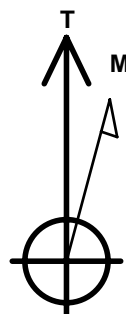
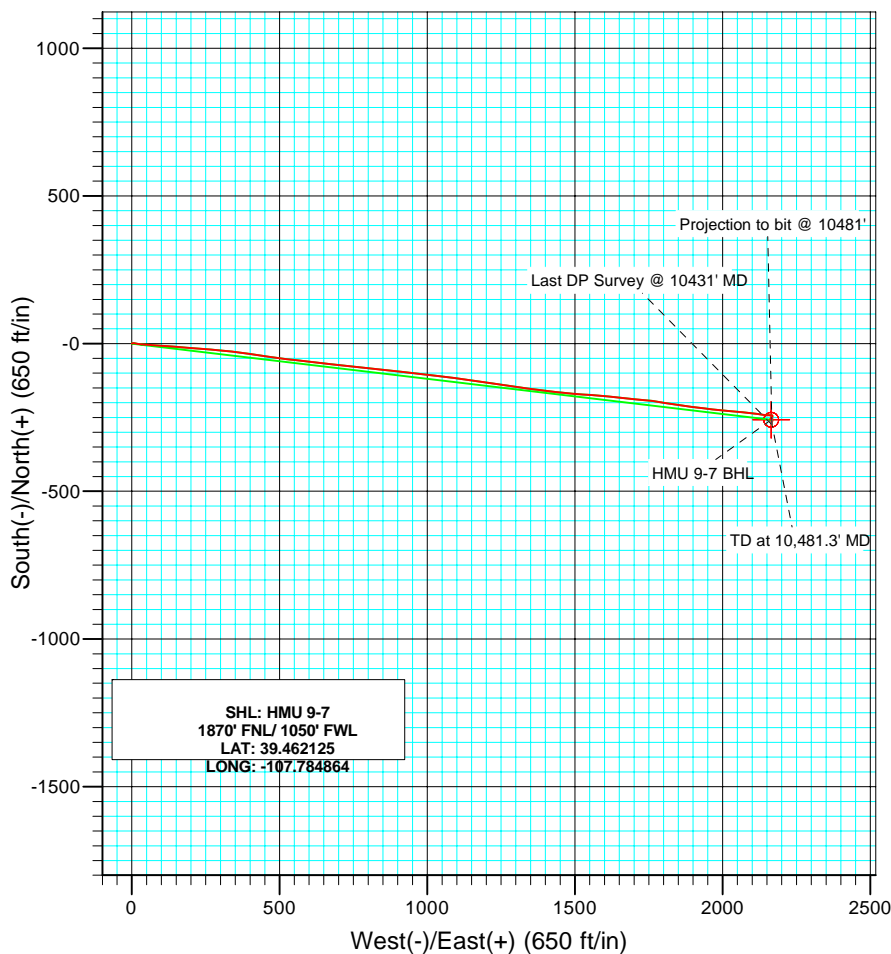
