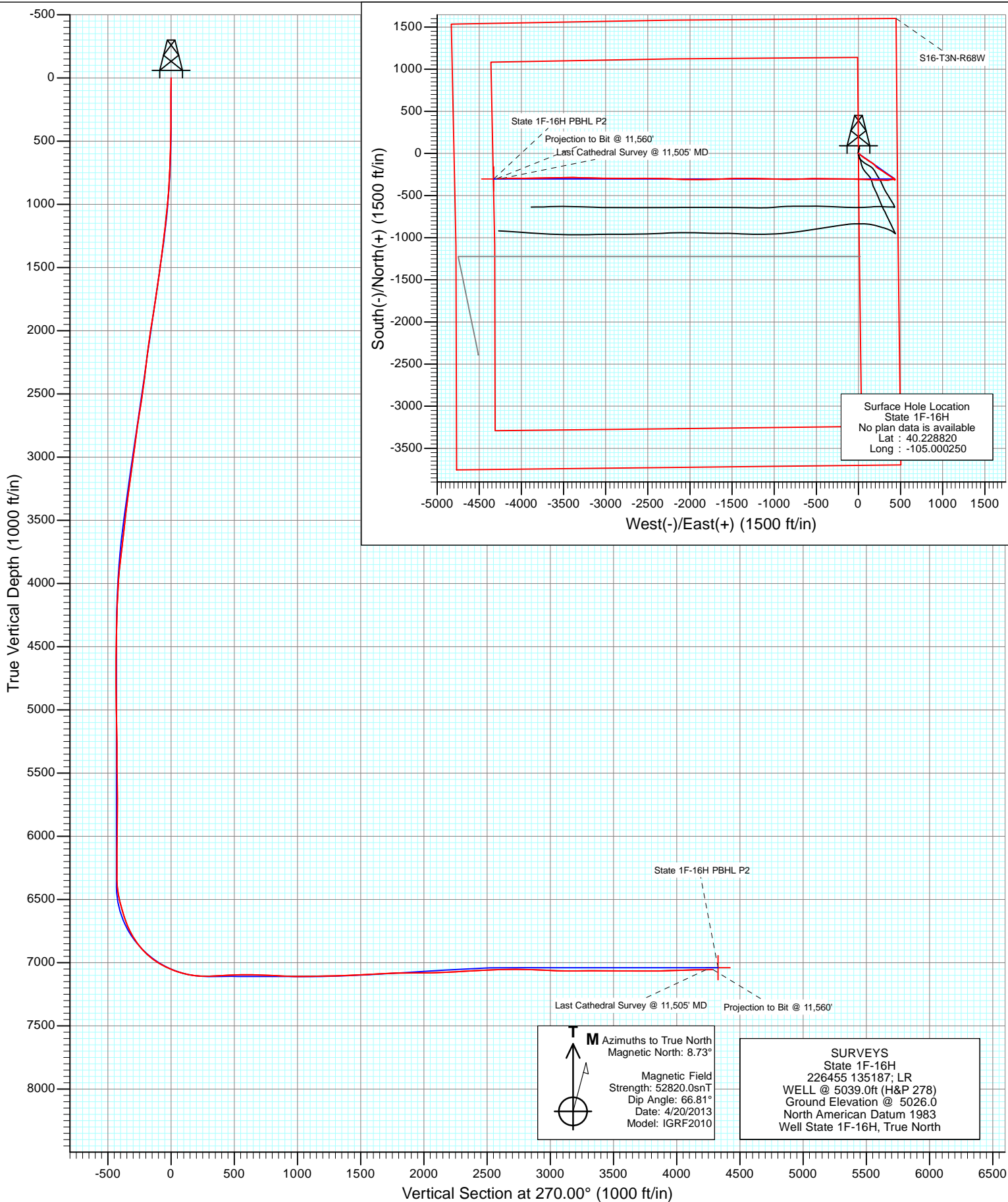


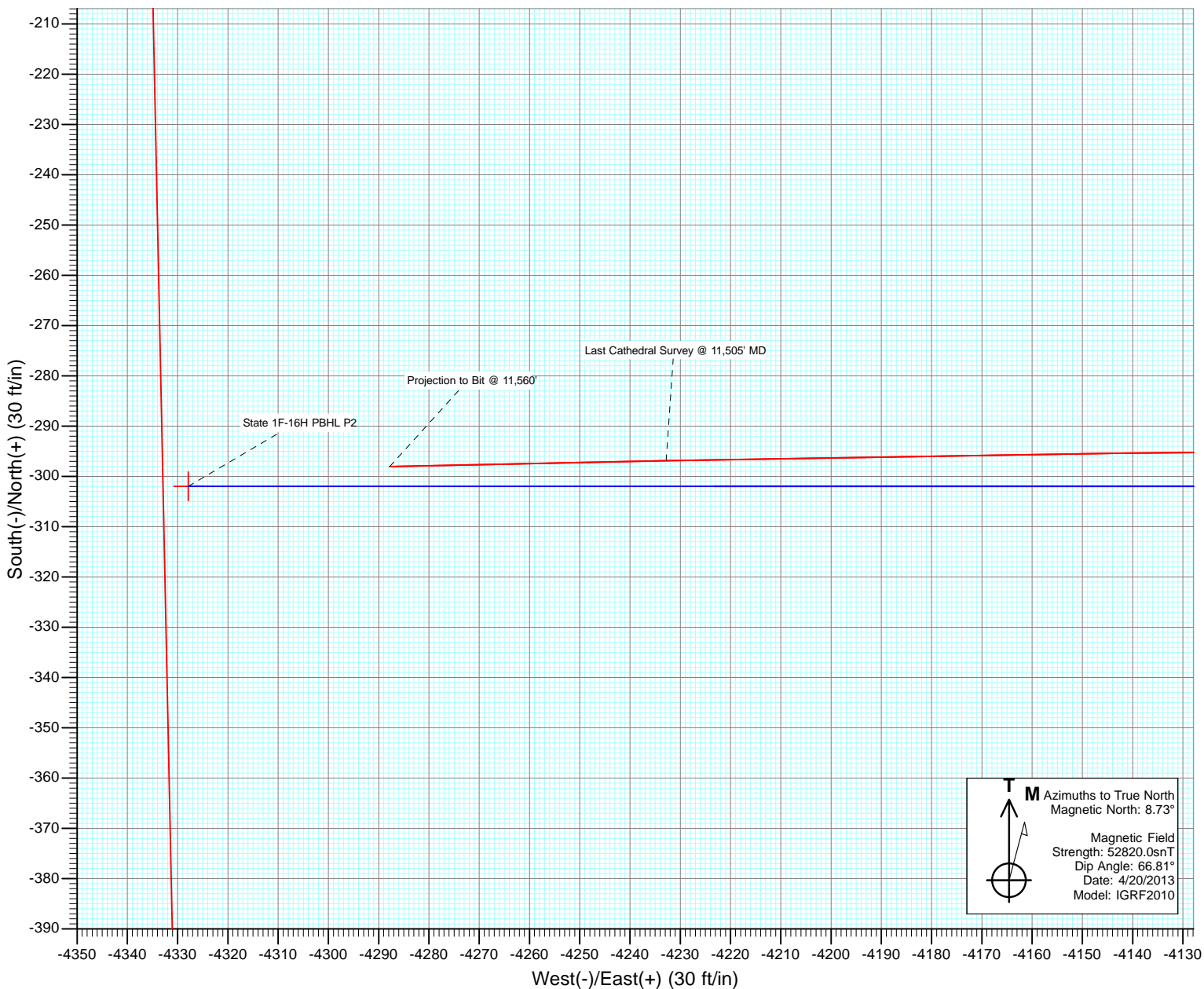


Project: DJ Wattenberg
 Site: S16-T3N-R68W (State)
 Well: State 1F-16H
 Wellbore: Hz
 Design: FINAL



