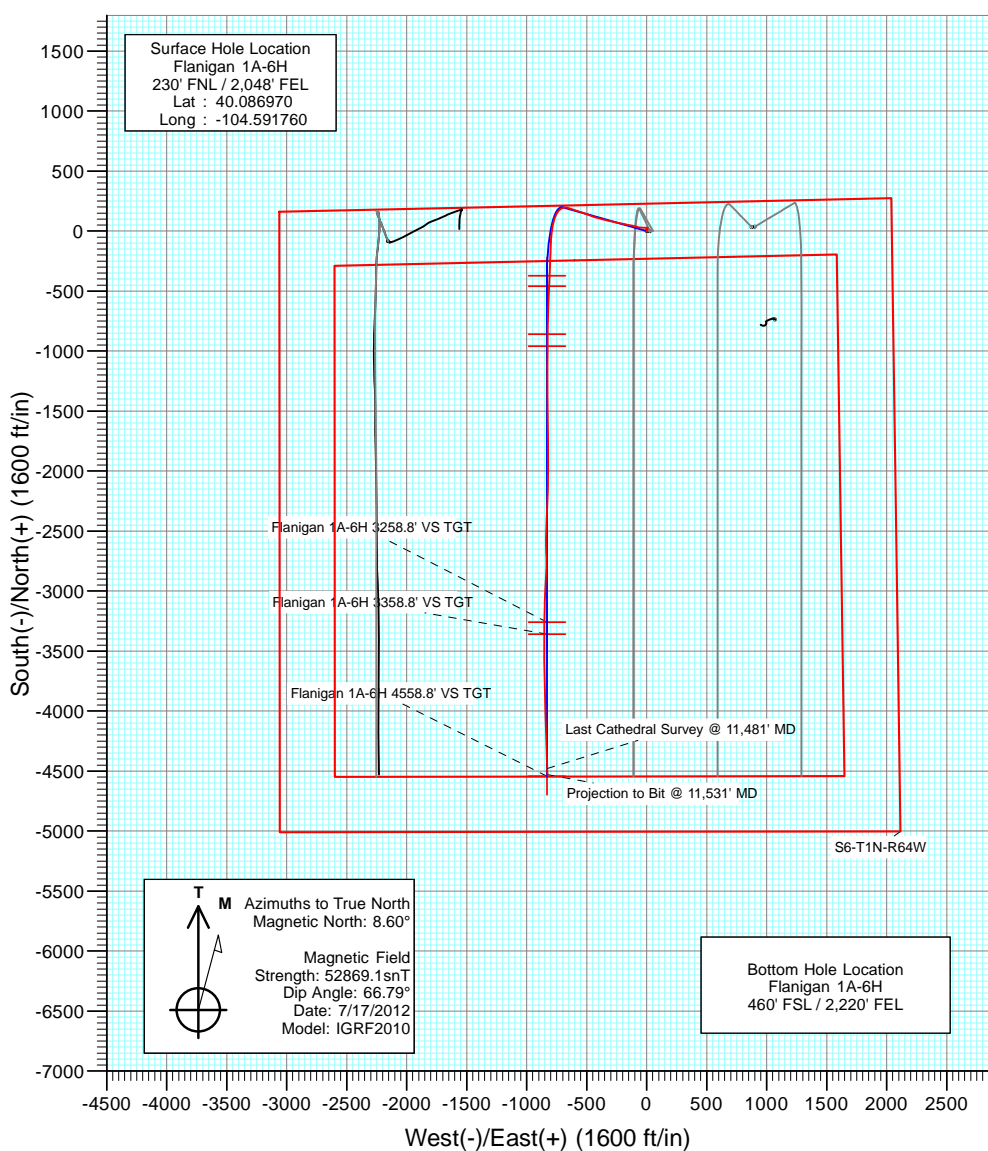
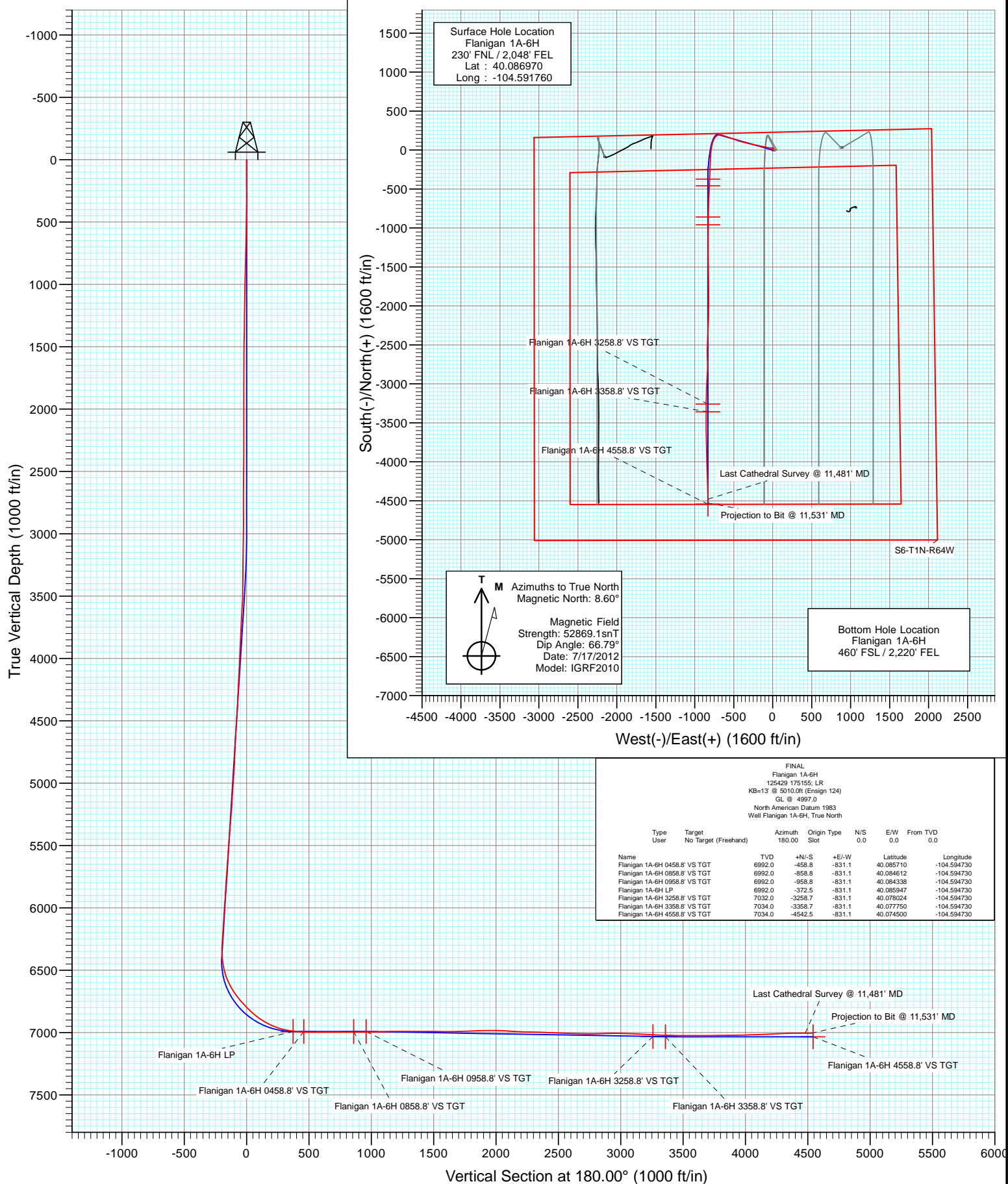




Project: DJ Wattenberg  
 Site: NWN S6-T1N-R64W (Flanigan)  
 Well: Flanigan 1A-6H  
 Wellbore: Hz  
 Design: FINAL



**Azimuths to True North**  
 Magnetic North: 8.60°  
 Magnetic Field  
 Strength: 52869.1snT  
 Dip Angle: 66.79°  
 Date: 7/17/2012  
 Model: IGRF2010

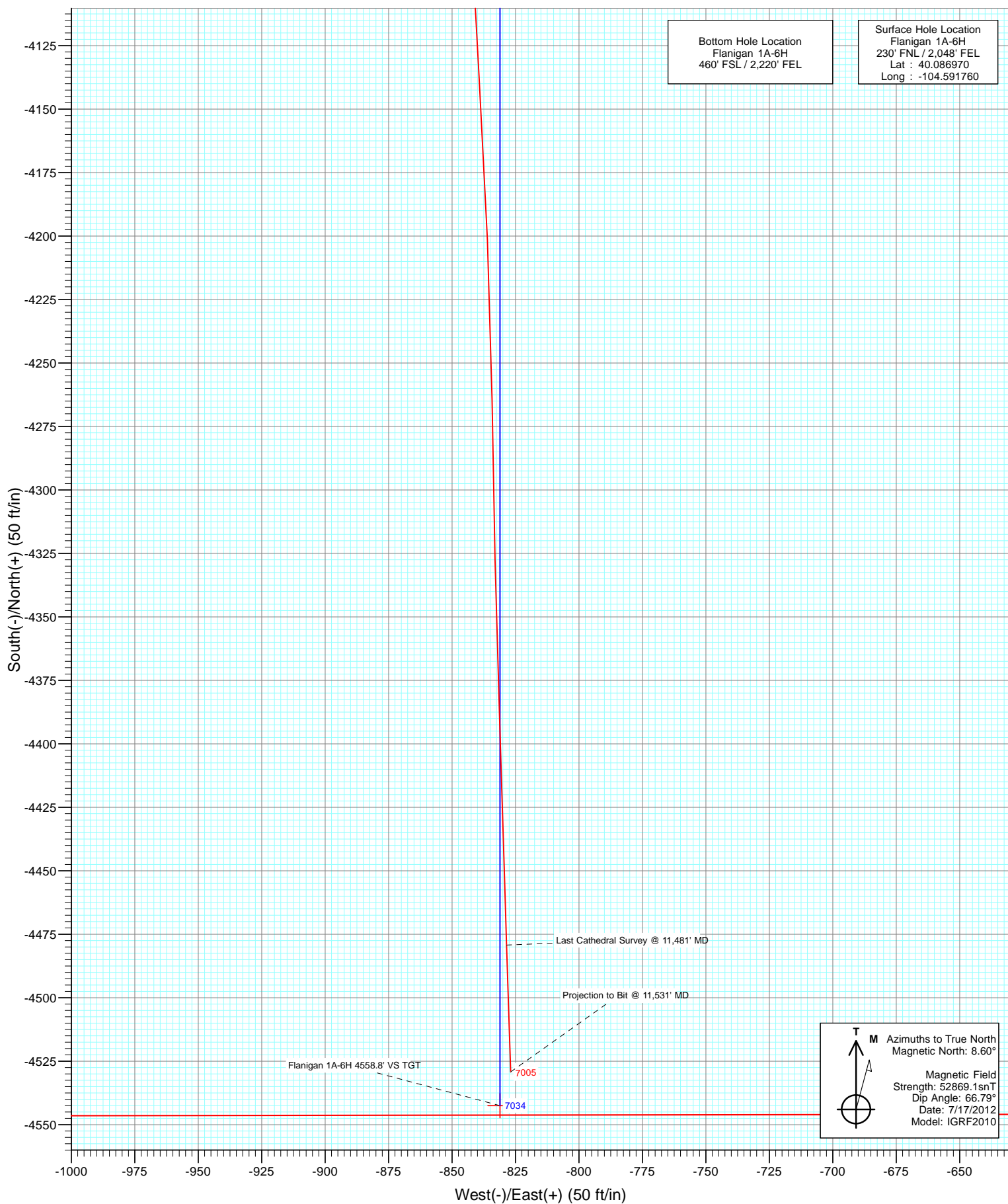
**Bottom Hole Location**  
 Flanigan 1A-6H  
 460' FSL / 2,220' FEL

FINAL  
 Flanigan 1A-6H  
 125429 175155; LR  
 KB=13' @ 5010.0ft (Ensign 124)  
 GL @ 4997.0  
 North American Datum 1983  
 Well Flanigan 1A-6H, True North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From
User	No Target (Freehand)	180.00	Slot		0.0	0.0	TVD
Name		TVD	N/S	E/W	Latitude	Longitude	
Flanigan 1A-6H 0458.8' VS TGT		6992.0	-458.8	-831.1	40.085710	-104.594730	
Flanigan 1A-6H 0858.8' VS TGT		6992.0	-858.8	-831.1	40.084612	-104.594730	
Flanigan 1A-6H 0958.8' VS TGT		6992.0	-958.8	-831.1	40.084338	-104.594730	
Flanigan 1A-6H LP		6992.0	-372.5	-831.1	40.085947	-104.594730	
Flanigan 1A-6H 3258.8' VS TGT		7032.0	-3258.7	-831.1	40.078024	-104.594730	
Flanigan 1A-6H 3358.8' VS TGT		7034.0	-3358.7	-831.1	40.077750	-104.594730	
Flanigan 1A-6H 4558.8' VS TGT		7034.0	-4542.5	-831.1	40.074500	-104.594730	



Project: DJ Wattenberg  
Site: NWN S6-T1N-R64W (Flanigan)  
Well: Flanigan 1A-6H  
Wellbore: Hz  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1A-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1A-6H	<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		NWNE S6-T1N-R64W (Flanigan)			
Site Position:		Northing:	1,275,832.11 ft	Latitude:	40.086970
From:	Lat/Long	Easting:	3,254,152.25 ft	Longitude:	-104.591660
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.59 °

Well	Flanigan 1A-6H					
Well Position	+N/-S	0.0 ft	Northing:	1,275,831.81 ft	Latitude:	40.086970
	+E/-W	0.0 ft	Easting:	3,254,124.27 ft	Longitude:	-104.591760
