

# PETROLEUM DEVELOPMENT CORP Weld County CO

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

Surface Location: Richter 27T-HZ Pad Sec.27-T7N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

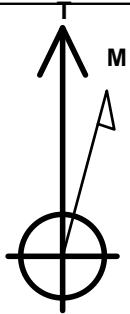
Ground Elevation: 4870.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1440181.01	3269248.12	40.537660	-104.531270	

RKB - 13' WELL @ 4883.0ft (RKB - 13')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape Point
BHL 500'FSL & 660'FEL	7105.0	-5013.0	600.5	Point



Azimuths to True North  
Magnetic North: 8.58°

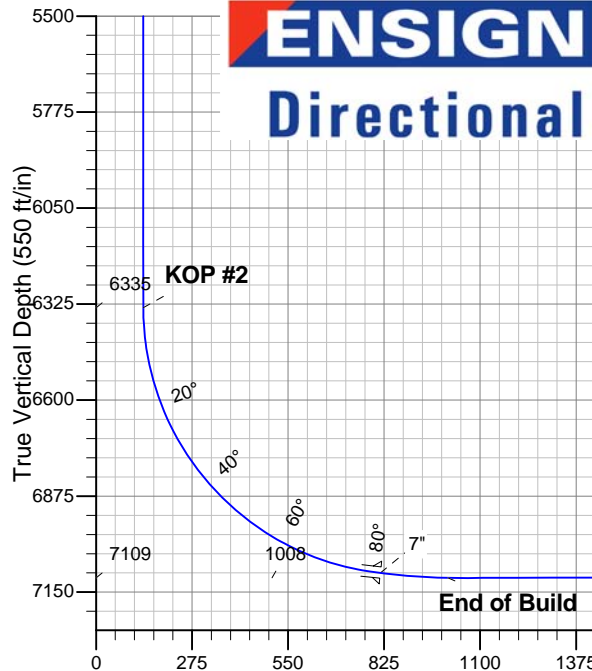
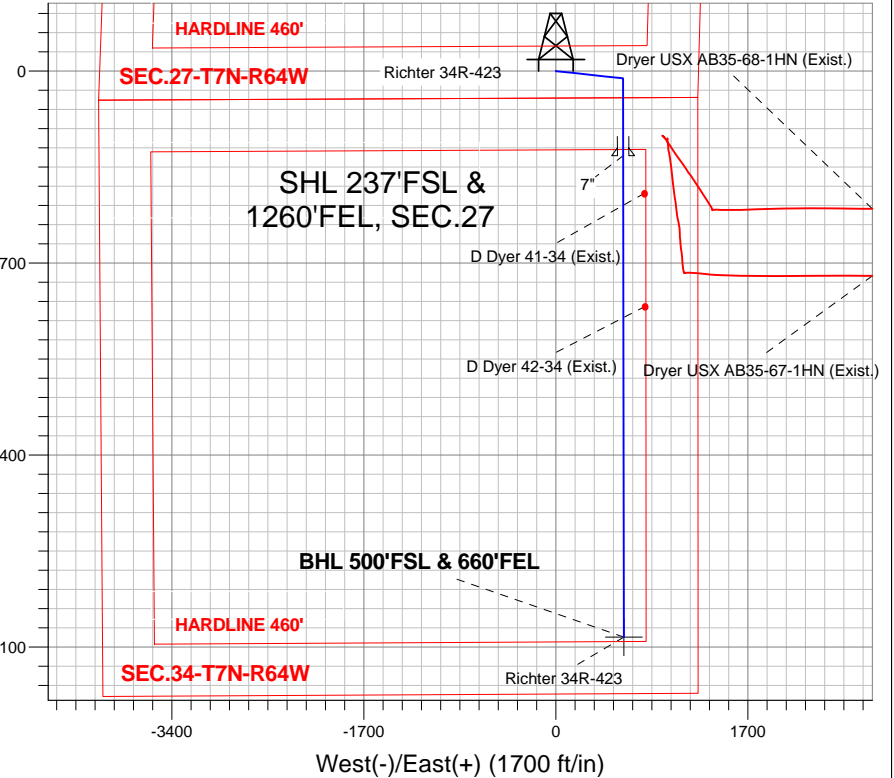
Magnetic Field  
Strength: 53091.8nT  
Dip Angle: 67.16°  
Date: 9/28/2012  
Model: IGRF2010

Richter 27T-HZ Pad Sec.27-T7N-R64W  
Richter 34R-423  
Plan #1 (9-28-12)  
13:19, October 03 2012

## ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6335.2	6383.5	KOP #2
7109.0	7698.6	End of Build

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



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1482.9	9.66	96.24	1480.6	-4.4	40.4	2.00	96.24	9.2	
4	4565.4	9.66	96.24	4519.4	-60.6	554.4	0.00	0.00	126.1	
5	5048.3	0.00	0.00	5000.0	-65.0	594.8	2.00	180.00	135.3	
6	6383.5	0.00	0.00	6335.2	-65.0	594.8	0.00	0.00	135.3	
7	7503.5	84.00	179.94	7095.0	-749.1	595.5	7.50	179.94	814.6	
8	7577.5	84.00	179.94	7102.7	-822.7	595.6	0.00	0.00	887.7	
9	7698.6	90.06	179.93	7109.0	-943.6	595.7	5.00	-0.07	1007.7	
10	11768.0	90.06	179.93	7105.0	-5013.0	600.5	0.00	0.00	5048.9	BHL 500'FSL & 660'FEL

Vertical Section at 173.17° (550 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.27-T7N-R64W**

