0.35	0.11	
1,662.0	13.20	197.70	1,652.4	-134.1	-41.8	-134.1	2.39	2.39	
1,754.0	13.30	198.90	1,742.0	-154.1	-48.4	-154.1	0.32	0.11	
1,845.0	13.90	197.00	1,830.4	-174.5	-55.0	-174.5	0.82	0.66	
1,937.0	14.20	196.00	1,919.7	-195.9	-61.4	-195.9	0.42	0.33	
2,029.0	13.20	196.60	2,009.1	-216.8	-67.5	-216.8	1.10	-1.09	
2,121.0	12.20	197.60	2,098.8	-236.1	-73.4	-236.1	1.11	-1.09	
2,213.0	12.40	199.10	2,188.7	-254.7	-79.6	-254.7	0.41	0.22	
2,305.0	12.40	200.50	2,278.6	-273.3	-86.3	-273.3	0.33	0.00	
2,397.0	12.00	199.90	2,368.5	-291.5	-93.0	-291.5	0.46	-0.43	
2,489.0	11.60	200.30	2,458.5	-309.2	-99.4	-309.2	0.44	-0.43	
2,581.0	11.00	199.50	2,548.8	-326.2	-105.6	-326.2	0.67	-0.65	
2,673.0	12.00	197.50	2,638.9	-343.6	-111.4	-343.6	1.17	1.09	
2,765.0	11.40	199.50	2,729.0	-361.3	-117.3	-361.3	0.79	-0.65	
2,857.0	10.30	197.10	2,819.4	-377.7	-122.8	-377.7	1.29	-1.20	
2,949.0	9.80	197.40	2,909.9	-393.0	-127.5	-393.0	0.55	-0.54	
3,041.0	10.30	196.10	3,000.5	-408.4	-132.1	-408.4	0.60	0.54	
3,133.0	11.60	195.50	3,090.9	-425.2	-136.9	-425.2	1.42	1.41	
3,224.0	12.50	197.20	3,179.9	-443.4	-142.2	-443.4	1.06	0.99	
3,319.0	11.90	199.60	3,272.7	-462.5	-148.6	-462.5	0.83	-0.63	
3,414.0	12.50	197.70	3,365.6	-481.5	-155.0	-481.5	0.76	0.63	
3,508.0	11.10	195.50	3,457.6	-499.9	-160.5	-499.9	1.56	-1.49	
3,603.0	12.30	194.40	3,550.6	-518.5	-165.5	-518.5	1.28	1.26	
3,697.0	12.00	197.40	3,642.5	-537.6	-170.9	-537.6	0.74	-0.32	
3,792.0	11.80	196.40	3,735.4	-556.3	-176.6	-556.3	0.30	-0.21	
3,886.0	12.00	196.30	3,827.4	-574.9	-182.0	-574.9	0.21	0.21	
3,981.0	11.70	194.50	3,920.4	-593.7	-187.2	-593.7	0.50	-0.32	
4,075.0	11.30	194.40	4,012.5	-611.8	-191.9	-611.8	0.43	-0.43	
4,170.0	11.70	197.80	4,105.6	-630.0	-197.1	-630.0	0.83	0.42	
4,265.0	13.70	196.00	4,198.3	-650.0	-203.2	-650.0	2.15	2.11	
4,359.0	12.00	194.90	4,289.9	-670.2	-208.8	-670.2	1.83	-1.81	
4,453.0	14.60	197.20	4,381.4	-690.9	-214.8	-690.9	2.82	2.77	
4,548.0	13.80	193.70	4,473.5	-713.4	-221.0	-713.4	1.23	-0.84	
4,642.0	13.50	199.30	4,564.8	-734.6	-227.3	-734.6	1.44	-0.32	
4,737.0	12.80	197.80	4,657.4	-755.1	-234.2	-755.1	0.82	-0.74	
4,831.0	11.90	197.60	4,749.2	-774.3	-240.3	-774.3	0.96	-0.96	
4,926.0	10.90	196.70	4,842.3	-792.2	-245.8	-792.2	1.07	-1.05	
5,020.0	11.00	195.20	4,934.6	-809.4	-250.7	-809.4	0.32	0.11	
5,115.0	11.20	202.70	5,027.8	-826.6	-256.7	-826.6	1.53	0.21	
5,210.0	10.30	198.40	5,121.2	-843.2	-262.9	-843.2	1.27	-0.95	
5,304.0	11.50	197.30	5,213.5	-860.1	-268.4	-860.1	1.30	1.28	
5,399.0	12.00	201.80	5,306.5	-878.3	-274.8	-878.3	1.10	0.53	
5,493.0	13.50	201.10	5,398.1	-897.6	-282.4	-897.6	1.60	1.60	
5,588.0	12.20	197.90	5,490.8	-917.5	-289.5	-917.5	1.56	-1.37	