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,997.0 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	7/17/2012	8.60	66.79	52,869

<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 (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	180.00	

<b>Survey Program</b>	<b>Date</b>	7/30/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
109.0	11,531.0	Survey #1 (Hz)	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		
109.0	1.20	105.30	109.0	-0.3	1.1	0.3	1.10	1.10		
202.0	1.00	116.20	202.0	-0.9	2.8	0.9	0.31	-0.22		
296.0	0.70	92.30	296.0	-1.3	4.1	1.3	0.49	-0.32		
389.0	0.70	2.60	389.0	-0.8	4.7	0.8	1.06	0.00		
481.0	1.30	348.00	480.9	0.8	4.5	-0.8	0.70	0.65		
574.0	1.40	342.80	573.9	2.9	3.9	-2.9	0.17	0.11		
667.0	1.50	341.70	666.9	5.2	3.2	-5.2	0.11	0.11		
760.0	1.60	334.80	759.9	7.5	2.3	-7.5	0.23	0.11		
853.0	1.90	338.80	852.8	10.1	1.2	-10.1	0.35	0.32		
968.0	0.90	7.50	967.8	12.8	0.6	-12.8	1.04	-0.87		
1,101.0	0.80	11.30	1,100.8	14.7	0.9	-14.7	0.09	-0.08		
1,194.0	0.80	20.70	1,193.8	16.0	1.3	-16.0	0.14	0.00		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1A-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1A-6H	<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
1,287.0	0.70	18.10	1,286.7	17.1	1.7	-17.1	0.11	-0.11	
1,380.0	1.10	9.70	1,379.7	18.6	2.0	-18.6	0.45	0.43	
1,473.0	0.80	10.20	1,472.7	20.1	2.3	-20.1	0.32	-0.32	
1,568.0	0.60	12.50	1,567.7	21.2	2.5	-21.2	0.21	-0.21	
1,663.0	0.60	27.60	1,662.7	22.1	2.8	-22.1	0.17	0.00	
1,759.0	0.40	73.80	1,758.7	22.7	3.4	-22.7	0.45	-0.21	
1,854.0	0.50	87.40	1,853.7	22.8	4.1	-22.8	0.15	0.11	
1,949.0	0.30	127.80	1,948.7	22.7	4.7	-22.7	0.35	-0.21	
2,044.0	0.20	94.10	2,043.7	22.5	5.1	-22.5	0.18	-0.11	
2,139.0	0.40	58.10	2,138.7	22.7	5.5	-22.7	0.28	0.21	
2,234.0	0.40	51.90	2,233.7	23.0	6.1	-23.0	0.05	0.00	
2,329.0	0.30	106.70	2,328.7	23.2	6.6	-23.2	0.35	-0.11	
2,424.0	0.50	57.10	2,423.7	23.3	7.2	-23.3	0.40	0.21	
2,519.0	0.40	28.30	2,518.7	23.8	7.7	-23.8	0.26	-0.11	
2,614.0	0.40	20.50	2,613.7	24.4	7.9	-24.4	0.06	0.00	
2,709.0	0.80	25.80	2,708.7	25.3	8.3	-25.3	0.42	0.42	
