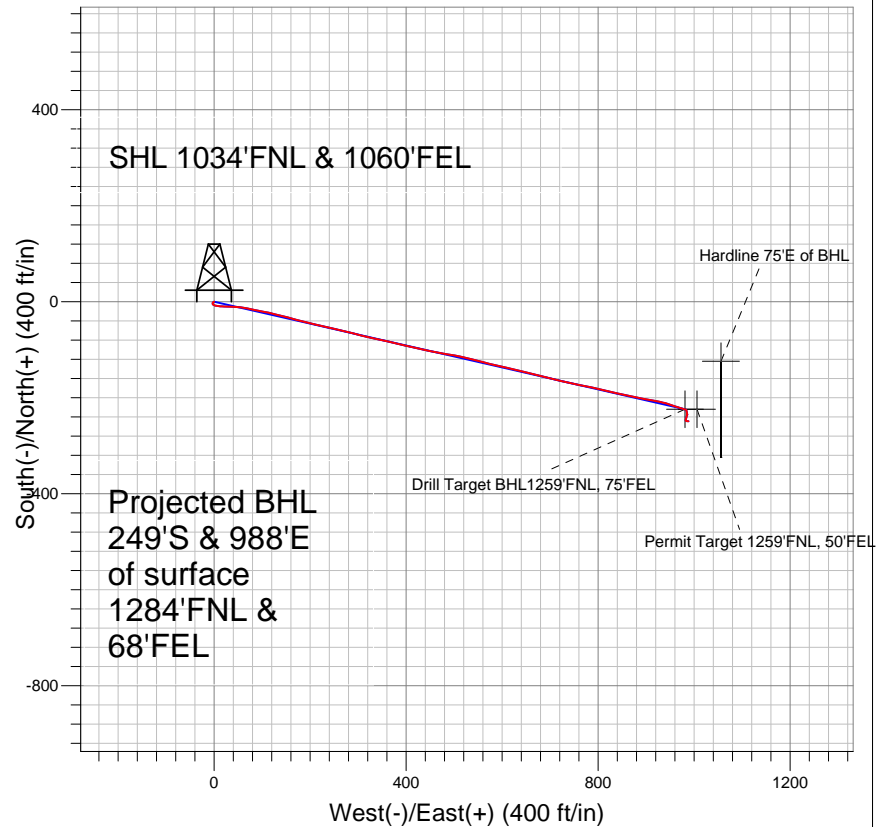
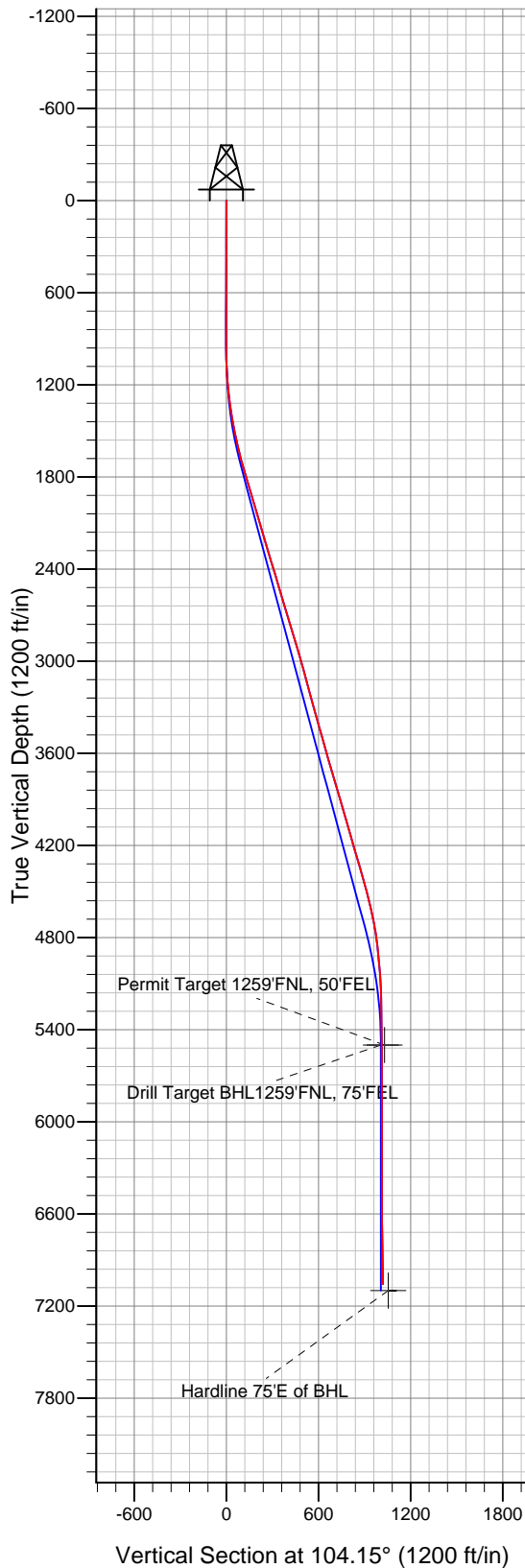


