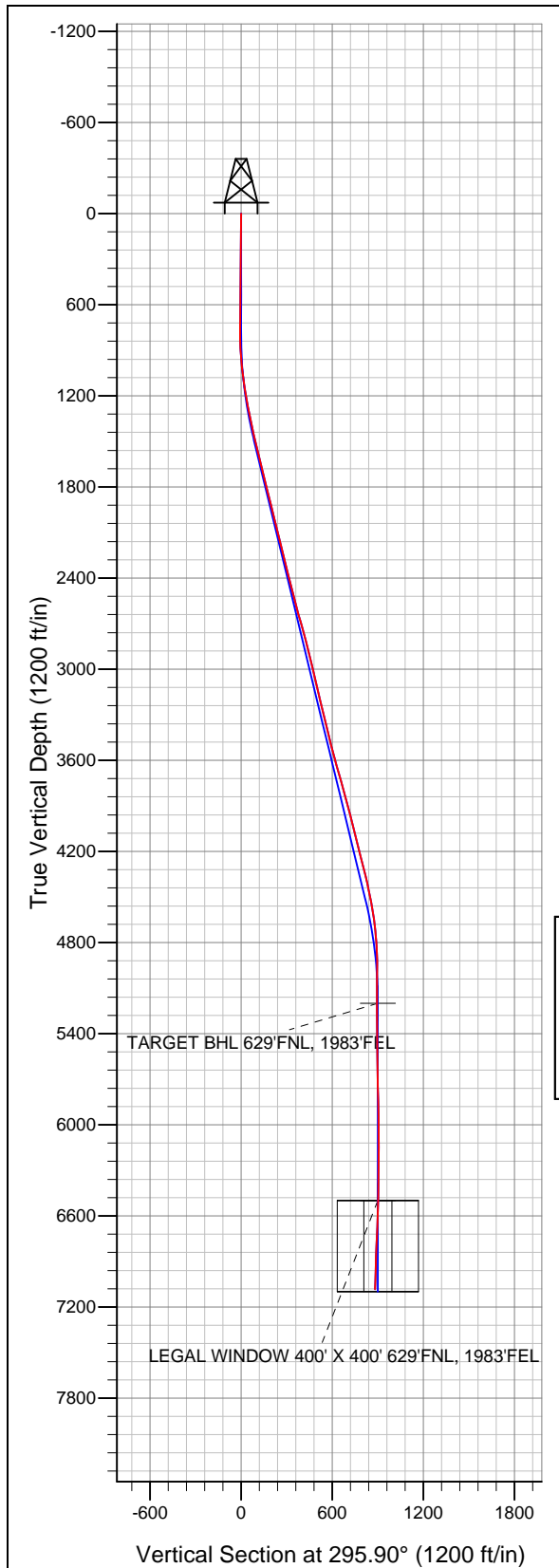


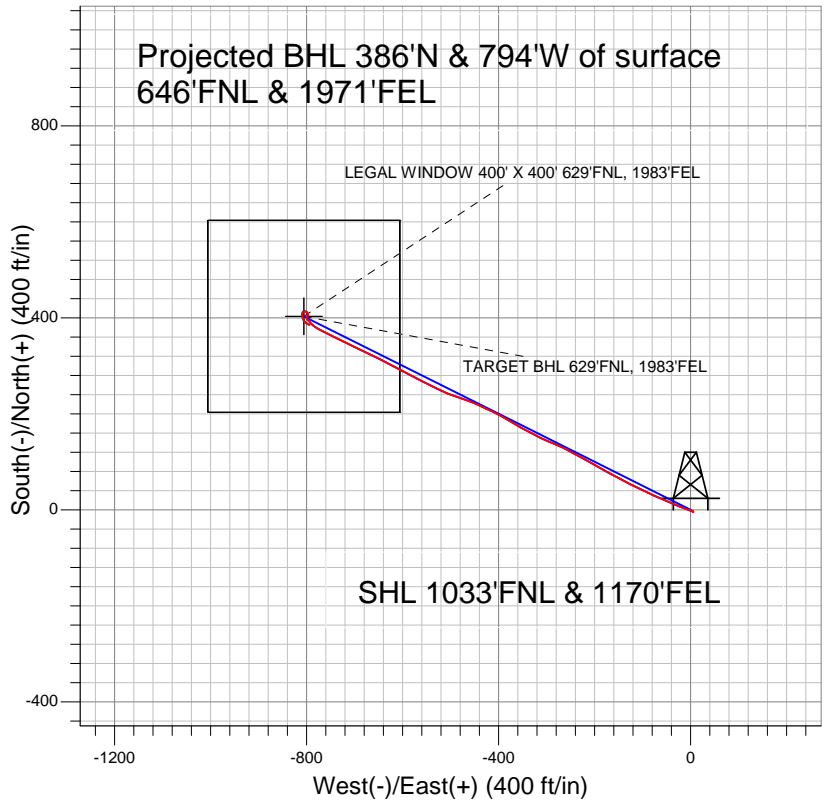
Well Name: **Noffsinger 31-2D**  
 Surface Location: Noffsinger Pad Sec.2-T5N-R65W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
 Ground Elevation: 4647.0  