2,804.0	0.80	201.00	2,803.7	25.3	8.4	-25.3	1.68	0.00	
2,899.0	2.80	272.30	2,898.6	24.8	5.8	-24.8	2.79	2.11	
2,995.0	5.90	283.60	2,994.3	26.1	-1.3	-26.1	3.33	3.23	
3,090.0	8.00	273.70	3,088.6	27.6	-12.6	-27.6	2.54	2.21	
3,185.0	7.40	274.70	3,182.8	28.6	-25.3	-28.6	0.65	-0.63	
3,280.0	7.40	270.20	3,277.0	29.1	-37.6	-29.1	0.61	0.00	
3,375.0	8.00	275.80	3,371.1	29.8	-50.3	-29.8	1.01	0.63	
3,470.0	8.20	276.20	3,465.2	31.2	-63.6	-31.2	0.22	0.21	
3,565.0	10.20	285.20	3,559.0	34.1	-78.4	-34.1	2.59	2.11	
3,661.0	11.70	285.50	3,653.2	38.9	-96.0	-38.9	1.56	1.56	
3,756.0	14.40	283.50	3,745.8	44.3	-116.8	-44.3	2.88	2.84	
3,851.0	12.60	277.20	3,838.1	48.3	-138.5	-48.3	2.44	-1.89	
3,946.0	11.90	286.00	3,931.0	52.3	-158.2	-52.3	2.10	-0.74	
4,041.0	13.10	278.20	4,023.7	56.6	-178.3	-56.6	2.18	1.26	
4,136.0	13.90	283.30	4,116.1	60.7	-200.1	-60.7	1.51	0.84	
4,231.0	14.00	280.80	4,208.3	65.5	-222.5	-65.5	0.64	0.11	
4,326.0	13.00	280.40	4,300.7	69.6	-244.3	-69.6	1.06	-1.05	
4,421.0	13.10	282.40	4,393.2	73.8	-265.3	-73.8	0.49	0.11	
4,516.0	14.90	285.50	4,485.4	79.4	-287.6	-79.4	2.05	1.89	
4,611.0	14.20	284.00	4,577.4	85.5	-310.7	-85.5	0.84	-0.74	
4,706.0	12.90	281.20	4,669.7	90.4	-332.4	-90.4	1.53	-1.37	
4,801.0	12.50	279.60	4,762.4	94.1	-352.9	-94.1	0.56	-0.42	
4,896.0	12.80	284.60	4,855.1	98.5	-373.2	-98.5	1.19	0.32	
4,991.0	12.10	286.80	4,947.9	104.0	-392.9	-104.0	0.89	-0.74	
5,086.0	12.80	288.80	5,040.6	110.3	-412.4	-110.3	0.87	0.74	
5,181.0	10.50	286.90	5,133.7	116.2	-430.7	-116.2	2.45	-2.42	
5,276.0	12.70	288.90	5,226.7	122.1	-448.8	-122.1	2.35	2.32	
5,372.0	14.30	290.80	5,320.1	129.7	-469.9	-129.7	1.73	1.67	
5,467.0	12.00	290.70	5,412.6	137.4	-490.1	-137.4	2.42	-2.42	
5,562.0	12.60	289.40	5,505.4	144.3	-509.1	-144.3	0.70	0.63	
5,657.0	11.50	287.00	5,598.3	150.5	-528.0	-150.5	1.27	-1.16	
5,752.0	12.00	289.80	5,691.3	156.7	-546.3	-156.7	0.80	0.53	
5,847.0	12.90	288.60	5,784.1	163.4	-565.7	-163.4	0.99	0.95	
5,942.0	10.10	287.70	5,877.1	169.3	-583.6	-169.3	2.95	-2.95	