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

**Richter 34R-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 34R-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 34R-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>From:</b> <b>Position Uncertainty:</b>			Lat/Long  0.0 ft			<b>Northing:</b>		1,440,175.74 ft		<b>Latitude:</b>		40.537650	
						<b>Easting:</b>		3,269,098.08 ft		<b>Longitude:</b>		-104.531810	
						<b>Slot Radius:</b>		"		<b>Grid Convergence:</b>		0.63 °	

Well	Richter 34R-423					
Well Position	+N-S	3.6 ft	Northing:	1,440,181.01 ft	Latitude:	40.537660
	+E-W	150.1 ft	Easting:	3,269,248.12 ft	Longitude:	-104.531270
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	173.17

<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	
1,482.9	9.66	96.24	1,480.6	-4.4	40.4	2.00	2.00	0.00	96.24	
4,565.4	9.66	96.24	4,519.4	-60.6	554.4	0.00	0.00	0.00	0.00	
5,048.3	0.00	0.00	5,000.0	-65.0	594.8	2.00	-2.00	0.00	180.00	
6,383.5	0.00	0.00	6,335.2	-65.0	594.8	0.00	0.00	0.00	0.00	
7,503.5	84.00	179.94	7,095.0	-749.1	595.5	7.50	7.50	0.00	179.94	
7,577.5	84.00	179.94	7,102.7	-822.7	595.6	0.00	0.00	0.00	0.00	
7,698.6	90.06	179.93	7,109.0	-943.6	595.7	5.00	5.00	-0.01	-0.07	
11,768.0	90.06	179.93	7,105.0	-5,013.0	600.5	0.00	0.00	0.00	0.00	BHL 500'FSL & 66C

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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	96.24	1,040.0	0.0	0.3	0.1	2.00	2.00	0.00
1,080.0	1.60	96.24	1,080.0	-0.1	1.1	0.3	2.00	2.00	0.00
1,120.0	2.40	96.24	1,120.0	-0.3	2.5	0.6	2.00	2.00	0.00
1,160.0	3.20	96.24	1,159.9	-0.5	4.4	1.0	2.00	2.00	0.00
1,200.0	4.00	96.24	1,199.8	-0.8	6.9	1.6	2.00	2.00	0.00
1,240.0	4.80	96.24	1,239.7	-1.1	10.0	2.3	2.00	2.00	0.00
1,280.0	5.60	96.24	1,279.6	-1.5	13.6	3.1	2.00	2.00	0.00
1,320.0	6.40	96.24	1,319.3	-1.9	17.7	4.0	2.00	2.00	0.00
1,360.0	7.20	96.24	1,359.1	-2.5	22.5	5.1	2.00	2.00	0.00
1,400.0	8.00	96.24	1,398.7	-3.0	27.7	6.3	2.00	2.00	0.00
1,440.0	8.80	96.24	1,438.3	-3.7	33.5	7.6	2.00	2.00	0.00
1,480.0	9.60	96.24	1,477.8	-4.4	39.9	9.1	2.00	2.00	0.00
1,482.9	9.66	96.24	1,480.6	-4.4	40.4	9.2	2.00	2.00	0.00
1,520.0	9.66	96.24	1,517.2	-5.1	46.6	10.6	0.00	0.00	0.00
1,560.0	9.66	96.24	1,556.6	-5.8	53.2	12.1	0.00	0.00	0.00
1,600.0	9.66	96.24	1,596.1	-6.5	59.9	13.6	0.00	0.00	0.00
1,640.0	9.66	96.24	1,635.5	-7.3	66.6	15.1	0.00	0.00	0.00
1,680.0	9.66	96.24	1,674.9	-8.0	73.2	16.7	0.00	0.00	0.00
1,720.0	9.66	96.24	1,714.4	-8.7	79.9	18.2	0.00	0.00	0.00
1,760.0	9.66	96.24	1,753.8	-9.5	86.6	19.7	0.00	0.00	0.00
1,800.0	9.66	96.24	1,793.2	-10.2	93.2	21.2	0.00	0.00	0.00
1,840.0	9.66	96.24	1,832.7	-10.9	99.9	22.7	0.00	0.00	0.00
1,880.0	9.66	96.24	1,872.1	-11.6	106.6	24.2	0.00	0.00	0.00
1,920.0	9.66	96.24	1,911.5	-12.4	113.3	25.8	0.00	0.00	0.00
1,960.0	9.66	96.24	1,951.0	-13.1	119.9	27.3	0.00	0.00	0.00
2,000.0	9.66	96.24	1,990.4	-13.8	126.6	28.8	0.00	0.00	0.00