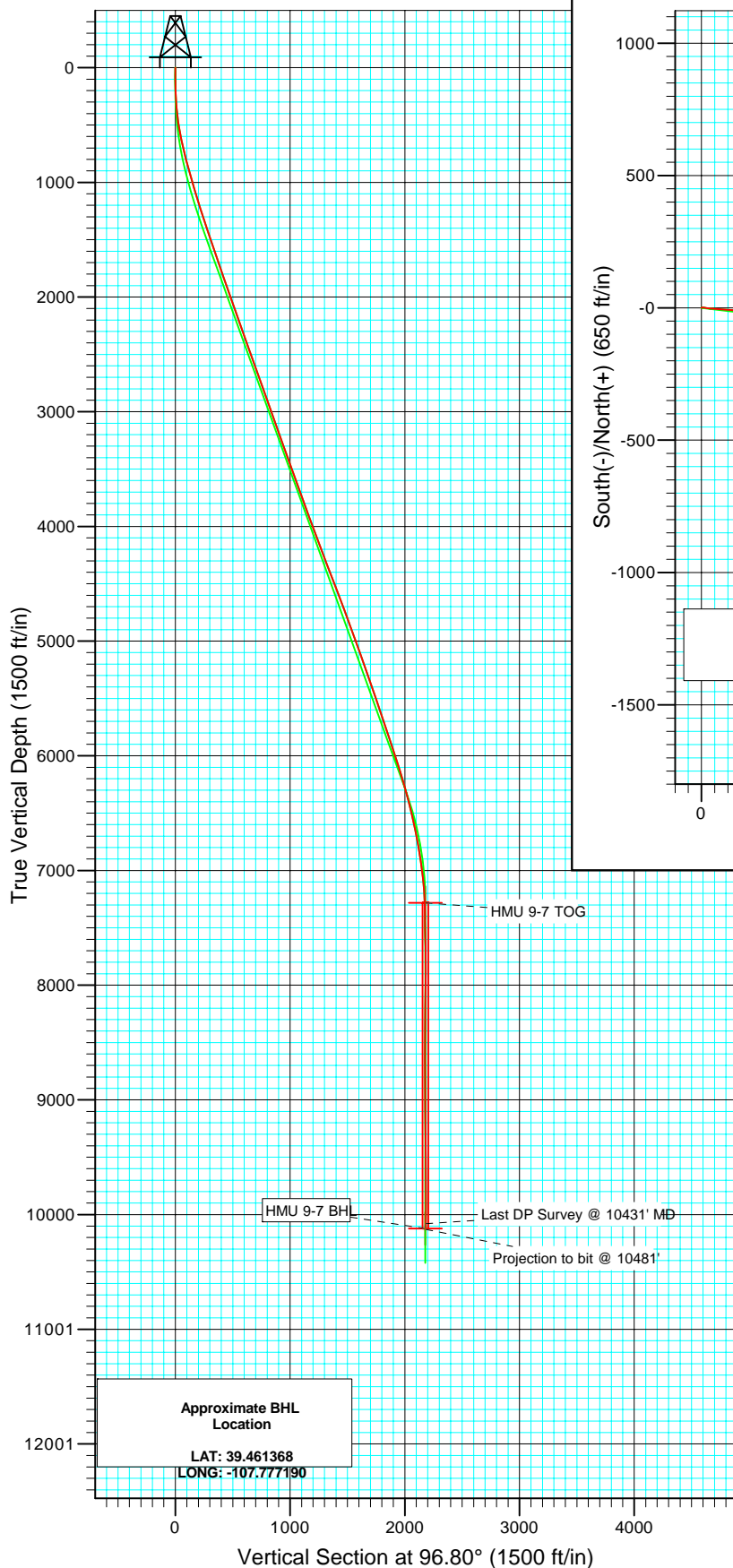




