

Well Name: **Wiggett 22-13**

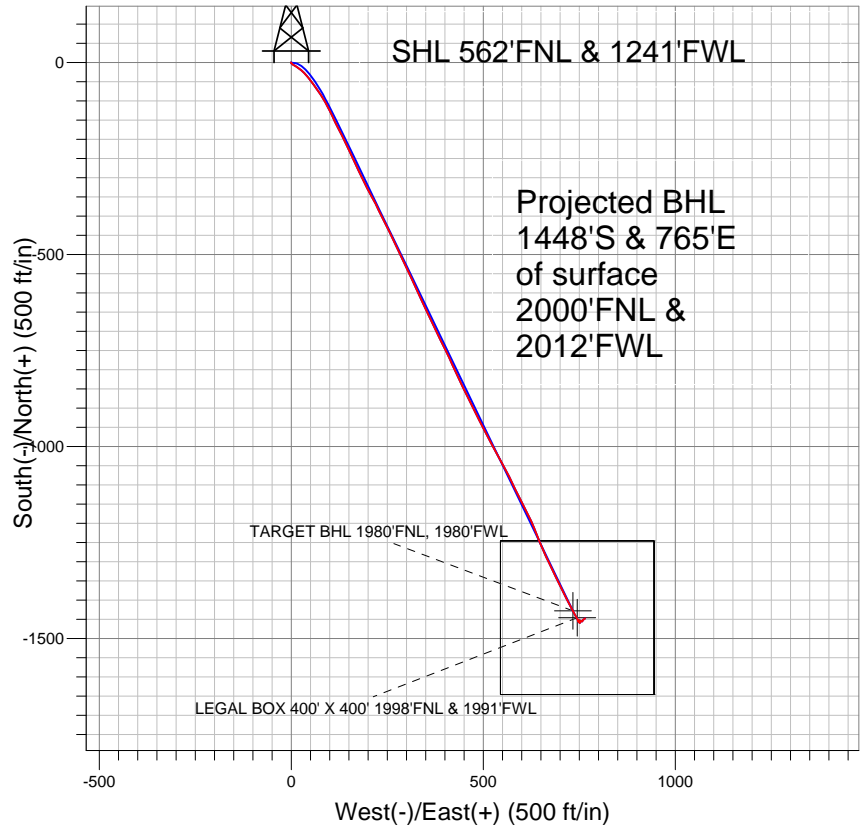
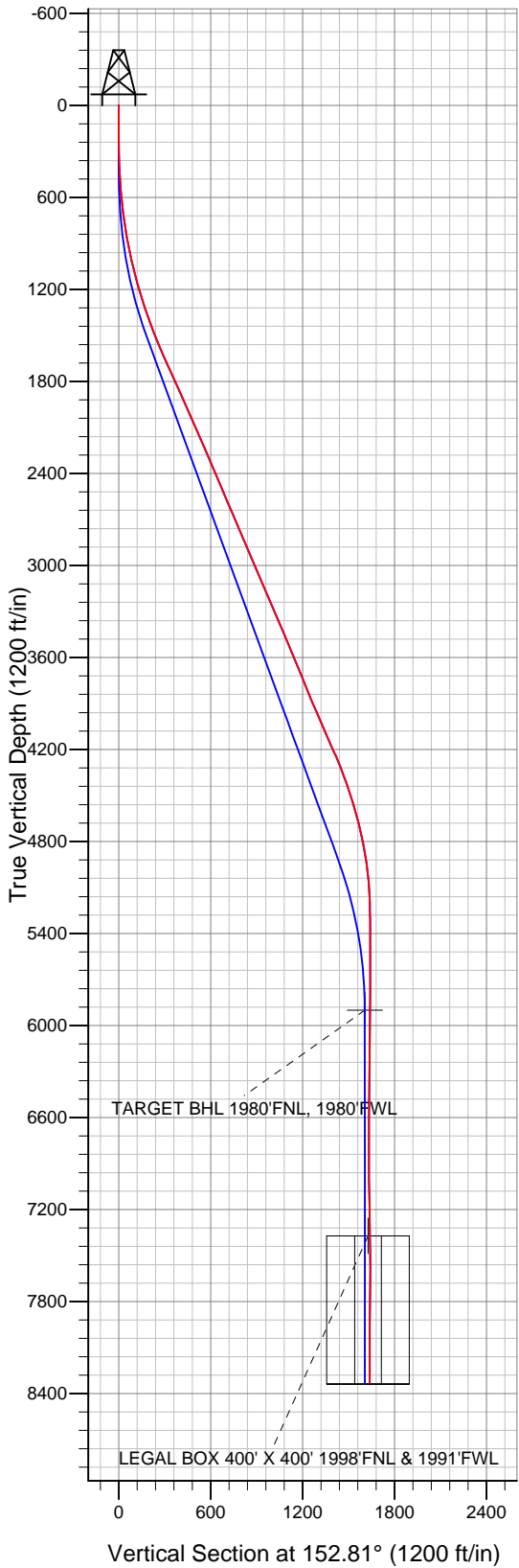
Surface Location: Wiggett 4-4-13 Pad Sec.13-T1N-R69W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 5016.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1263920.52	3120359.20	40° 3' 25.380 N	105° 4' 12.072 W	