6,037.0	12.00	288.80	5,970.4	175.0	-600.9	-175.0	2.01	2.00	
6,132.0	11.90	289.60	6,063.3	181.5	-619.5	-181.5	0.20	-0.11	
6,227.0	12.10	286.20	6,156.2	187.5	-638.3	-187.5	0.77	0.21	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1A-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1A-6H	<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
6,322.0	13.10	286.70	6,249.0	193.4	-658.2	-193.4	1.06	1.05	
6,386.0	13.30	283.30	6,311.3	197.2	-672.3	-197.2	1.25	0.31	
6,417.0	14.20	274.30	6,341.4	198.3	-679.5	-198.3	7.48	2.90	
6,449.0	15.00	259.40	6,372.4	197.8	-687.5	-197.8	11.97	2.50	
6,481.0	16.40	249.80	6,403.2	195.5	-695.8	-195.5	9.21	4.37	
6,513.0	17.10	243.90	6,433.8	191.9	-704.3	-191.9	5.74	2.19	
6,544.0	18.70	239.20	6,463.3	187.3	-712.7	-187.3	6.95	5.16	
6,576.0	20.40	231.90	6,493.5	181.3	-721.5	-181.3	9.29	5.31	
6,608.0	22.90	225.20	6,523.2	173.4	-730.3	-173.4	10.98	7.81	
6,639.0	25.10	219.50	6,551.5	164.1	-738.7	-164.1	10.30	7.10	
6,671.0	27.10	213.30	6,580.3	152.8	-747.1	-152.8	10.56	6.25	
6,703.0	28.70	205.80	6,608.6	139.8	-754.4	-139.8	12.04	5.00	
6,734.0	30.60	200.60	6,635.5	125.7	-760.4	-125.7	10.31	6.13	
6,766.0	33.30	198.00	6,662.7	109.7	-766.0	-109.7	9.47	8.44	
6,798.0	35.70	195.60	6,689.0	92.3	-771.2	-92.3	8.62	7.50	
6,830.0	37.80	193.30	6,714.7	73.8	-776.0	-73.8	7.85	6.56	
6,861.0	40.50	192.10	6,738.7	54.7	-780.3	-54.7	9.05	8.71	
6,893.0	43.20	190.60	6,762.5	33.8	-784.5	-33.8	9.00	8.44	
6,925.0	44.30	188.70	6,785.7	12.0	-788.2	-12.0	5.35	3.44	
6,956.0	45.30	188.00	6,807.7	-9.6	-791.4	9.6	3.60	3.23	
6,988.0	47.10	185.60	6,829.8	-32.6	-794.1	32.6	7.81	5.62	
7,020.0	49.80	183.70	6,851.0	-56.4	-796.0	56.4	9.54	8.44	
7,051.0	51.80	182.00	6,870.6	-80.4	-797.2	80.4	7.73	6.45	
7,083.0	54.60	181.50	6,889.8	-106.0	-798.0	106.0	8.84	8.75	
7,115.0	58.60	181.50	6,907.4	-132.7	-798.7	132.7	12.50	12.50	
7,146.0	62.20	182.40	6,922.7	-159.7	-799.6	159.7	11.88	11.61	
7,178.0	64.30	183.20	6,937.1	-188.2	-801.0	188.2	6.93	6.56	
7,210.0	67.00	183.00	6,950.3	-217.3	-802.6	217.3	8.46	8.44	
