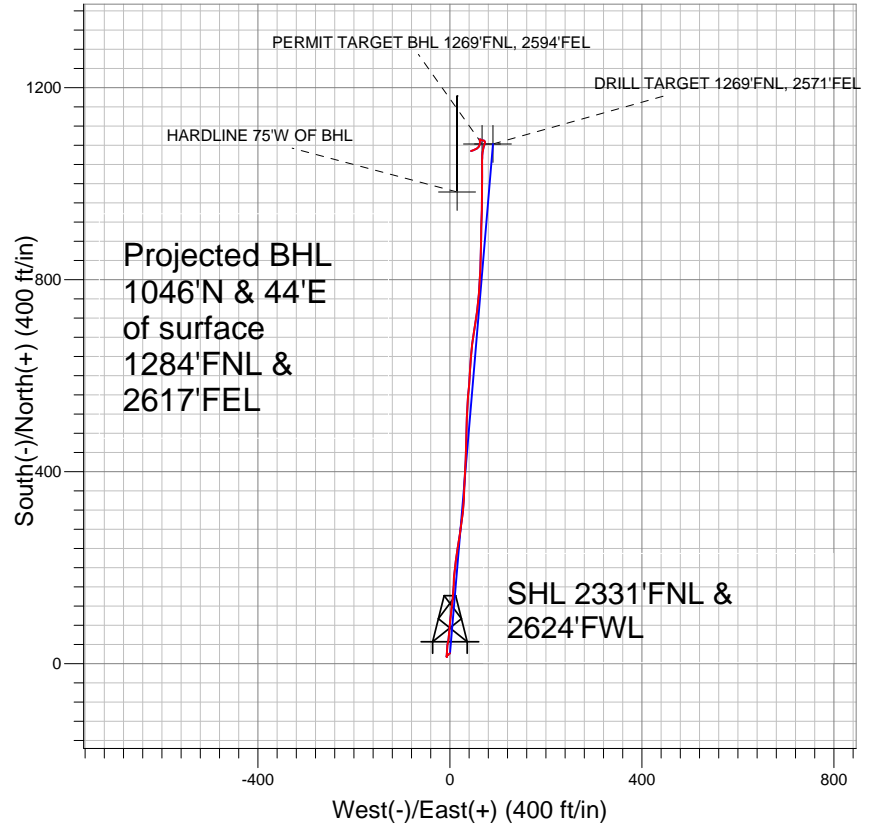
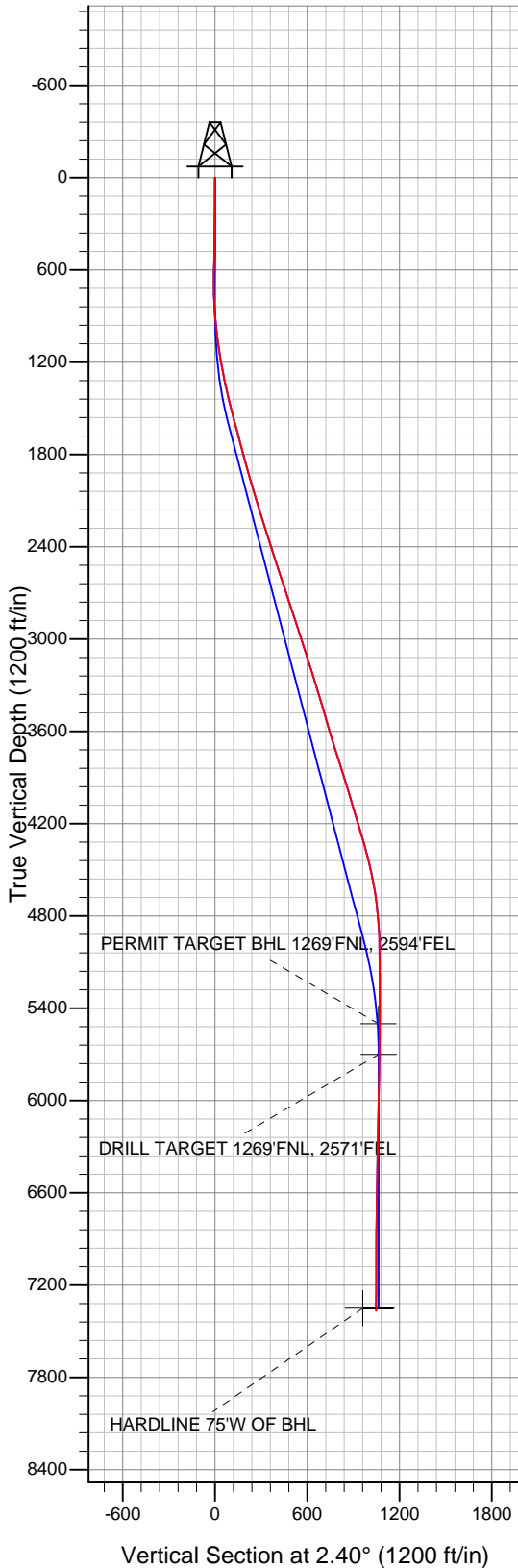