## PETROLEUM DEVELOPMENT CORP Weld County CO



### LEGEND

- + Noffsinger 2VD, Wellbore #1, Plan#1 (6-14-10) V0
- + Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7192'MD & 7058'TVD @ 1019' VS  
 0.9 deg Inc 89.3 deg AZ

Project: SEC.2-T5N-R65W  
 Site: Noffsinger Pad Sec.2-T5N-R65W  
 Well: Noffsinger 2VD  
 Plan: Wellbore #1



## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.2-T5N-R65W**

**Noffsinger Pad Sec.2-T5N-R65W**

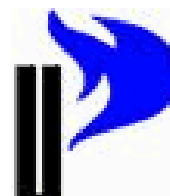
**Noffsinger 2VD**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**15 November, 2010**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Noffsinger 2VD
<b>Project:</b>	SEC.2-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4660.0ft (Original Well Elev)
<b>Site:</b>	Noffsinger Pad Sec.2-T5N-R65W	<b>MD Reference:</b>	WELL @ 4660.0ft (Original Well Elev)
<b>Well:</b>	Noffsinger 2VD	<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.2-T5N-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>	Noffsinger Pad Sec.2-T5N-R65W		
<b>Site Position:</b>		<b>Northing:</b>	1,401,288.04 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,243,490.07 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40° 25' 53.908 N
		<b>Longitude:</b>	104° 37' 31.148 W
		<b>Grid Convergence:</b>	0.57 °

<b>Well</b>	Noffsinger 2VD		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40° 25' 56.273 N
		<b>Longitude:</b>	104° 37' 28.556 W
		<b>Ground Level:</b>	4,647.0 ft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	IGRF200510	12/31/2009	8.95
			<b>Dip Angle (°)</b>
			67.16
			<b>Field Strength (nT)</b>
			53,337

<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>
	0.0	0.0	0.0
			<b>Direction (°)</b>
			104.15

<b>Survey Program</b>	<b>Date</b> 11/15/2010		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>
700.0	7,192.0	Survey #1 (Wellbore #1)	MWD
			<b>Description</b>
			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
700.0	0.50	235.00	700.0	-1.8	-2.5	-2.0	0.07	0.07	0.00
793.0	0.80	178.80	793.0	-2.6	-2.8	-2.1	0.72	0.32	-60.43
887.0	0.80	182.90	887.0	-3.9	-2.8	-1.8	0.06	0.00	4.36
980.0	0.90	161.60	980.0	-5.3	-2.6	-1.3	0.35	0.11	-22.90
1,073.0	2.40	118.00	1,072.9	-6.9	-0.7	1.0	1.99	1.61	-46.88
1,166.0	4.00	103.50	1,165.8	-8.6	4.2	6.1	1.91	1.72	-15.59
1,260.0	6.60	92.10	1,259.4	-9.5	12.8	14.7	2.97	2.77	-12.13
1,353.0	8.90	94.30	1,351.5	-10.3	25.3	27.0	2.49	2.47	2.37
1,446.0	10.50	89.60	1,443.2	-10.7	40.9	42.3	1.92	1.72	-5.05
1,539.0	11.60	99.80	1,534.5	-12.3	58.6	59.8	2.41	1.18	10.97
1,632.0	13.50	101.30	1,625.2	-16.0	78.5	80.0	2.07	2.04	1.61