7,241.0	70.90	182.70	6,961.4	-246.2	-804.0	246.2	12.61	12.58	
7,273.0	74.40	182.20	6,971.0	-276.7	-805.3	276.7	11.04	10.94	
7,305.0	77.70	182.40	6,978.7	-307.8	-806.6	307.8	10.33	10.31	
7,337.0	80.50	182.40	6,984.8	-339.1	-807.9	339.1	8.75	8.75	
7,368.0	83.80	182.40	6,989.0	-369.8	-809.2	369.8	10.65	10.65	
7,371.8	83.94	182.39	6,989.4	-373.6	-809.3	373.6	3.58	3.58	Flanigan 1A-6H LP (copy) - Flanigan 1A-6H LP
7,457.8	87.01	182.21	6,996.2	-459.2	-812.8	459.2	3.59	3.58	Flanigan 1A-6H 0458.8' VS TGT
7,463.0	87.20	182.20	6,996.4	-464.4	-813.0	464.4	3.59	3.58	
7,527.0	89.70	182.60	6,998.2	-528.4	-815.7	528.4	3.96	3.91	
7,590.0	91.00	182.40	6,997.8	-591.3	-818.4	591.3	2.09	2.06	
7,653.0	90.40	181.90	6,997.0	-654.2	-820.8	654.2	1.24	-0.95	
7,717.0	90.30	181.50	6,996.6	-718.2	-822.7	718.2	0.64	-0.16	
7,780.0	89.20	181.40	6,996.9	-781.2	-824.3	781.2	1.75	-1.75	
7,844.0	89.50	179.60	6,997.6	-845.2	-824.8	845.2	2.85	0.47	
7,857.7	89.87	179.80	6,997.7	-858.8	-824.8	858.8	3.05	2.70	Flanigan 1A-6H 0858.8' VS TGT
7,907.0	91.20	180.50	6,997.2	-908.2	-824.9	908.2	3.05	2.70	
7,957.7	91.76	179.78	6,995.9	-958.9	-825.0	958.9	1.81	1.11	Flanigan 1A-6H 0958.8' VS TGT - Flanigan 1A-6H
7,970.0	91.90	179.60	6,995.5	-971.2	-824.9	971.2	1.81	1.11	
8,034.0	90.40	181.00	6,994.2	-1,035.1	-825.3	1,035.1	3.21	-2.34	
8,097.0	91.10	181.30	6,993.4	-1,098.1	-826.5	1,098.1	1.21	1.11	
8,161.0	91.50	181.00	6,992.0	-1,162.1	-827.8	1,162.1	0.78	0.62	
8,224.0	90.70	179.60	6,990.8	-1,225.1	-828.1	1,225.1	2.56	-1.27	
8,287.0	89.30	179.60	6,990.8	-1,288.1	-827.7	1,288.1	2.22	-2.22	
8,351.0	90.10	179.60	6,991.1	-1,352.1	-827.3	1,352.1	1.25	1.25	
8,414.0	89.60	178.20	6,991.3	-1,415.1	-826.1	1,415.1	2.36	-0.79	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1A-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1A-6H	<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
8,478.0	89.80	180.20	6,991.6	-1,479.0	-825.2	1,479.0	3.14	0.31	
8,541.0	89.10	179.40	6,992.2	-1,542.0	-824.9	1,542.0	1.69	-1.11	