5,683.0	13.60	202.10	5,583.4	-937.4	-296.8	-937.4	1.77	1.47	
5,777.0	12.20	198.50	5,675.0	-957.1	-304.1	-957.1	1.72	-1.49	
5,872.0	9.90	195.80	5,768.2	-974.5	-309.5	-974.5	2.48	-2.42	
5,966.0	10.80	199.60	5,860.7	-990.6	-314.7	-990.6	1.20	0.96	
6,061.0	12.10	201.10	5,953.8	-1,008.2	-321.2	-1,008.2	1.40	1.37	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4D-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Well:</b>	Mumby State 4D-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
6,155.0	14.00	199.60	6,045.4	-1,028.1	-328.6	-1,028.1	2.05	2.02	
6,250.0	12.30	197.10	6,137.9	-1,048.6	-335.4	-1,048.6	1.89	-1.79	
6,344.0	12.70	193.80	6,229.7	-1,068.2	-340.8	-1,068.2	0.87	0.43	
6,439.0	12.20	196.70	6,322.4	-1,088.0	-346.2	-1,088.0	0.84	-0.53	
6,534.0	12.40	198.20	6,415.2	-1,107.3	-352.3	-1,107.3	0.40	0.21	
6,628.0	9.10	193.40	6,507.6	-1,124.1	-357.2	-1,124.1	3.63	-3.51	
6,675.0	8.80	199.80	6,554.0	-1,131.1	-359.2	-1,131.1	2.21	-0.64	
6,723.0	8.80	228.90	6,601.5	-1,137.0	-363.2	-1,137.0	9.18	0.00	
6,770.0	8.00	264.20	6,648.0	-1,139.7	-369.2	-1,139.7	10.92	-1.70	
6,817.0	9.20	299.10	6,694.5	-1,138.2	-375.8	-1,138.2	11.20	2.55	
6,864.0	9.40	336.40	6,740.9	-1,132.8	-380.6	-1,132.8	12.61	0.43	
6,912.0	12.00	1.20	6,788.1	-1,124.3	-382.0	-1,124.3	10.89	5.42	
6,959.0	13.50	1.50	6,833.9	-1,113.9	-381.8	-1,113.9	3.19	3.19	
7,007.0	16.90	356.60	6,880.3	-1,101.3	-382.1	-1,101.3	7.57	7.08	
7,054.0	21.80	352.00	6,924.6	-1,085.8	-383.7	-1,085.8	10.91	10.43	
7,101.0	27.00	350.40	6,967.4	-1,066.7	-386.7	-1,066.7	11.15	11.06	
7,148.0	33.00	348.90	7,008.1	-1,043.6	-390.9	-1,043.6	12.86	12.77	
7,196.0	38.10	349.20	7,047.1	-1,016.2	-396.2	-1,016.2	10.63	10.62	
7,243.0	44.60	352.60	7,082.4	-985.5	-401.1	-985.5	14.63	13.83	
7,290.0	50.50	354.80	7,114.1	-951.1	-404.8	-951.1	13.02	12.55	
7,337.0	54.80	356.80	7,142.6	-913.8	-407.6	-913.8	9.75	9.15	
7,385.0	61.10	357.70	7,168.1	-873.2	-409.5	-873.2	13.22	13.12	
7,432.0	66.70	358.20	7,188.7	-831.0	-411.0	-831.0	11.95	11.91	
7,479.0	71.00	356.30	7,205.7	-787.3	-413.1	-787.3	9.89	9.15	
7,552.0	75.20	359.70	7,226.9	-717.5	-415.5	-717.5	7.28	5.75	
7,599.0	78.90	0.10	7,237.4	-671.7	-415.6	-671.7	7.92	7.87	
7,646.0	84.40	0.80	7,244.3	-625.2	-415.2	-625.2	11.79	11.70	
7,694.0	90.00	0.30	7,246.6	-577.3	-414.8	-577.3	11.71	11.67	
7,789.0	91.30	0.10	7,245.5	-482.3	-414.4	-482.3	1.38	1.37	
7,883.0	91.00	0.20	7,243.6	-388.3	-414.2	-388.3	0.34	-0.32	
7,978.0	91.20	359.70	7,241.8	-293.3	-414.3	-293.3	0.57	0.21	
8,072.0	92.60	0.20	7,238.7	-199.4	-414.4	-199.4	1.58	1.49	
8,167.0	91.60	1.00	7,235.2	-104.5	-413.4	-104.5	1.35	-1.05	
8,262.0	90.10	0.80	7,233.8	-9.5	-411.9	-9.5	1.59	-1.58	
