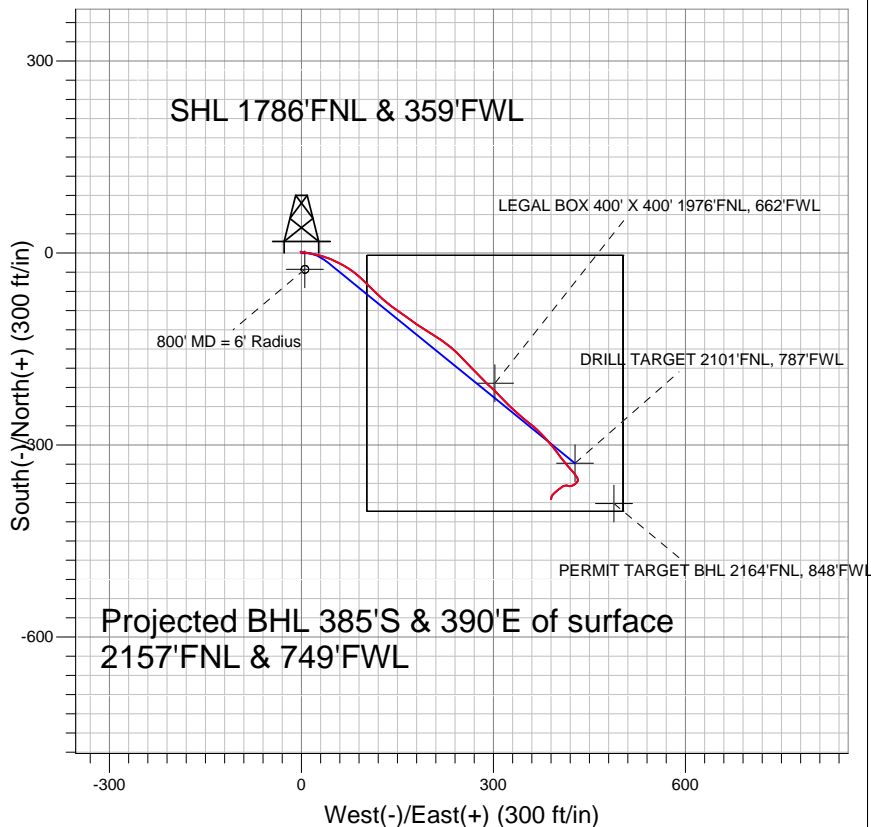
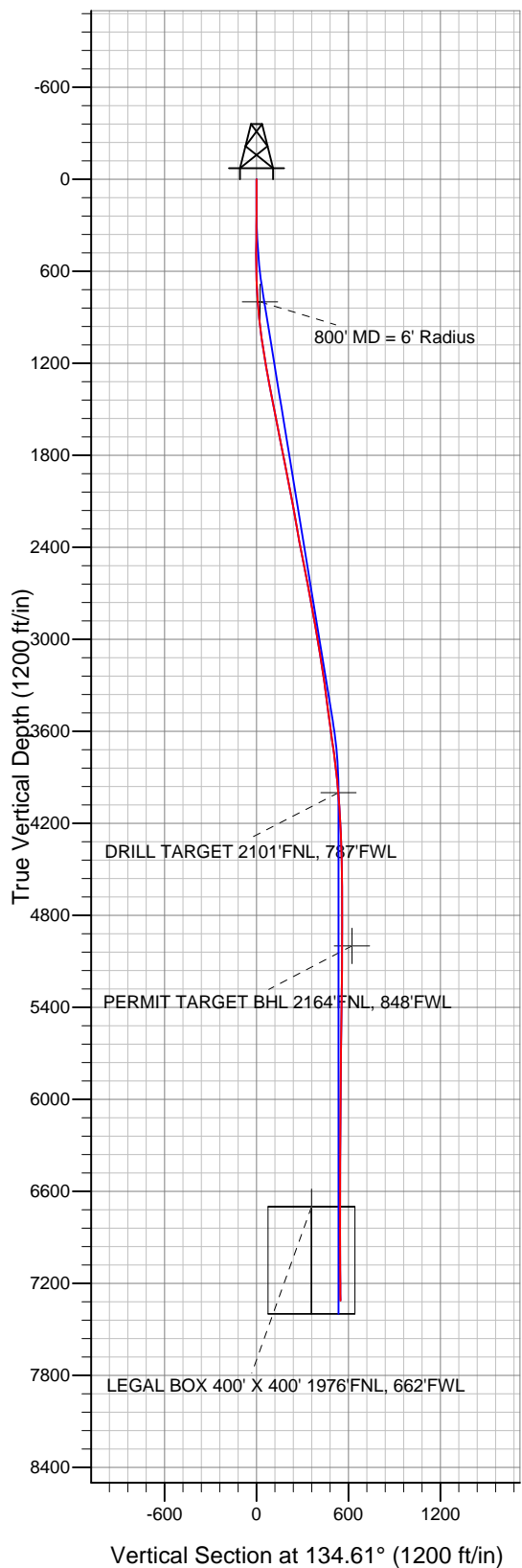


