

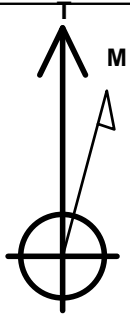
# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Richter 34M-423**

Surface Location: Richter 27T-HZ Pad Sec.27-T7N-R64W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4870.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1440176.06 3269128.65 40.537650 -104.531700  
 RKB - 13' WELL @ 4883.0ft (RKB - 13')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape Point
BHL 500'FSL & 1980'FEL	7105.0	-5020.3	-600.5	Point



Azimuths to True North  
 Magnetic North: 8.58°

Magnetic Field  
 Strength: 53091.8nT  
 Dip Angle: 67.16°  
 Date: 9/28/2012  
 Model: IGRF2010

Richter 27T-HZ Pad Sec.27-T7N-R64W  
 Richter 34M-423  
 Plan #1 (9-28-12)  
 10:34, October 03 2012

## ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6335.2	6384.4	KOP #2
7109.0	7699.5	End of Build

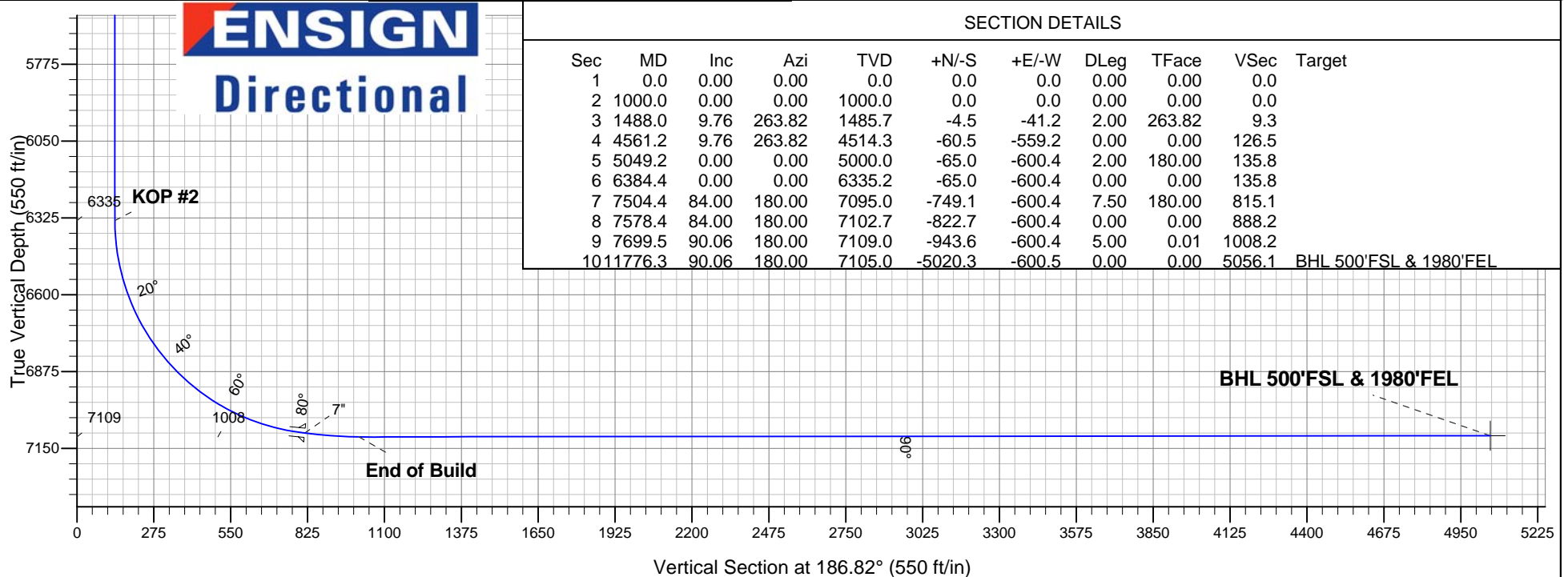
South(-)/North(+) (1700 ft/in)

SHL 237'FSL &  
 1380'FEL, SEC.27

BHL 500'FSL & 1980'FEL

SEC.34-T7N-R64W

West(-)/East(+) (1700 ft/in)





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.27-T7N-R64W**

**Richter 27T-HZ Pad Sec.27-T7N-R64W**

**Richter 34M-423**

**Wellbore #1**

**Plan: Plan #1 (9-28-12)**

## **Standard Planning Report**

**03 October, 2012**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

<b>Project</b>	SEC.27-T7N-R64W, Weld County, CO		
<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

Site						Richter 27T-HZ Pad Sec.27-T7N-R64W											
<b>Site Position:</b>						<b>Northing:</b>			1,440,175.74 ft			<b>Latitude:</b>			40.537650		
<b>From:</b>			Lat/Long			<b>Easting:</b>			3,269,098.08 ft			<b>Longitude:</b>			-104.531810		
<b>Position Uncertainty:</b>			0.0 ft			<b>Slot Radius:</b>			"			<b>Grid Convergence:</b>			0.63 °		

Well	Richter 34M-423					
Well Position	+N/-S	0.0 ft	Northing:	1,440,176.06 ft	Latitude:	40.537650
	+E/-W	30.6 ft	Easting:	3,269,128.65 ft	Longitude:	-104.531700
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,870.0 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	9/28/2012	8.58	67.16	53,092

<b>Design</b>	Plan #1 (9-28-12)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	186.82

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,488.0	9.76	263.82	1,485.7	-4.5	-41.2	2.00	2.00	0.00	263.82	
4,561.2	9.76	263.82	4,514.3	-60.5	-559.2	0.00	0.00	0.00	0.00	
5,049.2	0.00	0.00	5,000.0	-65.0	-600.4	2.00	-2.00	0.00	180.00	
6,384.4	0.00	0.00	6,335.2	-65.0	-600.4	0.00	0.00	0.00	0.00	
7,504.4	84.00	180.00	7,095.0	-749.1	-600.4	7.50	7.50	0.00	180.00	
7,578.4	84.00	180.00	7,102.7	-822.7	-600.4	0.00	0.00	0.00	0.00	
7,699.5	90.06	180.00	7,109.0	-943.6	-600.4	5.00	5.00	0.00	0.01	
11,776.3	90.06	180.00	7,105.0	-5,020.3	-600.5	0.00	0.00	0.00	0.00	BHL 500'FSL & 196

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

Planned 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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
1,040.0	0.80	263.82	1,040.0	0.0	-0.3	0.1	2.00	2.00	0.00
1,080.0	1.60	263.82	1,080.0	-0.1	-1.1	0.3	2.00	2.00	0.00
1,120.0	2.40	263.82	1,120.0	-0.3	-2.5	0.6	2.00	2.00	0.00
1,160.0	3.20	263.82	1,159.9	-0.5	-4.4	1.0	2.00	2.00	0.00
1,200.0	4.00	263.82	1,199.8	-0.8	-6.9	1.6	2.00	2.00	0.00
1,240.0	4.80	263.82	1,239.7	-1.1	-10.0	2.3	2.00	2.00	0.00
1,280.0	5.60	263.82	1,279.6	-1.5	-13.6	3.1	2.00	2.00	0.00
1,320.0	6.40	263.82	1,319.3	-1.9	-17.7	4.0	2.00	2.00	0.00
1,360.0	7.20	263.82	1,359.1	-2.4	-22.5	5.1	2.00	2.00	0.00
1,400.0	8.00	263.82	1,398.7	-3.0	-27.7	6.3	2.00	2.00	0.00
1,440.0	8.80	263.82	1,438.3	-3.6	-33.5	7.6	2.00	2.00	0.00
1,480.0	9.60	263.82	1,477.8	-4.3	-39.9	9.0	2.00	2.00	0.00
1,488.0	9.76	263.82	1,485.7	-4.5	-41.2	9.3	2.00	2.00	0.00
1,520.0	9.76	263.82	1,517.2	-5.0	-46.6	10.5	0.00	0.00	0.00
1,560.0	9.76	263.82	1,556.6	-5.8	-53.4	12.1	0.00	0.00	0.00
1,600.0	9.76	263.82	1,596.0	-6.5	-60.1	13.6	0.00	0.00	0.00
1,640.0	9.76	263.82	1,635.4	-7.2	-66.8	15.1	0.00	0.00	0.00
1,680.0	9.76	263.82	1,674.9	-8.0	-73.6	16.6	0.00	0.00	0.00
1,720.0	9.76	263.82	1,714.3	-8.7	-80.3	18.2	0.00	0.00	0.00
1,760.0	9.76	263.82	1,753.7	-9.4	-87.1	19.7	0.00	0.00	0.00
1,800.0	9.76	263.82	1,793.1	-10.2	-93.8	21.2	0.00	0.00	0.00
1,840.0	9.76	263.82	1,832.5	-10.9	-100.5	22.8	0.00	0.00	0.00
1,880.0	9.76	263.82	1,872.0	-11.6	-107.3	24.3	0.00	0.00	0.00
1,920.0	9.76	263.82	1,911.4	-12.3	-114.0	25.8	0.00	0.00	0.00
1,960.0	9.76	263.82	1,950.8	-13.1	-120.8	27.3	0.00	0.00	0.00
2,000.0	9.76	263.82	1,990.2	-13.8	-127.5	28.9	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
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<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

Planned 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)
2,040.0	9.76	263.82	2,029.7	-14.5	-134.3	30.4	0.00	0.00	0.00
2,080.0	9.76	263.82	2,069.1	-15.3	-141.0	31.9	0.00	0.00	0.00
2,120.0	9.76	263.82	2,108.5	-16.0	-147.7	33.4	0.00	0.00	0.00
2,160.0	9.76	263.82	2,147.9	-16.7	-154.5	35.0	0.00	0.00	0.00
2,200.0	9.76	263.82	2,187.3	-17.5	-161.2	36.5	0.00	0.00	0.00
2,240.0	9.76	263.82	2,226.8	-18.2	-168.0	38.0	0.00	0.00	0.00
2,280.0	9.76	263.82	2,266.2	-18.9	-174.7	39.5	0.00	0.00	0.00
2,320.0	9.76	263.82	2,305.6	-19.6	-181.4	41.1	0.00	0.00	0.00
2,360.0	9.76	263.82	2,345.0	-20.4	-188.2	42.6	0.00	0.00	0.00
2,400.0	9.76	263.82	2,384.4	-21.1	-194.9	44.1	0.00	0.00	0.00
2,440.0	9.76	263.82	2,423.9	-21.8	-201.7	45.6	0.00	0.00	0.00
2,480.0	9.76	263.82	2,463.3	-22.6	-208.4	47.2	0.00	0.00	0.00
2,520.0	9.76	263.82	2,502.7	-23.3	-215.2	48.7	0.00	0.00	0.00
2,560.0	9.76	263.82	2,542.1	-24.0	-221.9	50.2	0.00	0.00	0.00
2,600.0	9.76	263.82	2,581.5	-24.8	-228.6	51.7	0.00	0.00	0.00
2,640.0	9.76	263.82	2,621.0	-25.5	-235.4	53.3	0.00	0.00	0.00
2,680.0	9.76	263.82	2,660.4	-26.2	-242.1	54.8	0.00	0.00	0.00
2,720.0	9.76	263.82	2,699.8	-26.9	-248.9	56.3	0.00	0.00	0.00
2,760.0	9.76	263.82	2,739.2	-27.7	-255.6	57.8	0.00	0.00	0.00
2,800.0	9.76	263.82	2,778.7	-28.4	-262.3	59.4	0.00	0.00	0.00
2,840.0	9.76	263.82	2,818.1	-29.1	-269.1	60.9	0.00	0.00	0.00
2,880.0	9.76	263.82	2,857.5	-29.9	-275.8	62.4	0.00	0.00	0.00
2,920.0	9.76	263.82	2,896.9	-30.6	-282.6	63.9	0.00	0.00	0.00
2,960.0	9.76	263.82	2,936.3	-31.3	-289.3	65.5	0.00	0.00	0.00
3,000.0	9.76	263.82	2,975.8	-32.1	-296.1	67.0	0.00	0.00	0.00
3,040.0	9.76	263.82	3,015.2	-32.8	-302.8	68.5	0.00	0.00	0.00
3,080.0	9.76	263.82	3,054.6	-33.5	-309.5	70.0	0.00	0.00	0.00
3,120.0	9.76	263.82	3,094.0	-34.2	-316.3	71.6	0.00	0.00	0.00
3,160.0	9.76	263.82	3,133.4	-35.0	-323.0	73.1	0.00	0.00	0.00
3,200.0	9.76	263.82	3,172.9	-35.7	-329.8	74.6	0.00	0.00	0.00
3,240.0	9.76	263.82	3,212.3	-36.4	-336.5	76.1	0.00	0.00	0.00
3,280.0	9.76	263.82	3,251.7	-37.2	-343.2	77.7	0.00	0.00	0.00
3,320.0	9.76	263.82	3,291.1	-37.9	-350.0	79.2	0.00	0.00	0.00
3,360.0	9.76	263.82	3,330.5	-38.6	-356.7	80.7	0.00	0.00	0.00
3,400.0	9.76	263.82	3,370.0	-39.3	-363.5	82.2	0.00	0.00	0.00
3,440.0	9.76	263.82	3,409.4	-40.1	-370.2	83.8	0.00	0.00	0.00
3,480.0	9.76	263.82	3,448.8	-40.8	-377.0	85.3	0.00	0.00	0.00
3,520.0	9.76	263.82	3,488.2	-41.5	-383.7	86.8	0.00	0.00	0.00
3,560.0	9.76	263.82	3,527.7	-42.3	-390.4	88.3	0.00	0.00	0.00
3,600.0	9.76	263.82	3,567.1	-43.0	-397.2	89.9	0.00	0.00	0.00
3,640.0	9.76	263.82	3,606.5	-43.7	-403.9	91.4	0.00	0.00	0.00
3,680.0	9.76	263.82	3,645.9	-44.5	-410.7	92.9	0.00	0.00	0.00
3,720.0	9.76	263.82	3,685.3	-45.2	-417.4	94.4	0.00	0.00	0.00
3,760.0	9.76	263.82	3,724.8	-45.9	-424.1	96.0	0.00	0.00	0.00
3,800.0	9.76	263.82	3,764.2	-46.6	-430.9	97.5	0.00	0.00	0.00
3,840.0	9.76	263.82	3,803.6	-47.4	-437.6	99.0	0.00	0.00	0.00
3,880.0	9.76	263.82	3,843.0	-48.1	-444.4	100.5	0.00	0.00	0.00
3,920.0	9.76	263.82	3,882.4	-48.8	-451.1	102.1	0.00	0.00	0.00
3,960.0	9.76	263.82	3,921.9	-49.6	-457.9	103.6	0.00	0.00	0.00
4,000.0	9.76	263.82	3,961.3	-50.3	-464.6	105.1	0.00	0.00	0.00
4,040.0	9.76	263.82	4,000.7	-51.0	-471.3	106.6	0.00	0.00	0.00
4,080.0	9.76	263.82	4,040.1	-51.8	-478.1	108.2	0.00	0.00	0.00
4,120.0	9.76	263.82	4,079.5	-52.5	-484.8	109.7	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

Planned 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)
4,160.0	9.76	263.82	4,119.0	-53.2	-491.6	111.2	0.00	0.00	0.00
4,200.0	9.76	263.82	4,158.4	-53.9	-498.3	112.7	0.00	0.00	0.00
4,240.0	9.76	263.82	4,197.8	-54.7	-505.0	114.3	0.00	0.00	0.00
4,280.0	9.76	263.82	4,237.2	-55.4	-511.8	115.8	0.00	0.00	0.00
4,320.0	9.76	263.82	4,276.7	-56.1	-518.5	117.3	0.00	0.00	0.00
4,360.0	9.76	263.82	4,316.1	-56.9	-525.3	118.8	0.00	0.00	0.00
4,400.0	9.76	263.82	4,355.5	-57.6	-532.0	120.4	0.00	0.00	0.00
4,440.0	9.76	263.82	4,394.9	-58.3	-538.8	121.9	0.00	0.00	0.00
4,480.0	9.76	263.82	4,434.3	-59.1	-545.5	123.4	0.00	0.00	0.00
4,520.0	9.76	263.82	4,473.8	-59.8	-552.2	125.0	0.00	0.00	0.00
4,560.0	9.76	263.82	4,513.2	-60.5	-559.0	126.5	0.00	0.00	0.00
4,561.2	9.76	263.82	4,514.3	-60.5	-559.2	126.5	0.00	0.00	0.00
4,600.0	8.98	263.82	4,552.6	-61.2	-565.5	127.9	2.00	-2.00	0.00
4,640.0	8.18	263.82	4,592.2	-61.9	-571.4	129.3	2.00	-2.00	0.00
4,680.0	7.38	263.82	4,631.8	-62.4	-576.8	130.5	2.00	-2.00	0.00
4,720.0	6.58	263.82	4,671.5	-63.0	-581.6	131.6	2.00	-2.00	0.00
4,760.0	5.78	263.82	4,711.3	-63.4	-585.9	132.6	2.00	-2.00	0.00
4,800.0	4.98	263.82	4,751.1	-63.8	-589.6	133.4	2.00	-2.00	0.00
4,840.0	4.18	263.82	4,791.0	-64.2	-592.8	134.1	2.00	-2.00	0.00
4,880.0	3.38	263.82	4,830.9	-64.5	-595.4	134.7	2.00	-2.00	0.00
4,920.0	2.58	263.82	4,870.8	-64.7	-597.5	135.2	2.00	-2.00	0.00
4,960.0	1.78	263.82	4,910.8	-64.9	-599.0	135.5	2.00	-2.00	0.00
5,000.0	0.98	263.82	4,950.8	-65.0	-600.0	135.8	2.00	-2.00	0.00
5,040.0	0.18	263.82	4,990.8	-65.0	-600.4	135.8	2.00	-2.00	0.00
5,049.2	0.00	0.00	5,000.0	-65.0	-600.4	135.8	2.00	-2.00	0.00
5,080.0	0.00	0.00	5,030.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,120.0	0.00	0.00	5,070.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,160.0	0.00	0.00	5,110.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,150.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,240.0	0.00	0.00	5,190.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,280.0	0.00	0.00	5,230.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,320.0	0.00	0.00	5,270.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,360.0	0.00	0.00	5,310.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,350.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,440.0	0.00	0.00	5,390.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,480.0	0.00	0.00	5,430.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,520.0	0.00	0.00	5,470.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,560.0	0.00	0.00	5,510.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,550.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,640.0	0.00	0.00	5,590.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,680.0	0.00	0.00	5,630.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,720.0	0.00	0.00	5,670.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,760.0	0.00	0.00	5,710.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,750.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,840.0	0.00	0.00	5,790.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,880.0	0.00	0.00	5,830.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,920.0	0.00	0.00	5,870.8	-65.0	-600.4	135.8	0.00	0.00	0.00
5,960.0	0.00	0.00	5,910.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,950.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,040.0	0.00	0.00	5,990.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,080.0	0.00	0.00	6,030.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,120.0	0.00	0.00	6,070.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,160.0	0.00	0.00	6,110.8	-65.0	-600.4	135.8	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

