



# Well Name: Dowdy 6-4-10

Surface Location: Dowdy 4-2-10 Pad Sec.10-T2N-R65W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
Ground Elevation: 4858.0  
Easting 3239119.97 Latitude 40.157440 Longitude -104.644480 Slot  
Original Well Elev WELL @ 4870.0ft (Original Well Elev)

+N/-S +E/-W  
0.0 0.0

Northing  
1301352.11

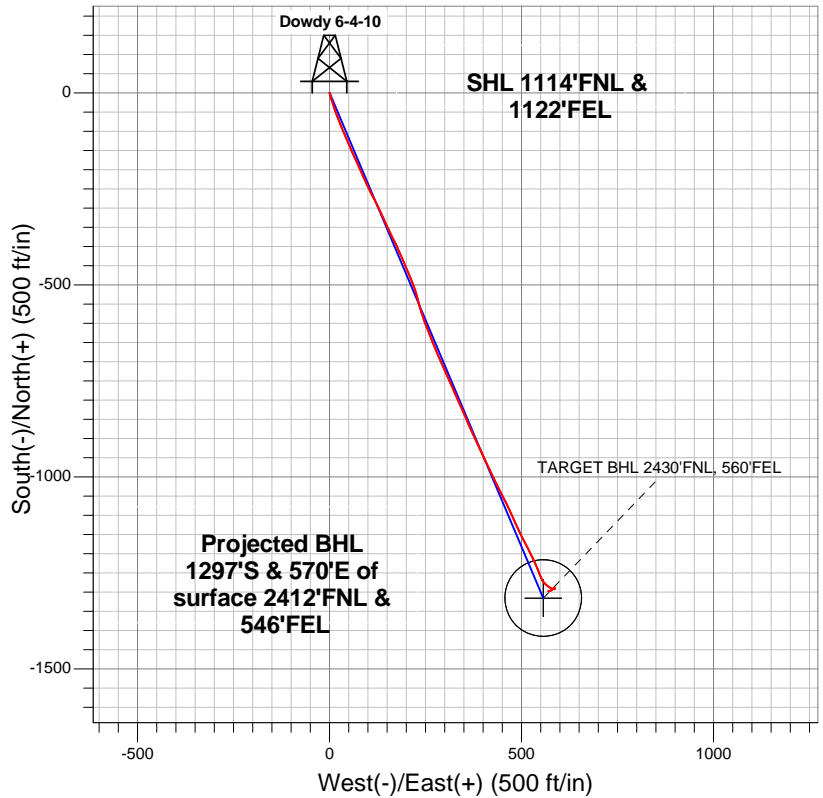
Easting  
3239119.97

Latitude  
40.157440

Longitude  
-104.644480

Slot

## EnCana Oil & Gas Weld County CO



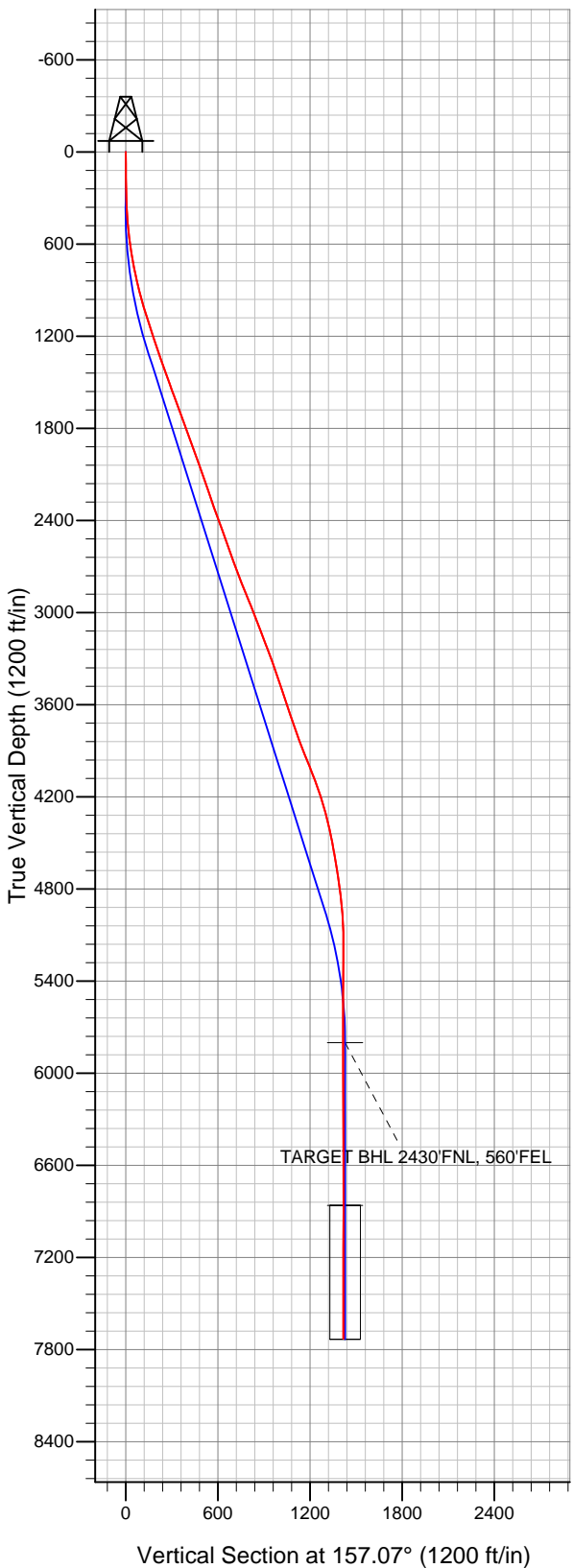
### LEGEND

- Dowdy 6-4-10, Wellbore #1, Plan #2 (10-28-12)R V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
7958'MD & 7729'TVD @ 1417'VS  
0.30 deg Inc 216.40 deg AZ

Project: SEC.10-T2N-R65W  
Site: Dowdy 4-2-10 Pad Sec.10-T2N-R65W  
Well: Dowdy 6-4-10  
Plan: Wellbore #1





## **Directional**

# **EnCana Oil & Gas Weld County CO**

**SEC.10-T2N-R65W**

**Dowdy 4-2-10 Pad Sec.10-T2N-R65W**

**Dowdy 6-4-10**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**02 November, 2012**

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dowdy 6-4-10
<b>Project:</b>	SEC.10-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4870.0ft (Original Well Elev)
<b>Site:</b>	Dowdy 4-2-10 Pad Sec.10-T2N-R65W	<b>MD Reference:</b>	WELL @ 4870.0ft (Original Well Elev)
<b>Well:</b>	Dowdy 6-4-10	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.10-T2N-R65W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Dowdy 4-2-10 Pad Sec.10-T2N-R65W		