## PETROLEUM DEVELOPMENT CORP Weld County CO



### LEGEND

- Binder 10-NDU, Wellbore #1, Plan #2 (9-24-10) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7515'MD & 7365'TVD @ 1046' VS  
 1.0 deg Inc 253.5 deg AZ

Project: SEC.10-T4N-R67W  
 Site: Binder 10-NDU Pad Sec.10-T4N-R67W  
 Well: Binder 10-NDU  
 Plan: Wellbore #1



## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.10-T4N-R67W**

**Binder 10-NDU Pad Sec.10-T4N-R67W**

**Binder 10-NDU**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**21 December, 2010**

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Site Binder 10-NDU Pad Sec.10-T4N-R67W
<b>Project:</b>	SEC.10-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4793.0ft (Original Well Elev)
<b>Site:</b>	Binder 10-NDU Pad Sec.10-T4N-R67W	<b>MD Reference:</b>	WELL @ 4793.0ft (Original Well Elev)
<b>Well:</b>	Binder 10-NDU	<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-T4N-R67W, 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		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Binder 10-NDU Pad Sec.10-T4N-R67W				
Site Position:		Northing:	1,362,813.51 ft	Latitude:	40° 19' 39.540 N
From:	Lat/Long	Easting:	3,173,642.72 ft	Longitude:	104° 52' 37.884 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.40 °

Well	Binder 10-NDU					
Well Position	+N-S	21.9 ft	Northing:	1,362,835.36 ft	Latitude:	40° 19' 39.756 N
	+E-W	0.0 ft	Easting:	3,173,642.57 ft	Longitude:	104° 52' 37.884 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,780.0 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	11/17/2010	9.00	66.99	53,142