Planned 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)
6,200.0	0.00	0.00	6,150.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,240.0	0.00	0.00	6,190.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,280.0	0.00	0.00	6,230.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,320.0	0.00	0.00	6,270.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,360.0	0.00	0.00	6,310.8	-65.0	-600.4	135.8	0.00	0.00	0.00
6,384.4	0.00	0.00	6,335.2	-65.0	-600.4	135.8	0.00	0.00	0.00
<b>KOP #2</b>									
6,400.0	1.17	180.00	6,350.8	-65.2	-600.4	136.0	7.50	7.50	0.00
6,440.0	4.17	180.00	6,390.8	-67.0	-600.4	137.9	7.50	7.50	0.00
6,480.0	7.17	180.00	6,430.6	-71.0	-600.4	141.8	7.50	7.50	0.00
6,520.0	10.17	180.00	6,470.1	-77.0	-600.4	147.8	7.50	7.50	0.00
6,560.0	13.17	180.00	6,509.3	-85.1	-600.4	155.8	7.50	7.50	0.00
6,600.0	16.17	180.00	6,548.0	-95.2	-600.4	165.9	7.50	7.50	0.00
6,640.0	19.17	180.00	6,586.1	-107.4	-600.4	177.9	7.50	7.50	0.00
6,680.0	22.17	180.00	6,623.5	-121.5	-600.4	191.9	7.50	7.50	0.00
6,720.0	25.17	180.00	6,660.1	-137.5	-600.4	207.9	7.50	7.50	0.00
6,760.0	28.17	180.00	6,695.9	-155.5	-600.4	225.7	7.50	7.50	0.00
6,800.0	31.17	180.00	6,730.6	-175.3	-600.4	245.4	7.50	7.50	0.00
6,840.0	34.17	180.00	6,764.3	-196.9	-600.4	266.8	7.50	7.50	0.00
6,880.0	37.17	180.00	6,796.8	-220.2	-600.4	289.9	7.50	7.50	0.00
6,920.0	40.17	180.00	6,828.0	-245.2	-600.4	314.8	7.50	7.50	0.00
6,960.0	43.17	180.00	6,857.9	-271.8	-600.4	341.2	7.50	7.50	0.00
7,000.0	46.17	180.00	6,886.3	-299.9	-600.4	369.1	7.50	7.50	0.00
7,040.0	49.17	180.00	6,913.2	-329.5	-600.4	398.4	7.50	7.50	0.00
7,080.0	52.17	180.00	6,938.6	-360.4	-600.4	429.2	7.50	7.50	0.00
7,120.0	55.17	180.00	6,962.3	-392.6	-600.4	461.1	7.50	7.50	0.00
7,160.0	58.17	180.00	6,984.3	-426.0	-600.4	494.3	7.50	7.50	0.00
7,200.0	61.17	180.00	7,004.5	-460.6	-600.4	528.6	7.50	7.50	0.00
7,240.0	64.17	180.00	7,022.8	-496.1	-600.4	563.9	7.50	7.50	0.00
7,280.0	67.17	180.00	7,039.3	-532.5	-600.4	600.1	7.50	7.50	0.00
7,320.0	70.17	180.00	7,053.9	-569.8	-600.4	637.1	7.50	7.50	0.00
7,360.0	73.17	180.00	7,066.4	-607.8	-600.4	674.8	7.50	7.50	0.00
7,400.0	76.17	180.00	7,077.0	-646.3	-600.4	713.1	7.50	7.50	0.00
7,440.0	79.17	180.00	7,085.5	-685.4	-600.4	751.9	7.50	7.50	0.00
7,480.0	82.17	180.00	7,092.0	-724.9	-600.4	791.0	7.50	7.50	0.00
7,504.4	84.00	180.00	7,095.0	-749.1	-600.4	815.1	7.50	7.50	0.00
<b>7"</b>									
7,520.0	84.00	180.00	7,096.6	-764.6	-600.4	830.5	0.00	0.00	0.00
7,560.0	84.00	180.00	7,100.8	-804.4	-600.4	870.0	0.00	0.00	0.00
7,578.4	84.00	180.00	7,102.7	-822.7	-600.4	888.2	0.00	0.00	0.00
7,600.0	85.08	180.00	7,104.8	-844.2	-600.4	909.5	5.00	5.00	0.00
7,640.0	87.08	180.00	7,107.5	-884.1	-600.4	949.1	5.00	5.00	0.00
7,680.0	89.08	180.00	7,108.8	-924.1	-600.4	988.8	5.00	5.00	0.00
7,699.5	90.05	180.00	7,109.0	-943.6	-600.4	1,008.2	5.00	5.00	0.00
<b>End of Build</b>									
7,720.0	90.06	180.00	7,109.0	-964.1	-600.4	1,028.5	0.01	0.01	0.00
7,760.0	90.06	180.00	7,108.9	-1,004.1	-600.4	1,068.3	0.00	0.00	0.00
7,800.0	90.06	180.00	7,108.9	-1,044.1	-600.4	1,108.0	0.00	0.00	0.00
7,840.0	90.06	180.00	7,108.8	-1,084.1	-600.4	1,147.7	0.00	0.00	0.00
7,880.0	90.06	180.00	7,108.8	-1,124.1	-600.4	1,187.4	0.00	0.00	0.00
7,920.0	90.06	180.00	7,108.8	-1,164.1	-600.4	1,227.1	0.00	0.00	0.00
7,960.0	90.06	180.00	7,108.7	-1,204.1	-600.4	1,266.8	0.00	0.00	0.00
8,000.0	90.06	180.00	7,108.7	-1,244.1	-600.4	1,306.6	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

Planned 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)
8,040.0	90.06	180.00	7,108.6	-1,284.1	-600.4	1,346.3	0.00	0.00	0.00
8,080.0	90.06	180.00	7,108.6	-1,324.1	-600.4	1,386.0	0.00	0.00	0.00
8,120.0	90.06	180.00	7,108.6	-1,364.1	-600.4	1,425.7	0.00	0.00	0.00
8,160.0	90.06	180.00	7,108.5	-1,404.1	-600.4	1,465.4	0.00	0.00	0.00
8,200.0	90.06	180.00	7,108.5	-1,444.1	-600.4	1,505.2	0.00	0.00	0.00
8,240.0	90.06	180.00	7,108.5	-1,484.1	-600.4	1,544.9	0.00	0.00	0.00
8,280.0	90.06	180.00	7,108.4	-1,524.1	-600.4	1,584.6	0.00	0.00	0.00
8,320.0	90.06	180.00	7,108.4	-1,564.1	-600.4	1,624.3	0.00	0.00	0.00
8,360.0	90.06	180.00	7,108.3	-1,604.1	-600.4	1,664.0	0.00	0.00	0.00
8,400.0	90.06	180.00	7,108.3	-1,644.1	-600.4	1,703.7	0.00	0.00	0.00
8,440.0	90.06	180.00	7,108.3	-1,684.1	-600.4	1,743.5	0.00	0.00	0.00
8,480.0	90.06	180.00	7,108.2	-1,724.1	-600.4	1,783.2	0.00	0.00	0.00
8,520.0	90.06	180.00	7,108.2	-1,764.1	-600.4	1,822.9	0.00	0.00	0.00
8,560.0	90.06	180.00	7,108.1	-1,804.1	-600.4	1,862.6	0.00	0.00	0.00
8,600.0	90.06	180.00	7,108.1	-1,844.1	-600.4	1,902.3	0.00	0.00	0.00
8,640.0	90.06	180.00	7,108.1	-1,884.1	-600.4	1,942.0	0.00	0.00	0.00
8,680.0	90.06	180.00	7,108.0	-1,924.1	-600.4	1,981.8	0.00	0.00	0.00
8,720.0	90.06	180.00	7,108.0	-1,964.1	-600.4	2,021.5	0.00	0.00	0.00
8,760.0	90.06	180.00	7,107.9	-2,004.1	-600.4	2,061.2	0.00	0.00	0.00
8,800.0	90.06	180.00	7,107.9	-2,044.1	-600.4	2,100.9	0.00	0.00	0.00
8,840.0	90.06	180.00	7,107.9	-2,084.1	-600.4	2,140.6	0.00	0.00	0.00
8,880.0	90.06	180.00	7,107.8	-2,124.1	-600.4	2,180.3	0.00	0.00	0.00
8,920.0	90.06	180.00	7,107.8	-2,164.1	-600.4	2,220.1	0.00	0.00	0.00
8,960.0	90.06	180.00	7,107.7	-2,204.1	-600.4	2,259.8	0.00	0.00	0.00
9,000.0	90.06	180.00	7,107.7	-2,244.1	-600.4	2,299.5	0.00	0.00	0.00
9,040.0	90.06	180.00	7,107.7	-2,284.1	-600.4	2,339.2	0.00	0.00	0.00
9,080.0	90.06	180.00	7,107.6	-2,324.1	-600.4	2,378.9	0.00	0.00	0.00
9,120.0	90.06	180.00	7,107.6	-2,364.1	-600.4	2,418.6	0.00	0.00	0.00
9,160.0	90.06	180.00	7,107.6	-2,404.1	-600.4	2,458.4	0.00	0.00	0.00
9,200.0	90.06	180.00	7,107.5	-2,444.1	-600.4	2,498.1	0.00	0.00	0.00
9,240.0	90.06	180.00	7,107.5	-2,484.1	-600.4	2,537.8	0.00	0.00	0.00
9,280.0	90.06	180.00	7,107.4	-2,524.1	-600.4	2,577.5	0.00	0.00	0.00
9,320.0	90.06	180.00	7,107.4	-2,564.1	-600.4	2,617.2	0.00	0.00	0.00
9,360.0	90.06	180.00	7,107.4	-2,604.1	-600.4	2,656.9	0.00	0.00	0.00
9,400.0	90.06	180.00	7,107.3	-2,644.1	-600.4	2,696.7	0.00	0.00	0.00
9,440.0	90.06	180.00	7,107.3	-2,684.1	-600.4	2,736.4	0.00	0.00	0.00
9,480.0	90.06	180.00	7,107.2	-2,724.1	-600.4	2,776.1	0.00	0.00	0.00
9,520.0	90.06	180.00	7,107.2	-2,764.1	-600.4	2,815.8	0.00	0.00	0.00
9,560.0	90.06	180.00	7,107.2	-2,804.1	-600.4	2,855.5	0.00	0.00	0.00
9,600.0	90.06	180.00	7,107.1	-2,844.1	-600.4	2,895.2	0.00	0.00	0.00
9,640.0	90.06	180.00	7,107.1	-2,884.1	-600.4	2,935.0	0.00	0.00	0.00
9,680.0	90.06	180.00	7,107.0	-2,924.1	-600.5	2,974.7	0.00	0.00	0.00
9,720.0	90.06	180.00	7,107.0	-2,964.1	-600.5	3,014.4	0.00	0.00	0.00
9,760.0	90.06	180.00	7,107.0	-3,004.1	-600.5	3,054.1	0.00	0.00	0.00
9,800.0	90.06	180.00	7,106.9	-3,044.1	-600.5	3,093.8	0.00	0.00	0.00
9,840.0	90.06	180.00	7,106.9	-3,084.1	-600.5	3,133.5	0.00	0.00	0.00
9,880.0	90.06	180.00	7,106.9	-3,124.1	-600.5	3,173.3	0.00	0.00	0.00
9,920.0	90.06	180.00	7,106.8	-3,164.1	-600.5	3,213.0	0.00	0.00	0.00
9,960.0	90.06	180.00	7,106.8	-3,204.1	-600.5	3,252.7	0.00	0.00	0.00
10,000.0	90.06	180.00	7,106.7	-3,244.1	-600.5	3,292.4	0.00	0.00	0.00
10,040.0	90.06	180.00	7,106.7	-3,284.1	-600.5	3,332.1	0.00	0.00	0.00
10,080.0	90.06	180.00	7,106.7	-3,324.1	-600.5	3,371.8	0.00	0.00	0.00
10,120.0	90.06	180.00	7,106.6	-3,364.1	-600.5	3,411.6	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

Planned 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)
10,160.0	90.06	180.00	7,106.6	-3,404.1	-600.5	3,451.3	0.00	0.00	0.00
10,200.0	90.06	180.00	7,106.5	-3,444.1	-600.5	3,491.0	0.00	0.00	0.00
10,240.0	90.06	180.00	7,106.5	-3,484.1	-600.5	3,530.7	0.00	0.00	0.00
10,280.0	90.06	180.00	7,106.5	-3,524.1	-600.5	3,570.4	0.00	0.00	0.00
10,320.0	90.06	180.00	7,106.4	-3,564.1	-600.5	3,610.2	0.00	0.00	0.00
10,360.0	90.06	180.00	7,106.4	-3,604.1	-600.5	3,649.9	0.00	0.00	0.00
10,400.0	90.06	180.00	7,106.3	-3,644.1	-600.5	3,689.6	0.00	0.00	0.00
10,440.0	90.06	180.00	7,106.3	-3,684.1	-600.5	3,729.3	0.00	0.00	0.00
10,480.0	90.06	180.00	7,106.3	-3,724.1	-600.5	3,769.0	0.00	0.00	0.00
10,520.0	90.06	180.00	7,106.2	-3,764.1	-600.5	3,808.7	0.00	0.00	0.00
10,560.0	90.06	180.00	7,106.2	-3,804.1	-600.5	3,848.5	0.00	0.00	0.00
10,600.0	90.06	180.00	7,106.1	-3,844.1	-600.5	3,888.2	0.00	0.00	0.00
10,640.0	90.06	180.00	7,106.1	-3,884.1	-600.5	3,927.9	0.00	0.00	0.00
10,680.0	90.06	180.00	7,106.1	-3,924.1	-600.5	3,967.6	0.00	0.00	0.00
10,720.0	90.06	180.00	7,106.0	-3,964.1	-600.5	4,007.3	0.00	0.00	0.00
10,760.0	90.06	180.00	7,106.0	-4,004.1	-600.5	4,047.0	0.00	0.00	0.00
10,800.0	90.06	180.00	7,106.0	-4,044.1	-600.5	4,086.8	0.00	0.00	0.00
10,840.0	90.06	180.00	7,105.9	-4,084.1	-600.5	4,126.5	0.00	0.00	0.00
10,880.0	90.06	180.00	7,105.9	-4,124.1	-600.5	4,166.2	0.00	0.00	0.00
10,920.0	90.06	180.00	7,105.8	-4,164.1	-600.5	4,205.9	0.00	0.00	0.00
10,960.0	90.06	180.00	7,105.8	-4,204.1	-600.5	4,245.6	0.00	0.00	0.00
11,000.0	90.06	180.00	7,105.8	-4,244.1	-600.5	4,285.3	0.00	0.00	0.00
11,040.0	90.06	180.00	7,105.7	-4,284.1	-600.5	4,325.1	0.00	0.00	0.00
11,080.0	90.06	180.00	7,105.7	-4,324.1	-600.5	4,364.8	0.00	0.00	0.00
11,120.0	90.06	180.00	7,105.6	-4,364.1	-600.5	4,404.5	0.00	0.00	0.00
11,160.0	90.06	180.00	7,105.6	-4,404.1	-600.5	4,444.2	0.00	0.00	0.00
11,200.0	90.06	180.00	7,105.6	-4,444.1	-600.5	4,483.9	0.00	0.00	0.00
11,240.0	90.06	180.00	7,105.5	-4,484.1	-600.5	4,523.6	0.00	0.00	0.00
11,280.0	90.06	180.00	7,105.5	-4,524.1	-600.5	4,563.4	0.00	0.00	0.00
11,320.0	90.06	180.00	7,105.4	-4,564.1	-600.5	4,603.1	0.00	0.00	0.00
11,360.0	90.06	180.00	7,105.4	-4,604.1	-600.5	4,642.8	0.00	0.00	0.00
11,400.0	90.06	180.00	7,105.4	-4,644.1	-600.5	4,682.5	0.00	0.00	0.00
11,440.0	90.06	180.00	7,105.3	-4,684.1	-600.5	4,722.2	0.00	0.00	0.00
11,480.0	90.06	180.00	7,105.3	-4,724.1	-600.5	4,761.9	0.00	0.00	0.00
11,520.0	90.06	180.00	7,105.3	-4,764.1	-600.5	4,801.7	0.00	0.00	0.00
11,560.0	90.06	180.00	7,105.2	-4,804.1	-600.5	4,841.4	0.00	0.00	0.00
11,600.0	90.06	180.00	7,105.2	-4,844.1	-600.5	4,881.1	0.00	0.00	0.00
11,640.0	90.06	180.00	7,105.1	-4,884.1	-600.5	4,920.8	0.00	0.00	0.00
11,680.0	90.06	180.00	7,105.1	-4,924.1	-600.5	4,960.5	0.00	0.00	0.00
11,720.0	90.06	180.00	7,105.1	-4,964.1	-600.5	5,000.2	0.00	0.00	0.00
11,760.0	90.06	180.00	7,105.0	-5,004.1	-600.5	5,040.0	0.00	0.00	0.00
11,776.3	90.06	180.00	7,105.0	-5,020.3	-600.5	5,056.1	0.00	0.00	0.00
<b>BHL 500'FSL &amp; 1980'FEL</b>									

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
BHL 500'FSL & 1980'I	0.00	0.00	7,105.0	-5,020.3	-600.5	1,435,149.66	3,268,583.02	40.523870	-104.533860
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(")	(")
7,504.4	7,095.0	7"		7	7-1/2