8,356.0	89.20	0.50	7,234.4	84.5	-410.8	84.5	1.01	-0.96	
8,450.0	89.50	0.50	7,235.4	178.5	-410.0	178.5	0.32	0.32	
8,545.0	89.80	359.90	7,236.0	273.5	-409.7	273.5	0.71	0.32	
8,639.0	89.70	0.80	7,236.4	367.5	-409.1	367.5	0.96	-0.11	
8,734.0	90.00	1.30	7,236.7	462.5	-407.3	462.5	0.61	0.32	
8,828.0	87.90	0.90	7,238.4	556.4	-405.5	556.4	2.27	-2.23	
8,922.0	88.10	0.30	7,241.7	650.4	-404.6	650.4	0.67	0.21	
9,017.0	88.40	359.30	7,244.6	745.3	-404.9	745.3	1.10	0.32	
9,111.0	90.60	359.10	7,245.4	839.3	-406.2	839.3	2.35	2.34	
9,206.0	90.80	0.30	7,244.2	934.3	-406.7	934.3	1.28	0.21	
9,300.0	89.50	357.70	7,244.0	1,028.3	-408.3	1,028.3	3.09	-1.38	
9,394.0	89.50	358.60	7,244.8	1,122.2	-411.4	1,122.2	0.96	0.00	
9,489.0	89.30	359.90	7,245.8	1,217.2	-412.6	1,217.2	1.38	-0.21	
9,584.0	91.50	359.10	7,245.2	1,312.2	-413.4	1,312.2	2.46	2.32	
9,678.0	93.10	359.70	7,241.4	1,406.1	-414.4	1,406.1	1.82	1.70	
9,772.0	92.30	0.80	7,237.0	1,500.0	-414.0	1,500.0	1.45	-0.85	
9,867.0	90.50	1.00	7,234.6	1,594.9	-412.5	1,594.9	1.91	-1.89	
9,961.0	87.30	0.60	7,236.4	1,688.9	-411.2	1,688.9	3.43	-3.40	
10,056.0	87.90	359.40	7,240.4	1,783.8	-411.2	1,783.8	1.41	0.63	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4D-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Well:</b>	Mumby State 4D-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
10,150.0	88.90	358.60	7,243.0	1,877.8	-412.9	1,877.8	1.36	1.06	
10,245.0	90.90	358.40	7,243.2	1,972.7	-415.3	1,972.7	2.12	2.11	
10,339.0	91.90	359.10	7,240.9	2,066.7	-417.4	2,066.7	1.30	1.06	
10,434.0	92.20	359.10	7,237.5	2,161.6	-418.9	2,161.6	0.32	0.32	
10,528.0	91.30	0.30	7,234.6	2,255.6	-419.4	2,255.6	1.60	-0.96	
10,623.0	91.10	0.30	7,232.6	2,350.5	-418.9	2,350.5	0.21	-0.21	
10,717.0	91.80	0.30	7,230.3	2,444.5	-418.4	2,444.5	0.74	0.74	
10,812.0	89.50	1.80	7,229.2	2,539.5	-416.6	2,539.5	2.89	-2.42	
10,906.0	89.40	1.60	7,230.1	2,633.4	-413.9	2,633.4	0.24	-0.11	
11,001.0	89.50	1.60	7,231.0	2,728.4	-411.2	2,728.4	0.11	0.11	
11,096.0	89.10	2.50	7,232.2	2,823.3	-407.8	2,823.3	1.04	-0.42	
11,190.0	88.80	359.60	7,233.9	2,917.3	-406.1	2,917.3	3.10	-0.32	
11,285.0	90.20	359.60	7,234.7	3,012.3	-406.8	3,012.3	1.47	1.47	
11,379.0	89.90	359.90	7,234.6	3,106.3	-407.2	3,106.3	0.45	-0.32	
11,474.0	91.00	359.30	7,233.9	3,201.3	-407.8	3,201.3	1.32	1.16	
11,568.0	90.90	358.90	7,232.3	3,295.2	-409.3	3,295.2	0.44	-0.11	
11,663.0	90.80	358.60	7,230.9	3,390.2	-411.4	3,390.2	0.33	-0.11	
11,757.0	91.00	358.80	7,229.4	3,484.2	-413.5	3,484.2	0.30	0.21	
11,816.0	90.60	359.10	7,228.6	3,543.1	-414.6	3,543.1	0.85	-0.68	Last CES Survey @ 11,816' MD
11,868.0	90.60	359.10	7,228.1	3,595.1	-415.4	3,595.1	0.00	0.00	PTB @ 11,868'