<b>Site Position:</b>		<b>Northing:</b>	1,301,352.02 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,239,108.79 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.157440
		<b>Longitude:</b>	-104.644520
		<b>Grid Convergence:</b>	0.55 °

<b>Well</b>	Dowdy 6-4-10		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,301,352.11 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,239,119.97 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.157440
		<b>Longitude:</b>	-104.644480
		<b>Ground Level:</b>	4,858.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	10/28/2012	8.59	66.83	52,872

<b>Design</b>	Wellbore #1				
<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	157.07	

<b>Survey Program</b>	<b>Date</b>	11/2/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
77.0	7,958.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<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>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
77.0	0.70	140.30	77.0	-0.4	0.3	0.5	0.91	0.91	0.00	
166.0	0.70	129.90	166.0	-1.1	1.1	1.5	0.14	0.00	-11.69	
257.0	1.00	178.40	257.0	-2.3	1.5	2.7	0.82	0.33	53.30	
347.0	2.30	174.50	346.9	-4.9	1.7	5.1	1.45	1.44	-4.33	
439.0	4.40	165.20	438.8	-10.1	2.8	10.4	2.35	2.28	-10.11	
530.0	6.50	163.50	529.4	-18.4	5.1	19.0	2.31	2.31	-1.87	
621.0	8.40	161.40	619.6	-29.7	8.7	30.7	2.11	2.09	-2.31	
712.0	10.40	161.70	709.4	-43.8	13.4	45.5	2.20	2.20	0.33	
803.0	12.00	157.30	798.6	-60.3	19.7	63.2	1.99	1.76	-4.84	
875.0	13.50	156.60	868.9	-74.9	25.9	79.1	2.09	2.08	-0.97	
949.0	14.80	160.50	940.6	-91.7	32.5	97.1	2.18	1.76	5.27	
1,035.0	17.10	156.80	1,023.3	-113.7	41.1	120.8	2.92	2.67	-4.30	