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
6,384.4	6,335.2	-65.0	-600.4	KOP #2
7,699.5	7,109.0	-943.6	-600.4	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.27-T7N-R64W**

**Richter 27T-HZ Pad Sec.27-T7N-R64W**

**Richter 34M-423**

**Wellbore #1**

**Plan #1 (9-28-12)**

## **Anticollision Report**

**03 October, 2012**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (9-28-12)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	10/3/2012		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,776.3	Plan #1 (9-28-12) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Dyer 34R-203 Pad Sec.34-T7N-R64W						
D Dyer 31-34 (Exist.) - Wellbore #1 - Design #1	7,469.1	7,074.5	219.6	183.3	6.052	CC, ES, SF
D Dyer 32-34 (Exist.) - Wellbore #1 - Design #1	8,971.0	7,073.7	428.1	367.3	7.042	CC, ES
D Dyer 32-34 (Exist.) - Wellbore #1 - Design #1	9,000.0	7,073.7	429.1	367.8	6.998	SF
Richter 27T-HZ Pad Sec.27-T7N-R64W						
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	200.0	200.0	30.6	29.9	45.343	CC, ES
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	11,776.3	11,783.8	490.2	304.7	2.643	SF
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	1,000.0	1,000.0	91.8	87.5	21.495	CC, ES
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	8,000.0	7,916.4	999.9	944.4	18.018	SF
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	61.3	57.0	14.344	CC, ES
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	11,776.3	11,739.0	658.9	464.2	3.385	SF
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	119.6	115.3	28.000	CC, ES
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	1,200.0	1,191.2	133.2	128.1	26.249	SF
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	150.1	149.5	222.660	CC, ES
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	946.5	254.2	249.3	52.510	SF
Richter 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	1,000.0	1,000.0	30.6	26.3	7.159	CC, ES
Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	11,776.3	11,682.9	376.6	203.2	2.171	SF

<b>Offset Design</b>											
Dyer 34R-203 Pad Sec.34-T7N-R64W - D Dyer 31-34 (Exist.) - Wellbore #1 - Design #1											
Survey Program: 0-MWD											
Reference											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)
1,900.0	1,891.7	1,875.7	1,875.7	4.6	4.1	-38.93	-714.1	-820.0	998.0	989.7	8.33
2,000.0	1,990.2	1,974.2	1,974.2	4.9	4.3	-39.55	-714.1	-820.0	984.8	976.0	8.84
2,100.0	2,088.8	2,072.8	2,072.8	5.3	4.5	-40.18	-714.1	-820.0	971.7	962.4	9.35
2,200.0	2,187.3	2,171.3	2,171.3	5.6	4.8	-40.83	-714.1	-820.0	958.8	948.9	9.87
2,300.0	2,285.9	2,269.9	2,269.9	6.0	5.0	-41.50	-714.1	-820.0	945.9	935.5	10.40
2,400.0	2,384.4	2,368.4	2,368.4	6.4	5.2	-42.19	-714.1	-820.0	933.2	922.3	10.93
2,500.0	2,483.0	2,467.0	2,467.0	6.8	5.4	-42.89	-714.1	-820.0	920.6	909.2	11.47
2,600.0	2,581.5	2,565.5	2,565.5	7.1	5.7	-43.61	-714.1	-820.0	908.2	896.2	12.02
2,700.0	2,680.1	2,664.1	2,664.1	7.5	5.9	-44.35	-714.1	-820.0	895.9	883.3	12.57
2,800.0	2,778.7	2,762.7	2,762.7	7.9	6.1	-45.12	-714.1	-820.0	883.8	870.7	13.13
											Warning