## PETROLEUM DEVELOPMENT CORP Weld County CO



### LEGEND

- x Binder 12-10DU, Wellbore #1, Plan #4 (11-12-10) VO
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
7360'MD & 7313'TVD @ 544' VS  
1.3 deg Inc 199.5 deg AZ

Project: SEC.10-T4N-R67W  
Site: Binder 12-10DU Pad Sec.10-T4N-R67W  
Well: Binder 12-10DU  
Plan: Wellbore #1



## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.10-T4N-R67W**

**Binder 12-10DU Pad Sec.10-T4N-R67W**

**Binder 12-10DU**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**05 January, 2011**

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Binder 12-10DU
<b>Project:</b>	SEC.10-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4773.0ft (Original Well Elev)
<b>Site:</b>	Binder 12-10DU Pad Sec.10-T4N-R67W	<b>MD Reference:</b>	WELL @ 4773.0ft (Original Well Elev)
<b>Well:</b>	Binder 12-10DU	<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 12-10DU Pad Sec.10-T4N-R67W				
Site Position:		Northing:	1,363,416.91 ft	Latitude:	40° 19' 45.660 N
From:	Lat/Long	Easting:	3,171,363.42 ft	Longitude:	104° 53' 7.260 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.40 °

Well	Binder 12-10DU					
Well Position	+N-S	0.0 ft	Northing:	1,363,416.91 ft	Latitude:	40° 19' 45.660 N
	+E-W	0.0 ft	Easting:	3,171,363.42 ft	Longitude:	104° 53' 7.260 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,760.0 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	11/15/2010	9.00	66.99	53,143

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	134.61	

<b>Survey Program</b>	<b>Date</b>	1/5/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
127.0	7,360.0	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	
127.0	0.40	350.50	127.0	0.4	-0.1	-0.4	0.31	0.31	0.00	
215.0	0.50	339.30	215.0	1.1	-0.3	-1.0	0.15	0.11	-12.73	
306.0	0.30	344.50	306.0	1.7	-0.5	-1.5	0.22	-0.22	5.71	
397.0	0.30	331.90	397.0	2.1	-0.6	-2.0	0.07	0.00	-13.85	
427.0	0.30	338.60	427.0	2.3	-0.7	-2.1	0.12	0.00	22.33	
516.0	0.50	224.00	516.0	2.2	-1.1	-2.3	0.77	0.22	-128.76	
610.0	1.40	117.10	610.0	1.4	-0.3	-1.2	1.72	0.96	-113.72	
703.0	3.60	89.30	702.9	0.9	3.6	1.9	2.63	2.37	-29.89	
797.0	5.10	101.40	796.6	0.1	10.7	7.5	1.86	1.60	12.87	
800.4	5.17	101.48	800.0	0.1	11.0	7.8	1.94	1.93	2.30	
800' MD = 6' Radius										