Project: Mamm Creek  
 Site: SWNW S9-T7S-R93W (E9W Pad)  
 Well: HMU 9-7  
 Wellbore: Final  
 Design: DD



Azimuths to True North  
 Magnetic North: 10.54°

Magnetic Field  
 Strength: 52516.7snT  
 Dip Angle: 65.83°  
 Date: 1/22/2009  
 Model: IGRF200510

DESIGN DETAILS: DD

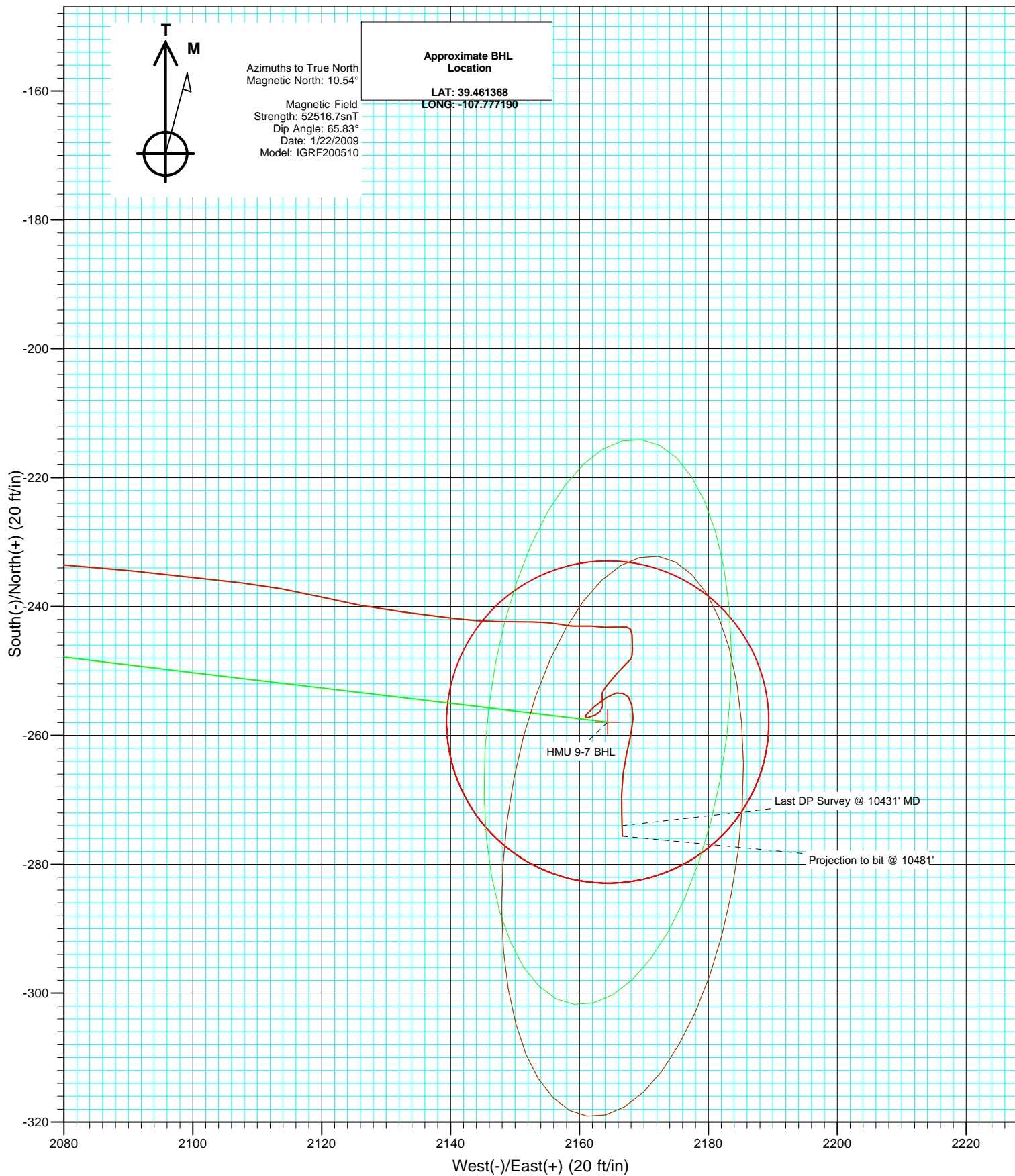
Job # 95029; BH

KBE @ 7142.0ft (Nabors M15)

Target	Azimuth	Origin Type	N/S	E/W	TVD
No Target (Freehand)	96.80	Slot	0.0	0.0	0.0



Project: Mamm Creek  
Site: SWNW S9-T7S-R93W (E9W Pad)  
Well: HMU 9-7  
Wellbore: Final  
Design: DD



## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 9-7
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7142.0ft (Nabors M15)
<b>Site:</b>	SWNW S9-T7S-R93W (E9W Pad)	<b>MD Reference:</b>	KBE @ 7142.0ft (Nabors M15)
<b>Well:</b>	HMU 9-7	<b>North Reference:</b>	True
<b>Wellbore:</b>	Final	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	US EDM 2003.21 Multi User Db

<b>Project</b>	Mamm Creek		
<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 Central Zone		

Site	SWNW S9-T7S-R93W (E9W Pad)				
Site Position:		Northing:	1,601,342.73 ft	Latitude:	39.462178
From:	Lat/Long	Easting:	2,354,974.88 ft	Longitude:	-107.784858
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	-1.44 °

Well	HMU 9-7					
Well Position	+N/-S	0.0 ft	Northing:	1,601,323.46 ft	Latitude:	39.462125
	+E/-W	0.0 ft	Easting:	2,354,972.70 ft	Longitude:	-107.784864
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,120.0 ft

<b>Wellbore</b>	Final				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	1/22/2009	10.54	65.83	52,517

<b>Design</b>	DD				
<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	96.80	