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Dyer 34R-203 Pad Sec.34-T7N-R64W - D Dyer 31-34 (Exist.) - Wellbore #1 - Design #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
2,900.0	2,877.2	2,861.2	2,861.2	8.3	6.3	-45.90	-714.1	-820.0	871.8	858.1	13.69	63.676		
3,000.0	2,975.8	2,959.8	2,959.8	8.7	6.5	-46.71	-714.1	-820.0	860.0	845.8	14.26	60.310		
3,100.0	3,074.3	3,058.3	3,058.3	9.1	6.8	-47.53	-714.1	-820.0	848.4	833.6	14.83	57.191		
3,200.0	3,172.9	3,156.9	3,156.9	9.4	7.0	-48.38	-714.1	-820.0	837.0	821.5	15.41	54.297		
3,300.0	3,271.4	3,255.4	3,255.4	9.8	7.2	-49.25	-714.1	-820.0	825.7	809.7	16.00	51.606		
3,400.0	3,370.0	3,354.0	3,354.0	10.2	7.4	-50.15	-714.1	-820.0	814.6	798.0	16.59	49.100		
3,500.0	3,468.5	3,452.5	3,452.5	10.6	7.6	-51.07	-714.1	-820.0	803.8	786.6	17.19	46.763		
3,600.0	3,567.1	3,551.1	3,551.1	11.0	7.9	-52.01	-714.1	-820.0	793.1	775.4	17.79	44.581		
3,700.0	3,665.6	3,649.6	3,649.6	11.4	8.1	-52.98	-714.1	-820.0	782.7	764.3	18.40	42.540		
3,800.0	3,764.2	3,748.2	3,748.2	11.8	8.3	-53.98	-714.1	-820.0	772.5	753.5	19.01	40.630		
3,900.0	3,862.7	3,846.7	3,846.7	12.2	8.5	-55.00	-714.1	-820.0	762.6	743.0	19.63	38.840		
4,000.0	3,961.3	3,945.3	3,945.3	12.6	8.8	-56.04	-714.1	-820.0	752.9	732.7	20.26	37.163		
4,100.0	4,059.8	4,043.8	4,043.8	13.0	9.0	-57.12	-714.1	-820.0	743.5	722.6	20.89	35.588		
4,200.0	4,158.4	4,142.4	4,142.4	13.4	9.2	-58.22	-714.1	-820.0	734.3	712.8	21.53	34.111		
4,300.0	4,256.9	4,240.9	4,240.9	13.7	9.4	-59.34	-714.1	-820.0	725.4	703.3	22.17	32.723		
4,400.0	4,355.5	4,339.5	4,339.5	14.1	9.6	-60.49	-714.1	-820.0	716.8	694.0	22.82	31.419		
4,500.0	4,454.0	4,438.0	4,438.0	14.5	9.9	-61.67	-714.1	-820.0	708.6	685.1	23.47	30.193		
4,561.2	4,514.3	4,498.3	4,498.3	14.8	10.0	-62.41	-714.1	-820.0	703.6	679.8	23.87	29.480		
4,600.0	4,552.6	4,536.6	4,536.6	14.9	10.1	-62.81	-714.1	-820.0	700.7	676.6	24.11	29.068		
4,700.0	4,651.7	4,635.7	4,635.7	15.2	10.3	-63.71	-714.1	-820.0	694.4	669.8	24.64	28.177		
4,800.0	4,751.1	4,735.1	4,735.1	15.4	10.5	-64.40	-714.1	-820.0	689.8	664.7	25.14	27.443		
4,900.0	4,850.9	4,834.9	4,834.9	15.6	10.8	-64.87	-714.1	-820.0	686.8	661.3	25.58	26.849		
5,000.0	4,950.8	4,934.8	4,934.8	15.7	11.0	-65.10	-714.1	-820.0	685.4	659.4	25.98	26.381		
5,049.2	5,000.0	4,984.0	4,984.0	15.8	11.1	-161.31	-714.1	-820.0	685.2	659.0	26.16	26.193		
5,100.0	5,050.8	5,034.8	5,034.8	15.9	11.2	-161.31	-714.1	-820.0	685.2	658.8	26.35	26.007		
5,200.0	5,150.8	5,134.8	5,134.8	16.0	11.4	-161.31	-714.1	-820.0	685.2	658.5	26.72	25.639		
5,300.0	5,250.8	5,234.8	5,234.8	16.2	11.7	-161.31	-714.1	-820.0	685.2	658.1	27.10	25.280		
5,400.0	5,350.8	5,334.8	5,334.8	16.3	11.9	-161.31	-714.1	-820.0	685.2	657.7	27.49	24.929		
5,500.0	5,450.8	5,434.8	5,434.8	16.5	12.1	-161.31	-714.1	-820.0	685.2	657.3	27.87	24.586		
5,600.0	5,550.8	5,534.8	5,534.8	16.6	12.3	-161.31	-714.1	-820.0	685.2	656.9	28.25	24.251		
5,700.0	5,650.8	5,634.8	5,634.8	16.8	12.6	-161.31	-714.1	-820.0	685.2	656.6	28.64	23.924		
5,800.0	5,750.8	5,734.8	5,734.8	16.9	12.8	-161.31	-714.1	-820.0	685.2	656.2	29.03	23.604		
5,900.0	5,850.8	5,834.8	5,834.8	17.1	13.0	-161.31	-714.1	-820.0	685.2	655.8	29.42	23.292		
6,000.0	5,950.8	5,934.8	5,934.8	17.3	13.2	-161.31	-714.1	-820.0	685.2	655.4	29.81	22.987		
6,100.0	6,050.8	6,034.8	6,034.8	17.4	13.5	-161.31	-714.1	-820.0	685.2	655.0	30.20	22.688		
6,200.0	6,150.8	6,134.8	6,134.8	17.6	13.7	-161.31	-714.1	-820.0	685.2	654.6	30.59	22.396		
6,300.0	6,250.8	6,234.8	6,234.8	17.7	13.9	-161.31	-714.1	-820.0	685.2	654.2	30.99	22.111		
6,384.4	6,335.2	6,319.2	6,319.2	17.9	14.1	-161.31	-714.1	-820.0	685.2	653.9	31.32	21.875		
6,400.0	6,350.8	6,334.8	6,334.8	17.9	14.1	18.70	-714.1	-820.0	685.0	653.7	31.38	21.828		
6,450.0	6,400.7	6,384.7	6,384.7	18.0	14.2	18.83	-714.1	-820.0	682.5	651.0	31.50	21.671		
6,500.0	6,450.4	6,434.4	6,434.4	18.1	14.3	19.13	-714.1	-820.0	676.9	645.4	31.49	21.497		
6,550.0	6,499.5	6,483.5	6,483.5	18.2	14.5	19.61	-714.1	-820.0	668.3	636.9	31.37	21.304		
6,600.0	6,548.0	6,532.0	6,532.0	18.2	14.6	20.28	-714.1	-820.0	656.6	625.5	31.14	21.089		
6,650.0	6,595.5	6,579.5	6,579.5	18.3	14.7	21.16	-714.1	-820.0	642.1	611.3	30.80	20.846		
6,700.0	6,641.9	6,625.9	6,625.9	18.4	14.8	22.29	-714.1	-820.0	624.7	594.3	30.37	20.568		
6,750.0	6,687.0	6,671.0	6,671.0	18.6	14.9	23.71	-714.1	-820.0	604.5	574.7	29.86	20.242		
6,800.0	6,730.6	6,714.6	6,714.6	18.7	15.0	25.47	-714.1	-820.0	581.8	552.5	29.31	19.853		
6,850.0	6,772.5	6,756.5	6,756.5	18.8	15.1	27.63	-714.1	-820.0	556.7	527.9	28.73	19.374		
6,900.0	6,812.5	6,796.5	6,796.5	19.0	15.2	30.29	-714.1	-820.0	529.3	501.1	28.19	18.773		
6,950.0	6,850.5	6,834.5	6,834.5	19.2	15.2	33.52	-714.1	-820.0	499.9	472.1	27.77	18.003		
7,000.0	6,886.3	6,870.3	6,870.3	19.4	15.3	37.44	-714.1	-820.0	468.8	441.2	27.55	17.016		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Dyer 34R-203 Pad Sec.34-T7N-R64W - D Dyer 31-34 (Exist.) - Wellbore #1 - Design #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,050.0	6,919.7	6,903.7	6,903.7	19.6	15.4	42.13	-714.1	-820.0	436.3	408.6	27.65	15.777	
7,100.0	6,950.7	6,934.7	6,934.7	19.8	15.5	47.66	-714.1	-820.0	402.8	374.6	28.18	14.295	
7,150.0	6,978.9	6,962.9	6,962.9	20.1	15.5	53.98	-714.1	-820.0	368.9	339.8	29.15	12.655	
7,200.0	7,004.5	6,988.5	6,988.5	20.5	15.6	60.90	-714.1	-820.0	335.4	304.9	30.49	11.001	
7,250.0	7,027.1	7,011.1	7,011.1	20.8	15.6	68.03	-714.1	-820.0	303.1	271.1	31.96	9.482	
7,300.0	7,046.8	7,030.8	7,030.8	21.2	15.7	74.89	-714.1	-820.0	273.5	240.1	33.35	8.200	
7,350.0	7,063.5	7,047.5	7,047.5	21.6	15.7	80.95	-714.1	-820.0	248.3	213.8	34.49	7.199	
7,400.0	7,077.0	7,061.0	7,061.0	22.1	15.8	85.78	-714.1	-820.0	229.8	194.4	35.36	6.499	
7,450.0	7,087.4	7,071.4	7,071.4	22.6	15.8	89.14	-714.1	-820.0	220.4	184.3	36.04	6.115	
7,469.1	7,090.5	7,074.5	7,074.5	22.8	15.8	90.00	-714.1	-820.0	219.6	183.3	36.29	6.052 CC, ES, SF	
7,504.4	7,095.0	7,079.0	7,079.0	23.2	15.8	90.96	-714.1	-820.0	222.4	185.6	36.72	6.055	
7,578.4	7,102.7	7,086.7	7,086.7	24.1	15.8	92.96	-714.1	-820.0	245.0	207.3	37.65	6.507	
7,600.0	7,104.8	7,088.8	7,088.8	24.4	15.8	92.91	-714.1	-820.0	255.2	217.3	37.95	6.727	
7,699.5	7,109.0	7,093.0	7,093.0	25.6	15.8	89.94	-714.1	-820.0	317.7	278.2	39.46	8.050	
7,800.0	7,108.9	7,092.9	7,092.9	27.0	15.8	89.92	-714.1	-820.0	396.4	355.4	40.95	9.681	
7,900.0	7,108.8	7,092.8	7,092.8	28.4	15.8	89.89	-714.1	-820.0	482.8	440.3	42.48	11.366	
8,000.0	7,108.7	7,092.7	7,092.7	29.9	15.8	89.86	-714.1	-820.0	573.7	529.6	44.06	13.020	
8,100.0	7,108.6	7,092.6	7,092.6	31.4	15.8	89.84	-714.1	-820.0	667.2	621.5	45.69	14.603	
8,200.0	7,108.5	7,092.5	7,092.5	33.0	15.8	89.81	-714.1	-820.0	762.3	715.0	47.34	16.102	
8,300.0	7,108.4	7,092.4	7,092.4	34.6	15.8	89.79	-714.1	-820.0	858.6	809.5	49.03	17.511	
8,400.0	7,108.3	7,092.3	7,092.3	36.3	15.8	89.76	-714.1	-820.0	955.6	904.8	50.74	18.833	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Dyer 34R-203 Pad Sec.34-T7N-R64W - D Dyer 32-34 (Exist.) - Wellbore #1 - Design #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
8,100.0	7,108.6	7,074.6	7,074.6	31.4	15.8	90.11	-2,215.0	-1,028.5	970.5	924.9	45.64	21.266	
8,200.0	7,108.5	7,074.5	7,074.5	33.0	15.8	90.10	-2,215.0	-1,028.5	881.9	834.6	47.29	18.647	
8,300.0	7,108.4	7,074.4	7,074.4	34.6	15.8	90.09	-2,215.0	-1,028.5	795.9	746.9	48.98	16.250	
8,400.0	7,108.3	7,074.3	7,074.3	36.3	15.8	90.07	-2,215.0	-1,028.5	713.6	663.0	50.69	14.079	
8,500.0	7,108.2	7,074.2	7,074.2	37.9	15.8	90.06	-2,215.0	-1,028.5	636.5	584.0	52.42	12.142	
8,600.0	7,108.1	7,074.1	7,074.1	39.6	15.8	90.05	-2,215.0	-1,028.5	566.5	512.3	54.17	10.457	
8,700.0	7,108.0	7,074.0	7,074.0	41.3	15.8	90.04	-2,215.0	-1,028.5	506.7	450.7	55.94	9.058	
8,800.0	7,107.9	7,073.9	7,073.9	43.1	15.8	90.02	-2,215.0	-1,028.5	461.0	403.3	57.72	7.987	
8,900.0	7,107.8	7,073.8	7,073.8	44.8	15.8	90.01	-2,215.0	-1,028.5	433.9	374.4	59.51	7.292	
8,971.0	7,107.7	7,073.7	7,073.7	46.1	15.8	90.00	-2,215.0	-1,028.5	428.1	367.3	60.79	7.042 CC, ES	
9,000.0	7,107.7	7,073.7	7,073.7	46.6	15.8	90.00	-2,215.0	-1,028.5	429.1	367.8	61.31	6.998 SF	
9,100.0	7,107.6	7,073.6	7,073.6	48.3	15.8	89.98	-2,215.0	-1,028.5	447.1	384.0	63.12	7.083	
9,200.0	7,107.5	7,073.5	7,073.5	50.1	15.8	89.97	-2,215.0	-1,028.5	485.5	420.6	64.94	7.476	
9,300.0	7,107.4	7,073.4	7,073.4	51.9	15.8	89.96	-2,215.0	-1,028.5	539.9	473.1	66.77	8.086	
9,400.0	7,107.3	7,073.3	7,073.3	53.7	15.8	89.94	-2,215.0	-1,028.5	606.1	537.5	68.61	8.834	
9,500.0	7,107.2	7,073.2	7,073.2	55.5	15.8	89.93	-2,215.0	-1,028.5	680.5	610.1	70.45	9.660	
9,600.0	7,107.1	7,073.1	7,073.1	57.4	15.8	89.92	-2,215.0	-1,028.5	760.9	688.6	72.30	10.524	
9,700.0	7,107.0	7,073.0	7,073.0	59.2	15.8	89.90	-2,215.0	-1,028.5	845.4	771.3	74.15	11.402	
9,800.0	7,106.9	7,072.9	7,072.9	61.0	15.8	89.89	-2,215.0	-1,028.5	933.0	857.0	76.00	12.276	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00		0.0	-30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00		0.0	-30.6	30.6	30.4	0.22	136.030	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00		0.0	-30.6	30.6	29.9	0.67	45.343 CC, ES	
300.0	300.0	298.9	298.9	0.6	0.6	-89.95		0.0	-32.3	32.3	31.2	1.11	29.056	
400.0	400.0	397.6	397.4	0.8	0.8	-89.83		0.1	-37.4	37.5	35.9	1.56	24.073	
500.0	500.0	495.8	495.3	1.0	1.0	-89.68		0.3	-45.8	46.1	44.0	2.03	22.721	
600.0	600.0	593.3	592.1	1.2	1.3	-89.55		0.4	-57.5	58.1	55.5	2.53	22.931	
700.0	700.0	689.9	687.5	1.5	1.6	-89.45		0.7	-72.4	73.4	70.4	3.08	23.861	
800.0	800.0	785.4	781.3	1.7	2.0	-89.37		1.0	-90.2	92.1	88.4	3.67	25.111	
900.0	900.0	879.6	873.2	1.9	2.4	-89.31		1.3	-110.8	114.0	109.7	4.31	26.471	
1,000.0	1,000.0	975.5	966.3	2.1	2.9	-89.27		1.7	-134.1	138.3	133.3	4.99	27.707	
1,100.0	1,100.0	1,072.9	1,060.7	2.3	3.4	6.97		2.1	-157.8	161.0	156.2	4.80	33.552	
1,200.0	1,199.8	1,171.0	1,155.8	2.5	3.9	7.14		2.5	-181.8	180.3	175.1	5.24	34.381	
1,300.0	1,299.5	1,269.7	1,251.6	2.8	4.4	7.41		2.9	-205.8	196.2	190.5	5.70	34.419	
1,400.0	1,398.7	1,368.9	1,347.8	3.0	4.9	7.77		3.3	-230.0	208.7	202.6	6.17	33.835	
1,488.0	1,485.7	1,456.5	1,432.7	3.2	5.3	8.16		3.7	-251.4	216.9	210.3	6.59	32.922	
1,500.0	1,497.5	1,468.5	1,444.3	3.3	5.4	8.23		3.7	-254.3	217.8	211.2	6.65	32.767	
1,600.0	1,596.0	1,568.1	1,541.0	3.6	5.9	8.72		4.1	-278.7	225.6	218.5	7.15	31.556	
1,700.0	1,694.6	1,667.8	1,637.7	3.9	6.4	9.18		4.5	-303.0	233.4	225.8	7.66	30.477	
1,800.0	1,793.1	1,767.5	1,734.3	4.2	7.0	9.60		4.9	-327.3	241.2	233.1	8.17	29.512	
1,900.0	1,891.7	1,867.2	1,831.0	4.6	7.5	10.01		5.3	-351.6	249.1	240.4	8.70	28.644	
2,000.0	1,990.2	1,966.8	1,927.7	4.9	8.0	10.38		5.7	-375.9	256.9	247.7	9.22	27.861	
2,100.0	2,088.8	2,066.5	2,024.3	5.3	8.5	10.74		6.1	-400.2	264.8	255.0	9.75	27.151	
2,200.0	2,187.3	2,166.2	2,121.0	5.6	9.1	11.07		6.5	-424.6	272.6	262.3	10.29	26.505	
2,300.0	2,285.9	2,265.9	2,217.7	6.0	9.6	11.39		7.0	-448.9	280.5	269.7	10.82	25.916	
2,400.0	2,384.4	2,365.6	2,314.3	6.4	10.1	11.69		7.4	-473.2	288.4	277.0	11.36	25.375	
2,500.0	2,483.0	2,465.2	2,411.0	6.8	10.7	11.97		7.8	-497.5	296.3	284.4	11.91	24.879	
2,600.0	2,581.5	2,564.9	2,507.6	7.1	11.2	12.24		8.2	-521.8	304.2	291.7	12.45	24.421	
2,700.0	2,680.1	2,664.6	2,604.3	7.5	11.7	12.49		8.6	-546.2	312.1	299.1	13.00	23.998	
2,800.0	2,778.7	2,764.3	2,701.0	7.9	12.2	12.74		9.0	-570.5	320.0	306.4	13.55	23.605	
2,900.0	2,877.2	2,863.9	2,797.6	8.3	12.8	12.97		9.4	-594.8	327.9	313.8	14.11	23.240	
3,000.0	2,975.8	2,963.6	2,894.3	8.7	13.3	13.19		9.8	-619.1	335.8	321.1	14.66	22.900	
3,100.0	3,074.3	3,063.3	2,991.0	9.1	13.8	13.40		10.2	-643.4	343.7	328.5	15.22	22.583	
3,200.0	3,172.9	3,163.0	3,087.6	9.4	14.4	13.60		10.6	-667.8	351.6	335.9	15.78	22.286	
3,300.0	3,271.4	3,262.7	3,184.3	9.8	14.9	13.79		11.0	-692.1	359.6	343.2	16.34	22.007	
3,400.0	3,370.0	3,362.3	3,281.0	10.2	15.4	13.97		11.4	-716.4	367.5	350.6	16.90	21.746	
3,500.0	3,468.5	3,462.0	3,377.6	10.6	15.9	14.15		11.8	-740.7	375.4	358.0	17.46	21.499	
3,600.0	3,567.1	3,561.7	3,474.3	11.0	16.5	14.31		12.2	-765.0	383.4	365.3	18.03	21.267	
3,700.0	3,665.6	3,661.4	3,571.0	11.4	17.0	14.47		12.6	-789.3	391.3	372.7	18.59	21.048	
3,800.0	3,764.2	3,761.1	3,667.6	11.8	17.5	14.63		13.0	-813.7	399.2	380.1	19.16	20.840	
3,900.0	3,862.7	3,860.7	3,764.3	12.2	18.1	14.78		13.4	-838.0	407.2	387.5	19.72	20.644	
4,000.0	3,961.3	3,960.4	3,861.0	12.6	18.6	14.92		13.8	-862.3	415.1	394.9	20.29	20.457	
4,100.0	4,059.8	4,060.1	3,957.6	13.0	19.1	15.06		14.2	-886.6	423.1	402.2	20.86	20.280	
4,200.0	4,158.4	4,159.8	4,054.3	13.4	19.7	15.19		14.6	-910.9	431.1	409.6	21.43	20.112	
4,300.0	4,256.9	4,259.4	4,151.0	13.7	20.2	15.32		15.0	-935.3	439.0	417.0	22.00	19.952	
4,400.0	4,355.5	4,359.1	4,247.6	14.1	20.7	15.44		15.4	-959.6	447.0	424.4	22.58	19.799	
4,500.0	4,454.0	4,467.1	4,352.5	14.5	21.2	15.58		15.9	-985.4	454.5	431.4	23.16	19.628	
4,561.2	4,514.3	4,539.6	4,423.3	14.8	21.5	15.71		16.1	-1,000.9	457.5	434.0	23.51	19.462	
4,600.0	4,552.6	4,585.7	4,468.5	14.9	21.7	15.80		16.3	-1,009.8	458.9	435.2	23.71	19.356	
4,700.0	4,651.7	4,704.5	4,585.7	15.2	22.0	16.01		16.6	-1,029.5	461.9	437.7	24.15	19.124	
4,800.0	4,751.1	4,823.5	4,703.7	15.4	22.3	16.16		16.8	-1,044.2	464.1	439.6	24.54	18.916	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,850.9	4,942.5	4,822.4	15.6	22.5	16.26		17.0	-1,054.1	465.6	440.8	24.86	18.729	
5,000.0	4,950.8	5,061.7	4,941.4	15.7	22.7	16.31		17.1	-1,059.0	466.4	441.2	25.13	18.559	
5,049.2	5,000.0	5,120.3	5,000.0	15.8	22.7	-79.86		17.1	-1,059.6	466.5	441.2	25.25	18.477	
5,100.0	5,050.8	5,171.1	5,050.8	15.9	22.8	-79.86		17.1	-1,059.6	466.5	441.0	25.42	18.351	
5,200.0	5,150.8	5,271.1	5,150.8	16.0	22.9	-79.86		17.1	-1,059.6	466.5	440.7	25.76	18.104	
5,300.0	5,250.8	5,371.1	5,250.8	16.2	23.0	-79.86		17.1	-1,059.6	466.5	440.3	26.11	17.862	
5,400.0	5,350.8	5,471.1	5,350.8	16.3	23.1	-79.86		17.1	-1,059.6	466.5	440.0	26.47	17.624	
5,500.0	5,450.8	5,571.1	5,450.8	16.5	23.2	-79.86		17.1	-1,059.6	466.5	439.6	26.82	17.390	
5,600.0	5,550.8	5,671.1	5,550.8	16.6	23.3	-79.86		17.1	-1,059.6	466.5	439.3	27.18	17.161	
5,700.0	5,650.8	5,771.1	5,650.8	16.8	23.4	-79.86		17.1	-1,059.6	466.5	438.9	27.54	16.936	
5,800.0	5,750.8	5,871.1	5,750.8	16.9	23.6	-79.86		17.1	-1,059.6	466.5	438.6	27.91	16.715	
5,900.0	5,850.8	5,971.1	5,850.8	17.1	23.7	-79.86		17.1	-1,059.6	466.5	438.2	28.27	16.498	