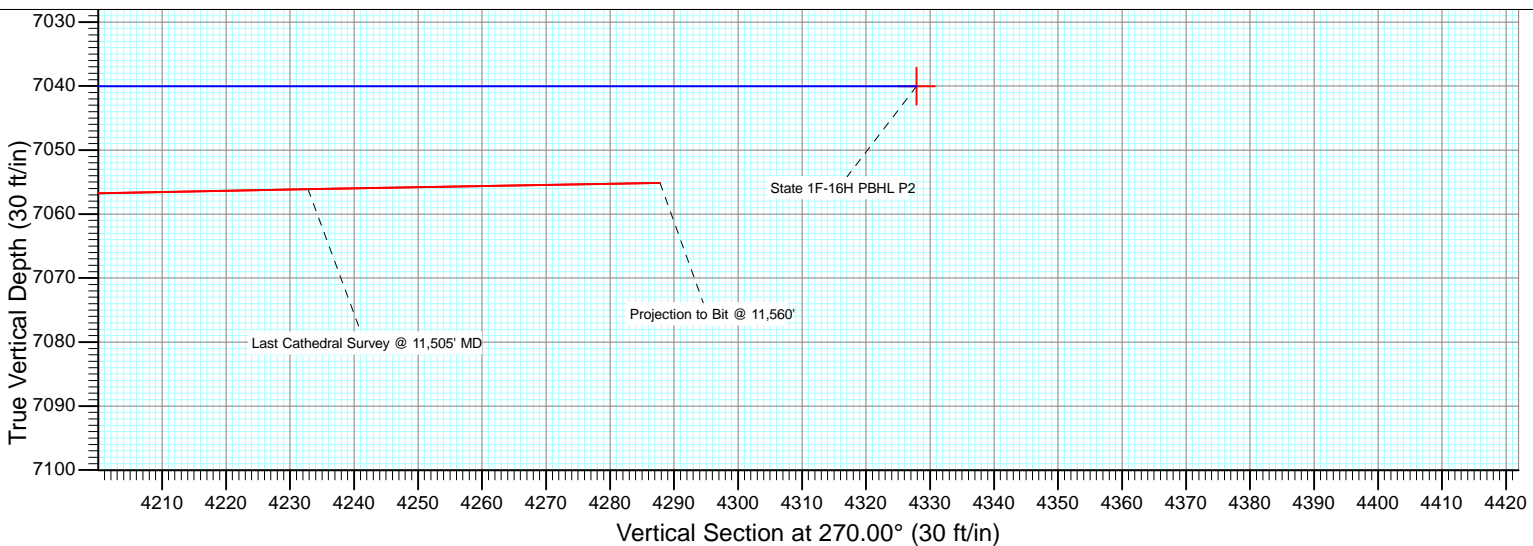


Project: DJ Wattenberg
Site: S16-T3N-R68W (State)
Well: State 1F-16H
Wellbore: Hz
Design: FINAL



T M Azimuths to True North
Magnetic North: 8.73°

Magnetic Field
Strength: 52820.0snT
Dip Angle: 66.81°
Date: 4/20/2013
Model: IGRF2010



Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well State 1F-16H
Project: DJ Wattenberg	TVD Reference: WELL @ 5039.0ft (H&P 278)
Site: S16-T3N-R68W (State)	MD Reference: WELL @ 5039.0ft (H&P 278)
Well: State 1F-16H	North Reference: True
Wellbore: Hz	Survey Calculation Method: Minimum Curvature
Design: SURVEYS	Database: USA EDM 5000 Multi Users DB

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 S16-T3N-R68W (State)				
Site Position:	Northing: 1,326,575.12 ft	Latitude: 40.228760		
From: Lat/Long	Easting: 3,139,542.66 ft	Longitude: -105.000250		
Position Uncertainty: 0.0 ft	Slot Radius: 13.200 in	Grid Convergence: 0.32 °		