<b>Survey Program</b>	<b>Date</b>	2/13/2009			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
82.0	10,481.0	Survey #1 (Final)	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		
82.0	0.40	302.00	82.0	0.2	-0.2	-0.3	0.49	0.49		
116.0	0.50	41.20	116.0	0.3	-0.2	-0.3	2.02	0.29		
147.0	1.10	69.20	147.0	0.5	0.1	0.1	2.26	1.94		
177.0	2.10	77.70	177.0	0.8	0.9	0.8	3.42	3.33		
208.0	2.60	78.40	208.0	1.0	2.2	2.0	1.62	1.61		
239.0	2.80	77.60	238.9	1.3	3.6	3.4	0.66	0.65		
270.0	2.90	80.60	269.9	1.6	5.1	4.9	0.58	0.32		
300.0	3.30	88.20	299.8	1.8	6.7	6.5	1.91	1.33		
331.0	4.40	98.70	330.8	1.6	8.8	8.5	4.20	3.55		
362.0	5.40	103.00	361.7	1.1	11.4	11.2	3.43	3.23		
393.0	6.20	103.40	392.5	0.4	14.4	14.3	2.58	2.58		
423.0	7.10	101.70	422.3	-0.4	17.8	17.7	3.07	3.00		

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 9-7
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7142.0ft (Nabors M15)
<b>Site:</b>	SWNW S9-T7S-R93W (E9W Pad)	<b>MD Reference:</b>	KBE @ 7142.0ft (Nabors M15)
<b>Well:</b>	HMU 9-7	<b>North Reference:</b>	True
<b>Wellbore:</b>	Final	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	US EDM 2003.21 Multi User 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
454.0	7.90	99.10	453.0	-1.1	21.8	21.8	2.80	2.58	
485.0	8.40	97.20	483.7	-1.7	26.2	26.2	1.83	1.61	
516.0	9.00	96.60	514.4	-2.3	30.8	30.9	1.96	1.94	
546.0	9.80	95.60	544.0	-2.8	35.7	35.8	2.72	2.67	
577.0	10.70	94.30	574.5	-3.3	41.2	41.3	3.00	2.90	
608.0	11.50	94.40	604.9	-3.7	47.1	47.2	2.58	2.58	
638.0	12.00	94.30	634.3	-4.2	53.2	53.3	1.67	1.67	
669.0	12.70	92.20	664.5	-4.6	59.8	60.0	2.68	2.26	
700.0	12.90	94.00	694.8	-4.9	66.7	66.8	1.44	0.65	
731.0	13.10	94.00	725.0	-5.4	73.7	73.8	0.65	0.65	
761.0	13.60	93.30	754.2	-5.9	80.6	80.7	1.75	1.67	
792.0	14.10	94.00	784.3	-6.3	88.0	88.1	1.70	1.61	
823.0	14.70	94.30	814.3	-6.9	95.7	95.8	1.95	1.94	
853.0	15.20	94.00	843.3	-7.4	103.4	103.5	1.69	1.67	
884.0	15.50	93.60	873.2	-8.0	111.6	111.7	1.03	0.97	
914.0	15.80	93.40	902.1	-8.5	119.6	119.8	1.02	1.00	
945.0	16.10	92.50	931.9	-8.9	128.2	128.3	1.25	0.97	