8,605.0	90.50	180.20	6,992.4	-1,606.0	-824.7	1,606.0	2.52	2.19	
8,668.0	90.60	179.40	6,991.8	-1,669.0	-824.5	1,669.0	1.28	0.16	
8,731.0	90.90	178.10	6,991.0	-1,732.0	-823.1	1,732.0	2.12	0.48	
8,795.0	91.80	178.70	6,989.5	-1,796.0	-821.3	1,796.0	1.69	1.41	
8,858.0	92.80	180.00	6,987.0	-1,858.9	-820.6	1,858.9	2.60	1.59	
8,922.0	92.00	179.70	6,984.3	-1,922.9	-820.5	1,922.9	1.33	-1.25	
8,985.0	89.40	180.80	6,983.5	-1,985.8	-820.7	1,985.8	4.48	-4.13	
9,048.0	87.10	181.10	6,985.4	-2,048.8	-821.8	2,048.8	3.68	-3.65	
9,112.0	86.20	180.60	6,989.2	-2,112.7	-822.7	2,112.7	1.61	-1.41	
9,175.0	86.80	181.50	6,993.0	-2,175.6	-823.9	2,175.6	1.71	0.95	
9,239.0	88.00	183.00	6,995.9	-2,239.4	-826.4	2,239.4	3.00	1.87	
9,302.0	89.50	182.30	6,997.3	-2,302.4	-829.3	2,302.4	2.63	2.38	
9,365.0	88.10	182.30	6,998.6	-2,365.3	-831.8	2,365.3	2.22	-2.22	
9,429.0	87.50	182.40	7,001.1	-2,429.2	-834.4	2,429.2	0.95	-0.94	
9,492.0	87.40	181.40	7,003.9	-2,492.1	-836.5	2,492.1	1.59	-0.16	
9,556.0	87.80	181.00	7,006.6	-2,556.0	-837.9	2,556.0	0.88	0.62	
9,619.0	88.50	179.10	7,008.6	-2,619.0	-837.9	2,619.0	3.21	1.11	
9,682.0	88.10	178.20	7,010.5	-2,681.9	-836.4	2,681.9	1.56	-0.63	
9,746.0	89.50	178.70	7,011.8	-2,745.9	-834.7	2,745.9	2.32	2.19	
9,809.0	92.30	181.70	7,010.8	-2,808.9	-834.9	2,808.9	6.51	4.44	
9,872.0	92.50	183.30	7,008.2	-2,871.8	-837.7	2,871.8	2.56	0.32	
9,936.0	89.70	183.20	7,006.9	-2,935.6	-841.3	2,935.6	4.38	-4.37	
9,999.0	88.80	182.70	7,007.8	-2,998.5	-844.5	2,998.5	1.63	-1.43	
10,062.0	88.40	183.00	7,009.3	-3,061.4	-847.7	3,061.4	0.79	-0.63	
10,126.0	87.40	181.30	7,011.7	-3,125.4	-850.1	3,125.4	3.08	-1.56	
10,189.0	86.20	181.00	7,015.2	-3,188.3	-851.3	3,188.3	1.96	-1.90	
10,252.0	88.30	181.20	7,018.2	-3,251.2	-852.5	3,251.2	3.35	3.33	
10,259.5	88.22	181.18	7,018.4	-3,258.7	-852.7	3,258.7	1.16	-1.11	Flanigan 1A-6H 3258.8' VS TGT
10,259.6	88.22	181.18	7,018.4	-3,258.8	-852.7	3,258.8	1.16	-1.11	Flanigan 1A-6H 3258.8' VS TGT
10,315.0	87.60	181.00	7,020.4	-3,314.1	-853.8	3,314.1	1.16	-1.11	