6,000.0	5,950.8	6,071.1	5,950.8	17.3	23.8	-79.86		17.1	-1,059.6	466.5	437.8	28.64	16.286	
6,100.0	6,050.8	6,171.1	6,050.8	17.4	23.9	-79.86		17.1	-1,059.6	466.5	437.4	29.01	16.078	
6,200.0	6,150.8	6,271.1	6,150.8	17.6	24.0	-79.86		17.1	-1,059.6	466.5	437.1	29.38	15.874	
6,300.0	6,250.8	6,378.2	6,257.8	17.7	24.1	-80.22		14.2	-1,059.6	466.0	436.3	29.73	15.673	
6,384.4	6,335.2	6,470.6	6,349.1	17.9	24.2	-81.88		0.5	-1,059.6	464.0	434.1	29.92	15.511	
6,400.0	6,350.8	6,487.3	6,365.4	17.9	24.3	97.73		-3.1	-1,059.6	463.6	433.6	29.93	15.486	
6,450.0	6,400.7	6,540.2	6,416.5	18.0	24.3	96.46		-17.0	-1,059.6	462.2	432.2	30.01	15.404	
6,500.0	6,450.4	6,592.4	6,465.8	18.1	24.4	95.17		-34.1	-1,059.5	461.1	431.0	30.11	15.317	
6,550.0	6,499.5	6,643.7	6,513.0	18.2	24.4	93.86		-54.1	-1,059.5	460.2	430.0	30.23	15.223	
6,600.0	6,548.0	6,694.3	6,558.1	18.2	24.5	92.54		-77.0	-1,059.5	459.6	429.2	30.39	15.123	
6,650.0	6,595.5	6,744.1	6,601.0	18.3	24.6	91.22		-102.3	-1,059.5	459.2	428.6	30.58	15.016	
6,699.8	6,641.7	6,793.1	6,641.4	18.4	24.7	89.90		-129.9	-1,059.5	459.1	428.3	30.80	14.904	
6,700.0	6,641.9	6,793.2	6,641.6	18.4	24.7	89.90		-130.0	-1,059.5	459.1	428.3	30.80	14.903	
6,750.0	6,687.0	6,841.7	6,679.8	18.6	24.7	88.59		-159.8	-1,059.5	459.2	428.1	31.06	14.783	
6,800.0	6,730.6	6,889.5	6,715.5	18.7	24.8	87.29		-191.5	-1,059.4	459.6	428.2	31.36	14.655	
6,850.0	6,772.5	6,936.7	6,748.8	18.8	24.9	86.01		-225.0	-1,059.4	460.2	428.5	31.70	14.519	
6,900.0	6,812.5	6,983.3	6,779.6	19.0	25.0	84.76		-260.0	-1,059.4	461.0	428.9	32.08	14.371	
6,950.0	6,850.5	7,029.4	6,807.9	19.2	25.2	83.54		-296.4	-1,059.4	462.0	429.5	32.51	14.212	
7,000.0	6,886.3	7,075.0	6,833.7	19.4	25.3	82.35		-334.0	-1,059.4	463.2	430.2	32.99	14.040	
7,050.0	6,919.7	7,120.1	6,856.9	19.6	25.5	81.21		-372.7	-1,059.3	464.6	431.0	33.54	13.852	
7,100.0	6,950.7	7,164.8	6,877.6	19.8	25.7	80.10		-412.2	-1,059.3	466.1	431.9	34.15	13.647	
7,150.0	6,978.9	7,209.0	6,895.9	20.1	25.9	79.04		-452.5	-1,059.3	467.7	432.8	34.84	13.424	
7,200.0	7,004.5	7,252.9	6,911.6	20.5	26.1	78.03		-493.5	-1,059.3	469.3	433.7	35.60	13.183	
7,250.0	7,027.1	7,296.4	6,924.8	20.8	26.3	77.08		-534.9	-1,059.2	471.0	434.6	36.45	12.923	
7,300.0	7,046.8	7,339.6	6,935.6	21.2	26.6	76.17		-576.7	-1,059.2	472.8	435.4	37.39	12.645	
7,350.0	7,063.5	7,382.5	6,944.0	21.6	26.9	75.33		-618.8	-1,059.2	474.5	436.1	38.41	12.353	
7,400.0	7,077.0	7,425.1	6,950.0	22.1	27.2	74.54		-661.0	-1,059.2	476.2	436.7	39.53	12.048	
7,450.0	7,087.4	7,467.5	6,953.6	22.6	27.5	73.82		-703.2	-1,059.1	477.9	437.2	40.73	11.733	
7,504.4	7,095.0	7,513.3	6,954.8	23.2	27.9	73.10		-749.0	-1,059.1	479.6	437.5	42.13	11.385	
7,578.4	7,102.7	7,586.3	6,954.3	24.1	28.5	72.17		-821.9	-1,059.1	482.1	438.2	43.86	10.991	
7,600.0	7,104.8	7,607.7	6,954.2	24.4	28.7	71.89		-843.4	-1,059.0	482.7	438.3	44.47	10.856	
7,699.5	7,109.0	7,707.1	6,953.5	25.6	29.8	71.27		-942.8	-1,059.0	484.2	436.7	47.50	10.195	
7,800.0	7,108.9	7,807.6	6,952.8	27.0	30.9	71.20		-1,043.3	-1,058.9	484.4	434.0	50.31	9.627	
7,900.0	7,108.8	7,907.6	6,952.1	28.4	32.1	71.13		-1,143.3	-1,058.9	484.5	431.3	53.22	9.104	
8,000.0	7,108.7	8,007.6	6,951.4	29.9	33.4	71.06		-1,243.2	-1,058.8	484.6	428.4	56.21	8.622	
8,100.0	7,108.6	8,107.6	6,950.7	31.4	34.8	70.99		-1,343.2	-1,058.7	484.8	425.5	59.27	8.178	
8,200.0	7,108.5	8,207.6	6,950.0	33.0	36.2	70.92		-1,443.2	-1,058.7	484.9	422.5	62.40	7.771	
8,300.0	7,108.4	8,307.6	6,949.3	34.6	37.6	70.85		-1,543.2	-1,058.6	485.0	419.5	65.58	7.396	
8,400.0	7,108.3	8,407.6	6,948.6	36.3	39.1	70.78		-1,643.2	-1,058.5	485.2	416.4	68.80	7.052	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	7,108.2	8,507.6	6,947.9	37.9	40.7	70.71	-1,743.2	-1,058.5	485.3	413.2	72.06	6.734	
8,600.0	7,108.1	8,607.6	6,947.2	39.6	42.3	70.64	-1,843.2	-1,058.4	485.4	410.1	75.36	6.442	
8,700.0	7,108.0	8,707.6	6,946.5	41.3	43.9	70.57	-1,943.2	-1,058.4	485.6	406.9	78.68	6.172	
8,800.0	7,107.9	8,807.6	6,945.8	43.1	45.5	70.50	-2,043.2	-1,058.3	485.7	403.7	82.03	5.921	
8,900.0	7,107.8	8,907.6	6,945.1	44.8	47.2	70.43	-2,143.2	-1,058.2	485.9	400.5	85.40	5.689	
9,000.0	7,107.7	9,007.6	6,944.4	46.6	48.9	70.36	-2,243.2	-1,058.2	486.0	397.2	88.78	5.474	
9,100.0	7,107.6	9,107.6	6,943.7	48.3	50.6	70.29	-2,343.2	-1,058.1	486.1	394.0	92.19	5.273	
9,200.0	7,107.5	9,207.6	6,943.0	50.1	52.3	70.22	-2,443.2	-1,058.0	486.3	390.7	95.60	5.086	
9,300.0	7,107.4	9,307.6	6,942.3	51.9	54.0	70.16	-2,543.2	-1,058.0	486.4	387.4	99.03	4.912	
9,400.0	7,107.3	9,407.6	6,941.6	53.7	55.7	70.09	-2,643.2	-1,057.9	486.6	384.1	102.48	4.748	
9,500.0	7,107.2	9,507.6	6,940.9	55.5	57.5	70.02	-2,743.2	-1,057.9	486.7	380.8	105.93	4.595	
9,600.0	7,107.1	9,607.5	6,940.2	57.4	59.3	69.95	-2,843.2	-1,057.8	486.9	377.5	109.38	4.451	
9,700.0	7,107.0	9,707.5	6,939.5	59.2	61.0	69.88	-2,943.2	-1,057.7	487.0	374.2	112.85	4.315	
9,800.0	7,106.9	9,807.5	6,938.8	61.0	62.8	69.81	-3,043.2	-1,057.7	487.1	370.8	116.32	4.188	
9,900.0	7,106.8	9,907.5	6,938.1	62.8	64.6	69.74	-3,143.2	-1,057.6	487.3	367.5	119.80	4.068	
10,000.0	7,106.7	10,007.5	6,937.4	64.7	66.4	69.67	-3,243.2	-1,057.5	487.4	364.2	123.28	3.954	
10,100.0	7,106.6	10,107.5	6,936.7	66.5	68.2	69.60	-3,343.2	-1,057.5	487.6	360.8	126.77	3.846	
10,200.0	7,106.5	10,207.5	6,936.0	68.4	70.0	69.54	-3,443.2	-1,057.4	487.7	357.5	130.26	3.744	
10,300.0	7,106.4	10,307.5	6,935.3	70.2	71.9	69.47	-3,543.2	-1,057.4	487.9	354.1	133.75	3.648	
10,400.0	7,106.3	10,407.5	6,934.6	72.1	73.7	69.40	-3,643.1	-1,057.3	488.0	350.8	137.25	3.556	
10,500.0	7,106.2	10,507.5	6,933.9	74.0	75.5	69.33	-3,743.1	-1,057.2	488.2	347.4	140.75	3.469	
10,600.0	7,106.1	10,607.5	6,933.2	75.8	77.3	69.26	-3,843.1	-1,057.2	488.3	344.1	144.25	3.385	
10,700.0	7,106.1	10,707.5	6,932.5	77.7	79.2	69.19	-3,943.1	-1,057.1	488.5	340.7	147.75	3.306	
10,800.0	7,106.0	10,807.5	6,931.8	79.6	81.0	69.12	-4,043.1	-1,057.0	488.6	337.4	151.25	3.231	
10,900.0	7,105.9	10,907.5	6,931.1	81.4	82.9	69.05	-4,143.1	-1,057.0	488.8	334.0	154.75	3.159	
11,000.0	7,105.8	11,007.5	6,930.4	83.3	84.7	68.99	-4,243.1	-1,056.9	489.0	330.7	158.26	3.090	
11,100.0	7,105.7	11,107.5	6,929.7	85.2	86.6	68.92	-4,343.1	-1,056.9	489.1	327.3	161.76	3.024	
11,200.0	7,105.6	11,207.5	6,929.0	87.1	88.4	68.85	-4,443.1	-1,056.8	489.3	324.0	165.26	2.961	
11,300.0	7,105.5	11,307.5	6,928.3	89.0	90.3	68.78	-4,543.1	-1,056.7	489.4	320.7	168.77	2.900	
11,400.0	7,105.4	11,407.5	6,927.6	90.8	92.2	68.71	-4,643.1	-1,056.7	489.6	317.3	172.27	2.842	
11,500.0	7,105.3	11,507.5	6,926.9	92.7	94.0	68.64	-4,743.1	-1,056.6	489.7	314.0	175.77	2.786	
11,600.0	7,105.2	11,607.5	6,926.2	94.6	95.9	68.58	-4,843.1	-1,056.5	489.9	310.6	179.28	2.733	
11,700.0	7,105.1	11,707.5	6,925.5	96.5	97.8	68.51	-4,943.1	-1,056.5	490.1	307.3	182.78	2.681	
11,776.3	7,105.0	11,783.8	6,925.0	97.9	99.2	68.46	-5,019.3	-1,056.4	490.2	304.7	185.45	2.643 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	87.72		3.6	91.7	91.8				
100.0	100.0	100.0	100.0	0.1	0.1	87.72		3.6	91.7	91.8	91.6	0.22	408.413	
200.0	200.0	200.0	200.0	0.3	0.3	87.72		3.6	91.7	91.8	91.1	0.67	136.138	
300.0	300.0	300.0	300.0	0.6	0.6	87.72		3.6	91.7	91.8	90.7	1.12	81.683	
400.0	400.0	400.0	400.0	0.8	0.8	87.72		3.6	91.7	91.8	90.2	1.57	58.345	
500.0	500.0	500.0	500.0	1.0	1.0	87.72		3.6	91.7	91.8	89.8	2.02	45.379	
600.0	600.0	600.0	600.0	1.2	1.2	87.72		3.6	91.7	91.8	89.3	2.47	37.128	
700.0	700.0	700.0	700.0	1.5	1.5	87.72		3.6	91.7	91.8	88.9	2.92	31.416	
800.0	800.0	800.0	800.0	1.7	1.7	87.72		3.6	91.7	91.8	88.4	3.37	27.228	
900.0	900.0	900.0	900.0	1.9	1.9	87.72		3.6	91.7	91.8	88.0	3.82	24.024	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	87.72		3.6	91.7	91.8	87.5	4.27	21.495 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	-176.17		3.6	91.7	93.5	88.8	4.70	19.886	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	-176.36		3.6	91.7	98.8	93.6	5.12	19.282	
1,300.0	1,299.5	1,295.8	1,295.8	2.8	2.8	-176.66		3.8	93.3	109.1	103.6	5.52	19.761	
1,400.0	1,398.7	1,390.5	1,390.3	3.0	3.0	-177.02		4.2	98.0	126.2	120.3	5.92	21.337	
1,488.0	1,485.7	1,472.1	1,471.7	3.2	3.2	-177.33		4.7	104.6	146.8	140.5	6.26	23.435	
1,500.0	1,497.5	1,483.1	1,482.7	3.3	3.2	-177.38		4.8	105.7	149.9	143.6	6.31	23.754	
1,600.0	1,596.0	1,573.9	1,572.9	3.6	3.4	-177.68		5.6	116.0	178.0	171.3	6.72	26.475	
1,700.0	1,694.6	1,667.5	1,665.5	3.9	3.6	-177.91		6.7	128.9	208.4	201.3	7.15	29.168	
1,800.0	1,793.1	1,762.7	1,759.8	4.2	3.9	-178.09		7.8	142.1	239.0	231.4	7.57	31.565	
1,900.0	1,891.7	1,857.9	1,854.1	4.6	4.2	-178.23		8.8	155.4	269.5	261.5	8.00	33.692	
2,000.0	1,990.2	1,953.1	1,948.4	4.9	4.4	-178.34		9.9	168.6	300.0	291.6	8.43	35.587	
2,100.0	2,088.8	2,048.4	2,042.7	5.3	4.7	-178.43		11.0	181.8	330.5	321.7	8.87	37.257	
2,200.0	2,187.3	2,143.6	2,137.0	5.6	5.0	-178.50		12.1	195.1	361.1	351.7	9.31	38.768	
2,300.0	2,285.9	2,238.8	2,231.3	6.0	5.3	-178.56		13.1	208.3	391.6	381.8	9.76	40.126	
2,400.0	2,384.4	2,334.0	2,325.6	6.4	5.6	-178.62		14.2	221.6	422.1	411.9	10.21	41.352	
2,500.0	2,483.0	2,429.3	2,419.9	6.8	5.9	-178.66		15.3	234.8	452.6	442.0	10.66	42.464	
2,600.0	2,581.5	2,524.5	2,514.2	7.1	6.2	-178.70		16.4	248.0	483.2	472.1	11.11	43.477	
2,700.0	2,680.1	2,619.7	2,608.5	7.5	6.5	-178.74		17.5	261.3	513.7	502.1	11.57	44.402	
2,800.0	2,778.7	2,714.9	2,702.7	7.9	6.8	-178.77		18.5	274.5	544.2	532.2	12.03	45.250	
2,900.0	2,877.2	2,810.2	2,797.0	8.3	7.1	-178.80		19.6	287.7	574.8	562.3	12.49	46.030	
3,000.0	2,975.8	2,905.4	2,891.3	8.7	7.4	-178.82		20.7	301.0	605.3	592.3	12.95	46.749	
3,100.0	3,074.3	3,000.6	2,985.6	9.1	7.7	-178.85		21.8	314.2	635.8	622.4	13.41	47.413	
3,200.0	3,172.9	3,095.8	3,079.9	9.4	8.1	-178.87		22.9	327.5	666.3	652.5	13.87	48.029	
3,300.0	3,271.4	3,191.1	3,174.2	9.8	8.4	-178.89		23.9	340.7	696.9	682.5	14.34	48.602	
3,400.0	3,370.0	3,286.3	3,268.5	10.2	8.7	-178.91		25.0	353.9	727.4	712.6	14.80	49.135	
3,500.0	3,468.5	3,404.2	3,385.4	10.6	9.0	-178.93		26.2	369.1	757.0	741.7	15.30	49.471	
3,600.0	3,567.1	3,536.4	3,517.1	11.0	9.3	-178.95		27.2	380.5	782.4	766.6	15.79	49.546	
3,700.0	3,665.6	3,671.6	3,652.2	11.4	9.6	-178.98		27.6	385.9	803.3	787.1	16.28	49.332	
3,800.0	3,764.2	3,783.6	3,764.2	11.8	9.8	-179.00		27.6	386.3	820.6	803.8	16.74	49.011	
3,900.0	3,862.7	3,882.1	3,862.7	12.2	9.9	-179.02		27.6	386.3	837.5	820.3	17.19	48.709	
4,000.0	3,961.3	3,980.7	3,961.3	12.6	10.1	-179.04		27.6	386.3	854.5	836.8	17.65	48.415	
4,100.0	4,059.8	4,079.2	4,059.8	13.0	10.3	-179.06		27.6	386.3	871.4	853.3	18.10	48.133	
4,200.0	4,158.4	4,177.8	4,158.4	13.4	10.5	-179.08		27.6	386.3	888.4	869.8	18.56	47.862	
4,300.0	4,256.9	4,276.3	4,256.9	13.7	10.7	-179.09		27.6	386.3	905.3	886.3	19.02	47.602	
4,400.0	4,355.5	4,374.9	4,355.5	14.1	10.9	-179.11		27.6	386.3	922.3	902.8	19.48	47.352	
4,500.0	4,454.0	4,473.5	4,454.0	14.5	11.0	-179.13		27.6	386.3	939.2	919.3	19.94	47.112	
4,561.2	4,514.3	4,533.8	4,514.3	14.8	11.2	-179.14		27.6	386.3	949.6	929.4	20.22	46.970	
4,600.0	4,552.6	4,572.0	4,552.6	14.9	11.2	-179.14		27.6	386.3	955.9	935.5	20.42	46.821	
4,700.0	4,651.7	4,671.1	4,651.7	15.2	11.4	-179.16		27.6	386.3	969.8	948.9	20.89	46.420	
4,800.0	4,751.1	4,770.5	4,751.1	15.4	11.6	-179.17		27.6	386.3	980.2	958.9	21.34	45.933	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,850.9	4,870.3	4,850.9	15.6	11.8	-179.18		27.6	386.3	987.2	965.4	21.76	45.364	
5,000.0	4,950.8	4,970.2	4,950.8	15.7	12.0	-179.18		27.6	386.3	990.6	968.5	22.15	44.720	
5,049.2	5,000.0	5,019.4	5,000.0	15.8	12.1	84.64		27.6	386.3	991.1	968.7	22.34	44.369	
5,100.0	5,050.8	5,070.2	5,050.8	15.9	12.2	84.64		27.6	386.3	991.1	968.5	22.54	43.967	
5,200.0	5,150.8	5,170.2	5,150.8	16.0	12.4	84.64		27.6	386.3	991.1	968.1	22.95	43.187	
5,300.0	5,250.8	5,270.2	5,250.8	16.2	12.6	84.64		27.6	386.3	991.1	967.7	23.36	42.431	
5,400.0	5,350.8	5,370.2	5,350.8	16.3	12.8	84.64		27.6	386.3	991.1	967.3	23.77	41.699	
5,500.0	5,450.8	5,470.2	5,450.8	16.5	13.0	84.64		27.6	386.3	991.1	966.9	24.18	40.989	
5,600.0	5,550.8	5,570.2	5,550.8	16.6	13.2	84.64		27.6	386.3	991.1	966.5	24.59	40.301	
5,700.0	5,650.8	5,670.2	5,650.8	16.8	13.4	84.64		27.6	386.3	991.1	966.1	25.01	39.633	
5,800.0	5,750.8	5,770.2	5,750.8	16.9	13.6	84.64		27.6	386.3	991.1	965.6	25.42	38.986	
5,900.0	5,850.8	5,870.2	5,850.8	17.1	13.8	84.64		27.6	386.3	991.1	965.2	25.84	38.358	
6,000.0	5,950.8	5,970.2	5,950.8	17.3	14.0	84.64		27.6	386.3	991.1	964.8	26.25	37.748	
6,100.0	6,050.8	6,070.2	6,050.8	17.4	14.2	84.64		27.6	386.3	991.1	964.4	26.67	37.156	
6,200.0	6,150.8	6,170.2	6,150.8	17.6	14.4	84.64		27.6	386.3	991.1	964.0	27.09	36.581	
6,300.0	6,250.8	6,278.2	6,258.8	17.7	14.6	84.81		24.6	386.3	990.8	963.3	27.51	36.014	
6,384.4	6,335.2	6,371.9	6,351.3	17.9	14.8	85.62		10.6	386.3	989.8	961.9	27.85	35.536	
6,400.0	6,350.8	6,388.8	6,367.8	17.9	14.8	-94.19		6.9	386.3	989.5	961.6	27.91	35.448	
6,450.0	6,400.7	6,442.5	6,419.5	18.0	14.9	-93.59		-7.4	386.3	988.8	960.7	28.11	35.173	
6,500.0	6,450.4	6,495.2	6,469.3	18.1	15.0	-92.97		-24.9	386.4	988.1	959.8	28.31	34.898	
6,550.0	6,499.5	6,547.1	6,516.9	18.2	15.1	-92.34		-45.4	386.4	987.6	959.1	28.53	34.618	
6,600.0	6,548.0	6,598.2	6,562.4	18.2	15.2	-91.71		-68.8	386.4	987.2	958.5	28.76	34.325	
6,650.0	6,595.5	6,648.5	6,605.5	18.3	15.3	-91.07		-94.7	386.4	987.0	958.0	29.02	34.012	
6,700.0	6,641.9	6,698.1	6,646.2	18.4	15.4	-90.44		-122.9	386.4	986.8	957.5	29.31	33.673	
6,727.5	6,666.9	6,725.1	6,667.6	18.5	15.5	-90.09		-139.4	386.4	986.8	957.3	29.49	33.468	
6,750.0	6,687.0	6,747.0	6,684.5	18.6	15.6	-89.81		-153.2	386.4	986.8	957.2	29.63	33.302	
6,800.0	6,730.6	6,795.1	6,720.2	18.7	15.7	-89.18		-185.5	386.4	987.0	957.0	30.00	32.896	
6,850.0	6,772.5	6,842.7	6,753.5	18.8	15.9	-88.56		-219.5	386.5	987.2	956.8	30.42	32.451	
6,900.0	6,812.5	6,889.6	6,784.1	19.0	16.1	-87.95		-255.0	386.5	987.6	956.7	30.89	31.967	
6,950.0	6,850.5	6,935.9	6,812.2	19.2	16.4	-87.35		-291.8	386.5	988.0	956.6	31.42	31.443	
7,000.0	6,886.3	6,981.7	6,837.7	19.4	16.7	-86.76		-329.9	386.5	988.6	956.6	32.01	30.882	
7,050.0	6,919.7	7,027.0	6,860.7	19.6	17.0	-86.19		-368.9	386.6	989.2	956.6	32.66	30.288	
7,100.0	6,950.7	7,071.8	6,881.1	19.8	17.3	-85.64		-408.8	386.6	990.0	956.6	33.37	29.665	
7,150.0	6,978.9	7,116.2	6,898.9	20.1	17.7	-85.10		-449.4	386.6	990.7	956.6	34.14	29.019	
7,200.0	7,004.5	7,160.2	6,914.2	20.5	18.1	-84.59		-490.6	386.6	991.6	956.6	34.97	28.355	
7,250.0	7,027.1	7,203.8	6,927.1	20.8	18.5	-84.09		-532.3	386.6	992.5	956.6	35.85	27.681	