### 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
PBHL 4D-36H P3 - actual wellpath misses target center by 55.3ft at 11868.0ft MD (7228.1 TVD, 3595.1 N, -415.4 E) - Point	0.00	0.00	7,271.2	3,629.7	-414.6	1,280,521.77	3,217,901.16	40.100790	-104.721070
Mumby State 4D-36H LF - actual wellpath misses target center by 21.6ft at 7648.5ft MD (7244.5 TVD, -622.7 N, -415.2 E) - Point	0.00	0.00	7,225.0	-621.8	-405.9	1,276,270.50	3,217,947.21	40.089119	-104.721039
PBHL 4D-36H - actual wellpath misses target center by 35.5ft at 11868.0ft MD (7228.1 TVD, 3595.1 N, -415.4 E) - Point	0.00	0.00	7,220.0	3,629.7	-414.6	1,280,521.77	3,217,901.16	40.100790	-104.721070

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
11,816.0	7,228.6	3,543.1	-414.6	Last CES Survey @ 11,816' MD
11,868.0	7,228.1	3,595.1	-415.4	PTB @ 11,868'

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

# **EnCana Oil & Gas (USA) Inc**

**DJ Wattenberg**

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

**Mumby State 4D-36H**

**HZ**

**Design: FINAL**

## **Survey Report - Geographic**

**23 July, 2014**

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4D-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Well:</b>	Mumby State 4D-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 4D-36H					
Well Position	+N/-S	0.0 ft	Northing:	1,276,895.87 ft	Latitude:	40.090826
	+E/-W	0.0 ft	Easting:	3,218,347.66 ft	Longitude:	-104.719588
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,018.0 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	6/13/2014	8.41	66.70	52,657

<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>	7/23/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
141.0	11,868.0	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	1,276,895.87	3,218,347.66	40.090826	-104.719588	
141.0	0.12	78.99	141.0	0.0	0.1	1,276,895.90	3,218,347.81	40.090826	-104.719588	
233.0	0.10	23.50	233.0	0.1	0.3	1,276,895.99	3,218,347.93	40.090826	-104.719587	
325.0	0.40	41.40	325.0	0.4	0.5	1,276,896.31	3,218,348.18	40.090827	-104.719586	
417.0	1.00	221.00	417.0	0.1	0.2	1,276,895.94	3,218,347.86	40.090826	-104.719588	
509.0	2.50	215.10	508.9	-2.2	-1.5	1,276,893.68	3,218,346.20	40.090820	-104.719594	
601.0	4.00	203.70	600.8	-6.8	-3.9	1,276,889.07	3,218,343.80	40.090808	-104.719602	
693.0	4.80	200.90	692.5	-13.3	-6.6	1,276,882.52	3,218,341.19	40.090790	-104.719612	
785.0	5.50	195.90	784.2	-21.1	-9.2	1,276,874.66	3,218,338.68	40.090768	-104.719621	
877.0	5.30	194.80	875.7	-29.5	-11.5	1,276,866.29	3,218,336.46	40.090745	-104.719629	
969.0	5.70	193.80	967.3	-38.0	-13.6	1,276,857.73	3,218,334.36	40.090722	-104.719637	
1,061.0	6.00	194.50	1,058.8	-47.1	-15.9	1,276,848.62	3,218,332.15	40.090697	-104.719645	



# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4D-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Well:</b>	Mumby State 4D-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
1,105.0	5.80	193.90	1,102.6	-51.5	-17.0	1,276,844.22	3,218,331.08	40.090685	-104.719649
1,202.0	5.80	189.50	1,199.1	-61.1	-19.0	1,276,834.61	3,218,329.18	40.090658	-104.719656
1,294.0	8.00	197.60	1,290.4	-71.8	-21.7	1,276,823.90	3,218,326.57	40.090629	-104.719666
1,386.0	8.50	197.50	1,381.5	-84.4	-25.7	1,276,811.28	3,218,322.70	40.090594	-104.719680
1,478.0	10.90	198.90	1,472.2	-99.1	-30.6	1,276,796.52	3,218,317.96	40.090554	-104.719698
1,570.0	11.00	197.30	1,562.5	-115.7	-36.0	1,276,779.86	3,218,312.68	40.090508	-104.719717
1,662.0	13.20	197.70	1,652.4	-134.1	-41.8	1,276,761.42	3,218,307.04	40.090458	-104.719738
1,754.0	13.30	198.90	1,742.0	-154.1	-48.4	1,276,741.35	3,218,300.60	40.090403	-104.719761
1,845.0	13.90	197.00	1,830.4	-174.5	-55.0	1,276,720.93	3,218,294.19	40.090347	-104.719785
1,937.0	14.20	196.00	1,919.7	-195.9	-61.4	1,276,699.46	3,218,288.04	40.090288	-104.719808
2,029.0	13.20	196.60	2,009.1	-216.8	-67.5	1,276,678.50	3,218,282.11	40.090231	-104.719829
2,121.0	12.20	197.60	2,098.8	-236.1	-73.4	1,276,659.11	3,218,276.34	40.090178	-104.719851
2,213.0	12.40	199.10	2,188.7	-254.7	-79.6	1,276,640.46	3,218,270.33	40.090127	-104.719873
2,305.0	12.40	200.50	2,278.6	-273.3	-86.3	1,276,621.82	3,218,263.80	40.090076	-104.719897
2,397.0	12.00	199.90	2,368.5	-291.5	-93.0	1,276,603.51	3,218,257.25	40.090026	-104.719921
2,489.0	11.60	200.30	2,458.5	-309.2	-99.4	1,276,585.79	3,218,250.94	40.089977	-104.719944
2,581.0	11.00	199.50	2,548.8	-326.2	-105.6	1,276,568.79	3,218,244.95	40.089931	-104.719966
2,673.0	12.00	197.50	2,638.9	-343.6	-111.4	1,276,551.34	3,218,239.30	40.089883	-104.719986
2,765.0	11.40	199.50	2,729.0	-361.3	-117.3	1,276,533.60	3,218,233.54	40.089834	-104.720008
2,857.0	10.30	197.10	2,819.4	-377.7	-122.8	1,276,517.12	3,218,228.24	40.089789	-104.720027
2,949.0	9.80	197.40	2,909.9	-393.0	-127.5	1,276,501.74	3,218,223.61	40.089747	-104.720044
3,041.0	10.30	196.10	3,000.5	-408.4	-132.1	1,276,486.33	3,218,219.12	40.089705	-104.720061
3,133.0	11.60	195.50	3,090.9	-425.2	-136.9	1,276,469.47	3,218,214.52	40.089659	-104.720078
3,224.0	12.50	197.20	3,179.9	-443.4	-142.2	1,276,451.20	3,218,209.32	40.089609	-104.720097
3,319.0	11.90	199.60	3,272.7	-462.5	-148.6	1,276,432.10	3,218,203.16	40.089556	-104.720119
3,414.0	12.50	197.70	3,365.6	-481.5	-155.0	1,276,413.02	3,218,196.92	40.089504	-104.720142
3,508.0	11.10	195.50	3,457.6	-499.9	-160.5	1,276,394.56	3,218,191.57	40.089454	-104.720162
3,603.0	12.30	194.40	3,550.6	-518.5	-165.5	1,276,375.90	3,218,186.78	40.089403	-104.720180
3,697.0	12.00	197.40	3,642.5	-537.6	-170.9	1,276,356.83	3,218,181.53	40.089350	-104.720199
3,792.0	11.80	196.40	3,735.4	-556.3	-176.6	1,276,338.04	3,218,176.00	40.089299	-104.720219
3,886.0	12.00	196.30	3,827.4	-574.9	-182.0	1,276,319.39	3,218,170.71	40.089248	-104.720239
3,981.0	11.70	194.50	3,920.4	-593.7	-187.2	1,276,300.55	3,218,165.69	40.089196	-104.720257
4,075.0	11.30	194.40	4,012.5	-611.8	-191.9	1,276,282.36	3,218,161.17	40.089146	-104.720274
4,170.0	11.70	197.80	4,105.6	-630.0	-197.1	1,276,264.12	3,218,156.07	40.089097	-104.720293
4,265.0	13.70	196.00	4,198.3	-650.0	-203.2	1,276,244.08	3,218,150.20	40.089042	-104.720314
4,359.0	12.00	194.90	4,289.9	-670.2	-208.8	1,276,223.89	3,218,144.80	40.088986	-104.720334
4,453.0	14.60	197.20	4,381.4	-690.9	-214.8	1,276,203.08	3,218,138.97	40.088929	-104.720356
4,548.0	13.80	193.70	4,473.5	-713.4	-221.0	1,276,180.57	3,218,132.94	40.088868	-104.720378
4,642.0	13.50	199.30	4,564.8	-734.6	-227.3	1,276,159.27	3,218,126.84	40.088809	-104.720401
4,737.0	12.80	197.80	4,657.4	-755.1	-234.2	1,276,138.73	3,218,120.14	40.088753	-104.720425
4,831.0	11.90	197.60	4,749.2	-774.3	-240.3	1,276,119.52	3,218,114.20	40.088701	-104.720447
4,926.0	10.90	196.70	4,842.3	-792.2	-245.8	1,276,101.53	3,218,108.81	40.088651	-104.720467
5,020.0	11.00	195.20	4,934.6	-809.4	-250.7	1,276,084.32	3,218,104.06	40.088604	-104.720484
5,115.0	11.20	202.70	5,027.8	-826.6	-256.7	1,276,067.01	3,218,098.27	40.088557	-104.720506
5,210.0	10.30	198.40	5,121.2	-843.2	-262.9	1,276,050.39	3,218,092.18	40.088511	-104.720528
5,304.0	11.50	197.30	5,213.5	-860.1	-268.4	1,276,033.42	3,218,086.89	40.088465	-104.720547
5,399.0	12.00	201.80	5,306.5	-878.3	-274.8	1,276,015.15	3,218,080.57	40.088415	-104.720571
5,493.0	13.50	201.10	5,398.1	-897.6	-282.4	1,275,995.77	3,218,073.16	40.088362	-104.720598
5,588.0	12.20	197.90	5,490.8	-917.5	-289.5	1,275,975.82	3,218,066.25	40.088307	-104.720623
5,683.0	13.60	202.10	5,583.4	-937.4	-296.8	1,275,955.85	3,218,059.14	40.088253	-104.720649
5,777.0	12.20	198.50	5,675.0	-957.1	-304.1	1,275,936.13	3,218,052.01	40.088199	-104.720675
5,872.0	9.90	195.80	5,768.2	-974.5	-309.5	1,275,918.70	3,218,046.75	40.088151	-104.720694
5,966.0	10.80	199.60	5,860.7	-990.6	-314.7	1,275,902.58	3,218,041.74	40.088107	-104.720713
6,061.0	12.10	201.10	5,953.8	-1,008.2	-321.2	1,275,884.85	3,218,035.32	40.088058	-104.720736
6,155.0	14.00	199.60	6,045.4	-1,028.1	-328.6	1,275,864.88	3,218,028.14	40.088004	-104.720763