<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	21.9	0.0	2.40	

<b>Survey Program</b>	<b>Date</b>	12/21/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
452.0	7,515.0	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	21.9	0.0	0.0	0.00	0.00	0.00	
452.0	1.40	229.60	452.0	18.3	-4.2	-3.8	0.31	0.31	0.00	
546.0	1.50	236.00	545.9	16.8	-6.1	-5.3	0.20	0.11	6.81	
639.0	1.40	178.80	638.9	15.0	-7.1	-7.1	1.50	-0.11	-61.51	
733.0	0.60	4.10	732.9	14.4	-7.0	-7.8	2.13	-0.85	-185.85	
826.0	2.90	5.10	825.8	17.2	-6.8	-4.9	2.47	2.47	1.08	
920.0	5.10	2.10	919.6	23.7	-6.4	1.6	2.35	2.34	-3.19	
1,013.0	6.90	7.60	1,012.1	33.4	-5.5	11.3	2.03	1.94	5.91	
1,107.0	8.60	8.10	1,105.2	46.0	-3.8	23.9	1.81	1.81	0.53	
1,200.0	10.20	6.20	1,197.0	61.0	-1.9	39.1	1.75	1.72	-2.04	
1,294.0	10.90	3.40	1,289.4	78.2	-0.5	56.3	0.92	0.74	-2.98	
1,388.0	12.10	7.40	1,381.5	96.8	1.3	75.0	1.53	1.28	4.26	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Site Binder 10-NDU Pad Sec.10-T4N-R67W
<b>Project:</b>	SEC.10-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4793.0ft (Original Well Elev)
<b>Site:</b>	Binder 10-NDU Pad Sec.10-T4N-R67W	<b>MD Reference:</b>	WELL @ 4793.0ft (Original Well Elev)
<b>Well:</b>	Binder 10-NDU	<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)
1,481.0	14.80	7.30	1,471.9	118.3	4.1	96.5	2.90	2.90	-0.11
1,574.0	15.20	3.90	1,561.8	142.2	6.4	120.5	1.04	0.43	-3.66
1,668.0	15.30	2.40	1,652.5	166.9	7.8	145.3	0.43	0.11	-1.60
1,762.0	14.50	5.70	1,743.3	191.0	9.5	169.4	1.24	-0.85	3.51
1,855.0	15.40	7.70	1,833.2	214.8	12.3	193.3	1.12	0.97	2.15
1,949.0	16.30	8.40	1,923.6	240.3	15.9	218.9	0.98	0.96	0.74
2,043.0	16.40	9.20	2,013.8	266.4	19.9	245.2	0.26	0.11	0.85
2,136.0	16.90	8.60	2,102.9	292.7	24.0	271.6	0.57	0.54	-0.65
2,229.0	17.30	3.70	2,191.8	319.9	26.9	298.9	1.61	0.43	-5.27
2,323.0	17.50	3.90	2,281.5	347.9	28.8	327.0	0.22	0.21	0.21
2,417.0	16.60	2.30	2,371.3	375.5	30.3	354.6	1.08	-0.96	-1.70
2,510.0	18.20	3.20	2,460.1	403.2	31.7	382.4	1.74	1.72	0.97
2,604.0	18.40	2.10	2,549.3	432.7	33.0	411.9	0.42	0.21	-1.17
2,697.0	18.10	1.00	2,637.7	461.8	33.8	441.0	0.49	-0.32	-1.18
2,791.0	18.90	0.80	2,726.8	491.7	34.3	470.8	0.85	0.85	-0.21
2,884.0	18.40	3.60	2,814.9	521.4	35.4	500.6	1.10	-0.54	3.01
2,978.0	18.70	4.80	2,904.0	551.2	37.6	530.4	0.52	0.32	1.28
3,071.0	17.40	4.00	2,992.5	579.9	39.8	559.2	1.42	-1.40	-0.86
3,165.0	18.20	3.50	3,082.0	608.6	41.7	588.0	0.87	0.85	-0.53
3,258.0	18.00	4.00	3,170.4	637.4	43.6	616.9	0.27	-0.22	0.54
3,352.0	17.00	7.60	3,260.0	665.5	46.4	645.1	1.57	-1.06	3.83
3,446.0	17.00	8.20	3,349.9	692.8	50.2	672.4	0.19	0.00	0.64
3,539.0	16.10	9.00	3,439.0	718.9	54.1	698.8	1.00	-0.97	0.86
3,633.0	15.70	6.50	3,529.4	744.5	57.6	724.4	0.84	-0.43	-2.66
3,727.0	17.30	4.50	3,619.6	771.0	60.2	751.0	1.81	1.70	-2.13
3,820.0	17.50	3.40	3,708.3	798.8	62.1	778.8	0.41	0.22	-1.18
3,914.0	17.80	2.30	3,797.9	827.2	63.5	807.3	0.48	0.32	-1.17
4,008.0	17.70	1.10	3,887.4	855.9	64.3	836.0	0.40	-0.11	-1.28
4,101.0	16.90	0.50	3,976.2	883.5	64.7	863.6	0.88	-0.86	-0.65
4,195.0	16.40	0.80	4,066.3	910.5	65.0	890.6	0.54	-0.53	0.32
4,288.0	17.10	2.20	4,155.3	937.3	65.7	917.4	0.87	0.75	1.51
4,382.0	16.50	1.50	4,245.3	964.4	66.6	944.5	0.67	-0.64	-0.74
4,475.0	15.70	359.40	4,334.7	990.2	66.8	970.3	1.06	-0.86	-2.26
4,569.0	14.20	359.90	4,425.5	1,014.4	66.7	994.5	1.60	-1.60	0.53
4,663.0	12.40	359.90	4,517.0	1,036.1	66.6	1,016.1	1.91	-1.91	0.00
4,756.0	10.20	2.40	4,608.1	1,054.3	67.0	1,034.3	2.42	-2.37	2.69
4,850.0	7.30	9.70	4,701.0	1,068.5	68.3	1,048.6	3.30	-3.09	7.77
4,942.0	5.30	18.70	4,792.5	1,078.3	70.7	1,058.5	2.42	-2.17	9.78
5,036.0	3.50	10.10	4,886.2	1,085.2	72.6	1,065.5	2.03	-1.91	-9.15
5,129.0	2.30	312.30	4,979.1	1,089.3	71.7	1,069.5	3.22	-1.29	-62.15
5,223.0	2.10	252.00	5,073.0	1,090.0	68.7	1,070.1	2.36	-0.21	-64.15
5,316.0	0.90	318.30	5,166.0	1,090.0	66.5	1,070.0	2.07	-1.29	71.29
5,410.0	0.90	304.10	5,260.0	1,091.0	65.4	1,070.9	0.24	0.00	-15.11
5,504.0	0.90	297.50	5,354.0	1,091.7	64.2	1,071.6	0.11	0.00	-7.02
5,597.0	1.10	299.60	5,447.0	1,092.5	62.8	1,072.4	0.22	0.22	2.26
5,650.0	0.53	223.55	5,500.0	1,092.6	62.1	1,072.4	2.07	-1.08	-143.38
PERMIT TARGET BHL 1269'FNL, 2594'FEL									
5,691.0	1.10	175.00	5,541.0	1,092.1	62.0	1,071.9	2.07	1.40	-118.53
5,784.0	1.10	179.40	5,634.0	1,090.3	62.1	1,070.1	0.09	0.00	4.73
5,850.2	1.10	180.81	5,700.1	1,089.0	62.1	1,068.8	0.04	0.00	2.13
DRILL TARGET 1269'FNL, 2571'FEL									
5,878.0	1.10	181.40	5,727.9	1,088.5	62.1	1,068.3	0.04	0.00	2.13
5,971.0	1.00	172.80	5,820.9	1,086.8	62.2	1,066.6	0.20	-0.11	-9.25