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Binder 12-10DU
<b>Project:</b>	SEC.10-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4773.0ft (Original Well Elev)
<b>Site:</b>	Binder 12-10DU Pad Sec.10-T4N-R67W	<b>MD Reference:</b>	WELL @ 4773.0ft (Original Well Elev)
<b>Well:</b>	Binder 12-10DU	<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)
890.0	6.90	103.00	889.1	-1.9	20.2	15.7	1.94	1.94	1.70
984.0	7.90	104.00	982.3	-4.8	31.9	26.1	1.07	1.06	1.06
1,077.0	9.20	113.60	1,074.3	-9.3	44.9	38.5	2.07	1.40	10.32
1,171.0	10.20	116.30	1,166.9	-16.0	59.3	53.4	1.17	1.06	2.87
1,265.0	10.30	122.10	1,259.4	-24.1	73.9	69.5	1.10	0.11	6.17
1,358.0	10.60	131.30	1,350.9	-34.2	87.3	86.2	1.82	0.32	9.89
1,452.0	11.40	134.70	1,443.2	-46.5	100.4	104.1	1.10	0.85	3.62
1,545.0	10.90	134.10	1,534.4	-59.0	113.3	122.1	0.55	-0.54	-0.65
1,639.0	11.20	131.70	1,626.7	-71.3	126.5	140.1	0.58	0.32	-2.55
1,733.0	11.20	127.30	1,718.9	-82.9	140.6	158.3	0.91	0.00	-4.68
1,826.0	11.10	124.80	1,810.1	-93.5	155.1	176.1	0.53	-0.11	-2.69
1,920.0	11.30	126.10	1,902.4	-104.1	170.0	194.1	0.34	0.21	1.38
2,013.0	11.40	123.30	1,993.5	-114.5	185.0	212.1	0.60	0.11	-3.01
2,107.0	10.40	121.10	2,085.8	-124.0	200.0	229.5	1.15	-1.06	-2.34
2,201.0	10.20	123.80	2,178.3	-133.0	214.2	245.9	0.56	-0.21	2.87
2,294.0	10.40	127.60	2,269.8	-142.7	227.7	262.3	0.76	0.22	4.09
2,388.0	10.30	133.20	2,362.3	-153.6	240.6	279.1	1.08	-0.11	5.96
2,481.0	11.30	135.60	2,453.7	-165.8	253.0	296.6	1.18	1.08	2.58
2,575.0	11.60	136.70	2,545.8	-179.3	265.9	315.2	0.39	0.32	1.17
2,668.0	10.70	135.70	2,637.0	-192.3	278.4	333.2	0.99	-0.97	-1.08
2,762.0	10.40	133.50	2,729.4	-204.3	290.6	350.4	0.53	-0.32	-2.34
2,855.0	10.30	134.60	2,820.9	-216.0	302.6	367.1	0.24	-0.11	1.18
2,949.0	9.80	136.20	2,913.5	-227.6	314.1	383.5	0.61	-0.53	1.70
3,042.0	9.30	134.60	3,005.2	-238.6	325.0	398.9	0.61	-0.54	-1.72
3,136.0	9.10	131.70	3,098.0	-248.9	335.9	414.0	0.54	-0.21	-3.09
3,230.0	8.90	130.70	3,190.8	-258.6	347.0	428.6	0.27	-0.21	-1.06
3,323.0	8.10	126.70	3,282.8	-267.2	357.7	442.3	1.07	-0.86	-4.30
3,417.0	7.40	132.20	3,375.9	-275.2	367.5	454.9	1.08	-0.74	5.85
3,510.0	7.40	136.70	3,468.2	-283.6	376.0	466.9	0.62	0.00	4.84
3,603.0	7.60	138.50	3,560.4	-292.6	384.2	479.0	0.33	0.22	1.94
3,697.0	7.60	141.30	3,653.6	-302.1	392.2	491.4	0.39	0.00	2.98
3,790.0	7.80	142.60	3,745.7	-311.9	399.9	503.7	0.29	0.22	1.40
3,884.0	7.40	143.60	3,838.9	-321.8	407.4	516.0	0.45	-0.43	1.06
3,977.0	5.90	139.20	3,931.3	-330.3	414.1	526.7	1.70	-1.61	-4.73
4,046.2	5.02	137.27	4,000.1	-335.2	418.4	533.3	1.31	-1.28	-2.79
DRILL TARGET 2101'FNL, 787'FWL									
4,071.0	4.70	136.40	4,024.9	-336.7	419.9	535.4	1.31	-1.27	-3.50
4,164.0	3.60	140.90	4,117.6	-341.7	424.3	542.1	1.23	-1.18	4.84
4,258.0	3.30	144.40	4,211.4	-346.2	427.8	547.7	0.39	-0.32	3.72
4,351.0	2.50	147.40	4,304.3	-350.1	430.4	552.3	0.88	-0.86	3.23
4,445.0	1.20	168.20	4,398.3	-352.8	431.7	555.1	1.53	-1.38	22.13
4,539.0	1.10	177.60	4,492.3	-354.7	432.0	556.6	0.23	-0.11	10.00
4,632.0	0.70	201.30	4,585.2	-356.1	431.8	557.5	0.58	-0.43	25.48
4,726.0	0.70	209.70	4,679.2	-357.1	431.3	557.9	0.11	0.00	8.94
4,820.0	0.80	218.40	4,773.2	-358.1	430.6	558.1	0.16	0.11	9.26
4,914.0	0.80	226.30	4,867.2	-359.1	429.7	558.1	0.12	0.00	8.40
5,007.0	0.90	232.80	4,960.2	-360.0	428.7	558.0	0.15	0.11	6.99
5,046.3	0.98	234.20	4,999.5	-360.4	428.2	557.9	0.22	0.21	3.57
PERMIT TARGET BHL 2164'FNL, 848'FWL									
5,101.0	1.10	235.80	5,054.2	-360.9	427.3	557.7	0.22	0.21	2.92
5,195.0	1.10	241.60	5,148.2	-361.9	425.8	557.3	0.12	0.00	6.17
5,288.0	1.30	232.90	5,241.2	-362.9	424.2	556.9	0.29	0.22	-9.35
5,382.0	1.00	267.30	5,335.1	-363.6	422.5	556.2	0.79	-0.32	36.60