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<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34R-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	9.66	96.24	2,029.8	-14.6	133.3	30.3	0.00	0.00	0.00
2,080.0	9.66	96.24	2,069.3	-15.3	139.9	31.8	0.00	0.00	0.00
2,120.0	9.66	96.24	2,108.7	-16.0	146.6	33.3	0.00	0.00	0.00
2,160.0	9.66	96.24	2,148.1	-16.8	153.3	34.9	0.00	0.00	0.00
2,200.0	9.66	96.24	2,187.6	-17.5	160.0	36.4	0.00	0.00	0.00
2,240.0	9.66	96.24	2,227.0	-18.2	166.6	37.9	0.00	0.00	0.00
2,280.0	9.66	96.24	2,266.4	-18.9	173.3	39.4	0.00	0.00	0.00
2,320.0	9.66	96.24	2,305.9	-19.7	180.0	40.9	0.00	0.00	0.00
2,360.0	9.66	96.24	2,345.3	-20.4	186.6	42.5	0.00	0.00	0.00
2,400.0	9.66	96.24	2,384.7	-21.1	193.3	44.0	0.00	0.00	0.00
2,440.0	9.66	96.24	2,424.2	-21.9	200.0	45.5	0.00	0.00	0.00
2,480.0	9.66	96.24	2,463.6	-22.6	206.7	47.0	0.00	0.00	0.00
2,520.0	9.66	96.24	2,503.0	-23.3	213.3	48.5	0.00	0.00	0.00
2,560.0	9.66	96.24	2,542.5	-24.0	220.0	50.0	0.00	0.00	0.00
2,600.0	9.66	96.24	2,581.9	-24.8	226.7	51.6	0.00	0.00	0.00
2,640.0	9.66	96.24	2,621.3	-25.5	233.3	53.1	0.00	0.00	0.00
2,680.0	9.66	96.24	2,660.7	-26.2	240.0	54.6	0.00	0.00	0.00
2,720.0	9.66	96.24	2,700.2	-27.0	246.7	56.1	0.00	0.00	0.00
2,760.0	9.66	96.24	2,739.6	-27.7	253.4	57.6	0.00	0.00	0.00
2,800.0	9.66	96.24	2,779.0	-28.4	260.0	59.1	0.00	0.00	0.00
2,840.0	9.66	96.24	2,818.5	-29.1	266.7	60.7	0.00	0.00	0.00
2,880.0	9.66	96.24	2,857.9	-29.9	273.4	62.2	0.00	0.00	0.00
2,920.0	9.66	96.24	2,897.3	-30.6	280.0	63.7	0.00	0.00	0.00
2,960.0	9.66	96.24	2,936.8	-31.3	286.7	65.2	0.00	0.00	0.00
3,000.0	9.66	96.24	2,976.2	-32.1	293.4	66.7	0.00	0.00	0.00
3,040.0	9.66	96.24	3,015.6	-32.8	300.0	68.2	0.00	0.00	0.00
3,080.0	9.66	96.24	3,055.1	-33.5	306.7	69.8	0.00	0.00	0.00
3,120.0	9.66	96.24	3,094.5	-34.2	313.4	71.3	0.00	0.00	0.00
3,160.0	9.66	96.24	3,133.9	-35.0	320.1	72.8	0.00	0.00	0.00
3,200.0	9.66	96.24	3,173.4	-35.7	326.7	74.3	0.00	0.00	0.00
3,240.0	9.66	96.24	3,212.8	-36.4	333.4	75.8	0.00	0.00	0.00
3,280.0	9.66	96.24	3,252.2	-37.2	340.1	77.3	0.00	0.00	0.00
3,320.0	9.66	96.24	3,291.7	-37.9	346.7	78.9	0.00	0.00	0.00
3,360.0	9.66	96.24	3,331.1	-38.6	353.4	80.4	0.00	0.00	0.00
3,400.0	9.66	96.24	3,370.5	-39.4	360.1	81.9	0.00	0.00	0.00
3,440.0	9.66	96.24	3,410.0	-40.1	366.8	83.4	0.00	0.00	0.00
3,480.0	9.66	96.24	3,449.4	-40.8	373.4	84.9	0.00	0.00	0.00
3,520.0	9.66	96.24	3,488.8	-41.5	380.1	86.5	0.00	0.00	0.00
3,560.0	9.66	96.24	3,528.3	-42.3	386.8	88.0	0.00	0.00	0.00
3,600.0	9.66	96.24	3,567.7	-43.0	393.4	89.5	0.00	0.00	0.00
3,640.0	9.66	96.24	3,607.1	-43.7	400.1	91.0	0.00	0.00	0.00
3,680.0	9.66	96.24	3,646.6	-44.5	406.8	92.5	0.00	0.00	0.00
3,720.0	9.66	96.24	3,686.0	-45.2	413.5	94.0	0.00	0.00	0.00
3,760.0	9.66	96.24	3,725.4	-45.9	420.1	95.6	0.00	0.00	0.00
3,800.0	9.66	96.24	3,764.9	-46.6	426.8	97.1	0.00	0.00	0.00
3,840.0	9.66	96.24	3,804.3	-47.4	433.5	98.6	0.00	0.00	0.00
3,880.0	9.66	96.24	3,843.7	-48.1	440.1	100.1	0.00	0.00	0.00
3,920.0	9.66	96.24	3,883.2	-48.8	446.8	101.6	0.00	0.00	0.00
3,960.0	9.66	96.24	3,922.6	-49.6	453.5	103.1	0.00	0.00	0.00
4,000.0	9.66	96.24	3,962.0	-50.3	460.2	104.7	0.00	0.00	0.00
4,040.0	9.66	96.24	4,001.5	-51.0	466.8	106.2	0.00	0.00	0.00
4,080.0	9.66	96.24	4,040.9	-51.7	473.5	107.7	0.00	0.00	0.00
4,120.0	9.66	96.24	4,080.3	-52.5	480.2	109.2	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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	9.66	96.24	4,119.8	-53.2	486.8	110.7	0.00	0.00	0.00
4,200.0	9.66	96.24	4,159.2	-53.9	493.5	112.2	0.00	0.00	0.00
4,240.0	9.66	96.24	4,198.6	-54.7	500.2	113.8	0.00	0.00	0.00
4,280.0	9.66	96.24	4,238.1	-55.4	506.8	115.3	0.00	0.00	0.00
4,320.0	9.66	96.24	4,277.5	-56.1	513.5	116.8	0.00	0.00	0.00
4,360.0	9.66	96.24	4,316.9	-56.8	520.2	118.3	0.00	0.00	0.00
4,400.0	9.66	96.24	4,356.4	-57.6	526.9	119.8	0.00	0.00	0.00
4,440.0	9.66	96.24	4,395.8	-58.3	533.5	121.3	0.00	0.00	0.00
4,480.0	9.66	96.24	4,435.2	-59.0	540.2	122.9	0.00	0.00	0.00
4,520.0	9.66	96.24	4,474.7	-59.8	546.9	124.4	0.00	0.00	0.00
4,560.0	9.66	96.24	4,514.1	-60.5	553.5	125.9	0.00	0.00	0.00
4,565.4	9.66	96.24	4,519.4	-60.6	554.4	126.1	0.00	0.00	0.00
4,600.0	8.97	96.24	4,553.6	-61.2	560.0	127.4	2.00	-2.00	0.00
4,640.0	8.17	96.24	4,593.1	-61.8	565.9	128.7	2.00	-2.00	0.00