Well State 1F-16H				
Well Position	+N/-S 0.0 ft	Northing: 1,326,596.96 ft	Latitude: 40.228820	
	+E/-W 0.0 ft	Easting: 3,139,542.53 ft	Longitude: -105.000250	
Position Uncertainty	0.0 ft	Wellhead Elevation: ft	Ground Level: 5,026.0 ft	

Wellbore Hz					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/20/2013	8.73	66.81	52,820

Design SURVEYS				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0		
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	270.00

Survey Program		Date 5/1/2013
From (ft)	To (ft)	Survey (Wellbore)
123.0	11,560.0	Survey #1 (Hz)
		Tool Name MWD
		Description Geolink MWD

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
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
123.0	0.20	26.60	123.0	0.2	0.1	-0.1	0.16	0.16	
215.0	0.75	355.82	215.0	0.9	0.1	-0.1	0.64	0.60	
307.0	0.44	63.76	307.0	1.7	0.4	-0.4	0.77	-0.34	
399.0	0.53	34.32	399.0	2.2	1.0	-1.0	0.28	0.10	
491.0	1.76	101.46	491.0	2.3	2.6	-2.6	1.77	1.34	
583.0	1.58	129.06	582.9	1.2	4.9	-4.9	0.89	-0.20	
675.0	2.81	124.05	674.9	-0.9	7.8	-7.8	1.35	1.34	
767.0	4.13	139.61	766.7	-4.7	11.8	-11.8	1.75	1.43	
780.0	4.35	143.74	779.7	-5.4	12.4	-12.4	2.89	1.69	
905.0	6.20	139.80	904.1	-14.4	19.6	-19.6	1.51	1.48	
997.0	6.90	131.20	995.5	-21.8	26.9	-26.9	1.31	0.76	
1,089.0	7.40	124.70	1,086.8	-28.8	36.0	-36.0	1.03	0.54	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well State 1F-16H
Project:	DJ Wattenberg	TD Reference:	WELL @ 5039.0ft (H&P 278)
Site:	S16-T3N-R68W (State)	MVD Reference:	WELL @ 5039.0ft (H&P 278)
Well:	State 1F-16H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	SURVEYS	Database:	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
1,181.0	8.30	125.40	1,177.9	-36.1	46.3	-46.3	0.98	0.98	
1,274.0	8.30	125.90	1,270.0	-43.9	57.2	-57.2	0.08	0.00	
1,366.0	8.20	126.90	1,361.0	-51.7	67.8	-67.8	0.19	-0.11	
1,458.0	9.10	120.50	1,452.0	-59.3	79.3	-79.3	1.43	0.98	
1,554.0	9.60	123.70	1,546.7	-67.6	92.5	-92.5	0.75	0.52	
1,649.0	10.00	125.10	1,640.3	-76.8	105.8	-105.8	0.49	0.42	
1,743.0	10.20	122.60	1,732.9	-86.0	119.5	-119.5	0.51	0.21	
1,838.0	10.30	122.50	1,826.3	-95.1	133.8	-133.8	0.11	0.11	
1,933.0	11.20	121.50	1,919.7	-104.4	148.8	-148.8	0.97	0.95	
2,028.0	10.20	123.40	2,013.0	-113.9	163.7	-163.7	1.12	-1.05	
2,123.0	10.10	131.20	2,106.5	-124.0	177.0	-177.0	1.45	-0.11	
2,217.0	9.30	136.50	2,199.2	-134.9	188.4	-188.4	1.27	-0.85	
2,312.0	9.70	137.60	2,292.9	-146.4	199.1	-199.1	0.46	0.42	
2,406.0	10.20	133.40	2,385.5	-158.0	210.5	-210.5	0.94	0.53	
2,501.0	10.90	127.80	2,478.9	-169.3	223.7	-223.7	1.31	0.74	
2,596.0	10.30	122.50	2,572.3	-179.3	238.0	-238.0	1.20	-0.63	
2,690.0	9.30	120.10	2,664.9	-187.7	251.6	-251.6	1.15	-1.06	