Original Well Elev WELL @ 5031.0ft (Original Well Elev)

EnCana Oil & Gas Boulder County, CO



LEGEND

- Wiggett 22-13, Wellbore #1, Plan #1 (1-28-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 8636'MD & 8330'TVD @ 1637'VS
 0.9 deg Inc 50.6 deg AZ

Project: SEC.13-T1N-R69W
 Site: Wiggett 4-4-13 Pad Sec.13-T1N-R69W
 Well: Wiggett 22-13
 Plan: Wellbore #1



Directional

EnCana Oil & Gas Boulder County, CO

SEC.13-T1N-R69W

Wiggett 4-4-13 Pad Sec.13-T1N-R69W

Wiggett 22-13

Wellbore #1

Survey: Survey #1

Standard Survey Report

04 April, 2011

Company:	EnCana Oil & Gas Boulder County, CO	Local Co-ordinate Reference:	Well Wiggett 22-13
Project:	SEC.13-T1N-R69W	TVD Reference:	WELL @ 5031.0ft (Original Well Elev)
Site:	Wiggett 4-4-13 Pad Sec.13-T1N-R69W	MD Reference:	WELL @ 5031.0ft (Original Well Elev)
Well:	Wiggett 22-13	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.13-T1N-R69W, Boulder County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Wiggett 4-4-13 Pad Sec.13-T1N-R69W				
Site Position:		Northing:	1,263,949.67 ft	Latitude:	40° 3' 25.668 N
From:	Lat/Long	Easting:	3,120,359.06 ft	Longitude:	105° 4' 12.072 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.28 °

Well	Wiggett 22-13					
Well Position	+N/-S	0.0 ft	Northing:	1,263,920.52 ft	Latitude:	40° 3' 25.380 N
	+E/-W	0.0 ft	Easting:	3,120,359.20 ft	Longitude:	105° 4' 12.072 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,016.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/28/2011	9.05	66.73	52,955

Design	Wellbore #1				
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	152.81	