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Dowdy 6-4-10
<b>Project:</b>	SEC.10-T2N-R65W	<b>TVD Reference:</b>	WELL @ 4870.0ft (Original Well Elev)
<b>Site:</b>	Dowdy 4-2-10 Pad Sec.10-T2N-R65W	<b>MD Reference:</b>	WELL @ 4870.0ft (Original Well Elev)
<b>Well:</b>	Dowdy 6-4-10	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)	
1,120.0	17.90	154.70	1,104.4	-137.0	51.6	146.3	1.20	0.94	-2.47	
1,206.0	17.90	157.10	1,186.2	-161.1	62.4	172.7	0.86	0.00	2.79	
1,292.0	18.80	155.70	1,267.8	-186.0	73.3	199.8	1.17	1.05	-1.63	
1,377.0	19.80	155.40	1,348.0	-211.5	84.9	227.9	1.18	1.18	-0.35	
1,463.0	19.80	155.60	1,429.0	-238.0	97.0	257.0	0.08	0.00	0.23	
1,548.0	19.30	152.90	1,509.1	-263.7	109.3	285.4	1.21	-0.59	-3.18	
1,634.0	20.50	152.90	1,589.9	-289.7	122.6	314.6	1.40	1.40	0.00	
1,720.0	20.60	156.10	1,670.5	-316.9	135.6	344.7	1.31	0.12	3.72	
1,805.0	20.10	155.90	1,750.2	-344.0	147.7	374.3	0.59	-0.59	-0.24	
1,891.0	18.80	151.00	1,831.2	-369.6	160.4	402.9	2.42	-1.51	-5.70	
1,976.0	20.80	155.60	1,911.2	-395.3	173.3	431.6	2.98	2.35	5.41	
2,062.0	19.80	157.50	1,991.9	-422.7	185.2	461.4	1.39	-1.16	2.21	
2,148.0	19.50	155.00	2,072.9	-449.1	196.8	490.3	1.04	-0.35	-2.91	
2,233.0	19.80	158.90	2,152.9	-475.4	208.0	518.9	1.58	0.35	4.59	
2,319.0	18.40	157.80	2,234.2	-501.6	218.4	547.0	1.68	-1.63	-1.28	
2,404.0	18.70	165.60	2,314.8	-527.2	226.8	573.9	2.94	0.35	9.18	
2,490.0	20.70	164.70	2,395.8	-555.2	234.3	602.6	2.35	2.33	-1.05	
2,576.0	20.70	161.20	2,476.2	-584.3	243.2	632.8	1.44	0.00	-4.07	
2,661.0	19.30	158.40	2,556.1	-611.5	253.2	661.9	2.00	-1.65	-3.29	
2,747.0	19.20	157.70	2,637.3	-637.8	263.8	690.2	0.29	-0.12	-0.81	
2,832.0	20.70	158.20	2,717.2	-664.7	274.7	719.2	1.78	1.76	0.59	
2,918.0	21.20	154.50	2,797.5	-692.9	287.0	749.9	1.64	0.58	-4.30	
3,004.0	23.10	158.50	2,877.1	-722.6	299.9	782.3	2.82	2.21	4.65	
3,089.0	21.90	154.50	2,955.7	-752.4	312.8	814.9	2.29	-1.41	-4.71	
3,175.0	21.10	156.30	3,035.7	-781.1	326.0	846.4	1.21	-0.93	2.09	
3,260.0	21.10	155.60	3,115.0	-809.0	338.4	876.9	0.30	0.00	-0.82	
3,346.0	20.60	157.00	3,195.4	-837.0	350.7	907.6	0.82	-0.58	1.63	
3,432.0	19.60	155.60	3,276.1	-864.1	362.6	937.1	1.29	-1.16	-1.63	
3,517.0	20.00	155.20	3,356.1	-890.3	374.6	965.9	0.50	0.47	-0.47	
3,603.0	19.20	156.80	3,437.1	-916.6	386.3	994.7	1.12	-0.93	1.86	
3,688.0	18.00	153.30	3,517.7	-941.2	397.7	1,021.8	1.93	-1.41	-4.12	
3,774.0	18.20	153.60	3,599.4	-965.1	409.7	1,048.5	0.26	0.23	0.35	
3,860.0	18.80	158.00	3,681.0	-990.0	420.8	1,075.7	1.77	0.70	5.12	
3,945.0	19.80	152.00	3,761.2	-1,015.4	432.7	1,103.8	2.61	1.18	-7.06	
4,031.0	20.60	153.10	3,841.9	-1,041.8	446.4	1,133.4	1.03	0.93	1.28	
4,116.0	21.60	153.40	3,921.2	-1,069.1	460.2	1,163.9	1.18	1.18	0.35	
4,202.0	22.10	155.60	4,001.0	-1,098.0	474.0	1,195.9	1.12	0.58	2.56	
4,288.0	20.90	155.00	4,081.1	-1,126.6	487.1	1,227.4	1.42	-1.40	-0.70	
4,373.0	19.10	154.30	4,160.9	-1,152.9	499.6	1,256.4	2.14	-2.12	-0.82	
4,459.0	16.50	153.10	4,242.8	-1,176.5	511.2	1,282.7	3.05	-3.02	-1.40	
4,544.0	14.20	153.10	4,324.8	-1,196.5	521.4	1,305.1	2.71	-2.71	0.00	
4,630.0	13.20	152.40	4,408.3	-1,214.6	530.7	1,325.4	1.18	-1.16	-0.81	
4,716.0	10.90	159.90	4,492.4	-1,231.0	538.0	1,343.3	3.23	-2.67	8.72	
4,801.0	9.80	158.70	4,576.0	-1,245.3	543.4	1,358.6	1.32	-1.29	-1.41	
4,887.0	9.20	156.10	4,660.9	-1,258.4	548.9	1,372.8	0.86	-0.70	-3.02	
4,972.0	7.90	149.00	4,744.9	-1,269.6	554.6	1,385.4	1.97	-1.53	-8.35	
5,058.0	7.10	134.10	4,830.2	-1,278.4	561.5	1,396.1	2.44	-0.93	-17.33	
5,144.0	7.20	125.80	4,915.5	-1,285.2	569.7	1,405.6	1.21	0.12	-9.65	
5,229.0	5.10	114.40	5,000.0	-1,289.9	577.4	1,412.9	2.85	-2.47	-13.41	
5,315.0	3.20	88.10	5,085.8	-1,291.4	583.3	1,416.6	3.07	-2.21	-30.58	
5,400.0	1.10	74.70	5,170.7	-1,291.1	586.5	1,417.6	2.52	-2.47	-15.76	
5,486.0	1.60	276.10	5,256.7	-1,290.7	586.1	1,417.1	3.09	0.58	-184.42	
5,657.0	0.30	329.90	5,427.7	-1,290.1	583.5	1,415.5	0.84	-0.76	31.46	
5,828.0	1.00	65.60	5,598.7	-1,289.1	584.6	1,415.0	0.63	0.41	55.97	