7,300.0	7,046.8	7,250.0	6,938.1	21.2	19.0	-83.59		-577.2	386.7	993.4	956.6	36.83	26.975	
7,350.0	7,063.5	7,289.9	6,945.3	21.6	19.5	-83.18		-616.4	386.7	994.3	956.5	37.78	26.315	
7,400.0	7,077.0	7,332.5	6,950.9	22.1	20.0	-82.76		-658.7	386.7	995.2	956.4	38.82	25.638	
7,450.0	7,087.4	7,374.8	6,954.0	22.6	20.5	-82.37		-700.9	386.7	996.1	956.2	39.89	24.971	
7,504.4	7,095.0	7,421.5	6,954.8	23.2	21.1	-81.97		-747.5	386.8	997.1	956.0	41.11	24.254	
7,578.4	7,102.7	7,495.1	6,954.2	24.1	22.1	-81.50		-821.1	386.8	998.3	955.3	43.03	23.201	
7,600.0	7,104.8	7,516.5	6,954.1	24.4	22.4	-81.36		-842.6	386.8	998.7	955.1	43.60	22.906	
7,699.5	7,109.0	7,615.9	6,953.4	25.6	23.8	-81.04		-941.9	386.9	999.5	953.1	46.32	21.577	
7,800.0	7,108.9	7,716.4	6,952.7	27.0	25.3	-81.01		-1,042.4	386.9	999.6	950.3	49.28	20.283	
7,900.0	7,108.8	7,816.4	6,952.0	28.4	26.8	-80.98		-1,142.4	387.0	999.8	947.4	52.34	19.100	
8,000.0	7,108.7	7,916.4	6,951.3	29.9	28.4	-80.94		-1,242.4	387.0	999.9	944.4	55.49	18.018 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	86.59		3.6	61.1	61.3				
100.0	100.0	100.0	100.0	0.1	0.1	86.59		3.6	61.1	61.3	61.0	0.22	272.544	
200.0	200.0	200.0	200.0	0.3	0.3	86.59		3.6	61.1	61.3	60.6	0.67	90.848	
300.0	300.0	300.0	300.0	0.6	0.6	86.59		3.6	61.1	61.3	60.1	1.12	54.509	
400.0	400.0	400.0	400.0	0.8	0.8	86.59		3.6	61.1	61.3	59.7	1.57	38.935	
500.0	500.0	500.0	500.0	1.0	1.0	86.59		3.6	61.1	61.3	59.2	2.02	30.283	
600.0	600.0	600.0	600.0	1.2	1.2	86.59		3.6	61.1	61.3	58.8	2.47	24.777	
700.0	700.0	700.0	700.0	1.5	1.5	86.59		3.6	61.1	61.3	58.3	2.92	20.965	
800.0	800.0	800.0	800.0	1.7	1.7	86.59		3.6	61.1	61.3	57.9	3.37	18.170	
900.0	900.0	900.0	900.0	1.9	1.9	86.59		3.6	61.1	61.3	57.4	3.82	16.032	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	86.59		3.6	61.1	61.3	57.0	4.27	14.344 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	-177.31		3.6	61.1	63.0	58.3	4.70	13.394	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	-177.51		3.6	61.1	68.2	63.1	5.12	13.321	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	-177.79		3.6	61.1	76.9	71.4	5.54	13.889	
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	-178.08		3.6	61.1	89.1	83.2	5.95	14.965	
1,488.0	1,485.7	1,485.7	1,485.7	3.2	3.2	-178.33		3.6	61.1	102.7	96.4	6.32	16.253	
1,500.0	1,497.5	1,497.5	1,497.5	3.3	3.3	-178.36		3.6	61.1	104.7	98.4	6.37	16.439	
1,600.0	1,596.0	1,596.0	1,596.0	3.6	3.5	-178.59		3.6	61.1	121.7	114.9	6.81	17.873	
1,700.0	1,694.6	1,694.6	1,694.6	3.9	3.7	-178.76		3.6	61.1	138.6	131.4	7.25	19.121	
1,800.0	1,793.1	1,793.1	1,793.1	4.2	3.9	-178.90		3.6	61.1	155.6	147.9	7.70	20.215	
1,900.0	1,891.7	1,891.7	1,891.7	4.6	4.1	-179.00		3.6	61.1	172.5	164.4	8.15	21.181	
2,000.0	1,990.2	1,990.2	1,990.2	4.9	4.4	-179.09		3.6	61.1	189.5	180.9	8.60	22.039	
2,100.0	2,088.8	2,088.8	2,088.8	5.3	4.6	-179.17		3.6	61.1	206.4	197.4	9.05	22.805	
2,200.0	2,187.3	2,187.3	2,187.3	5.6	4.8	-179.23		3.6	61.1	223.4	213.9	9.51	23.493	
2,300.0	2,285.9	2,285.9	2,285.9	6.0	5.0	-179.28		3.6	61.1	240.3	230.4	9.97	24.114	
2,400.0	2,384.4	2,384.4	2,384.4	6.4	5.2	-179.33		3.6	61.1	257.3	246.8	10.43	24.677	
2,500.0	2,483.0	2,483.0	2,483.0	6.8	5.5	-179.37		3.6	61.1	274.2	263.3	10.89	25.189	
2,600.0	2,581.5	2,581.5	2,581.5	7.1	5.7	-179.41		3.6	61.1	291.2	279.8	11.35	25.657	
2,700.0	2,680.1	2,680.1	2,680.1	7.5	5.9	-179.44		3.6	61.1	308.1	296.3	11.81	26.086	
2,800.0	2,778.7	2,778.7	2,778.7	7.9	6.1	-179.47		3.6	61.1	325.1	312.8	12.28	26.481	
2,900.0	2,877.2	2,877.2	2,877.2	8.3	6.4	-179.50		3.6	61.1	342.0	329.3	12.74	26.846	
3,000.0	2,975.8	2,975.8	2,975.8	8.7	6.6	-179.52		3.6	61.1	359.0	345.8	13.21	27.184	
3,100.0	3,074.3	3,074.3	3,074.3	9.1	6.8	-179.54		3.6	61.1	375.9	362.3	13.67	27.497	
3,200.0	3,172.9	3,172.9	3,172.9	9.4	7.0	-179.56		3.6	61.1	392.9	378.7	14.14	27.788	
3,300.0	3,271.4	3,271.4	3,271.4	9.8	7.2	-179.58		3.6	61.1	409.8	395.2	14.61	28.060	
3,400.0	3,370.0	3,370.0	3,370.0	10.2	7.5	-179.60		3.6	61.1	426.8	411.7	15.07	28.314	
3,500.0	3,468.5	3,468.5	3,468.5	10.6	7.7	-179.61		3.6	61.1	443.7	428.2	15.54	28.553	
3,600.0	3,567.1	3,567.1	3,567.1	11.0	7.9	-179.63		3.6	61.1	460.7	444.7	16.01	28.776	
3,700.0	3,665.6	3,665.6	3,665.6	11.4	8.1	-179.64		3.6	61.1	477.6	461.2	16.48	28.986	
3,800.0	3,764.2	3,764.2	3,764.2	11.8	8.3	-179.65		3.6	61.1	494.6	477.7	16.95	29.184	
3,900.0	3,862.7	3,862.7	3,862.7	12.2	8.6	-179.66		3.6	61.1	511.6	494.1	17.42	29.371	
4,000.0	3,961.3	3,961.3	3,961.3	12.6	8.8	-179.67		3.6	61.1	528.5	510.6	17.89	29.547	
4,100.0	4,059.8	4,059.8	4,059.8	13.0	9.0	-179.68		3.6	61.1	545.5	527.1	18.36	29.714	
4,200.0	4,158.4	4,158.4	4,158.4	13.4	9.2	-179.69		3.6	61.1	562.4	543.6	18.83	29.873	
4,300.0	4,256.9	4,256.9	4,256.9	13.7	9.5	-179.70		3.6	61.1	579.4	560.1	19.30	30.023	
4,400.0	4,355.5	4,355.5	4,355.5	14.1	9.7	-179.71		3.6	61.1	596.3	576.5	19.77	30.166	
4,500.0	4,454.0	4,454.0	4,454.0	14.5	9.9	-179.72		3.6	61.1	613.3	593.0	20.24	30.302	
4,561.2	4,514.3	4,514.3	4,514.3	14.8	10.0	-179.72		3.6	61.1	623.6	603.1	20.53	30.382	
4,600.0	4,552.6	4,552.6	4,552.6	14.9	10.1	-179.73		3.6	61.1	630.0	609.2	20.72	30.398	
4,700.0	4,651.7	4,651.7	4,651.7	15.2	10.3	-179.74		3.6	61.1	643.8	622.7	21.19	30.383	
4,800.0	4,751.1	4,751.1	4,751.1	15.4	10.6	-179.74		3.6	61.1	654.3	632.6	21.63	30.246	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,850.9	4,850.9	4,850.9	15.6	10.8	-179.74		3.6	61.1	661.2	639.2	22.04	29.997	
5,000.0	4,950.8	4,950.8	4,950.8	15.7	11.0	-179.75		3.6	61.1	664.7	642.3	22.42	29.641	
5,049.2	5,000.0	5,000.0	5,000.0	15.8	11.1	84.08		3.6	61.1	665.1	642.5	22.60	29.424	
5,100.0	5,050.8	5,050.8	5,050.8	15.9	11.2	84.08		3.6	61.1	665.1	642.3	22.81	29.154	
5,200.0	5,150.8	5,150.8	5,150.8	16.0	11.5	84.08		3.6	61.1	665.1	641.9	23.23	28.631	
5,300.0	5,250.8	5,250.8	5,250.8	16.2	11.7	84.08		3.6	61.1	665.1	641.5	23.65	28.125	
5,400.0	5,350.8	5,350.8	5,350.8	16.3	11.9	84.08		3.6	61.1	665.1	641.0	24.07	27.635	
5,500.0	5,450.8	5,450.8	5,450.8	16.5	12.1	84.08		3.6	61.1	665.1	640.6	24.49	27.161	
5,600.0	5,550.8	5,550.8	5,550.8	16.6	12.4	84.08		3.6	61.1	665.1	640.2	24.91	26.702	
5,700.0	5,650.8	5,650.8	5,650.8	16.8	12.6	84.08		3.6	61.1	665.1	639.8	25.33	26.257	
5,800.0	5,750.8	5,750.8	5,750.8	16.9	12.8	84.08		3.6	61.1	665.1	639.3	25.75	25.826	
5,900.0	5,850.8	5,850.8	5,850.8	17.1	13.0	84.08		3.6	61.1	665.1	638.9	26.18	25.408	
6,000.0	5,950.8	5,953.2	5,953.2	17.3	13.2	84.24		1.8	61.1	664.9	638.4	26.56	25.034	
6,100.0	6,050.8	6,055.4	6,055.2	17.4	13.4	84.71		-3.7	61.1	664.4	637.5	26.93	24.670	
6,200.0	6,150.8	6,157.0	6,156.5	17.6	13.6	85.49		-12.8	61.1	663.6	636.3	27.31	24.303	
6,300.0	6,250.8	6,257.9	6,256.5	17.7	13.7	86.57		-25.3	61.1	662.7	635.1	27.69	23.935	
6,384.4	6,335.2	6,342.3	6,339.9	17.9	13.9	87.71		-38.5	61.1	662.1	634.1	28.02	23.629	
6,400.0	6,350.8	6,357.7	6,355.1	17.9	13.9	-92.08		-41.2	61.1	662.0	633.9	28.08	23.573	
6,450.0	6,400.7	6,407.4	6,404.0	18.0	14.0	-91.58		-49.8	61.1	661.8	633.5	28.28	23.404	
6,500.0	6,450.4	6,457.3	6,453.1	18.1	14.1	-91.34		-58.5	61.1	661.7	633.2	28.47	23.239	
6,550.0	6,499.5	6,508.0	6,502.9	18.2	14.2	-91.31		-68.1	61.1	661.7	633.0	28.68	23.074	
6,600.0	6,548.0	6,559.0	6,552.3	18.2	14.3	-91.29		-81.0	61.1	661.7	632.8	28.89	22.901	
6,650.0	6,595.5	6,610.0	6,600.7	18.3	14.4	-91.26		-97.1	61.1	661.7	632.5	29.13	22.716	
6,700.0	6,641.9	6,661.0	6,647.8	18.4	14.5	-91.23		-116.4	61.1	661.6	632.3	29.38	22.516	
6,750.0	6,687.0	6,712.0	6,693.6	18.6	14.7	-91.19		-138.8	61.1	661.6	631.9	29.67	22.297	
6,800.0	6,730.6	6,762.9	6,737.7	18.7	14.8	-91.15		-164.1	61.1	661.6	631.6	30.00	22.053	
6,850.0	6,772.5	6,813.8	6,780.1	18.8	15.0	-91.10		-192.4	61.0	661.6	631.2	30.37	21.782	
6,900.0	6,812.5	6,864.6	6,820.4	19.0	15.2	-91.04		-223.3	61.0	661.5	630.7	30.80	21.479	
6,950.0	6,850.5	6,915.4	6,858.5	19.2	15.5	-90.99		-256.8	61.0	661.5	630.2	31.29	21.143	
7,000.0	6,886.3	6,966.1	6,894.3	19.4	15.8	-90.92		-292.8	61.0	661.5	629.6	31.84	20.774	
7,050.0	6,919.7	7,016.8	6,927.6	19.6	16.1	-90.86		-331.0	61.0	661.4	629.0	32.47	20.371	
7,100.0	6,950.7	7,067.5	6,958.2	19.8	16.4	-90.79		-371.3	61.0	661.4	628.2	33.17	19.938	
7,150.0	6,978.9	7,118.0	6,986.1	20.1	16.8	-90.72		-413.5	60.9	661.4	627.4	33.96	19.476	
7,200.0	7,004.5	7,168.6	7,011.1	20.5	17.3	-90.64		-457.4	60.9	661.3	626.5	34.82	18.992	
7,250.0	7,027.1	7,219.0	7,033.2	20.8	17.7	-90.56		-502.8	60.9	661.3	625.6	35.76	18.491	
7,300.0	7,046.8	7,269.4	7,052.1	21.2	18.2	-90.48		-549.5	60.9	661.3	624.5	36.78	17.977	
7,350.0	7,063.5	7,319.7	7,068.0	21.6	18.8	-90.40		-597.2	60.8	661.3	623.4	37.88	17.458	
7,400.0	7,077.0	7,370.0	7,080.6	22.1	19.4	-90.31		-645.9	60.8	661.2	622.2	39.04	16.939	
7,450.0	7,087.4	7,420.2	7,090.0	22.6	20.0	-90.22		-695.2	60.8	661.2	620.9	40.26	16.425	
7,504.4	7,095.0	7,474.7	7,096.7	23.2	20.7	-90.14		-749.3	60.8	661.2	619.5	41.64	15.877	
7,578.4	7,102.7	7,548.7	7,104.3	24.1	21.7	-90.13		-822.9	60.7	661.1	617.5	43.62	15.157	
7,600.0	7,104.8	7,570.4	7,106.0	24.4	22.0	-90.11		-844.4	60.7	661.1	616.9	44.21	14.953	
7,699.5	7,109.0	7,670.0	7,109.0	25.6	23.4	-90.00		-944.0	60.7	661.1	614.0	47.03	14.055	
7,800.0	7,108.9	7,770.4	7,108.9	27.0	24.9	-90.00		-1,044.4	60.6	661.0	611.0	50.02	13.216	
7,900.0	7,108.8	7,870.4	7,108.8	28.4	26.4	-90.00		-1,144.4	60.5	660.9	607.8	53.10	12.448	
8,000.0	7,108.7	7,970.4	7,108.7	29.9	28.0	-90.00		-1,244.4	60.5	660.9	604.6	56.27	11.745	
8,100.0	7,108.6	8,070.4	7,108.6	31.4	29.7	-90.00		-1,344.4	60.4	660.8	601.3	59.52	11.102	
8,200.0	7,108.5	8,170.4	7,108.5	33.0	31.3	-90.00		-1,444.4	60.4	660.8	597.9	62.84	10.515	
8,300.0	7,108.4	8,270.4	7,108.4	34.6	33.0	-90.00		-1,544.4	60.3	660.7	594.5	66.22	9.978	
8,400.0	7,108.3	8,370.4	7,108.3	36.3	34.7	-90.00		-1,644.4	60.3	660.7	591.0	69.65	9.486	
8,500.0	7,108.2	8,470.4	7,108.2	37.9	36.5	-90.00		-1,744.4	60.2	660.6	587.5	73.12	9.035	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)													
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
8,600.0	7,108.1	8,570.4	7,108.1	39.6	38.2	-90.00	-1,844.4	60.1	660.6	583.9	76.62	8.621	
8,700.0	7,108.0	8,670.4	7,108.0	41.3	40.0	-90.00	-1,944.4	60.1	660.5	580.4	80.16	8.240	
8,800.0	7,107.9	8,770.4	7,107.9	43.1	41.8	-90.00	-2,044.4	60.0	660.5	576.7	83.72	7.889	
8,900.0	7,107.8	8,870.4	7,107.8	44.8	43.6	-90.00	-2,144.4	60.0	660.4	573.1	87.31	7.564	
9,000.0	7,107.7	8,970.4	7,107.7	46.6	45.4	-90.00	-2,244.4	59.9	660.4	569.4	90.92	7.263	
9,100.0	7,107.6	9,070.4	7,107.6	48.3	47.2	-90.00	-2,344.4	59.9	660.3	565.8	94.55	6.984	
9,200.0	7,107.5	9,170.4	7,107.5	50.1	49.0	-90.00	-2,444.4	59.8	660.2	562.1	98.19	6.724	
9,300.0	7,107.4	9,270.4	7,107.4	51.9	50.9	-90.00	-2,544.4	59.8	660.2	558.3	101.85	6.482	
9,400.0	7,107.3	9,370.4	7,107.3	53.7	52.7	-90.00	-2,644.4	59.7	660.1	554.6	105.53	6.256	
9,500.0	7,107.2	9,470.4	7,107.2	55.5	54.6	-90.00	-2,744.4	59.6	660.1	550.9	109.21	6.044	
9,600.0	7,107.1	9,570.4	7,107.1	57.4	56.4	-90.00	-2,844.4	59.6	660.0	547.1	112.91	5.846	
9,700.0	7,107.0	9,670.4	7,107.0	59.2	58.3	-90.00	-2,944.4	59.5	660.0	543.4	116.61	5.660	
9,800.0	7,106.9	9,770.4	7,106.9	61.0	60.1	-90.00	-3,044.4	59.5	659.9	539.6	120.33	5.484	
9,900.0	7,106.8	9,870.4	7,106.8	62.8	62.0	-90.00	-3,144.4	59.4	659.9	535.8	124.05	5.319	
10,000.0	7,106.7	9,970.4	7,106.7	64.7	63.8	-90.00	-3,244.4	59.4	659.8	532.0	127.78	5.164	
10,100.0	7,106.6	10,070.4	7,106.6	66.5	65.7	-90.00	-3,344.4	59.3	659.8	528.2	131.52	5.016	
10,200.0	7,106.5	10,170.4	7,106.5	68.4	67.6	-90.00	-3,444.4	59.2	659.7	524.4	135.26	4.877	
10,300.0	7,106.4	10,270.4	7,106.4	70.2	69.5	-90.00	-3,544.4	59.2	659.7	520.6	139.01	4.745	
10,400.0	7,106.3	10,370.4	7,106.3	72.1	71.3	-90.00	-3,644.4	59.1	659.6	516.8	142.77	4.620	
10,500.0	7,106.2	10,470.4	7,106.2	74.0	73.2	-90.00	-3,744.4	59.1	659.6	513.0	146.53	4.501	
10,600.0	7,106.1	10,570.4	7,106.2	75.8	75.1	-90.00	-3,844.4	59.0	659.5	509.2	150.29	4.388	
10,700.0	7,106.1	10,670.4	7,106.1	77.7	77.0	-90.00	-3,944.4	59.0	659.4	505.4	154.06	4.280	
10,800.0	7,106.0	10,770.4	7,106.0	79.6	78.9	-90.00	-4,044.4	58.9	659.4	501.6	157.83	4.178	
10,900.0	7,105.9	10,870.4	7,105.9	81.4	80.8	-90.00	-4,144.4	58.9	659.3	497.7	161.61	4.080	
11,000.0	7,105.8	10,970.4	7,105.8	83.3	82.7	-90.00	-4,244.4	58.8	659.3	493.9	165.38	3.986	
11,100.0	7,105.7	11,070.4	7,105.7	85.2	84.5	-90.00	-4,344.4	58.7	659.2	490.1	169.17	3.897	
11,200.0	7,105.6	11,170.4	7,105.6	87.1	86.4	-90.00	-4,444.4	58.7	659.2	486.2	172.95	3.811	
11,300.0	7,105.5	11,270.4	7,105.5	89.0	88.3	-90.00	-4,544.4	58.6	659.1	482.4	176.74	3.729	
11,400.0	7,105.4	11,370.4	7,105.4	90.8	90.2	-90.00	-4,644.4	58.6	659.1	478.5	180.53	3.651	
11,500.0	7,105.3	11,470.4	7,105.3	92.7	92.1	-90.00	-4,744.4	58.5	659.0	474.7	184.32	3.575	
11,600.0	7,105.2	11,570.4	7,105.2	94.6	94.0	-90.00	-4,844.4	58.5	659.0	470.8	188.12	3.503	
11,700.0	7,105.1	11,670.4	7,105.1	96.5	95.9	-90.00	-4,944.4	58.4	658.9	467.0	191.91	3.433	
11,755.0	7,105.0	11,725.4	7,105.0	97.5	97.0	-90.00	-4,999.4	58.4	658.9	464.9	194.00	3.396	
11,776.3	7,105.0	11,739.0	7,105.0	97.9	97.2	-90.00	-5,013.0	58.4	658.9	464.2	194.66	3.385 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	88.25	88.25	3.6	119.5	119.6				
100.0	100.0	100.0	100.0	0.1	0.1	88.25	88.25	3.6	119.5	119.6	119.4	0.22	532.001	
200.0	200.0	200.0	200.0	0.3	0.3	88.25	88.25	3.6	119.5	119.6	118.9	0.67	177.334	
300.0	300.0	300.0	300.0	0.6	0.6	88.25	88.25	3.6	119.5	119.6	118.5	1.12	106.400	
400.0	400.0	400.0	400.0	0.8	0.8	88.25	88.25	3.6	119.5	119.6	118.0	1.57	76.000	
500.0	500.0	500.0	500.0	1.0	1.0	88.25	88.25	3.6	119.5	119.6	117.6	2.02	59.111	
600.0	600.0	600.0	600.0	1.2	1.2	88.25	88.25	3.6	119.5	119.6	117.1	2.47	48.364	
700.0	700.0	700.0	700.0	1.5	1.5	88.25	88.25	3.6	119.5	119.6	116.7	2.92	40.923	
800.0	800.0	800.0	800.0	1.7	1.7	88.25	88.25	3.6	119.5	119.6	116.2	3.37	35.467	
900.0	900.0	900.0	900.0	1.9	1.9	88.25	88.25	3.6	119.5	119.6	115.8	3.82	31.294	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	88.25	88.25	3.6	119.5	119.6	115.3	4.27	28.000 CC, ES	
1,100.0	1,100.0	1,095.9	1,095.9	2.3	2.3	-175.54	-175.54	3.5	121.1	123.0	118.3	4.68	26.268	
1,200.0	1,199.8	1,191.2	1,191.0	2.5	2.5	-175.46	-175.46	3.1	125.9	133.2	128.1	5.07	26.249 SF	
1,300.0	1,299.5	1,285.1	1,284.6	2.8	2.7	-175.34	-175.34	2.5	133.6	150.0	144.6	5.47	27.433	
1,400.0	1,398.7	1,377.2	1,376.1	3.0	3.0	-175.21	-175.21	1.6	144.2	173.5	167.6	5.87	29.569	