4,680.0	7.37	96.24	4,632.8	-62.4	571.3	129.9	2.00	-2.00	0.00
4,720.0	6.57	96.24	4,672.5	-63.0	576.1	131.0	2.00	-2.00	0.00
4,760.0	5.77	96.24	4,712.2	-63.4	580.4	132.0	2.00	-2.00	0.00
4,800.0	4.97	96.24	4,752.1	-63.8	584.1	132.9	2.00	-2.00	0.00
4,840.0	4.17	96.24	4,791.9	-64.2	587.3	133.6	2.00	-2.00	0.00
4,880.0	3.37	96.24	4,831.8	-64.5	589.9	134.2	2.00	-2.00	0.00
4,920.0	2.57	96.24	4,871.8	-64.7	591.9	134.6	2.00	-2.00	0.00
4,960.0	1.77	96.24	4,911.8	-64.9	593.4	135.0	2.00	-2.00	0.00
5,000.0	0.97	96.24	4,951.7	-65.0	594.4	135.2	2.00	-2.00	0.00
5,040.0	0.17	96.24	4,991.7	-65.0	594.8	135.3	2.00	-2.00	0.00
5,048.3	0.00	0.00	5,000.0	-65.0	594.8	135.3	2.00	-2.00	0.00
5,080.0	0.00	0.00	5,031.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,120.0	0.00	0.00	5,071.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,160.0	0.00	0.00	5,111.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,200.0	0.00	0.00	5,151.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,240.0	0.00	0.00	5,191.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,280.0	0.00	0.00	5,231.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,320.0	0.00	0.00	5,271.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,360.0	0.00	0.00	5,311.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,400.0	0.00	0.00	5,351.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,440.0	0.00	0.00	5,391.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,480.0	0.00	0.00	5,431.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,520.0	0.00	0.00	5,471.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,560.0	0.00	0.00	5,511.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,600.0	0.00	0.00	5,551.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,640.0	0.00	0.00	5,591.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,680.0	0.00	0.00	5,631.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,720.0	0.00	0.00	5,671.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,760.0	0.00	0.00	5,711.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,800.0	0.00	0.00	5,751.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,840.0	0.00	0.00	5,791.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,880.0	0.00	0.00	5,831.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,920.0	0.00	0.00	5,871.7	-65.0	594.8	135.3	0.00	0.00	0.00
5,960.0	0.00	0.00	5,911.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,000.0	0.00	0.00	5,951.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,040.0	0.00	0.00	5,991.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,080.0	0.00	0.00	6,031.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,120.0	0.00	0.00	6,071.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,160.0	0.00	0.00	6,111.7	-65.0	594.8	135.3	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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	6,151.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,240.0	0.00	0.00	6,191.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,280.0	0.00	0.00	6,231.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,320.0	0.00	0.00	6,271.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,360.0	0.00	0.00	6,311.7	-65.0	594.8	135.3	0.00	0.00	0.00
6,383.5	0.00	0.00	6,335.2	-65.0	594.8	135.3	0.00	0.00	0.00
<b>KOP #2</b>									
6,400.0	1.24	179.94	6,351.7	-65.2	594.8	135.5	7.51	7.51	0.00
6,440.0	4.24	179.94	6,391.7	-67.1	594.8	137.4	7.50	7.50	0.00
6,480.0	7.24	179.94	6,431.5	-71.1	594.8	141.3	7.50	7.50	0.00
6,520.0	10.24	179.94	6,471.0	-77.2	594.8	147.4	7.50	7.50	0.00
6,560.0	13.24	179.94	6,510.2	-85.3	594.8	155.4	7.50	7.50	0.00
6,600.0	16.24	179.94	6,548.9	-95.5	594.8	165.6	7.50	7.50	0.00
6,640.0	19.24	179.94	6,587.0	-107.7	594.8	177.7	7.50	7.50	0.00
6,680.0	22.24	179.94	6,624.4	-121.8	594.9	191.7	7.50	7.50	0.00
6,720.0	25.24	179.94	6,661.0	-137.9	594.9	207.7	7.50	7.50	0.00
6,760.0	28.24	179.94	6,696.7	-155.9	594.9	225.6	7.50	7.50	0.00
6,800.0	31.24	179.94	6,731.4	-175.8	594.9	245.3	7.50	7.50	0.00
6,840.0	34.24	179.94	6,765.1	-197.4	594.9	266.8	7.50	7.50	0.00
6,880.0	37.24	179.94	6,797.5	-220.8	595.0	290.0	7.50	7.50	0.00
6,920.0	40.24	179.94	6,828.7	-245.8	595.0	314.8	7.50	7.50	0.00
6,960.0	43.24	179.94	6,858.6	-272.4	595.0	341.3	7.50	7.50	0.00
7,000.0	46.24	179.94	6,887.0	-300.6	595.0	369.2	7.50	7.50	0.00