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<b>Site:</b>	Dowdy 4-2-10 Pad Sec.10-T2N-R65W	<b>MD Reference:</b>	WELL @ 4870.0ft (Original Well Elev)
<b>Well:</b>	Dowdy 6-4-10	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)	
6,000.0	0.60	86.80	5,770.7	-1,288.4	586.9	1,415.3	0.29	-0.23	12.33	
6,029.4	0.41	93.39	5,800.0	-1,288.4	587.1	1,415.4	0.68	-0.65	22.43	
TARGET BHL 2430'FNL, 560'FEL										
6,171.0	0.60	239.80	5,941.7	-1,288.8	587.0	1,415.7	0.68	0.14	103.37	
6,342.0	1.10	246.60	6,112.7	-1,289.9	584.7	1,415.8	0.30	0.29	3.98	
6,513.0	1.00	242.40	6,283.6	-1,291.3	581.9	1,416.0	0.07	-0.06	-2.46	
6,684.0	0.90	226.70	6,454.6	-1,292.9	579.6	1,416.5	0.16	-0.06	-9.18	
6,856.0	0.50	231.70	6,626.6	-1,294.3	578.0	1,417.2	0.24	-0.23	2.91	
7,027.0	0.70	224.00	6,797.6	-1,295.5	576.7	1,417.8	0.13	0.12	-4.50	
7,089.9	0.96	241.08	6,860.5	-1,296.0	576.0	1,418.0	0.57	0.41	27.15	
TARGET CIRCLE 2430'FNL & 560'FEL										
7,198.0	1.50	254.70	6,968.6	-1,296.8	573.8	1,417.9	0.57	0.50	12.60	
7,369.0	0.40	274.40	7,139.5	-1,297.4	571.1	1,417.4	0.66	-0.64	11.52	
7,540.0	0.30	211.60	7,310.5	-1,297.7	570.2	1,417.3	0.22	-0.06	-36.73	
7,712.0	0.50	10.70	7,482.5	-1,297.4	570.2	1,417.0	0.46	0.12	92.50	
7,916.0	0.30	216.40	7,686.5	-1,296.9	570.0	1,416.5	0.38	-0.10	-75.64	
7,958.0	0.30	216.40	7,728.5	-1,297.1	569.9	1,416.6	0.00	0.00	0.00	

Wellbore Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
TARGET BHL 2430'F	0.00	0.00	5,800.0	-1,315.1	556.3	1,300,042.50	3,239,688.88	40.153830	-104.642490
- survey misses target center by 40.8ft at 6029.0ft MD (5799.7 TVD, -1288.4 N, 587.1 E)									
- Point									
TARGET CIRCLE 2430'F	0.00	0.00	6,860.0	-1,315.1	556.3	1,300,042.50	3,239,688.88	40.153830	-104.642490
- survey misses target center by 27.4ft at 7089.8ft MD (6860.4 TVD, -1296.0 N, 576.0 E)									
- Circle (radius 100.0)									

Checked By: _____	Approved By: _____	Date: _____
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