10,359.7	87.88	180.86	7,022.2	-3,358.8	-854.5	3,358.8	0.71	0.63	Flanigan 1A-6H 3358.8' VS TGT - Flanigan 1A-6H
10,378.0	88.00	180.80	7,022.9	-3,377.1	-854.7	3,377.1	0.71	0.63	
10,442.0	89.10	179.70	7,024.5	-3,441.0	-855.0	3,441.0	2.43	1.72	
10,505.0	90.00	178.50	7,025.0	-3,504.0	-854.0	3,504.0	2.38	1.43	
10,569.0	89.60	178.20	7,025.2	-3,568.0	-852.2	3,568.0	0.78	-0.62	
10,632.0	90.20	178.80	7,025.3	-3,631.0	-850.5	3,631.0	1.35	0.95	
10,695.0	90.90	179.60	7,024.7	-3,694.0	-849.7	3,694.0	1.69	1.11	
10,759.0	90.60	179.30	7,023.9	-3,758.0	-849.0	3,758.0	0.66	-0.47	
10,822.0	90.60	179.50	7,023.2	-3,821.0	-848.4	3,821.0	0.32	0.00	
10,886.0	90.50	179.50	7,022.6	-3,885.0	-847.8	3,885.0	0.16	-0.16	
10,949.0	91.40	179.10	7,021.6	-3,947.9	-847.1	3,947.9	1.56	1.43	
11,013.0	91.20	177.90	7,020.1	-4,011.9	-845.4	4,011.9	1.90	-0.31	
11,076.0	91.20	177.20	7,018.8	-4,074.8	-842.7	4,074.8	1.11	0.00	
11,140.0	92.80	176.70	7,016.5	-4,138.7	-839.3	4,138.7	2.62	2.50	
11,203.0	94.30	177.40	7,012.6	-4,201.5	-836.1	4,201.5	2.63	2.38	
11,266.0	92.30	179.30	7,009.0	-4,264.4	-834.2	4,264.4	4.38	-3.17	
11,329.0	91.10	178.60	7,007.2	-4,327.3	-833.1	4,327.3	2.20	-1.90	
11,393.0	91.10	178.10	7,005.9	-4,391.3	-831.2	4,391.3	0.78	0.00	
11,456.0	90.20	178.30	7,005.2	-4,454.2	-829.3	4,454.2	1.46	-1.43	
11,481.0	90.00	178.20	7,005.2	-4,479.2	-828.5	4,479.2	0.89	-0.80	Last Cathedral Survey @ 11,481' MD
11,531.0	90.00	178.20	7,005.2	-4,529.2	-826.9	4,529.2	0.00	0.00	Projection to Bit @ 11,531' MD - Flanigan 1A-6H

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Flanigan 1A-6H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Site:</b>	NWNE S6-T1N-R64W (Flanigan)	<b>MD Reference:</b>	KB=13' @ 5010.0ft (Ensign 124)
<b>Well:</b>	Flanigan 1A-6H	<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
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### 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
Flanigan 1A-6H 4558.8' - actual wellpath misses target center by 32.0ft at 11531.0ft MD (7005.2 TVD, -4529.2 N, -826.9 E) - Point	0.00	0.00	7,034.0	-4,542.5	-831.1	1,271,281.07	3,253,339.69	40.074500	-104.594730