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1401529.35	3243578.17	40° 25' 56.283 N	104° 37' 29.978 W	

 Original Well EleWELL @ 4660.0ft (Original Well Elev)



## PETROLEUM DEVELOPMENT CORP Weld County CO



### LEGEND

- + Noffsinger 31-2D, Wellbore #1, Plan #2 (6-15-10) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7190'MD & 7083'TVD @ 883 ' VS  
 1.5 deg Inc 106.3 deg AZ

Project: SEC.2-T5N-R65W  
 Site: Noffsinger Pad Sec.2-T5N-R65W  
 Well: Noffsinger 31-2D  
 Plan: Wellbore #1



## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.2-T5N-R65W**

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

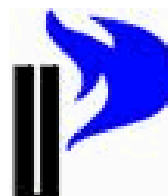
**Noffsinger 31-2D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**11 October, 2010**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Noffsinger 31-2D
<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 31-2D	<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 31-2D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,401,529.35 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,243,578.17 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40° 25' 56.283 N
		<b>Longitude:</b>	104° 37' 29.978 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>
	IGRF2010	9/30/2010	8.89
			<b>Dip Angle (°)</b>
			67.12
			<b>Field Strength (nT)</b>
			53,240

<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>
			295.90

<b>Survey Program</b>	<b>Date</b> 10/11/2010		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>
700.0	7,190.0	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	1.00	125.80	700.0	-3.6	5.0	-6.0	0.14	0.14	0.00
731.0	1.00	145.00	731.0	-4.0	5.3	-6.5	1.08	0.00	61.94
824.0	1.30	305.40	824.0	-4.0	4.9	-6.2	2.44	0.32	172.47
918.0	3.90	291.40	917.8	-2.2	1.1	-1.9	2.83	2.77	-14.89
1,011.0	5.60	290.20	1,010.5	0.5	-6.1	5.7	1.83	1.83	-1.29
1,104.0	7.60	289.90	1,102.9	4.2	-16.2	16.4	2.15	2.15	-0.32
1,197.0	9.80	292.50	1,194.8	9.3	-29.3	30.4	2.40	2.37	2.80
1,291.0	11.00	294.70	1,287.3	16.1	-44.8	47.3	1.34	1.28	2.34
1,384.0	12.50	293.70	1,378.3	23.8	-62.1	66.3	1.63	1.61	-1.08
1,477.0	12.70	293.80	1,469.1	32.0	-80.6	86.5	0.22	0.22	0.11
1,570.0	13.90	294.30	1,559.6	40.7	-100.2	107.9	1.30	1.29	0.54