2,785.0	9.80	121.30	2,758.6	-195.7	265.2	-265.2	0.57	0.53	
2,880.0	9.50	125.20	2,852.2	-204.4	278.5	-278.5	0.76	-0.32	
2,974.0	8.90	123.00	2,945.0	-212.9	290.9	-290.9	0.74	-0.64	
3,069.0	9.40	125.00	3,038.8	-221.3	303.4	-303.4	0.62	0.53	
3,163.0	10.00	128.10	3,131.5	-230.8	316.1	-316.1	0.85	0.64	
3,258.0	9.10	123.20	3,225.1	-240.0	328.9	-328.9	1.28	-0.95	
3,353.0	8.90	124.50	3,319.0	-248.2	341.3	-341.3	0.30	-0.21	
3,447.0	8.60	121.10	3,411.9	-256.0	353.3	-353.3	0.64	-0.32	
3,542.0	7.30	119.80	3,506.0	-262.7	364.6	-364.6	1.38	-1.37	
3,636.0	7.10	123.30	3,599.2	-268.8	374.6	-374.6	0.51	-0.21	
3,698.0	7.40	124.50	3,660.7	-273.2	381.1	-381.1	0.54	0.48	
3,792.0	8.50	121.60	3,753.8	-280.2	392.0	-392.0	1.25	1.17	
3,887.0	7.80	121.00	3,847.9	-287.2	403.5	-403.5	0.74	-0.74	
3,981.0	5.20	121.80	3,941.3	-292.8	412.6	-412.6	2.77	-2.77	
4,076.0	3.60	120.80	4,036.0	-296.6	418.9	-418.9	1.69	-1.68	
4,170.0	3.00	121.70	4,129.8	-299.4	423.5	-423.5	0.64	-0.64	
4,265.0	1.90	127.50	4,224.7	-301.6	426.8	-426.8	1.19	-1.16	
4,360.0	1.60	129.00	4,319.7	-303.4	429.1	-429.1	0.32	-0.32	
4,454.0	1.50	134.10	4,413.7	-305.1	431.0	-431.0	0.18	-0.11	
4,549.0	1.40	126.40	4,508.6	-306.7	432.9	-432.9	0.23	-0.11	
4,644.0	1.40	130.80	4,603.6	-308.1	434.7	-434.7	0.11	0.00	
4,738.0	0.80	198.90	4,697.6	-309.5	435.3	-435.3	1.41	-0.64	
4,833.0	0.90	208.10	4,792.6	-310.8	434.8	-434.8	0.18	0.11	
4,928.0	1.20	217.70	4,887.6	-312.2	433.8	-433.8	0.37	0.32	
5,022.0	1.20	231.40	4,981.5	-313.6	432.4	-432.4	0.30	0.00	
5,117.0	1.10	226.10	5,076.5	-314.9	431.0	-431.0	0.15	-0.11	
5,212.0	1.50	266.10	5,171.5	-315.6	429.1	-429.1	1.02	0.42	
5,306.0	1.20	2.80	5,265.5	-314.7	427.9	-427.9	2.16	-0.32	
5,401.0	1.20	340.50	5,360.5	-312.8	427.6	-427.6	0.49	0.00	
5,495.0	0.70	330.60	5,454.4	-311.3	427.0	-427.0	0.56	-0.53	
5,590.0	0.80	258.90	5,549.4	-310.9	426.1	-426.1	0.93	0.11	
5,685.0	1.00	298.90	5,644.4	-310.7	424.7	-424.7	0.68	0.21	
5,779.0	1.60	354.30	5,738.4	-309.0	423.9	-423.9	1.40	0.64	
5,874.0	1.30	18.70	5,833.4	-306.6	424.1	-424.1	0.72	-0.32	
5,969.0	1.40	46.90	5,928.3	-304.8	425.3	-425.3	0.70	0.11	
6,063.0	0.60	14.50	6,022.3	-303.6	426.2	-426.2	1.01	-0.85	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well State 1F-16H
Project:	DJ Wattenberg	TD Reference:	WELL @ 5039.0ft (H&P 278)
Site:	S16-T3N-R68W (State)	MVD Reference:	WELL @ 5039.0ft (H&P 278)
Well:	State 1F-16H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	SURVEYS	Database:	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
6,158.0	1.10	73.80	6,117.3	-302.8	427.2	-427.2	1.00	0.53	
6,253.0	0.20	311.00	6,212.3	-302.5	428.0	-428.0	1.28	-0.95	
6,347.0	0.30	227.00	6,306.3	-302.5	427.7	-427.7	0.36	0.11	
6,379.0	0.70	221.70	6,338.3	-302.7	427.5	-427.5	1.26	1.25	