1,488.0	1,485.7	1,456.1	1,454.2	3.2	3.2	-175.09	-175.09	0.6	155.6	199.4	193.2	6.22	32.077	
1,500.0	1,497.5	1,466.7	1,464.7	3.3	3.2	-175.09	-175.09	0.5	157.3	203.3	197.0	6.27	32.444	
1,600.0	1,596.0	1,560.1	1,556.7	3.6	3.5	-175.00	-175.00	-0.8	172.8	236.3	229.6	6.69	35.344	
1,700.0	1,694.6	1,654.5	1,649.8	3.9	3.8	-174.94	-174.94	-2.2	188.6	269.4	262.3	7.11	37.901	
1,800.0	1,793.1	1,748.8	1,742.8	4.2	4.1	-174.88	-174.88	-3.5	204.3	302.4	294.9	7.54	40.132	
1,900.0	1,891.7	1,843.2	1,835.9	4.6	4.4	-174.84	-174.84	-4.8	220.1	335.5	327.5	7.97	42.084	
2,000.0	1,990.2	1,937.6	1,928.9	4.9	4.7	-174.81	-174.81	-6.1	235.8	368.5	360.1	8.41	43.799	
2,100.0	2,088.8	2,032.0	2,022.0	5.3	5.0	-174.78	-174.78	-7.4	251.5	401.6	392.7	8.86	45.325	
2,200.0	2,187.3	2,126.4	2,115.0	5.6	5.4	-174.76	-174.76	-8.8	267.3	434.6	425.3	9.31	46.682	
2,300.0	2,285.9	2,220.7	2,208.1	6.0	5.7	-174.74	-174.74	-10.1	283.0	467.7	457.9	9.76	47.896	
2,400.0	2,384.4	2,315.1	2,301.1	6.4	6.0	-174.72	-174.72	-11.4	298.7	500.7	490.5	10.22	48.987	
2,500.0	2,483.0	2,409.5	2,394.1	6.8	6.4	-174.70	-174.70	-12.7	314.5	533.8	523.1	10.68	49.971	
2,600.0	2,581.5	2,503.9	2,487.2	7.1	6.7	-174.69	-174.69	-14.1	330.2	566.8	555.7	11.14	50.863	
2,700.0	2,680.1	2,598.3	2,580.2	7.5	7.1	-174.68	-174.68	-15.4	345.9	599.9	588.3	11.61	51.675	
2,800.0	2,778.7	2,692.6	2,673.3	7.9	7.4	-174.67	-174.67	-16.7	361.7	633.0	620.9	12.08	52.415	
2,900.0	2,877.2	2,787.0	2,766.3	8.3	7.8	-174.66	-174.66	-18.0	377.4	666.0	653.5	12.54	53.094	
3,000.0	2,975.8	2,881.4	2,859.4	8.7	8.1	-174.65	-174.65	-19.4	393.1	699.1	686.1	13.01	53.717	
3,100.0	3,074.3	2,975.8	2,952.4	9.1	8.5	-174.64	-174.64	-20.7	408.9	732.1	718.6	13.49	54.291	
3,200.0	3,172.9	3,070.1	3,045.5	9.4	8.9	-174.63	-174.63	-22.0	424.6	765.2	751.2	13.96	54.822	
3,300.0	3,271.4	3,164.5	3,138.5	9.8	9.2	-174.62	-174.62	-23.3	440.3	798.2	783.8	14.43	55.313	
3,400.0	3,370.0	3,258.9	3,231.6	10.2	9.6	-174.62	-174.62	-24.6	456.1	831.3	816.4	14.91	55.770	
3,500.0	3,468.5	3,353.3	3,324.6	10.6	9.9	-174.61	-174.61	-26.0	471.8	864.3	849.0	15.38	56.195	
3,600.0	3,567.1	3,447.7	3,417.7	11.0	10.3	-174.61	-174.61	-27.3	487.6	897.4	881.5	15.86	56.591	
3,700.0	3,665.6	3,542.0	3,510.7	11.4	10.7	-174.60	-174.60	-28.6	503.3	930.4	914.1	16.33	56.961	
3,800.0	3,764.2	3,636.4	3,603.8	11.8	11.0	-174.60	-174.60	-29.9	519.0	963.5	946.7	16.81	57.308	
3,900.0	3,862.7	3,730.8	3,696.8	12.2	11.4	-174.59	-174.59	-31.3	534.8	996.6	979.3	17.29	57.634	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	88.61	3.6	150.1	150.1					
100.0	100.0	100.0	100.0	0.1	0.1	88.61	3.6	150.1	150.1	149.9	0.22	667.980		
200.0	200.0	200.0	200.0	0.3	0.3	88.61	3.6	150.1	150.1	149.5	0.67	222.660 CC, ES		
300.0	300.0	295.0	295.0	0.6	0.5	88.61	3.7	151.7	151.8	150.7	1.10	137.585		
400.0	400.0	389.8	389.6	0.8	0.8	88.61	3.8	156.4	156.8	155.2	1.54	101.851		
500.0	500.0	484.1	483.7	1.0	1.0	88.61	4.0	164.2	165.0	163.0	2.00	82.594		
600.0	600.0	577.9	576.8	1.2	1.3	88.61	4.3	175.0	176.6	174.1	2.49	70.997		
700.0	700.0	670.8	668.7	1.5	1.6	88.61	4.6	188.7	191.3	188.3	3.01	63.533		
800.0	800.0	762.8	759.2	1.7	1.9	88.61	5.0	205.2	209.3	205.7	3.58	58.521		
900.0	900.0	853.6	847.9	1.9	2.3	88.61	5.5	224.3	230.3	226.2	4.18	55.056		
1,000.0	1,000.0	946.5	938.2	2.1	2.7	88.61	6.0	246.5	254.2	249.3	4.84	52.510 SF		
1,100.0	1,100.0	1,043.1	1,031.9	2.3	3.2	-175.20	6.6	269.9	280.2	275.4	4.74	59.146		
1,200.0	1,199.8	1,138.7	1,124.6	2.5	3.7	-175.23	7.1	293.2	309.5	304.3	5.17	59.812		
1,300.0	1,299.5	1,233.2	1,216.3	2.8	4.1	-175.29	7.7	316.2	342.2	336.6	5.61	61.042		
1,400.0	1,398.7	1,326.5	1,306.8	3.0	4.6	-175.37	8.2	338.8	378.1	372.1	6.03	62.683		
1,488.0	1,485.7	1,407.6	1,385.4	3.2	5.0	-175.45	8.7	358.5	412.4	406.0	6.40	64.462		
1,500.0	1,497.5	1,418.5	1,396.0	3.3	5.1	-175.47	8.8	361.2	417.2	410.8	6.45	64.682		
1,600.0	1,596.0	1,510.0	1,484.8	3.6	5.6	-175.62	9.3	383.5	457.6	450.7	6.89	66.364		
1,700.0	1,694.6	1,601.5	1,573.5	3.9	6.0	-175.74	9.9	405.7	497.9	490.6	7.35	67.780		
1,800.0	1,793.1	1,693.0	1,662.2	4.2	6.5	-175.84	10.4	427.9	538.3	530.5	7.80	68.982		
1,900.0	1,891.7	1,784.5	1,751.0	4.6	7.0	-175.93	11.0	450.2	578.7	570.4	8.27	70.013		
2,000.0	1,990.2	1,876.0	1,839.7	4.9	7.5	-176.01	11.5	472.4	619.0	610.3	8.73	70.904		
2,100.0	2,088.8	1,967.5	1,928.5	5.3	7.9	-176.08	12.0	494.7	659.4	650.2	9.20	71.680		
2,200.0	2,187.3	2,058.9	2,017.2	5.6	8.4	-176.14	12.6	516.9	699.8	690.1	9.67	72.359		
2,300.0	2,285.9	2,150.4	2,106.0	6.0	8.9	-176.19	13.1	539.1	740.1	730.0	10.14	72.959		
2,400.0	2,384.4	2,241.9	2,194.7	6.4	9.4	-176.24	13.7	561.4	780.5	769.9	10.62	73.490		
2,500.0	2,483.0	2,333.4	2,283.4	6.8	9.9	-176.28	14.2	583.6	820.9	809.8	11.10	73.964		
2,600.0	2,581.5	2,424.9	2,372.2	7.1	10.3	-176.32	14.8	605.8	861.3	849.7	11.58	74.388		
2,700.0	2,680.1	2,516.4	2,460.9	7.5	10.8	-176.36	15.3	628.1	901.6	889.6	12.06	74.770		
2,800.0	2,778.7	2,607.9	2,549.7	7.9	11.3	-176.39	15.8	650.3	942.0	929.5	12.54	75.115		
2,900.0	2,877.2	2,699.3	2,638.4	8.3	11.8	-176.42	16.4	672.6	982.4	969.4	13.02	75.428		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	89.99	0.0	30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	89.99	0.0	30.6	30.6	30.4	0.22	136.030	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	89.99	0.0	30.6	30.6	29.9	0.67	45.343	
300.0	300.0	300.0	300.0	0.6	0.6	89.99	89.99	0.0	30.6	30.6	29.5	1.12	27.206	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	89.99	0.0	30.6	30.6	29.0	1.57	19.433	
500.0	500.0	500.0	500.0	1.0	1.0	89.99	89.99	0.0	30.6	30.6	28.6	2.02	15.114	
600.0	600.0	600.0	600.0	1.2	1.2	89.99	89.99	0.0	30.6	30.6	28.1	2.47	12.366	
700.0	700.0	700.0	700.0	1.5	1.5	89.99	89.99	0.0	30.6	30.6	27.7	2.92	10.464	
800.0	800.0	800.0	800.0	1.7	1.7	89.99	89.99	0.0	30.6	30.6	27.2	3.37	9.069	
900.0	900.0	900.0	900.0	1.9	1.9	89.99	89.99	0.0	30.6	30.6	26.8	3.82	8.002	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	89.99	0.0	30.6	30.6	26.3	4.27	7.159 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	-174.16	-174.16	0.0	30.6	32.3	27.6	4.70	6.869	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	-174.96	-174.96	0.0	30.6	37.5	32.4	5.12	7.325	
1,300.0	1,299.5	1,301.0	1,301.0	2.8	2.8	-176.12	-176.12	0.1	28.8	44.5	38.9	5.53	8.045	
1,400.0	1,398.7	1,402.5	1,402.3	3.0	3.0	-177.60	-177.60	0.4	23.4	51.4	45.5	5.92	8.683	
1,488.0	1,485.7	1,491.9	1,491.4	3.2	3.2	-179.08	-179.08	0.8	15.7	57.5	51.2	6.27	9.175	
1,500.0	1,497.5	1,504.2	1,503.6	3.3	3.2	-179.29	-179.29	0.8	14.5	58.3	52.0	6.32	9.229	
1,600.0	1,596.0	1,606.2	1,604.8	3.6	3.5	178.83	178.83	1.5	1.9	63.1	56.4	6.75	9.352	
1,700.0	1,694.6	1,707.7	1,705.0	3.9	3.8	176.61	176.61	2.3	-14.1	64.6	57.4	7.19	8.988	
1,800.0	1,793.1	1,807.6	1,803.6	4.2	4.0	174.33	174.33	3.2	-30.6	65.4	57.8	7.65	8.557	
1,900.0	1,891.7	1,907.6	1,902.2	4.6	4.3	172.12	172.12	4.0	-47.2	66.3	58.2	8.12	8.173	
2,000.0	1,990.2	2,007.6	2,000.8	4.9	4.7	169.96	169.96	4.9	-63.7	67.3	58.7	8.60	7.829	
2,100.0	2,088.8	2,107.5	2,099.4	5.3	5.0	167.87	167.87	5.8	-80.3	68.4	59.3	9.10	7.519	
2,200.0	2,187.3	2,207.5	2,197.9	5.6	5.3	165.85	165.85	6.6	-96.8	69.6	60.0	9.61	7.238	
2,300.0	2,285.9	2,307.4	2,296.5	6.0	5.7	163.90	163.90	7.5	-113.3	70.8	60.7	10.15	6.983	
2,400.0	2,384.4	2,407.4	2,395.1	6.4	6.0	162.02	162.02	8.3	-129.9	72.2	61.5	10.70	6.749	
2,500.0	2,483.0	2,507.4	2,493.7	6.8	6.4	160.21	160.21	9.2	-146.4	73.6	62.3	11.26	6.536	
2,600.0	2,581.5	2,607.3	2,592.3	7.1	6.7	158.47	158.47	10.1	-163.0	75.1	63.2	11.84	6.340	
2,700.0	2,680.1	2,707.3	2,690.8	7.5	7.1	156.80	156.80	10.9	-179.5	76.6	64.2	12.44	6.160	
2,800.0	2,778.7	2,807.3	2,789.4	7.9	7.5	155.19	155.19	11.8	-196.1	78.2	65.2	13.05	5.994	
2,900.0	2,877.2	2,907.2	2,888.0	8.3	7.8	153.65	153.65	12.6	-212.6	79.9	66.2	13.68	5.841	
3,000.0	2,975.8	3,007.2	2,986.6	8.7	8.2	152.18	152.18	13.5	-229.2	81.6	67.3	14.32	5.699	
3,100.0	3,074.3	3,105.8	3,083.9	9.1	8.5	151.05	151.05	14.3	-244.9	83.9	69.0	14.94	5.617	
3,200.0	3,172.9	3,203.4	3,180.7	9.4	8.8	151.24	151.24	15.0	-257.4	88.7	73.3	15.43	5.746	
3,300.0	3,271.4	3,300.0	3,276.9	9.8	9.0	152.61	152.61	15.5	-266.5	96.2	80.3	15.83	6.074	
3,400.0	3,370.0	3,397.2	3,373.8	10.2	9.2	154.82	154.82	15.8	-272.4	106.5	90.3	16.16	6.587	
3,500.0	3,468.5	3,492.9	3,469.6	10.6	9.4	157.45	157.45	15.9	-275.1	119.7	103.3	16.45	7.280	
3,600.0	3,567.1	3,590.4	3,567.1	11.0	9.5	160.13	160.13	15.9	-275.2	135.4	118.7	16.73	8.094	
3,700.0	3,665.6	3,689.0	3,665.6	11.4	9.7	162.31	162.31	15.9	-275.2	151.5	134.4	17.07	8.878	
3,800.0	3,764.2	3,787.5	3,764.2	11.8	9.9	164.07	164.07	15.9	-275.2	167.8	150.3	17.43	9.625	
3,900.0	3,862.7	3,886.1	3,862.7	12.2	10.0	165.51	165.51	15.9	-275.2	184.1	166.3	17.81	10.336	
4,000.0	3,961.3	3,984.6	3,961.3	12.6	10.2	166.72	166.72	15.9	-275.2	200.6	182.4	18.21	11.014	
4,100.0	4,059.8	4,083.2	4,059.8	13.0	10.4	167.75	167.75	15.9	-275.2	217.2	198.5	18.63	11.659	
4,200.0	4,158.4	4,181.7	4,158.4	13.4	10.6	168.63	168.63	15.9	-275.2	233.8	214.7	19.05	12.274	
4,300.0	4,256.9	4,280.3	4,256.9	13.7	10.8	169.40	169.40	15.9	-275.2	250.4	230.9	19.47	12.860	
4,400.0	4,355.5	4,378.8	4,355.5	14.1	11.0	170.07	170.07	15.9	-275.2	267.1	247.2	19.90	13.419	
4,500.0	4,454.0	4,477.4	4,454.0	14.5	11.1	170.66	170.66	15.9	-275.2	283.8	263.5	20.34	13.952	
4,561.2	4,514.3	4,537.7	4,514.3	14.8	11.3	170.98	170.98	15.9	-275.2	294.1	273.4	20.61	14.267	
4,600.0	4,552.6	4,576.0	4,552.6	14.9	11.3	171.19	171.19	15.9	-275.2	300.3	279.5	20.79	14.446	
4,700.0	4,651.7	4,675.0	4,651.7	15.2	11.5	171.62	171.62	15.9	-275.2	314.0	292.8	21.21	14.806	
4,800.0	4,751.1	4,774.5	4,751.1	15.4	11.7	171.92	171.92	15.9	-275.2	324.4	302.8	21.61	15.010	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,850.9	4,874.2	4,850.9	15.6	11.9	172.11		15.9	-275.2	331.2	309.3	21.99	15.066	
5,000.0	4,950.8	4,974.2	4,950.8	15.7	12.1	172.20		15.9	-275.2	334.7	312.3	22.33	14.984	
5,049.2	5,000.0	5,023.3	5,000.0	15.8	12.2	76.03		15.9	-275.2	335.1	312.6	22.50	14.893	
5,100.0	5,050.8	5,074.1	5,050.8	15.9	12.3	76.03		15.9	-275.2	335.1	312.4	22.70	14.760	
5,200.0	5,150.8	5,174.1	5,150.8	16.0	12.5	76.03		15.9	-275.2	335.1	312.0	23.11	14.501	
5,300.0	5,250.8	5,274.1	5,250.8	16.2	12.7	76.03		15.9	-275.2	335.1	311.6	23.52	14.249	
5,400.0	5,350.8	5,374.1	5,350.8	16.3	12.9	76.03		15.9	-275.2	335.1	311.2	23.92	14.006	
5,500.0	5,450.8	5,474.1	5,450.8	16.5	13.1	76.03		15.9	-275.2	335.1	310.8	24.34	13.770	
5,600.0	5,550.8	5,574.1	5,550.8	16.6	13.3	76.03		15.9	-275.2	335.1	310.3	24.75	13.541	
5,700.0	5,650.8	5,674.1	5,650.8	16.8	13.5	76.03		15.9	-275.2	335.1	309.9	25.16	13.318	
5,800.0	5,750.8	5,774.1	5,750.8	16.9	13.7	76.03		15.9	-275.2	335.1	309.5	25.57	13.103	
5,900.0	5,850.8	5,874.1	5,850.8	17.1	13.9	76.03		15.9	-275.2	335.1	309.1	25.99	12.893	
6,000.0	5,950.8	5,974.1	5,950.8	17.3	14.1	76.03		15.9	-275.2	335.1	308.7	26.41	12.690	
6,100.0	6,050.8	6,074.1	6,050.8	17.4	14.3	76.03		15.9	-275.2	335.1	308.3	26.82	12.493	
6,200.0	6,150.8	6,174.1	6,150.8	17.6	14.5	76.03		15.9	-275.2	335.1	307.8	27.24	12.301	
6,300.0	6,250.8	6,281.0	6,257.6	17.7	14.7	76.51		13.0	-275.2	334.5	306.8	27.64	12.102	
6,384.4	6,335.2	6,373.2	6,348.7	17.9	14.9	78.80		-0.6	-275.2	331.8	303.9	27.90	11.892	
6,400.0	6,350.8	6,389.9	6,365.0	17.9	14.9	-100.66		-4.2	-275.2	331.2	303.2	27.95	11.848	
6,450.0	6,400.7	6,442.7	6,416.0	18.0	15.0	-98.90		-18.0	-275.2	329.4	301.2	28.11	11.715	
6,500.0	6,450.4	6,494.7	6,465.1	18.1	15.1	-97.09		-35.0	-275.2	327.9	299.6	28.29	11.590	
6,550.0	6,499.5	6,545.9	6,512.3	18.2	15.2	-95.26		-55.0	-275.1	326.7	298.2	28.48	11.469	
6,600.0	6,548.0	6,596.4	6,557.3	18.2	15.3	-93.41		-77.7	-275.1	325.9	297.2	28.72	11.348	
6,650.0	6,595.5	6,646.1	6,600.1	18.3	15.4	-91.56		-103.0	-275.1	325.4	296.4	28.99	11.226	
6,687.4	6,630.3	6,682.8	6,630.7	18.4	15.5	-90.17		-123.4	-275.1	325.3	296.1	29.23	11.131	
6,700.0	6,641.9	6,695.2	6,640.7	18.4	15.5	-89.70		-130.6	-275.1	325.3	296.0	29.31	11.100	
6,750.0	6,687.0	6,743.6	6,678.9	18.6	15.6	-87.86		-160.3	-275.0	325.6	295.9	29.68	10.970	
6,800.0	6,730.6	6,791.3	6,714.6	18.7	15.8	-86.04		-191.9	-275.0	326.2	296.1	30.10	10.839	
6,850.0	6,772.5	6,838.4	6,747.9	18.8	15.9	-84.26		-225.3	-275.0	327.2	296.6	30.56	10.706	
6,900.0	6,812.5	6,885.0	6,778.7	19.0	16.1	-82.52		-260.2	-274.9	328.4	297.3	31.06	10.574	
6,950.0	6,850.5	6,931.1	6,807.0	19.2	16.4	-80.82		-296.5	-274.9	329.9	298.3	31.59	10.444	
7,000.0	6,886.3	6,976.6	6,832.9	19.4	16.6	-79.19		-334.0	-274.8	331.7	299.5	32.14	10.319	
7,050.0	6,919.7	7,021.7	6,856.2	19.6	16.9	-77.61		-372.6	-274.8	333.6	300.9	32.71	10.200	
7,100.0	6,950.7	7,066.3	6,876.9	19.8	17.3	-76.11		-412.1	-274.8	335.8	302.5	33.29	10.086	
7,150.0	6,978.9	7,110.6	6,895.2	20.1	17.6	-74.67		-452.4	-274.7	338.1	304.2	33.88	9.978	
7,200.0	7,004.5	7,154.4	6,911.0	20.5	18.0	-73.32		-493.2	-274.7	340.4	306.0	34.47	9.876	
7,250.0	7,027.1	7,200.0	6,925.0	20.8	18.5	-71.99		-536.7	-274.6	342.9	307.8	35.08	9.775	
7,300.0	7,046.8	7,241.1	6,935.3	21.2	18.9	-70.85		-576.4	-274.6	345.3	309.7	35.66	9.684	
7,350.0	7,063.5	7,284.0	6,943.7	21.6	19.4	-69.74		-618.5	-274.5	347.8	311.5	36.26	9.592	
7,400.0	7,077.0	7,326.6	6,949.8	22.1	19.9	-68.72		-660.6	-274.5	350.2	313.3	36.86	9.500	
7,450.0	7,087.4	7,368.9	6,953.4	22.6	20.4	-67.78		-702.8	-274.4	352.5	315.0	37.47	9.408	
7,504.4	7,095.0	7,414.8	6,954.8	23.2	21.0	-66.85		-748.6	-274.4	354.9	316.7	38.14	9.305	
7,578.4	7,102.7	7,487.4	6,954.3	24.1	22.0	-65.67		-821.3	-274.3	358.3	318.6	39.65	9.036	
7,600.0	7,104.8	7,508.9	6,954.1	24.4	22.3	-65.31		-842.8	-274.3	359.2	319.2	40.01	8.979	
7,699.5	7,109.0	7,608.3	6,953.4	25.6	23.7	-64.51		-942.1	-274.2	361.4	319.5	41.92	8.621	
7,800.0	7,108.9	7,708.8	6,952.7	27.0	25.2	-64.43		-1,042.6	-274.1	361.8	317.2	44.62	8.108	
7,900.0	7,108.8	7,808.8	6,952.0	28.4	26.7	-64.35		-1,142.6	-273.9	362.1	314.7	47.41	7.639	
8,000.0	7,108.7	7,908.8	6,951.3	29.9	28.3	-64.28		-1,242.6	-273.8	362.5	312.2	50.28	7.209	
8,100.0	7,108.6	8,008.8	6,950.7	31.4	29.9	-64.20		-1,342.6	-273.7	362.9	309.6	53.23	6.817	
8,200.0	7,108.5	8,108.8	6,950.0	33.0	31.6	-64.12		-1,442.6	-273.6	363.2	307.0	56.24	6.459	
8,300.0	7,108.4	8,208.8	6,949.3	34.6	33.3	-64.04		-1,542.6	-273.5	363.6	304.3	59.30	6.132	
8,400.0	7,108.3	8,308.8	6,948.6	36.3	35.0	-63.97		-1,642.6	-273.4	364.0	301.6	62.40	5.833	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