975.0	16.30	93.70	960.7	-9.4	136.5	136.7	1.30	0.67	
1,006.0	16.40	94.10	990.4	-10.0	145.2	145.4	0.49	0.32	
1,037.0	16.30	96.10	1,020.2	-10.7	153.9	154.1	1.84	-0.32	
1,072.0	16.60	94.90	1,053.7	-11.7	163.8	164.0	1.30	0.86	
1,160.0	17.10	95.30	1,137.9	-14.0	189.2	189.5	0.58	0.57	
1,255.0	17.70	94.90	1,228.6	-16.5	217.5	217.9	0.64	0.63	
1,350.0	18.20	94.00	1,319.0	-18.8	246.7	247.2	0.60	0.53	
1,446.0	18.40	94.20	1,410.1	-20.9	276.7	277.3	0.22	0.21	
1,540.0	18.50	96.60	1,499.3	-23.7	306.3	307.0	0.81	0.11	
1,635.0	18.90	95.60	1,589.3	-26.9	336.6	337.5	0.54	0.42	
1,730.0	18.70	96.90	1,679.2	-30.3	367.1	368.1	0.49	-0.21	
1,825.0	18.90	99.10	1,769.1	-34.5	397.4	398.7	0.78	0.21	
1,920.0	19.40	98.50	1,858.9	-39.3	428.2	429.8	0.57	0.53	
2,015.0	19.60	98.50	1,948.4	-44.0	459.5	461.5	0.21	0.21	
2,110.0	19.80	97.00	2,037.9	-48.3	491.3	493.5	0.57	0.21	
2,206.0	19.70	95.80	2,128.2	-51.9	523.5	526.0	0.44	-0.10	
2,301.0	19.50	97.60	2,217.7	-55.6	555.1	557.8	0.67	-0.21	
2,396.0	19.50	97.40	2,307.3	-59.8	586.6	589.5	0.07	0.00	
2,492.0	19.30	96.30	2,397.8	-63.6	618.2	621.4	0.43	-0.21	
2,587.0	19.70	97.30	2,487.4	-67.3	649.7	653.1	0.55	0.42	
2,682.0	19.60	95.80	2,576.8	-71.0	681.5	685.1	0.54	-0.11	
2,777.0	19.70	95.20	2,666.3	-74.0	713.3	717.0	0.24	0.11	
2,871.0	19.90	97.00	2,754.8	-77.4	744.9	748.9	0.68	0.21	
2,967.0	20.10	96.00	2,845.0	-81.1	777.5	781.7	0.41	0.21	
3,062.0	20.00	94.90	2,934.2	-84.2	810.0	814.2	0.41	-0.11	
3,157.0	19.50	97.60	3,023.6	-87.7	841.9	846.3	1.10	-0.53	
3,252.0	19.20	96.20	3,113.3	-91.5	873.1	877.8	0.58	-0.32	
3,348.0	19.00	95.40	3,204.0	-94.7	904.4	909.2	0.34	-0.21	
3,443.0	19.30	96.30	3,293.7	-97.9	935.4	940.4	0.44	0.32	
3,538.0	19.70	96.90	3,383.3	-101.5	966.9	972.1	0.47	0.42	
3,633.0	19.60	96.10	3,472.7	-105.1	998.6	1,004.0	0.30	-0.11	
3,727.0	20.20	98.20	3,561.1	-109.1	1,030.3	1,036.0	0.99	0.64	
3,823.0	20.00	97.40	3,651.3	-113.6	1,063.0	1,069.0	0.35	-0.21	
3,918.0	20.20	97.30	3,740.5	-117.8	1,095.4	1,101.7	0.21	0.21	
4,013.0	20.20	97.70	3,829.6	-122.1	1,127.9	1,134.5	0.15	0.00	
4,108.0	20.30	97.30	3,918.8	-126.3	1,160.5	1,167.3	0.18	0.11	