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Noffsinger 2VD
<b>Project:</b>	SEC.2-T5N-R65W	<b>TVD Reference:</b>	WELL @ 4660.0ft (Original Well Elev)
<b>Site:</b>	Noffsinger Pad Sec.2-T5N-R65W	<b>MD Reference:</b>	WELL @ 4660.0ft (Original Well Elev)
<b>Well:</b>	Noffsinger 2VD	<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)
1,726.0	15.80	101.60	1,716.2	-20.7	101.8	103.8	2.45	2.45	0.32
1,819.0	16.90	102.80	1,805.4	-26.3	127.4	129.9	1.24	1.18	1.29
1,912.0	16.70	104.60	1,894.5	-32.6	153.5	156.8	0.60	-0.22	1.94
2,005.0	16.40	105.40	1,983.6	-39.5	179.1	183.3	0.41	-0.32	0.86
2,098.0	16.50	103.40	2,072.8	-46.0	204.6	209.6	0.62	0.11	-2.15
2,191.0	16.50	102.60	2,162.0	-52.0	230.3	236.0	0.24	0.00	-0.86
2,284.0	15.80	102.50	2,251.3	-57.6	255.6	261.9	0.75	-0.75	-0.11
2,377.0	17.00	105.50	2,340.5	-64.0	281.0	288.1	1.58	1.29	3.23
2,470.0	17.10	103.20	2,429.4	-70.7	307.4	315.4	0.73	0.11	-2.47
2,563.0	16.60	102.20	2,518.4	-76.6	333.7	342.3	0.62	-0.54	-1.08
2,656.0	17.00	103.10	2,607.5	-82.5	360.0	369.2	0.51	0.43	0.97
2,750.0	17.00	103.60	2,697.4	-88.9	386.7	396.7	0.16	0.00	0.53
2,843.0	16.10	102.70	2,786.5	-94.9	412.5	423.2	1.01	-0.97	-0.97
2,936.0	16.50	102.00	2,875.8	-100.5	438.0	449.3	0.48	0.43	-0.75
3,029.0	17.10	100.80	2,964.8	-105.8	464.3	476.1	0.75	0.65	-1.29
3,123.0	14.70	98.10	3,055.2	-110.1	489.7	501.8	2.67	-2.55	-2.87
3,216.0	15.20	103.20	3,145.0	-114.5	513.3	525.7	1.51	0.54	5.48
3,309.0	15.50	103.10	3,234.7	-120.1	537.3	550.3	0.32	0.32	-0.11
3,402.0	16.20	104.90	3,324.2	-126.3	561.9	575.7	0.92	0.75	1.94
3,496.0	14.90	102.80	3,414.8	-132.3	586.4	600.9	1.51	-1.38	-2.23
3,589.0	15.30	102.80	3,504.5	-137.7	610.0	625.1	0.43	0.43	0.00
3,682.0	16.30	104.20	3,594.0	-143.6	634.6	650.4	1.15	1.08	1.51
3,775.0	16.30	103.20	3,683.3	-149.8	660.0	676.5	0.30	0.00	-1.08
3,869.0	16.60	104.10	3,773.4	-156.1	685.8	703.2	0.42	0.32	0.96
3,962.0	16.40	103.70	3,862.6	-162.4	711.5	729.6	0.25	-0.22	-0.43
4,055.0	15.70	102.90	3,952.0	-168.3	736.5	755.3	0.79	-0.75	-0.86
4,149.0	16.20	100.50	4,042.4	-173.6	761.8	781.1	0.88	0.53	-2.55
4,242.0	16.80	102.60	4,131.5	-178.9	787.6	807.5	0.91	0.65	2.26
4,335.0	16.00	102.80	4,220.8	-184.6	813.3	833.7	0.86	-0.86	0.22
4,428.0	16.10	103.20	4,310.1	-190.4	838.3	859.4	0.16	0.11	0.43
4,521.0	16.30	102.60	4,399.4	-196.2	863.6	885.4	0.28	0.22	-0.65
4,614.0	15.20	100.80	4,488.9	-201.3	888.3	910.6	1.29	-1.18	-1.94
4,707.0	13.10	99.60	4,579.1	-205.4	910.7	933.3	2.28	-2.26	-1.29
4,800.0	12.20	102.30	4,669.9	-209.2	930.7	953.6	1.16	-0.97	2.90
4,894.0	8.70	107.30	4,762.3	-213.5	947.2	970.6	3.84	-3.72	5.32
4,987.0	6.90	109.90	4,854.4	-217.5	959.1	983.2	1.97	-1.94	2.80
5,081.0	4.80	107.10	4,947.9	-220.5	968.2	992.8	2.25	-2.23	-2.98
5,174.0	4.40	105.40	5,040.6	-222.6	975.4	1,000.2	0.45	-0.43	-1.83
5,267.0	2.90	106.20	5,133.4	-224.2	981.1	1,006.1	1.61	-1.61	0.86
5,360.0	0.80	143.90	5,226.4	-225.4	983.7	1,009.0	2.49	-2.26	40.54
5,453.0	0.50	178.50	5,319.4	-226.3	984.1	1,009.6	0.52	-0.32	37.20
5,633.6	1.27	163.21	5,499.9	-229.1	984.7	1,010.8	0.44	0.43	-8.47
<b>Drill Target BHL1259'FNL, 75'FEL</b>									
5,633.7	1.27	163.21	5,500.0	-229.1	984.7	1,010.8	0.00	0.00	0.00
<b>Permit Target 1259'FNL, 50'FEL</b>									
5,640.0	1.30	163.00	5,506.4	-229.2	984.7	1,010.9	0.45	0.45	-3.28
5,826.0	1.40	170.50	5,692.3	-233.5	985.7	1,012.9	0.11	0.05	4.03
6,012.0	0.60	215.90	5,878.3	-236.5	985.5	1,013.5	0.57	-0.43	24.41
6,198.0	0.80	192.70	6,064.3	-238.5	984.7	1,013.1	0.18	0.11	-12.47
6,385.0	0.90	194.20	6,251.2	-241.2	984.0	1,013.2	0.05	0.05	0.80
6,572.0	0.80	203.90	6,438.2	-243.9	983.2	1,012.9	0.09	-0.05	5.19
6,758.0	1.10	187.70	6,624.2	-246.8	982.4	1,012.9	0.21	0.16	-8.71
6,944.0	1.20	98.20	6,810.2	-248.9	984.1	1,015.1	0.87	0.05	-48.12



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Noffsinger 2VD
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<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)
7,142.0	0.90	89.30	7,008.1	-249.1	987.7	1,018.6	0.17	-0.15	-4.49
7,192.0	0.90	89.30	7,058.1	-249.1	988.5	1,019.4	0.00	0.00	0.00
Hardline 75'E of BHL									

Checked By: _____	Approved By: _____	Date: _____
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