7,040.0	49.24	179.94	6,913.9	-330.2	595.1	398.6	7.50	7.50	0.00
7,080.0	52.24	179.94	6,939.2	-361.1	595.1	429.4	7.50	7.50	0.00
7,120.0	55.24	179.94	6,962.8	-393.4	595.1	461.4	7.50	7.50	0.00
7,160.0	58.24	179.94	6,984.8	-426.8	595.2	494.6	7.50	7.50	0.00
7,200.0	61.24	179.94	7,004.9	-461.4	595.2	528.9	7.50	7.50	0.00
7,240.0	64.24	179.94	7,023.2	-496.9	595.3	564.2	7.50	7.50	0.00
7,280.0	67.24	179.94	7,039.7	-533.4	595.3	600.4	7.50	7.50	0.00
7,320.0	70.24	179.94	7,054.2	-570.7	595.3	637.4	7.50	7.50	0.00
7,360.0	73.24	179.94	7,066.7	-608.6	595.4	675.1	7.50	7.50	0.00
7,400.0	76.24	179.94	7,077.2	-647.2	595.4	713.5	7.50	7.50	0.00
7,440.0	79.24	179.94	7,085.7	-686.3	595.5	752.3	7.50	7.50	0.00
7,480.0	82.24	179.94	7,092.2	-725.8	595.5	791.5	7.50	7.50	0.00
7,503.5	84.00	179.94	7,095.0	-749.1	595.5	814.6	7.49	7.49	0.00
<b>7"</b>									
7,520.0	84.00	179.94	7,096.7	-765.5	595.5	830.9	0.00	0.00	0.00
7,560.0	84.00	179.94	7,100.9	-805.3	595.6	870.4	0.00	0.00	0.00
7,577.5	84.00	179.94	7,102.7	-822.7	595.6	887.7	0.00	0.00	0.00
7,600.0	85.13	179.94	7,104.8	-845.1	595.6	910.0	5.00	5.00	-0.01
7,640.0	87.13	179.94	7,107.5	-885.0	595.7	949.6	5.00	5.00	-0.01
7,680.0	89.13	179.93	7,108.9	-925.0	595.7	989.3	5.00	5.00	-0.01
7,698.6	90.06	179.93	7,109.0	-943.6	595.7	1,007.8	5.00	5.00	-0.01
<b>End of Build</b>									
7,720.0	90.06	179.93	7,109.0	-965.0	595.8	1,029.0	0.00	0.00	0.00
7,760.0	90.06	179.93	7,108.9	-1,005.0	595.8	1,068.7	0.00	0.00	0.00
7,800.0	90.06	179.93	7,108.9	-1,045.0	595.8	1,108.4	0.00	0.00	0.00
7,840.0	90.06	179.93	7,108.8	-1,085.0	595.9	1,148.2	0.00	0.00	0.00
7,880.0	90.06	179.93	7,108.8	-1,125.0	595.9	1,187.9	0.00	0.00	0.00
7,920.0	90.06	179.93	7,108.8	-1,165.0	596.0	1,227.6	0.00	0.00	0.00
7,960.0	90.06	179.93	7,108.7	-1,205.0	596.0	1,267.3	0.00	0.00	0.00
8,000.0	90.06	179.93	7,108.7	-1,245.0	596.1	1,307.1	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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	179.93	7,108.7	-1,285.0	596.1	1,346.8	0.00	0.00	0.00
8,080.0	90.06	179.93	7,108.6	-1,325.0	596.2	1,386.5	0.00	0.00	0.00
8,120.0	90.06	179.93	7,108.6	-1,365.0	596.2	1,426.2	0.00	0.00	0.00
8,160.0	90.06	179.93	7,108.5	-1,405.0	596.3	1,465.9	0.00	0.00	0.00
8,200.0	90.06	179.93	7,108.5	-1,445.0	596.3	1,505.7	0.00	0.00	0.00
8,240.0	90.06	179.93	7,108.5	-1,485.0	596.4	1,545.4	0.00	0.00	0.00
8,280.0	90.06	179.93	7,108.4	-1,525.0	596.4	1,585.1	0.00	0.00	0.00
8,320.0	90.06	179.93	7,108.4	-1,565.0	596.5	1,624.8	0.00	0.00	0.00
8,360.0	90.06	179.93	7,108.3	-1,605.0	596.5	1,664.5	0.00	0.00	0.00
8,400.0	90.06	179.93	7,108.3	-1,645.0	596.6	1,704.3	0.00	0.00	0.00
8,440.0	90.06	179.93	7,108.3	-1,685.0	596.6	1,744.0	0.00	0.00	0.00
8,480.0	90.06	179.93	7,108.2	-1,725.0	596.6	1,783.7	0.00	0.00	0.00
8,520.0	90.06	179.93	7,108.2	-1,765.0	596.7	1,823.4	0.00	0.00	0.00
8,560.0	90.06	179.93	7,108.1	-1,805.0	596.7	1,863.2	0.00	0.00	0.00
8,600.0	90.06	179.93	7,108.1	-1,845.0	596.8	1,902.9	0.00	0.00	0.00
8,640.0	90.06	179.93	7,108.1	-1,885.0	596.8	1,942.6	0.00	0.00	0.00
8,680.0	90.06	179.93	7,108.0	-1,925.0	596.9	1,982.3	0.00	0.00	0.00
8,720.0	90.06	179.93	7,108.0	-1,965.0	596.9	2,022.0	0.00	0.00	0.00
8,760.0	90.06	179.93	7,107.9	-2,005.0	597.0	2,061.8	0.00	0.00	0.00
8,800.0	90.06	179.93	7,107.9	-2,045.0	597.0	2,101.5	0.00	0.00	0.00
8,840.0	90.06	179.93	7,107.9	-2,085.0	597.1	2,141.2	0.00	0.00	0.00
8,880.0	90.06	179.93	7,107.8	-2,125.0	597.1	2,180.9	0.00	0.00	0.00
8,920.0	90.06	179.93	7,107.8	-2,165.0	597.2	2,220.7	0.00	0.00	0.00
8,960.0	90.06	179.93	7,107.7	-2,205.0	597.2	2,260.4	0.00	0.00	0.00
9,000.0	90.06	179.93	7,107.7	-2,245.0	597.3	2,300.1	0.00	0.00	0.00
9,040.0	90.06	179.93	7,107.7	-2,285.0	597.3	2,339.8	0.00	0.00	0.00
9,080.0	90.06	179.93	7,107.6	-2,325.0	597.3	2,379.5	0.00	0.00	0.00
9,120.0	90.06	179.93	7,107.6	-2,365.0	597.4	2,419.3	0.00	0.00	0.00
9,160.0	90.06	179.93	7,107.6	-2,405.0	597.4	2,459.0	0.00	0.00	0.00
9,200.0	90.06	179.93	7,107.5	-2,445.0	597.5	2,498.7	0.00	0.00	0.00
9,240.0	90.06	179.93	7,107.5	-2,485.0	597.5	2,538.4	0.00	0.00	0.00
9,280.0	90.06	179.93	7,107.4	-2,525.0	597.6	2,578.1	0.00	0.00	0.00
9,320.0	90.06	179.93	7,107.4	-2,565.0	597.6	2,617.9	0.00	0.00	0.00
9,360.0	90.06	179.93	7,107.4	-2,605.0	597.7	2,657.6	0.00	0.00	0.00