Flanigan 1A-6H 0458.8' - actual wellpath misses target center by 18.8ft at 7457.8ft MD (6996.2 TVD, -459.3 N, -812.8 E) - Point	0.00	0.00	6,992.0	-458.8	-831.1	1,275,364.52	3,253,297.87	40.085710	-104.594730
Flanigan 1A-6H 0958.8' - actual wellpath misses target center by 7.3ft at 7957.7ft MD (6995.9 TVD, -958.9 N, -825.0 E) - Point	0.00	0.00	6,992.0	-958.8	-831.1	1,274,864.54	3,253,302.99	40.084338	-104.594730
Flanigan 1A-6H LP - actual wellpath misses target center by 22.0ft at 7371.8ft MD (6989.4 TVD, -373.6 N, -809.3 E) - Point	0.00	0.00	6,992.0	-372.5	-831.1	1,275,450.79	3,253,296.98	40.085947	-104.594730
Flanigan 1A-6H PBHL - actual wellpath misses target center by 22.2ft at 11531.0ft MD (7005.2 TVD, -4529.2 N, -826.9 E) - Point	0.00	0.00	7,022.5	-4,542.5	-831.1	1,271,281.02	3,253,339.69	40.074500	-104.594730
Flanigan 1A-6H PBHL (€ - actual wellpath misses target center by 29.9ft at 11531.0ft MD (7005.2 TVD, -4529.2 N, -826.9 E) - Point	0.00	0.00	7,031.6	-4,542.5	-831.1	1,271,281.02	3,253,339.69	40.074500	-104.594730
Flanigan 1A-6H 3258.8' - actual wellpath misses target center by 25.5ft at 10259.5ft MD (7018.4 TVD, -3258.7 N, -852.7 E) - Point	0.00	0.00	7,032.0	-3,258.7	-831.1	1,272,564.75	3,253,326.55	40.078024	-104.594730
Flanigan 1A-6H 3358.8' - actual wellpath misses target center by 26.1ft at 10359.7ft MD (7022.2 TVD, -3358.8 N, -854.5 E) - Point	0.00	0.00	7,034.0	-3,358.7	-831.1	1,272,464.76	3,253,327.57	40.077750	-104.594730
Flanigan 1A-6H 0858.8' - actual wellpath misses target center by 8.6ft at 7857.5ft MD (6997.7 TVD, -858.7 N, -824.8 E) - Point	0.00	0.00	6,992.0	-858.8	-831.1	1,274,964.54	3,253,301.96	40.084612	-104.594730

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
11,481.0	7,005.2	-4,479.2	-828.5	Last Cathedral Survey @ 11,481' MD
11,531.0	7,005.2	-4,529.2	-826.9	Projection to Bit @ 11,531' MD

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