Survey Program	Date	4/4/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
121.0	8,636.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
121.0	0.50	292.30	121.0	0.2	-0.5	-0.4	0.41	0.41	0.00	
214.0	0.50	173.10	214.0	0.0	-0.8	-0.3	0.93	0.00	-128.17	
305.0	1.30	145.90	305.0	-1.3	-0.2	1.1	0.97	0.88	-29.89	
394.0	2.60	132.60	393.9	-3.5	1.9	4.0	1.54	1.46	-14.94	
485.0	4.00	119.80	484.8	-6.5	6.1	8.6	1.73	1.54	-14.07	
577.0	5.70	124.40	576.4	-10.7	12.7	15.3	1.89	1.85	5.00	
669.0	7.10	123.90	667.9	-16.4	21.2	24.3	1.52	1.52	-0.54	
761.0	8.40	134.50	759.0	-24.3	30.7	35.6	2.09	1.41	11.52	
853.0	10.50	140.30	849.8	-35.4	40.8	50.2	2.50	2.28	6.30	
921.0	12.10	142.50	916.5	-45.9	49.1	63.3	2.44	2.35	3.24	
1,020.0	12.80	143.10	1,013.1	-62.9	62.0	84.3	0.72	0.71	0.61	
1,114.0	14.30	146.30	1,104.5	-80.9	74.7	106.1	1.78	1.60	3.40	