9,400.0	90.06	179.93	7,107.3	-2,645.0	597.7	2,697.3	0.00	0.00	0.00
9,440.0	90.06	179.93	7,107.3	-2,685.0	597.8	2,737.0	0.00	0.00	0.00
9,480.0	90.06	179.93	7,107.2	-2,725.0	597.8	2,776.8	0.00	0.00	0.00
9,520.0	90.06	179.93	7,107.2	-2,765.0	597.9	2,816.5	0.00	0.00	0.00
9,560.0	90.06	179.93	7,107.2	-2,805.0	597.9	2,856.2	0.00	0.00	0.00
9,600.0	90.06	179.93	7,107.1	-2,845.0	598.0	2,895.9	0.00	0.00	0.00
9,640.0	90.06	179.93	7,107.1	-2,885.0	598.0	2,935.6	0.00	0.00	0.00
9,680.0	90.06	179.93	7,107.0	-2,925.0	598.1	2,975.4	0.00	0.00	0.00
9,720.0	90.06	179.93	7,107.0	-2,965.0	598.1	3,015.1	0.00	0.00	0.00
9,760.0	90.06	179.93	7,107.0	-3,005.0	598.1	3,054.8	0.00	0.00	0.00
9,800.0	90.06	179.93	7,106.9	-3,045.0	598.2	3,094.5	0.00	0.00	0.00
9,840.0	90.06	179.93	7,106.9	-3,085.0	598.2	3,134.2	0.00	0.00	0.00
9,880.0	90.06	179.93	7,106.8	-3,125.0	598.3	3,174.0	0.00	0.00	0.00
9,920.0	90.06	179.93	7,106.8	-3,165.0	598.3	3,213.7	0.00	0.00	0.00
9,960.0	90.06	179.93	7,106.8	-3,205.0	598.4	3,253.4	0.00	0.00	0.00
10,000.0	90.06	179.93	7,106.7	-3,245.0	598.4	3,293.1	0.00	0.00	0.00
10,040.0	90.06	179.93	7,106.7	-3,285.0	598.5	3,332.9	0.00	0.00	0.00
10,080.0	90.06	179.93	7,106.7	-3,325.0	598.5	3,372.6	0.00	0.00	0.00
10,120.0	90.06	179.93	7,106.6	-3,365.0	598.6	3,412.3	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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	179.93	7,106.6	-3,405.0	598.6	3,452.0	0.00	0.00	0.00
10,200.0	90.06	179.93	7,106.5	-3,445.0	598.7	3,491.7	0.00	0.00	0.00
10,240.0	90.06	179.93	7,106.5	-3,485.0	598.7	3,531.5	0.00	0.00	0.00
10,280.0	90.06	179.93	7,106.5	-3,525.0	598.8	3,571.2	0.00	0.00	0.00
10,320.0	90.06	179.93	7,106.4	-3,565.0	598.8	3,610.9	0.00	0.00	0.00
10,360.0	90.06	179.93	7,106.4	-3,605.0	598.9	3,650.6	0.00	0.00	0.00
10,400.0	90.06	179.93	7,106.3	-3,645.0	598.9	3,690.4	0.00	0.00	0.00
10,440.0	90.06	179.93	7,106.3	-3,685.0	598.9	3,730.1	0.00	0.00	0.00
10,480.0	90.06	179.93	7,106.3	-3,725.0	599.0	3,769.8	0.00	0.00	0.00
10,520.0	90.06	179.93	7,106.2	-3,765.0	599.0	3,809.5	0.00	0.00	0.00
10,560.0	90.06	179.93	7,106.2	-3,805.0	599.1	3,849.2	0.00	0.00	0.00
10,600.0	90.06	179.93	7,106.1	-3,845.0	599.1	3,889.0	0.00	0.00	0.00
10,640.0	90.06	179.93	7,106.1	-3,885.0	599.2	3,928.7	0.00	0.00	0.00
10,680.0	90.06	179.93	7,106.1	-3,925.0	599.2	3,968.4	0.00	0.00	0.00
10,720.0	90.06	179.93	7,106.0	-3,965.0	599.3	4,008.1	0.00	0.00	0.00
10,760.0	90.06	179.93	7,106.0	-4,005.0	599.3	4,047.8	0.00	0.00	0.00
10,800.0	90.06	179.93	7,105.9	-4,045.0	599.4	4,087.6	0.00	0.00	0.00
10,840.0	90.06	179.93	7,105.9	-4,085.0	599.4	4,127.3	0.00	0.00	0.00
10,880.0	90.06	179.93	7,105.9	-4,125.0	599.5	4,167.0	0.00	0.00	0.00
10,920.0	90.06	179.93	7,105.8	-4,165.0	599.5	4,206.7	0.00	0.00	0.00
10,960.0	90.06	179.93	7,105.8	-4,205.0	599.6	4,246.5	0.00	0.00	0.00
11,000.0	90.06	179.93	7,105.8	-4,245.0	599.6	4,286.2	0.00	0.00	0.00
11,040.0	90.06	179.93	7,105.7	-4,285.0	599.6	4,325.9	0.00	0.00	0.00
11,080.0	90.06	179.93	7,105.7	-4,325.0	599.7	4,365.6	0.00	0.00	0.00
11,120.0	90.06	179.93	7,105.6	-4,365.0	599.7	4,405.3	0.00	0.00	0.00
11,160.0	90.06	179.93	7,105.6	-4,405.0	599.8	4,445.1	0.00	0.00	0.00
11,200.0	90.06	179.93	7,105.6	-4,445.0	599.8	4,484.8	0.00	0.00	0.00
11,240.0	90.06	179.93	7,105.5	-4,485.0	599.9	4,524.5	0.00	0.00	0.00
11,280.0	90.06	179.93	7,105.5	-4,525.0	599.9	4,564.2	0.00	0.00	0.00
11,320.0	90.06	179.93	7,105.4	-4,565.0	600.0	4,603.9	0.00	0.00	0.00
11,360.0	90.06	179.93	7,105.4	-4,605.0	600.0	4,643.7	0.00	0.00	0.00
11,400.0	90.06	179.93	7,105.4	-4,645.0	600.1	4,683.4	0.00	0.00	0.00
11,440.0	90.06	179.93	7,105.3	-4,685.0	600.1	4,723.1	0.00	0.00	0.00
11,480.0	90.06	179.93	7,105.3	-4,725.0	600.2	4,762.8	0.00	0.00	0.00
11,520.0	90.06	179.93	7,105.2	-4,765.0	600.2	4,802.6	0.00	0.00	0.00
11,560.0	90.06	179.93	7,105.2	-4,805.0	600.3	4,842.3	0.00	0.00	0.00
11,600.0	90.06	179.93	7,105.2	-4,845.0	600.3	4,882.0	0.00	0.00	0.00
11,640.0	90.06	179.93	7,105.1	-4,885.0	600.4	4,921.7	0.00	0.00	0.00
11,680.0	90.06	179.93	7,105.1	-4,925.0	600.4	4,961.4	0.00	0.00	0.00
11,720.0	90.06	179.93	7,105.0	-4,965.0	600.4	5,001.2	0.00	0.00	0.00
11,760.0	90.06	179.93	7,105.0	-5,005.0	600.5	5,040.9	0.00	0.00	0.00
11,768.0	90.06	179.93	7,105.0	-5,013.0	600.5	5,048.9	0.00	0.00	0.00
BHL 500'FSL & 660'FEL									