6,410.0	2.20	242.30	6,369.3	-303.1	426.8	-426.8	5.05	4.84	
6,442.0	5.20	252.40	6,401.2	-303.9	424.9	-424.9	9.56	9.37	
6,473.0	8.30	259.00	6,432.0	-304.7	421.4	-421.4	10.29	10.00	
6,505.0	10.70	261.10	6,463.6	-305.6	416.2	-416.2	7.58	7.50	
6,536.0	12.70	262.20	6,493.9	-306.5	409.9	-409.9	6.49	6.45	
6,568.0	14.50	259.70	6,525.0	-307.7	402.5	-402.5	5.92	5.62	
6,600.0	15.80	256.80	6,555.9	-309.4	394.3	-394.3	4.70	4.06	
6,631.0	16.70	259.00	6,585.7	-311.2	385.9	-385.9	3.52	2.90	
6,663.0	17.50	259.70	6,616.3	-313.0	376.6	-376.6	2.58	2.50	
6,694.0	18.30	260.60	6,645.8	-314.6	367.2	-367.2	2.73	2.58	
6,726.0	20.50	262.20	6,675.9	-316.2	356.7	-356.7	7.07	6.87	
6,757.0	22.60	266.90	6,704.8	-317.2	345.4	-345.4	8.76	6.77	
6,789.0	24.70	271.60	6,734.1	-317.4	332.6	-332.6	8.81	6.56	
6,820.0	27.20	273.60	6,762.0	-316.8	319.0	-319.0	8.54	8.06	
6,852.0	30.10	272.70	6,790.0	-315.9	303.7	-303.7	9.16	9.06	
6,883.0	32.80	271.50	6,816.5	-315.3	287.5	-287.5	8.94	8.71	
6,915.0	36.40	270.00	6,842.8	-315.1	269.4	-269.4	11.56	11.25	
6,946.0	38.60	268.70	6,867.4	-315.3	250.5	-250.5	7.54	7.10	
6,978.0	40.70	269.60	6,892.1	-315.6	230.1	-230.1	6.80	6.56	
7,010.0	43.20	271.40	6,915.9	-315.4	208.7	-208.7	8.67	7.81	
7,041.0	46.80	272.80	6,937.8	-314.6	186.8	-186.8	12.04	11.61	
7,073.0	52.00	273.10	6,958.6	-313.4	162.5	-162.5	16.27	16.25	
7,104.0	55.40	274.10	6,976.9	-311.8	137.6	-137.6	11.27	10.97	
7,136.0	57.10	274.70	6,994.7	-309.8	111.1	-111.1	5.54	5.31	
7,167.0	59.30	273.70	7,011.1	-307.8	84.8	-84.8	7.61	7.10	
7,199.0	62.50	272.80	7,026.6	-306.3	56.9	-56.9	10.30	10.00	
7,230.0	65.70	271.70	7,040.2	-305.2	29.0	-29.0	10.80	10.32	
7,262.0	67.60	271.30	7,052.8	-304.4	-0.3	0.3	6.05	5.94	
7,293.0	69.80	270.50	7,064.1	-303.9	-29.2	29.2	7.49	7.10	
7,325.0	72.10	269.90	7,074.5	-303.8	-59.5	59.5	7.40	7.19	
7,356.0	74.60	270.00	7,083.4	-303.9	-89.2	89.2	8.07	8.06	
7,388.0	77.60	269.90	7,091.1	-303.9	-120.2	120.2	9.38	9.37	
7,420.0	80.10	269.90	7,097.3	-303.9	-151.6	151.6	7.81	7.81	
7,451.0	82.30	270.70	7,102.0	-303.8	-182.2	182.2	7.54	7.10	
7,473.0	83.20	270.70	7,104.8	-303.5	-204.1	204.1	4.09	4.09	
7,567.0	93.00	272.30	7,107.9	-301.1	-297.9	297.9	10.56	10.43	
7,630.0	93.20	272.10	7,104.5	-298.6	-360.7	360.7	0.45	0.32	
7,724.0	92.40	269.20	7,099.9	-297.6	-454.6	454.6	3.20	-0.85	
7,819.0	91.50	267.90	7,096.7	-300.0	-549.5	549.5	1.66	-0.95	
7,914.0	88.60	268.60	7,096.6	-302.9	-644.4	644.4	3.14	-3.05	
8,008.0	87.90	268.70	7,099.5	-305.1	-738.4	738.4	0.75	-0.74	
8,103.0	86.90	269.90	7,103.8	-306.3	-833.3	833.3	1.64	-1.05	
8,198.0	88.00	271.10	7,108.0	-305.4	-928.2	928.2	1.71	1.16	
8,292.0	90.30	272.10	7,109.4	-302.8	-1,022.1	1,022.1	2.67	2.45	