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4D-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Well:</b>	Mumby State 4D-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
6,250.0	12.30	197.10	6,137.9	-1,048.6	-335.4	1,275,844.32	3,218,021.49	40.087947	-104.720787
6,344.0	12.70	193.80	6,229.7	-1,068.2	-340.8	1,275,824.67	3,218,016.25	40.087894	-104.720806
6,439.0	12.20	196.70	6,322.4	-1,088.0	-346.2	1,275,804.87	3,218,011.05	40.087839	-104.720826
6,534.0	12.40	198.20	6,415.2	-1,107.3	-352.3	1,275,785.51	3,218,005.15	40.087786	-104.720847
6,628.0	9.10	193.40	6,507.6	-1,124.1	-357.2	1,275,768.65	3,218,000.42	40.087740	-104.720865
6,675.0	8.80	199.80	6,554.0	-1,131.1	-359.2	1,275,761.63	3,217,998.40	40.087721	-104.720872
6,723.0	8.80	228.90	6,601.5	-1,137.0	-363.2	1,275,755.72	3,217,994.44	40.087705	-104.720887
6,770.0	8.00	264.20	6,648.0	-1,139.7	-369.2	1,275,752.98	3,217,988.50	40.087697	-104.720908
6,817.0	9.20	299.10	6,694.5	-1,138.2	-375.8	1,275,754.42	3,217,981.94	40.087702	-104.720931
6,864.0	9.40	336.40	6,740.9	-1,132.8	-380.6	1,275,759.72	3,217,977.07	40.087716	-104.720948
6,912.0	12.00	1.20	6,788.1	-1,124.3	-382.0	1,275,768.30	3,217,975.53	40.087740	-104.720954
6,959.0	13.50	1.50	6,833.9	-1,113.9	-381.8	1,275,778.67	3,217,975.69	40.087768	-104.720953
7,007.0	16.90	356.60	6,880.3	-1,101.3	-382.1	1,275,791.23	3,217,975.31	40.087803	-104.720954
7,054.0	21.80	352.00	6,924.6	-1,085.8	-383.7	1,275,806.69	3,217,973.55	40.087845	-104.720960
7,101.0	27.00	350.40	6,967.4	-1,066.7	-386.7	1,275,825.84	3,217,970.39	40.087898	-104.720970
7,148.0	33.00	348.90	7,008.1	-1,043.6	-390.9	1,275,848.90	3,217,965.94	40.087961	-104.720985
7,196.0	38.10	349.20	7,047.1	-1,016.2	-396.2	1,275,876.24	3,217,960.40	40.088036	-104.721004
7,243.0	44.60	352.60	7,082.4	-985.5	-401.1	1,275,906.84	3,217,955.28	40.088121	-104.721022
7,290.0	50.50	354.80	7,114.1	-951.1	-404.8	1,275,941.26	3,217,951.21	40.088215	-104.721035
7,337.0	54.80	356.80	7,142.6	-913.8	-407.6	1,275,978.49	3,217,948.16	40.088317	-104.721045
7,385.0	61.10	357.70	7,168.1	-873.2	-409.5	1,276,019.09	3,217,945.87	40.088429	-104.721052
7,432.0	66.70	358.20	7,188.7	-831.0	-411.0	1,276,061.24	3,217,943.99	40.088545	-104.721057
7,479.0	71.00	356.30	7,205.7	-787.3	-413.1	1,276,104.99	3,217,941.49	40.088665	-104.721065
7,552.0	75.20	359.70	7,226.9	-717.5	-415.5	1,276,174.74	3,217,938.46	40.088856	-104.721073
7,599.0	78.90	0.10	7,237.4	-671.7	-415.6	1,276,220.53	3,217,937.98	40.088982	-104.721074
7,646.0	84.40	0.80	7,244.3	-625.2	-415.2	1,276,267.02	3,217,937.94	40.089110	-104.721072