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Site Binder 10-NDU Pad Sec.10-T4N-R67W
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<b>Well:</b>	Binder 10-NDU	<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)
6,065.0	1.00	182.20	5,914.9	1,085.1	62.3	1,065.0	0.17	0.00	10.00
6,158.0	1.10	184.60	6,007.9	1,083.4	62.2	1,063.3	0.12	0.11	2.58
6,252.0	1.10	190.90	6,101.9	1,081.7	61.9	1,061.5	0.13	0.00	6.70
6,346.0	1.30	203.70	6,195.9	1,079.8	61.3	1,059.6	0.35	0.21	13.62
6,440.0	1.10	205.90	6,289.8	1,078.0	60.5	1,057.8	0.22	-0.21	2.34
6,533.0	1.10	218.70	6,382.8	1,076.5	59.6	1,056.2	0.26	0.00	13.76
6,627.0	1.20	225.10	6,476.8	1,075.1	58.3	1,054.8	0.17	0.11	6.81
6,720.0	1.40	230.80	6,569.8	1,073.7	56.7	1,053.3	0.26	0.22	6.13
6,814.0	0.80	248.80	6,663.8	1,072.7	55.2	1,052.3	0.73	-0.64	19.15
6,907.0	1.30	249.00	6,756.7	1,072.1	53.6	1,051.6	0.54	0.54	0.22
7,001.0	1.10	240.40	6,850.7	1,071.3	51.9	1,050.7	0.29	-0.21	-9.15
7,095.0	1.10	244.40	6,944.7	1,070.5	50.3	1,049.8	0.08	0.00	4.26
7,188.0	0.90	249.60	7,037.7	1,069.8	48.8	1,049.1	0.24	-0.22	5.59
7,282.0	0.80	249.50	7,131.7	1,069.3	47.5	1,048.6	0.11	-0.11	-0.11
7,375.0	0.90	252.50	7,224.7	1,068.9	46.2	1,048.1	0.12	0.11	3.23
7,469.0	1.00	253.50	7,318.7	1,068.4	44.7	1,047.5	0.11	0.11	1.06
7,501.3	1.00	253.50	7,350.9	1,068.3	44.1	1,047.4	0.00	0.00	0.00
<b>HARDLINE 75'W OF BHL</b>									
7,515.0	1.00	253.50	7,364.6	1,068.2	43.9	1,047.3	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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