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 9-7
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7142.0ft (Nabors M15)
<b>Site:</b>	SWNW S9-T7S-R93W (E9W Pad)	<b>MD Reference:</b>	KBE @ 7142.0ft (Nabors M15)
<b>Well:</b>	HMU 9-7	<b>North Reference:</b>	True
<b>Wellbore:</b>	Final	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	US EDM 2003.21 Multi User 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
4,204.0	20.20	96.90	4,008.8	-130.5	1,193.5	1,200.6	0.18	-0.10	
4,299.0	20.10	98.30	4,098.0	-134.8	1,225.9	1,233.3	0.52	-0.11	
4,394.0	20.60	98.40	4,187.1	-139.6	1,258.6	1,266.3	0.53	0.53	
4,489.0	20.70	98.80	4,276.0	-144.6	1,291.8	1,299.8	0.18	0.11	
4,584.0	21.10	98.30	4,364.7	-149.6	1,325.3	1,333.7	0.46	0.42	
4,679.0	21.10	98.10	4,453.4	-154.5	1,359.1	1,367.9	0.08	0.00	
4,774.0	21.00	97.70	4,542.0	-159.2	1,392.9	1,402.0	0.18	-0.11	
4,870.0	20.90	97.10	4,631.7	-163.6	1,427.0	1,436.3	0.25	-0.10	
4,965.0	20.30	95.00	4,720.6	-167.1	1,460.2	1,469.7	1.00	-0.63	
5,060.0	20.30	94.70	4,809.7	-169.9	1,493.0	1,502.6	0.11	0.00	
5,155.0	20.20	93.70	4,898.8	-172.3	1,525.8	1,535.5	0.38	-0.11	
5,250.0	20.00	93.80	4,988.1	-174.5	1,558.4	1,568.1	0.21	-0.21	
5,345.0	19.40	94.80	5,077.5	-176.9	1,590.3	1,600.1	0.72	-0.63	
5,440.0	19.30	96.30	5,167.1	-179.9	1,621.7	1,631.6	0.53	-0.11	
5,536.0	19.40	95.30	5,257.7	-183.1	1,653.3	1,663.4	0.36	0.10	
5,631.0	19.10	96.10	5,347.4	-186.2	1,684.5	1,694.7	0.42	-0.32	
5,727.0	19.30	96.20	5,438.1	-189.6	1,715.9	1,726.2	0.21	0.21	
5,822.0	18.60	95.40	5,527.9	-192.7	1,746.5	1,757.1	0.79	-0.74	
5,917.0	19.20	98.60	5,617.8	-196.5	1,777.1	1,787.8	1.26	0.63	
6,012.0	18.90	98.40	5,707.6	-201.1	1,807.7	1,818.8	0.32	-0.32	
6,107.0	18.10	99.00	5,797.7	-205.6	1,837.5	1,849.0	0.87	-0.84	
6,203.0	19.10	98.80	5,888.7	-210.4	1,867.8	1,879.6	1.04	1.04	
6,298.0	17.70	97.40	5,978.8	-214.6	1,897.5	1,909.5	1.55	-1.47	
6,392.0	17.90	96.70	6,068.3	-218.1	1,926.0	1,938.3	0.31	0.21	
6,487.0	16.70	95.60	6,159.0	-221.2	1,954.1	1,966.5	1.31	-1.26	
6,583.0	15.80	95.50	6,251.2	-223.8	1,980.8	1,993.4	0.94	-0.94	
6,677.0	15.30	96.70	6,341.7	-226.4	2,005.9	2,018.6	0.63	-0.53	
6,772.0	14.50	95.80	6,433.5	-229.1	2,030.2	2,043.0	0.88	-0.84	
6,867.0	12.50	95.50	6,525.9	-231.3	2,052.2	2,065.2	2.11	-2.11	
6,963.0	11.60	94.00	6,619.8	-233.0	2,072.2	2,085.2	0.99	-0.94	
7,058.0	10.60	95.40	6,713.0	-234.5	2,090.4	2,103.5	1.09	-1.05	
7,153.0	10.20	97.00	6,806.4	-236.3	2,107.5	2,120.6	0.52	-0.42	
7,225.0	9.10	103.30	6,877.4	-238.4	2,119.3	2,132.7	2.12	-1.53	
7,312.0	8.30	97.50	6,963.4	-240.8	2,132.3	2,145.8	1.36	-0.92	
7,375.0	6.70	96.80	7,025.9	-241.8	2,140.4	2,154.0	2.54	-2.54	
7,439.0	5.60	90.80	7,089.5	-242.3	2,147.2	2,160.8	1.99	-1.72	
7,502.0	4.50	90.60	7,152.3	-242.4	2,152.8	2,166.3	1.75	-1.75	
7,565.0	3.30	101.20	7,215.1	-242.8	2,157.0	2,170.6	2.21	-1.90	
7,629.0	1.40	83.30	7,279.1	-243.0	2,159.6	2,173.2	3.15	-2.97	
7,723.0	1.30	98.00	7,373.0	-243.0	2,161.8	2,175.4	0.38	-0.11	
7,819.0	1.20	91.50	7,469.0	-243.2	2,163.9	2,177.5	0.18	-0.10	
7,914.0	1.00	86.00	7,564.0	-243.2	2,165.7	2,179.3	0.24	-0.21	
8,011.0	0.90	93.50	7,661.0	-243.2	2,167.3	2,180.9	0.16	-0.10	
8,106.0	1.40	175.70	7,756.0	-244.4	2,168.2	2,181.8	1.64	0.53	
8,202.0	1.40	180.70	7,852.0	-246.7	2,168.2	2,182.2	0.13	0.00	
8,297.0	0.50	220.10	7,947.0	-248.2	2,168.0	2,182.1	1.12	-0.95	
8,392.0	0.80	228.30	8,041.9	-249.0	2,167.2	2,181.4	0.33	0.32	
8,487.0	1.50	221.60	8,136.9	-250.3	2,165.9	2,180.3	0.75	0.74	
8,582.0	1.50	217.90	8,231.9	-252.2	2,164.3	2,178.9	0.10	0.00	
8,677.0	0.40	183.00	8,326.9	-253.5	2,163.5	2,178.3	1.26	-1.16	
8,773.0	0.70	172.00	8,422.9	-254.5	2,163.6	2,178.5	0.33	0.31	
8,866.0	0.60	184.90	8,515.9	-255.5	2,163.6	2,178.6	0.19	-0.11	
8,960.0	0.50	234.50	8,609.8	-256.2	2,163.2	2,178.4	0.50	-0.11	