7,694.0	90.00	0.30	7,246.6	-577.3	-414.8	1,276,314.94	3,217,937.98	40.089241	-104.721071
7,789.0	91.30	0.10	7,245.5	-482.3	-414.4	1,276,409.93	3,217,937.47	40.089502	-104.721070
7,883.0	91.00	0.20	7,243.6	-388.3	-414.2	1,276,503.91	3,217,936.89	40.089760	-104.721069
7,978.0	91.20	359.70	7,241.8	-293.3	-414.3	1,276,598.89	3,217,935.97	40.090021	-104.721069
8,072.0	92.60	0.20	7,238.7	-199.4	-414.4	1,276,692.83	3,217,935.07	40.090279	-104.721069
8,167.0	91.60	1.00	7,235.2	-104.5	-413.4	1,276,787.76	3,217,935.22	40.090539	-104.721066
8,262.0	90.10	0.80	7,233.8	-9.5	-411.9	1,276,882.75	3,217,935.88	40.090800	-104.721060
8,356.0	89.20	0.50	7,234.4	84.5	-410.8	1,276,976.75	3,217,936.12	40.091058	-104.721057
8,450.0	89.50	0.50	7,235.4	178.5	-410.0	1,277,070.74	3,217,936.11	40.091316	-104.721054
8,545.0	89.80	359.90	7,236.0	273.5	-409.7	1,277,165.74	3,217,935.61	40.091577	-104.721053
8,639.0	89.70	0.80	7,236.4	367.5	-409.1	1,277,259.73	3,217,935.35	40.091835	-104.721050
8,734.0	90.00	1.30	7,236.7	462.5	-407.3	1,277,354.73	3,217,936.26	40.092096	-104.721044
8,828.0	87.90	0.90	7,238.4	556.4	-405.5	1,277,448.70	3,217,937.24	40.092354	-104.721038
8,922.0	88.10	0.30	7,241.7	650.4	-404.6	1,277,542.64	3,217,937.39	40.092611	-104.721034
9,017.0	88.40	359.30	7,244.6	745.3	-404.9	1,277,637.59	3,217,936.23	40.092872	-104.721035
9,111.0	90.60	359.10	7,245.4	839.3	-406.2	1,277,731.56	3,217,934.09	40.093130	-104.721040
9,206.0	90.80	0.30	7,244.2	934.3	-406.7	1,277,826.54	3,217,932.75	40.093391	-104.721042
9,300.0	89.50	357.70	7,244.0	1,028.3	-408.3	1,277,920.50	3,217,930.29	40.093649	-104.721048
9,394.0	89.50	358.60	7,244.8	1,122.2	-411.4	1,278,014.41	3,217,926.43	40.093907	-104.721059
9,489.0	89.30	359.90	7,245.8	1,217.2	-412.6	1,278,109.38	3,217,924.35	40.094167	-104.721063
9,584.0	91.50	359.10	7,245.2	1,312.2	-413.4	1,278,204.36	3,217,922.68	40.094428	-104.721066
9,678.0	93.10	359.70	7,241.4	1,406.1	-414.4	1,278,298.26	3,217,920.87	40.094686	-104.721070
9,772.0	92.30	0.80	7,237.0	1,500.0	-414.0	1,278,392.16	3,217,920.45	40.094944	-104.721068
9,867.0	90.50	1.00	7,234.6	1,594.9	-412.5	1,278,487.12	3,217,921.11	40.095204	-104.721063
9,961.0	87.30	0.60	7,236.4	1,688.9	-411.2	1,278,581.09	3,217,921.60	40.095462	-104.721058
10,056.0	87.90	359.40	7,240.4	1,783.8	-411.2	1,278,676.00	3,217,920.76	40.095723	-104.721058
10,150.0	88.90	358.60	7,243.0	1,877.8	-412.9	1,278,769.93	3,217,918.29	40.095981	-104.721064
10,245.0	90.90	358.40	7,243.2	1,972.7	-415.3	1,278,864.87	3,217,914.97	40.096241	-104.721073
10,339.0	91.90	359.10	7,240.9	2,066.7	-417.4	1,278,958.79	3,217,912.09	40.096499	-104.721080