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-423	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-28-12)		

#### Targets

##### Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
BHL 500'FSL & 660'F	0.00	0.00	7,105.0	-5,013.0	600.5	1,435,175.01	3,269,903.33	40.523900	-104.529110
- plan hits target center									
- Point									

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,503.5	7,095.0	7"	7	7-1/2

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
6,383.5	6,335.2	-65.0	594.8	KOP #2
7,698.6	7,109.0	-943.6	595.7	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.27-T7N-R64W**

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

**Richter 34R-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 34R-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 34R-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>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft
<b>Warning Levels Evaluated at:</b>	2.00 Sigma
<b>Error Model:</b>	ISCWSA
<b>Scan Method:</b>	Closest Approach 3D
<b>Error Surface:</b>	Elliptical Conic

Survey Tool Program		Date	10/3/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,768.0	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)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Dyer 34R-203 Pad Sec.34-T7N-R64W						
D Dyer 41-34 (Exist.) - Wellbore #1 - Design #1	7,837.2	7,105.8	188.0	146.3	4.515	CC, ES, SF
D Dyer 42-34 (Exist.) - Wellbore #1 - Design #1	8,839.1	7,081.9	192.4	133.9	3.287	CC, ES, SF
Richter 27T-HZ Pad Sec.27-T7N-R64W						
Dryer USX AB35-67-1HN (Exist.) - Wellbore #1 - Wellbor	8,547.9	6,830.0	836.8	783.4	15.649	CC, ES
Dryer USX AB35-67-1HN (Exist.) - Wellbore #1 - Wellbor	8,800.0	6,839.0	873.9	816.3	15.181	SF
Dryer USX AB35-68-1HN (Exist.) - Wellbore #1 - Wellbor	2,333.6	2,180.4	981.8	972.8	109.336	CC, ES
Dryer USX AB35-68-1HN (Exist.) - Wellbore #1 - Wellbor	2,600.0	2,371.6	991.4	981.2	97.661	SF
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	200.0	200.0	150.1	149.5	222.660	CC, ES
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	1,000.0	946.3	254.2	249.3	52.375	SF
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	119.6	115.3	28.000	CC, ES
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	1,200.0	1,191.1	133.1	128.1	26.249	SF
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	1,000.0	1,000.0	27.8	23.5	6.509	CC, ES
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	11,768.0	11,682.4	376.6	203.3	2.173	SF
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	58.4	54.1	13.668	CC, ES
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	11,768.0	11,726.7	661.7	467.2	3.403	SF
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	30.6	29.9	45.343	CC, ES
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	11,768.0	11,780.9	492.8	307.3	2.657	SF
Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	1,000.0	1,000.0	89.0	84.7	20.845	CC, ES
Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	1,200.0	1,199.8	95.9	90.8	18.728	SF