8,387.0	91.10	270.60	7,108.3	-300.6	-1,117.1	1,117.1	1.79	0.84	
8,481.0	90.80	271.90	7,106.7	-298.5	-1,211.0	1,211.0	1.42	-0.32	
8,576.0	91.30	271.10	7,105.0	-296.0	-1,306.0	1,306.0	0.99	0.53	
8,670.0	92.60	269.10	7,101.8	-295.9	-1,399.9	1,399.9	2.54	1.38	
8,765.0	92.50	268.00	7,097.5	-298.3	-1,494.8	1,494.8	1.16	-0.11	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well State 1F-16H
Project: DJ Wattenberg	TVD Reference: WELL @ 5039.0ft (H&P 278)
Site: S16-T3N-R68W (State)	MD Reference: WELL @ 5039.0ft (H&P 278)
Well: State 1F-16H	North Reference: True
Wellbore: Hz	Survey Calculation Method: Minimum Curvature
Design: SURVEYS	Database: 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
8,859.0	93.30	267.70	7,092.8	-301.8	-1,588.6	1,588.6	0.91	0.85	
8,954.0	93.10	268.20	7,087.5	-305.2	-1,683.4	1,683.4	0.57	-0.21	
9,049.0	91.20	268.40	7,083.9	-308.0	-1,778.3	1,778.3	2.01	-2.00	
9,143.0	90.40	269.10	7,082.6	-310.0	-1,872.3	1,872.3	1.13	-0.85	
9,238.0	90.50	270.50	7,081.8	-310.4	-1,967.3	1,967.3	1.48	0.11	
9,332.0	90.90	271.70	7,080.7	-308.6	-2,061.2	2,061.2	1.35	0.43	
9,427.0	92.50	272.20	7,077.9	-305.3	-2,156.1	2,156.1	1.76	1.68	
9,522.0	93.30	272.50	7,073.1	-301.5	-2,250.9	2,250.9	0.90	0.84	
9,616.0	93.10	271.30	7,067.8	-298.3	-2,344.7	2,344.7	1.29	-0.21	
9,711.0	93.30	270.80	7,062.5	-296.6	-2,439.6	2,439.6	0.57	0.21	
9,805.0	91.50	270.60	7,058.6	-295.5	-2,533.5	2,533.5	1.93	-1.91	
9,900.0	91.80	269.60	7,055.9	-295.3	-2,628.4	2,628.4	1.10	0.32	
9,994.0	90.50	270.10	7,054.0	-295.5	-2,722.4	2,722.4	1.48	-1.38	
10,089.0	88.20	270.30	7,055.0	-295.2	-2,817.4	2,817.4	2.43	-2.42	
10,184.0	87.50	270.20	7,058.6	-294.8	-2,912.3	2,912.3	0.74	-0.74	
10,278.0	87.60	270.50	7,062.6	-294.2	-3,006.2	3,006.2	0.34	0.11	
10,373.0	88.80	271.10	7,065.6	-292.9	-3,101.2	3,101.2	1.41	1.26	
10,467.0	90.10	271.30	7,066.5	-290.9	-3,195.2	3,195.2	1.40	1.38	
10,562.0	90.90	271.90	7,065.7	-288.3	-3,290.1	3,290.1	1.05	0.84	
10,657.0	90.60	270.40	7,064.4	-286.4	-3,385.1	3,385.1	1.61	-0.32	
10,751.0	89.70	269.10	7,064.2	-286.8	-3,479.1	3,479.1	1.68	-0.96	
10,846.0	89.30	268.70	7,065.0	-288.6	-3,574.1	3,574.1	0.60	-0.42	
10,941.0	89.20	269.10	7,066.3	-290.4	-3,669.0	3,669.0	0.43	-0.11	
11,035.0	89.50	268.90	7,067.3	-292.1	-3,763.0	3,763.0	0.38	0.32	
11,130.0	91.40	269.10	7,066.6	-293.7	-3,858.0	3,858.0	2.01	2.00	
11,224.0	91.80	269.90	7,064.0	-294.5	-3,951.9	3,951.9	0.95	0.43	
11,319.0	92.10	269.90	7,060.7	-294.7	-4,046.9	4,046.9	0.32	0.32	
11,414.0	91.30	269.30	7,057.9	-295.4	-4,141.8	4,141.8	1.05	-0.84	
11,505.0	91.00	268.80	7,056.1	-296.9	-4,232.8	4,232.8	0.64	-0.33	Last Cathedral Survey @ 11,505' MD
11,560.0	91.00	268.80	7,055.1	-298.0	-4,287.8	4,287.8	0.00	0.00	Projection to Bit @ 11,560'