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well HMU 9-7
<b>Project:</b>	Mamm Creek	<b>TVD Reference:</b>	KBE @ 7142.0ft (Nabors M15)
<b>Site:</b>	SWNW S9-T7S-R93W (E9W Pad)	<b>MD Reference:</b>	KBE @ 7142.0ft (Nabors M15)
<b>Well:</b>	HMU 9-7	<b>North Reference:</b>	True
<b>Wellbore:</b>	Final	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	US EDM 2003.21 Multi User 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
9,055.0	0.70	232.30	8,704.8	-256.8	2,162.4	2,177.6	0.21	0.21	
9,151.0	0.80	267.40	8,800.8	-257.2	2,161.3	2,176.6	0.48	0.10	
9,246.0	0.80	41.50	8,895.8	-256.8	2,161.1	2,176.3	1.55	0.00	
9,341.0	1.40	48.90	8,990.8	-255.5	2,162.4	2,177.4	0.65	0.63	
9,436.0	1.40	57.10	9,085.8	-254.1	2,164.2	2,179.1	0.21	0.00	
9,531.0	0.60	84.10	9,180.8	-253.4	2,165.7	2,180.5	0.95	-0.84	
9,626.0	0.60	100.50	9,275.8	-253.5	2,166.7	2,181.5	0.18	0.00	
9,722.0	0.70	138.50	9,371.8	-254.0	2,167.6	2,182.4	0.45	0.10	
9,817.0	1.10	168.50	9,466.7	-255.3	2,168.1	2,183.1	0.64	0.42	
9,911.0	1.40	179.40	9,560.7	-257.4	2,168.3	2,183.6	0.41	0.32	
10,006.0	1.80	194.40	9,655.7	-260.0	2,168.0	2,183.5	0.61	0.42	
10,102.0	1.70	191.00	9,751.6	-262.8	2,167.3	2,183.2	0.15	-0.10	
10,196.0	2.10	189.00	9,845.6	-265.9	2,166.8	2,183.0	0.43	0.43	
10,292.0	2.00	178.80	9,941.5	-269.3	2,166.6	2,183.2	0.39	-0.10	
10,387.0	1.90	180.10	10,036.5	-272.5	2,166.6	2,183.6	0.12	-0.11	
10,431.0	1.90	177.30	10,080.5	-274.0	2,166.6	2,183.8	0.21	0.00	
10,481.0	1.90	177.30	10,130.4	-275.6	2,166.7	2,184.1	0.00	0.00	

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	Latitude	Longitude
HMU 9-7 BHL	0.00	0.00	10,122.0	-257.9	2,164.4	1,601,011.19	2,357,129.92	39.461417	-107.777198
- survey misses target center by 17.6ft at 10472.0ft MD (10121.4 TVD, -275.3 N, 2166.7 E)									
- Circle (radius 25.0)									
HMU 9-7 TOG	0.00	0.00	7,282.0	-257.9	2,164.4	1,601,011.19	2,357,129.92	39.461417	-107.777198
- survey misses target center by 15.6ft at 7632.0ft MD (7282.1 TVD, -243.0 N, 2159.7 E)									
- Circle (radius 25.0)									

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
10,431.0	10,080.5	-274.0	2,166.6	Last DP Survey @ 10431' MD	
10,481.0	10,130.4	-275.6	2,166.7	Projection to bit @ 10481'	

Checked By: _____	Approved By: _____	Date: _____
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