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Mumby State 4D-36H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Site:</b>	S36 T2N-R66W (Marcus State, Mumby State)	<b>MD Reference:</b>	WELL @ 5048.0ft (H&P 522)
<b>Well:</b>	Mumby State 4D-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
10,434.0	92.20	359.10	7,237.5	2,161.6	-418.9	1,279,053.70	3,217,909.77	40.096760	-104.721086
10,528.0	91.30	0.30	7,234.6	2,255.6	-419.4	1,279,147.65	3,217,908.45	40.097018	-104.721087
10,623.0	91.10	0.30	7,232.6	2,350.5	-418.9	1,279,242.63	3,217,908.11	40.097279	-104.721086
10,717.0	91.80	0.30	7,230.3	2,444.5	-418.4	1,279,336.59	3,217,907.78	40.097537	-104.721084
10,812.0	89.50	1.80	7,229.2	2,539.5	-416.6	1,279,431.58	3,217,908.68	40.097797	-104.721078
10,906.0	89.40	1.60	7,230.1	2,633.4	-413.9	1,279,525.55	3,217,910.64	40.098055	-104.721068
11,001.0	89.50	1.60	7,231.0	2,728.4	-411.2	1,279,620.53	3,217,912.46	40.098316	-104.721058
11,096.0	89.10	2.50	7,232.2	2,823.3	-407.8	1,279,715.49	3,217,915.02	40.098576	-104.721046
11,190.0	88.80	359.60	7,233.9	2,917.3	-406.1	1,279,809.46	3,217,915.92	40.098834	-104.721040
11,285.0	90.20	359.60	7,234.7	3,012.3	-406.8	1,279,904.44	3,217,914.42	40.099095	-104.721042
11,379.0	89.90	359.90	7,234.6	3,106.3	-407.2	1,279,998.43	3,217,913.18	40.099353	-104.721044
11,474.0	91.00	359.30	7,233.9	3,201.3	-407.8	1,280,093.41	3,217,911.68	40.099614	-104.721046
11,568.0	90.90	358.90	7,232.3	3,295.2	-409.3	1,280,187.37	3,217,909.38	40.099872	-104.721051
11,663.0	90.80	358.60	7,230.9	3,390.2	-411.4	1,280,282.32	3,217,906.47	40.100133	-104.721059
11,757.0	91.00	358.80	7,229.4	3,484.2	-413.5	1,280,376.26	3,217,903.51	40.100391	-104.721066
11,816.0	90.60	359.10	7,228.6	3,543.1	-414.6	1,280,435.23	3,217,901.91	40.100553	-104.721070
<b>Last CES Survey @ 11,816' MD</b>									
11,868.0	90.60	359.10	7,228.1	3,595.1	-415.4	1,280,487.21	3,217,900.64	40.100695	-104.721073
<b>PTB @ 11,868'</b>									

Design 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 4D-36H P3	0.00	0.00	7,271.2	3,629.7	-414.6	1,280,521.77	3,217,901.16	40.100790	-104.721070
- actual wellpath misses target center by 55.3ft at 11868.0ft MD (7228.1 TVD, 3595.1 N, -415.4 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
11,816.0	7,228.6	3,543.1	-414.6	Last CES Survey @ 11,816' MD	
11,868.0	7,228.1	3,595.1	-415.4	PTB @ 11,868'	

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