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Noffsinger 31-2D
<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 31-2D	<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)
1,663.0	14.00	297.00	1,649.9	50.4	-120.4	130.3	0.71	0.11	2.90
1,756.0	14.00	296.90	1,740.1	60.6	-140.4	152.8	0.03	0.00	-0.11
1,849.0	13.70	299.50	1,830.4	71.2	-160.1	175.1	0.74	-0.32	2.80
1,942.0	13.80	299.50	1,920.7	82.0	-179.3	197.1	0.11	0.11	0.00
2,036.0	13.60	299.20	2,012.0	92.9	-198.7	219.3	0.23	-0.21	-0.32
2,129.0	14.50	298.30	2,102.3	103.8	-218.5	241.9	1.00	0.97	-0.97
2,223.0	13.90	298.40	2,193.4	114.8	-238.8	264.9	0.64	-0.64	0.11
2,317.0	13.50	299.10	2,284.7	125.5	-258.3	287.2	0.46	-0.43	0.74
2,410.0	13.80	291.20	2,375.1	134.7	-278.1	309.1	2.03	0.32	-8.49
2,503.0	15.00	294.20	2,465.2	143.7	-299.5	332.1	1.52	1.29	3.23
2,596.0	14.00	297.30	2,555.2	153.8	-320.4	355.4	1.36	-1.08	3.33
2,686.0	15.40	297.10	2,642.3	164.2	-340.7	378.2	1.56	1.56	-0.22
2,783.0	16.50	301.70	2,735.5	177.3	-363.9	404.8	1.73	1.13	4.74
2,876.0	14.10	300.50	2,825.2	190.0	-384.9	429.3	2.60	-2.58	-1.29
2,969.0	13.80	295.40	2,915.5	200.5	-404.7	451.7	1.36	-0.32	-5.48
3,062.0	13.60	296.20	3,005.8	210.1	-424.5	473.7	0.30	-0.22	0.86
3,155.0	13.00	294.80	3,096.4	219.3	-443.8	495.1	0.73	-0.65	-1.51
3,248.0	13.60	288.70	3,186.9	227.2	-463.7	516.4	1.64	0.65	-6.56
3,341.0	13.70	288.70	3,277.2	234.3	-484.5	538.1	0.11	0.11	0.00
3,434.0	14.00	291.50	3,367.5	241.9	-505.4	560.3	0.79	0.32	3.01
3,527.0	13.70	296.10	3,457.8	250.9	-525.7	582.5	1.23	-0.32	4.95
3,620.0	14.80	296.60	3,548.0	261.0	-546.3	605.4	1.19	1.18	0.54
3,713.0	15.70	297.70	3,637.7	272.2	-568.0	629.9	1.02	0.97	1.18
3,812.0	15.60	297.60	3,733.0	284.6	-591.7	656.6	0.10	-0.10	-0.10
3,905.0	15.50	297.30	3,822.6	296.1	-613.8	681.5	0.14	-0.11	-0.32
3,998.0	14.90	297.90	3,912.4	307.4	-635.4	705.9	0.67	-0.65	0.65
4,091.0	13.50	296.40	4,002.5	317.8	-655.7	728.7	1.56	-1.51	-1.61
4,185.0	14.90	295.90	4,093.6	328.0	-676.4	751.7	1.50	1.49	-0.53
4,278.0	14.20	295.50	4,183.7	338.1	-697.4	775.1	0.76	-0.75	-0.43
4,371.0	14.20	296.40	4,273.8	348.1	-718.0	797.9	0.24	0.00	0.97
4,464.0	13.40	295.60	4,364.1	357.8	-737.9	820.1	0.88	-0.86	-0.86
4,558.0	12.20	296.50	4,455.8	367.0	-756.6	840.9	1.29	-1.28	0.96
4,651.0	10.30	297.90	4,547.0	375.2	-772.8	859.0	2.06	-2.04	1.51
4,744.0	8.20	308.40	4,638.8	383.2	-785.3	873.8	2.89	-2.26	11.29
4,837.0	6.10	320.40	4,731.1	391.2	-793.7	884.8	2.76	-2.26	12.90
4,930.0	3.30	326.70	4,823.8	397.2	-798.3	891.6	3.06	-3.01	6.77
5,023.0	2.40	338.70	4,916.6	401.3	-800.4	895.3	1.16	-0.97	12.90
5,116.0	1.40	52.20	5,009.6	403.8	-800.3	896.3	2.59	-1.08	79.03
5,208.0	1.20	84.70	5,101.6	404.6	-798.4	894.9	0.82	-0.22	35.33
5,301.0	0.60	1.10	5,194.6	405.1	-797.4	894.3	1.38	-0.65	-89.89
5,306.4	0.61	1.49	5,200.0	405.2	-797.4	894.3	0.13	0.10	7.17
TARGET BHL 629'FNL, 1983'FEL									
5,396.0	0.70	7.00	5,289.6	406.2	-797.4	894.7	0.13	0.11	6.15
5,489.0	1.10	352.70	5,382.6	407.7	-797.4	895.4	0.49	0.43	-15.38
5,675.0	0.70	302.00	5,568.5	410.0	-798.6	897.5	0.46	-0.22	-27.26
5,768.0	1.50	336.10	5,661.5	411.4	-799.6	899.0	1.08	0.86	36.67
5,861.0	1.50	287.80	5,754.5	412.9	-801.2	901.1	1.32	0.00	-51.94
5,954.0	1.00	270.00	5,847.5	413.3	-803.2	903.0	0.67	-0.54	-19.14
6,047.0	1.50	286.60	5,940.4	413.7	-805.2	905.0	0.66	0.54	17.85
6,140.0	1.20	213.10	6,033.4	413.2	-806.9	906.3	1.76	-0.32	-79.03
6,233.0	1.50	217.60	6,126.4	411.4	-808.1	906.7	0.34	0.32	4.84
6,326.0	2.10	198.90	6,219.4	408.8	-809.4	906.7	0.89	0.65	-20.11
6,419.0	1.20	165.20	6,312.3	406.3	-809.7	905.9	1.38	-0.97	-36.24



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Noffsinger 31-2D
<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 31-2D	<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)
6,512.0	1.60	167.40	6,405.3	404.1	-809.2	904.4	0.43	0.43	2.37
6,605.0	2.20	164.50	6,498.2	401.1	-808.4	902.4	0.65	0.65	-3.12
6,606.7	2.21	164.50	6,500.0	401.0	-808.4	902.4	0.54	0.54	-0.26
<b>LEGAL WINDOW 400' X 400' 629'FNL, 1983'FEL</b>									
6,698.0	2.70	164.30	6,591.1	397.2	-807.4	899.8	0.54	0.54	-0.21
6,791.0	2.60	143.80	6,684.1	393.4	-805.5	896.5	1.02	-0.11	-22.04
6,884.0	2.50	127.50	6,777.0	390.5	-802.7	892.6	0.78	-0.11	-17.53
6,977.0	2.00	123.70	6,869.9	388.4	-799.7	889.0	0.56	-0.54	-4.09
7,070.0	1.80	119.40	6,962.8	386.7	-797.1	886.0	0.26	-0.22	-4.62
7,140.0	1.50	106.30	7,032.8	386.0	-795.3	884.0	0.69	-0.43	-18.71
7,190.0	1.50	106.30	7,082.8	385.6	-794.0	882.7	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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