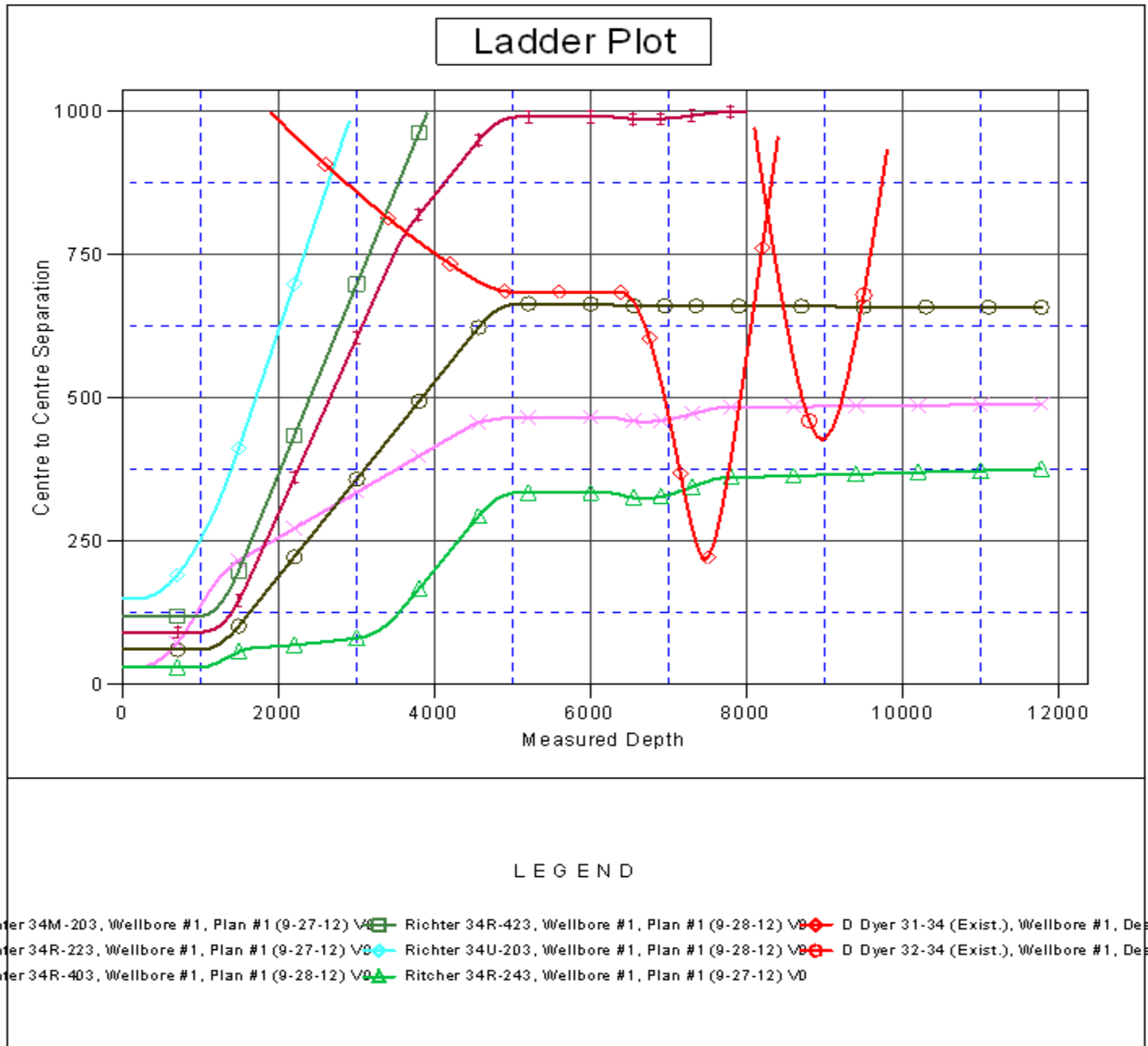
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-243 - Wellbore #1 - Plan #1 (9-27-12)													
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
8,500.0	7,108.2	8,408.7	6,947.9	37.9	36.7	-63.89	-1,742.6	-273.3	364.3	298.8	65.53	5.559	
8,600.0	7,108.1	8,508.7	6,947.2	39.6	38.5	-63.81	-1,842.6	-273.2	364.7	296.0	68.70	5.309	
8,700.0	7,108.0	8,608.7	6,946.5	41.3	40.2	-63.73	-1,942.6	-273.1	365.1	293.2	71.89	5.078	
8,800.0	7,107.9	8,708.7	6,945.8	43.1	42.0	-63.66	-2,042.6	-273.0	365.4	290.3	75.10	4.866	
8,900.0	7,107.8	8,808.7	6,945.1	44.8	43.8	-63.58	-2,142.6	-272.8	365.8	287.5	78.33	4.670	
9,000.0	7,107.7	8,908.7	6,944.4	46.6	45.6	-63.51	-2,242.6	-272.7	366.2	284.6	81.58	4.489	
9,100.0	7,107.6	9,008.7	6,943.7	48.3	47.4	-63.43	-2,342.6	-272.6	366.5	281.7	84.84	4.320	
9,200.0	7,107.5	9,108.7	6,943.0	50.1	49.2	-63.35	-2,442.6	-272.5	366.9	278.8	88.11	4.164	
9,300.0	7,107.4	9,208.7	6,942.3	51.9	51.1	-63.28	-2,542.5	-272.4	367.3	275.9	91.39	4.019	
9,400.0	7,107.3	9,308.7	6,941.6	53.7	52.9	-63.20	-2,642.5	-272.3	367.6	273.0	94.68	3.883	
9,500.0	7,107.2	9,408.7	6,940.9	55.5	54.8	-63.13	-2,742.5	-272.2	368.0	270.0	97.97	3.756	
9,600.0	7,107.1	9,508.7	6,940.2	57.4	56.6	-63.05	-2,842.5	-272.1	368.4	267.1	101.28	3.637	
9,700.0	7,107.0	9,608.7	6,939.5	59.2	58.4	-62.98	-2,942.5	-272.0	368.8	264.2	104.58	3.526	
9,800.0	7,106.9	9,708.7	6,938.8	61.0	60.3	-62.90	-3,042.5	-271.9	369.1	261.2	107.90	3.421	
9,900.0	7,106.8	9,808.7	6,938.1	62.8	62.2	-62.83	-3,142.5	-271.7	369.5	258.3	111.21	3.322	
10,000.0	7,106.7	9,908.7	6,937.4	64.7	64.0	-62.75	-3,242.5	-271.6	369.9	255.3	114.53	3.229	
10,100.0	7,106.6	10,008.7	6,936.7	66.5	65.9	-62.68	-3,342.5	-271.5	370.3	252.4	117.85	3.142	
10,200.0	7,106.5	10,108.7	6,936.0	68.4	67.8	-62.60	-3,442.5	-271.4	370.6	249.5	121.17	3.059	
10,300.0	7,106.4	10,208.7	6,935.3	70.2	69.6	-62.53	-3,542.5	-271.3	371.0	246.5	124.50	2.980	
10,400.0	7,106.3	10,308.7	6,934.6	72.1	71.5	-62.45	-3,642.5	-271.2	371.4	243.6	127.82	2.905	
10,500.0	7,106.2	10,408.7	6,933.9	74.0	73.4	-62.38	-3,742.5	-271.1	371.8	240.6	131.15	2.835	
10,600.0	7,106.1	10,508.7	6,933.2	75.8	75.3	-62.31	-3,842.5	-271.0	372.1	237.7	134.47	2.767	
10,700.0	7,106.1	10,608.7	6,932.5	77.7	77.2	-62.23	-3,942.5	-270.9	372.5	234.7	137.80	2.703	
10,800.0	7,106.0	10,708.7	6,931.8	79.6	79.1	-62.16	-4,042.5	-270.8	372.9	231.8	141.12	2.642	
10,900.0	7,105.9	10,808.7	6,931.1	81.4	80.9	-62.08	-4,142.5	-270.6	373.3	228.8	144.45	2.584	
11,000.0	7,105.8	10,908.7	6,930.4	83.3	82.8	-62.01	-4,242.5	-270.5	373.7	225.9	147.77	2.529	
11,100.0	7,105.7	11,008.7	6,929.7	85.2	84.7	-61.94	-4,342.5	-270.4	374.0	222.9	151.09	2.476	
11,200.0	7,105.6	11,108.7	6,929.0	87.1	86.6	-61.87	-4,442.5	-270.3	374.4	220.0	154.42	2.425	
11,300.0	7,105.5	11,208.7	6,928.3	89.0	88.5	-61.79	-4,542.5	-270.2	374.8	217.1	157.74	2.376	
11,400.0	7,105.4	11,308.7	6,927.6	90.8	90.4	-61.72	-4,642.5	-270.1	375.2	214.1	161.05	2.330	
11,500.0	7,105.3	11,408.7	6,926.9	92.7	92.3	-61.65	-4,742.5	-270.0	375.6	211.2	164.37	2.285	
11,600.0	7,105.2	11,508.7	6,926.2	94.6	94.2	-61.58	-4,842.4	-269.9	376.0	208.3	167.69	2.242	
11,700.0	7,105.1	11,608.7	6,925.5	96.5	96.1	-61.50	-4,942.4	-269.8	376.3	205.3	171.00	2.201	
11,776.3	7,105.0	11,682.9	6,925.0	97.9	97.5	-61.45	-5,016.7	-269.7	376.6	203.2	173.49	2.171 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4883.0ft (RKB - 13')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Richter 34M-423  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.63°





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-423
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (9-28-12)	<b>Offset TVD Reference:</b>	Offset Datum

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