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Binder 12-10DU
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<b>Site:</b>	Binder 12-10DU Pad Sec.10-T4N-R67W	<b>MD Reference:</b>	WELL @ 4773.0ft (Original Well Elev)
<b>Well:</b>	Binder 12-10DU	<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)
5,476.0	0.90	264.40	5,429.1	-363.7	421.0	555.1	0.12	-0.11	-3.09
5,569.0	1.20	255.90	5,522.1	-364.0	419.3	554.2	0.36	0.32	-9.14
5,663.0	1.20	286.70	5,616.1	-364.0	417.4	552.8	0.68	0.00	32.77
5,756.0	1.10	286.60	5,709.1	-363.5	415.6	551.1	0.11	-0.11	-0.11
5,850.0	1.10	267.50	5,803.1	-363.3	413.8	549.7	0.39	0.00	-20.32
5,943.0	1.10	259.70	5,896.0	-363.5	412.1	548.6	0.16	0.00	-8.39
6,037.0	1.20	251.50	5,990.0	-363.9	410.2	547.6	0.20	0.11	-8.72
6,131.0	1.30	239.00	6,084.0	-364.8	408.4	546.9	0.31	0.11	-13.30
6,225.0	1.40	237.10	6,178.0	-366.0	406.5	546.4	0.12	0.11	-2.02
6,318.0	1.40	233.60	6,270.9	-367.2	404.6	546.0	0.09	0.00	-3.76
6,412.0	1.50	230.80	6,364.9	-368.7	402.8	545.7	0.13	0.11	-2.98
6,505.0	1.60	231.90	6,457.9	-370.3	400.8	545.4	0.11	0.11	1.18
6,599.0	1.60	227.40	6,551.8	-372.0	398.8	545.1	0.13	0.00	-4.79
6,692.0	1.50	229.10	6,644.8	-373.7	396.9	545.0	0.12	-0.11	1.83
6,746.1	1.50	228.29	6,698.9	-374.6	395.9	544.9	0.04	0.00	-1.49
<b>LEGAL BOX 400' X 400' 1976'FNL, 662'FWL</b>									
6,786.0	1.50	227.70	6,738.8	-375.3	395.1	544.8	0.04	0.00	-1.49
6,879.0	1.30	219.60	6,831.7	-376.9	393.5	544.8	0.30	-0.22	-8.71
6,972.0	0.90	222.60	6,924.7	-378.3	392.3	545.0	0.43	-0.43	3.23
7,066.0	0.70	213.70	7,018.7	-379.3	391.5	545.1	0.25	-0.21	-9.47
7,160.0	1.10	191.20	7,112.7	-380.7	391.0	545.7	0.56	0.43	-23.94
7,253.0	1.10	194.80	7,205.7	-382.4	390.6	546.6	0.07	0.00	3.87
7,315.0	1.30	199.50	7,267.7	-383.6	390.2	547.2	0.36	0.32	7.58
7,360.0	1.30	199.50	7,312.7	-384.6	389.9	547.7	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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