Company:	EnCana Oil & Gas Boulder County, CO	Local Co-ordinate Reference:	Well Wiggett 22-13
Project:	SEC.13-T1N-R69W	TVD Reference:	WELL @ 5031.0ft (Original Well Elev)
Site:	Wiggett 4-4-13 Pad Sec.13-T1N-R69W	MD Reference:	WELL @ 5031.0ft (Original Well Elev)
Well:	Wiggett 22-13	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,208.0	16.30	151.30	1,195.2	-102.1	87.5	130.8	2.55	2.13	5.32
1,302.0	18.00	153.40	1,285.0	-126.6	100.4	158.5	1.92	1.81	2.23
1,395.0	19.70	154.80	1,373.0	-153.7	113.5	188.5	1.89	1.83	1.51
1,489.0	21.10	151.80	1,461.1	-182.9	128.2	221.3	1.86	1.49	-3.19
1,583.0	22.20	154.60	1,548.5	-213.9	143.8	256.0	1.61	1.17	2.98
1,677.0	24.50	154.90	1,634.8	-247.6	159.7	293.2	2.45	2.45	0.32
1,770.0	24.10	155.30	1,719.5	-282.3	175.8	331.4	0.47	-0.43	0.43
1,864.0	24.50	152.90	1,805.2	-317.1	192.7	370.1	1.13	0.43	-2.55
1,958.0	24.00	151.90	1,890.9	-351.3	210.6	408.7	0.69	-0.53	-1.06
2,052.0	23.20	153.70	1,977.1	-384.8	227.8	446.3	1.15	-0.85	1.91
2,145.0	23.70	153.20	2,062.4	-417.9	244.4	483.3	0.58	0.54	-0.54
2,239.0	24.50	155.10	2,148.2	-452.4	261.1	521.7	1.19	0.85	2.02
2,333.0	23.10	153.20	2,234.2	-486.5	277.6	559.6	1.70	-1.49	-2.02
2,427.0	23.00	154.60	2,320.7	-519.6	293.8	596.4	0.59	-0.11	1.49
2,520.0	23.20	156.00	2,406.2	-552.7	309.0	632.9	0.63	0.22	1.51
2,614.0	23.00	155.60	2,492.7	-586.4	324.2	669.7	0.27	-0.21	-0.43
2,708.0	23.30	154.70	2,579.1	-619.9	339.7	706.6	0.49	0.32	-0.96
2,802.0	23.60	154.50	2,665.4	-653.7	355.7	744.0	0.33	0.32	-0.21
2,895.0	23.00	154.90	2,750.8	-687.0	371.5	780.8	0.67	-0.65	0.43
2,989.0	22.80	153.60	2,837.4	-719.9	387.3	817.3	0.58	-0.21	-1.38
3,083.0	22.90	153.70	2,924.0	-752.6	403.5	853.8	0.11	0.11	0.11
3,177.0	23.30	156.10	3,010.5	-786.0	419.2	890.7	1.09	0.43	2.55
3,270.0	23.80	154.80	3,095.7	-819.8	434.6	927.8	0.78	0.54	-1.40
3,364.0	23.50	154.00	3,181.8	-853.8	450.9	965.5	0.47	-0.32	-0.85
3,458.0	22.80	154.30	3,268.2	-887.1	467.0	1,002.4	0.76	-0.74	0.32
3,552.0	23.30	152.40	3,354.7	-920.0	483.5	1,039.2	0.95	0.53	-2.02
3,645.0	23.10	152.10	3,440.2	-952.4	500.6	1,075.9	0.25	-0.22	-0.32
3,739.0	22.50	153.90	3,526.9	-984.8	517.1	1,112.3	0.98	-0.64	1.91
3,833.0	22.20	149.80	3,613.8	-1,016.3	534.0	1,148.0	1.69	-0.32	-4.36
3,927.0	22.40	152.00	3,700.8	-1,047.5	551.3	1,183.7	0.91	0.21	2.34
4,020.0	22.20	153.60	3,786.8	-1,078.9	567.5	1,218.9	0.69	-0.22	1.72
4,114.0	22.90	154.20	3,873.7	-1,111.2	583.3	1,255.0	0.78	0.74	0.64
4,208.0	23.30	152.70	3,960.1	-1,144.2	599.8	1,291.9	0.76	0.43	-1.60
4,302.0	23.60	153.90	4,046.4	-1,177.7	616.6	1,329.3	0.60	0.32	1.28
4,395.0	24.00	157.30	4,131.4	-1,211.8	632.1	1,366.7	1.54	0.43	3.66
4,489.0	24.40	157.80	4,217.2	-1,247.4	646.8	1,405.1	0.48	0.43	0.53
4,583.0	21.60	156.30	4,303.7	-1,281.3	661.1	1,441.8	3.04	-2.98	-1.60
4,677.0	19.40	153.00	4,391.8	-1,311.0	675.1	1,474.6	2.64	-2.34	-3.51
4,770.0	18.00	154.00	4,479.8	-1,337.7	688.5	1,504.5	1.54	-1.51	1.08
4,864.0	17.60	155.70	4,569.3	-1,363.7	700.7	1,533.2	0.70	-0.43	1.81
4,958.0	15.40	153.70	4,659.5	-1,387.8	712.0	1,559.8	2.42	-2.34	-2.13
5,052.0	12.70	150.50	4,750.6	-1,408.0	722.7	1,582.7	2.99	-2.87	-3.40
5,145.0	9.70	151.70	4,841.9	-1,423.8	731.4	1,600.7	3.24	-3.23	1.29
5,239.0	8.10	151.60	4,934.7	-1,436.6	738.3	1,615.2	1.70	-1.70	-0.11
5,333.0	5.50	155.00	5,028.1	-1,446.5	743.4	1,626.4	2.80	-2.77	3.62
5,427.0	4.00	147.20	5,121.7	-1,453.4	747.1	1,634.1	1.73	-1.60	-8.30
5,520.0	1.40	140.00	5,214.6	-1,457.0	749.5	1,638.5	2.81	-2.80	-7.74
5,614.0	0.40	121.30	5,308.6	-1,458.0	750.6	1,639.9	1.09	-1.06	-19.89
5,708.0	0.40	93.90	5,402.6	-1,458.2	751.2	1,640.3	0.20	0.00	-29.15
5,802.0	0.30	99.50	5,496.6	-1,458.3	751.7	1,640.6	0.11	-0.11	5.96
5,895.0	0.10	252.20	5,589.6	-1,458.3	751.9	1,640.8	0.42	-0.22	164.19
5,989.0	0.20	270.40	5,683.6	-1,458.4	751.7	1,640.7	0.12	0.11	19.36
6,083.0	0.30	277.00	5,777.6	-1,458.3	751.3	1,640.5	0.11	0.11	7.02
6,177.0	0.40	292.00	5,871.6	-1,458.2	750.7	1,640.1	0.14	0.11	15.96