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well State 1F-16H
Project: DJ Wattenberg	TVD Reference: WELL @ 5039.0ft (H&P 278)
Site: S16-T3N-R68W (State)	MD Reference: WELL @ 5039.0ft (H&P 278)
Well: State 1F-16H	North Reference: True
Wellbore: Hz	Survey Calculation Method: Minimum Curvature
Design: SURVEYS	Database: USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target - Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
State 1F-16H TGT #1 - survey misses target center by 5.0ft at 8485.8ft MD (7106.6 TVD, -298.4 N, -1215.8 E) - Point	0.00	0.00	7,110.0	-302.0	-1,216.0	1,326,288.10	3,138,328.25	40.227991	-105.004605
State 1F-16H PBHL - survey misses target center by 40.8ft at 11560.0ft MD (7055.1 TVD, -298.0 N, -4287.8 E) - Point	0.00	0.00	7,048.4	-302.0	-4,327.9	1,326,270.61	3,135,216.43	40.227990	-105.015750
State 1F-16H TGT #2 - survey misses target center by 17.6ft at 9887.8ft MD (7056.2 TVD, -295.2 N, -2616.2 E) - Point	0.00	0.00	7,040.0	-302.0	-2,615.8	1,326,280.23	3,136,928.49	40.227991	-105.009618
State 1F-16H PBHL P2 - survey misses target center by 43.0ft at 11560.0ft MD (7055.1 TVD, -298.0 N, -4287.8 E) - Point	0.00	0.00	7,040.0	-302.0	-4,327.9	1,326,270.61	3,135,216.43	40.227990	-105.015750

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
11,505.0	7,056.1	-296.9	-4,232.8	Last Cathedral Survey @ 11,505' MD
11,560.0	7,055.1	-298.0	-4,287.8	Projection to Bit @ 11,560'

Checked By: _____	Approved By: _____	Date: _____
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