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Well:	Wiggett 22-13	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
6,205.6	0.46	290.30	5,900.2	-1,458.1	750.5	1,639.9	0.22	0.21	-5.95	
TARGET BHL 1980'FNL, 1980'FWL										
6,271.0	0.60	287.70	5,965.6	-1,457.9	749.9	1,639.5	0.22	0.21	-3.97	
6,364.0	0.60	293.90	6,058.6	-1,457.6	749.0	1,638.8	0.07	0.00	6.67	
6,458.0	0.80	315.30	6,152.6	-1,456.9	748.1	1,637.8	0.35	0.21	22.77	
6,552.0	0.80	336.30	6,246.6	-1,455.8	747.4	1,636.5	0.31	0.00	22.34	
6,646.0	0.60	344.60	6,340.6	-1,454.8	747.0	1,635.3	0.24	-0.21	8.83	
6,739.0	0.70	350.60	6,433.6	-1,453.7	746.8	1,634.3	0.13	0.11	6.45	
6,833.0	0.30	353.00	6,527.6	-1,452.9	746.6	1,633.5	0.43	-0.43	2.55	
6,927.0	0.10	39.30	6,621.6	-1,452.6	746.7	1,633.3	0.26	-0.21	49.26	
7,022.0	0.40	47.90	6,716.6	-1,452.3	747.0	1,633.2	0.32	0.32	9.05	
7,116.0	0.30	31.70	6,810.6	-1,451.9	747.3	1,632.9	0.15	-0.11	-17.23	
7,210.0	0.30	66.20	6,904.6	-1,451.6	747.7	1,632.8	0.19	0.00	36.70	
7,305.0	0.80	112.20	6,999.6	-1,451.7	748.5	1,633.4	0.66	0.53	48.42	
7,399.0	1.20	112.30	7,093.5	-1,452.4	750.1	1,634.6	0.43	0.43	0.11	
7,494.0	1.40	128.30	7,188.5	-1,453.5	751.9	1,636.4	0.43	0.21	16.84	
7,588.0	1.10	110.30	7,282.5	-1,454.5	753.6	1,638.1	0.52	-0.32	-19.15	
7,676.3	1.10	119.13	7,370.7	-1,455.2	755.2	1,639.5	0.19	0.00	10.00	
LEGAL BOX 400' X 400' 1998'FNL & 1991'FWL										
7,682.0	1.10	119.70	7,376.5	-1,455.2	755.3	1,639.5	0.19	0.01	9.96	
7,777.0	0.80	93.80	7,471.5	-1,455.7	756.7	1,640.6	0.54	-0.32	-27.26	
7,871.0	0.70	53.50	7,565.5	-1,455.4	757.8	1,640.9	0.56	-0.11	-42.87	
7,966.0	0.70	25.30	7,660.5	-1,454.6	758.5	1,640.4	0.36	0.00	-29.68	
8,060.0	0.70	14.10	7,754.4	-1,453.5	758.9	1,639.7	0.15	0.00	-11.91	
8,154.0	0.60	2.60	7,848.4	-1,452.4	759.1	1,638.8	0.17	-0.11	-12.23	
8,249.0	0.80	47.70	7,943.4	-1,451.5	759.6	1,638.2	0.60	0.21	47.47	
8,375.0	1.20	59.80	8,069.4	-1,450.2	761.4	1,637.9	0.36	0.32	9.60	
8,469.0	1.10	57.60	8,163.4	-1,449.3	763.0	1,637.8	0.12	-0.11	-2.34	
8,564.0	1.00	51.90	8,258.4	-1,448.3	764.4	1,637.5	0.15	-0.11	-6.00	
8,591.0	0.90	50.60	8,285.4	-1,448.0	764.8	1,637.4	0.38	-0.37	-4.81	
8,636.0	0.90	50.60	8,330.4	-1,447.5	765.3	1,637.3	0.00	0.00	0.00	

Checked By: _____ Approved By: _____ Date: _____