<b>Offset Design</b>	Dyer 34R-203 Pad Sec.34-T7N-R64W - D Dyer 41-34 (Exist.) - Wellbore #1 - Design #1												<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b>	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)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
6,650.0	6,596.4	6,593.4	6,593.4	18.2	14.7	-11.64	-1,082.0	783.9	989.2	958.2	30.97	31.937		
6,700.0	6,642.8	6,639.8	6,639.8	18.3	14.8	-12.17	-1,082.0	783.9	970.9	940.4	30.51	31.821		
6,750.0	6,687.8	6,684.8	6,684.8	18.5	14.9	-12.82	-1,082.0	783.9	949.8	919.8	29.95	31.709		
6,800.0	6,731.4	6,728.4	6,728.4	18.6	15.0	-13.64	-1,082.0	783.9	925.7	896.4	29.30	31.590		
6,850.0	6,773.3	6,770.3	6,770.3	18.7	15.1	-14.63	-1,082.0	783.9	899.0	870.4	28.58	31.453		
6,900.0	6,813.3	6,810.3	6,810.3	18.9	15.2	-15.85	-1,082.0	783.9	869.7	841.9	27.81	31.276		
6,950.0	6,851.2	6,848.2	6,848.2	19.1	15.3	-17.34	-1,082.0	783.9	838.0	811.0	27.01	31.024		

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 34R-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 34R-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 41-34 (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	
7,000.0	6,887.0	6,884.0	6,884.0	19.3	15.4	-19.17	-1,082.0	783.9	803.9	777.7	26.23	30.647		
7,050.0	6,920.3	6,917.3	6,917.3	19.6	15.4	-21.44	-1,082.0	783.9	767.8	742.3	25.54	30.065		
7,100.0	6,951.2	6,948.2	6,948.2	19.8	15.5	-24.27	-1,082.0	783.9	729.7	704.7	25.02	29.164		
7,150.0	6,979.4	6,976.4	6,976.4	20.1	15.6	-27.79	-1,082.0	783.9	690.0	665.1	24.81	27.805		
7,200.0	7,004.9	7,001.9	7,001.9	20.5	15.6	-32.18	-1,082.0	783.9	648.7	623.6	25.08	25.866		
7,250.0	7,027.5	7,024.5	7,024.5	20.9	15.7	-37.66	-1,082.0	783.9	606.1	580.2	25.98	23.327		
7,300.0	7,047.2	7,044.2	7,044.2	21.3	15.7	-44.35	-1,082.0	783.9	562.6	535.0	27.62	20.369		
7,350.0	7,063.8	7,060.8	7,060.8	21.7	15.8	-52.29	-1,082.0	783.9	518.4	488.5	29.89	17.344		
7,400.0	7,077.2	7,074.2	7,074.2	22.2	15.8	-61.17	-1,082.0	783.9	473.9	441.4	32.44	14.609		
7,450.0	7,087.5	7,084.5	7,084.5	22.7	15.8	-70.36	-1,082.0	783.9	429.4	394.7	34.76	12.355		
7,503.5	7,095.0	7,092.0	7,092.0	23.3	15.8	-79.51	-1,082.0	783.9	382.5	346.0	36.55	10.464		
7,577.5	7,102.7	7,099.7	7,099.7	24.2	15.8	-81.79	-1,082.0	783.9	320.5	282.8	37.69	8.502		
7,600.0	7,104.8	7,101.8	7,101.8	24.5	15.9	-83.88	-1,082.0	783.9	302.6	264.5	38.12	7.939		
7,698.6	7,109.0	7,106.0	7,106.0	25.8	15.9	-90.04	-1,082.0	783.9	233.6	194.0	39.57	5.903		
7,700.0	7,109.0	7,106.0	7,106.0	25.8	15.9	-90.04	-1,082.0	783.9	232.7	193.2	39.59	5.879		
7,800.0	7,108.9	7,105.9	7,105.9	27.1	15.9	-90.01	-1,082.0	783.9	191.6	150.6	41.07	4.666		
7,837.2	7,108.8	7,105.8	7,105.8	27.7	15.9	-90.00	-1,082.0	783.9	188.0	146.3	41.64	4.515 CC, ES, SF		
7,900.0	7,108.8	7,105.8	7,105.8	28.6	15.9	-89.98	-1,082.0	783.9	198.2	155.6	42.60	4.652		
8,000.0	7,108.7	7,105.7	7,105.7	30.0	15.9	-89.95	-1,082.0	783.9	248.6	204.5	44.19	5.627		
8,100.0	7,108.6	7,105.6	7,105.6	31.6	15.9	-89.92	-1,082.0	783.9	323.1	277.3	45.81	7.053		
8,200.0	7,108.5	7,105.5	7,105.5	33.2	15.9	-89.89	-1,082.0	783.9	408.6	361.1	47.47	8.608		
8,300.0	7,108.4	7,105.4	7,105.4	34.8	15.9	-89.86	-1,082.0	783.9	499.5	450.3	49.15	10.162		
8,400.0	7,108.3	7,105.3	7,105.3	36.4	15.9	-89.83	-1,082.0	783.9	593.3	542.5	50.86	11.665		
8,500.0	7,108.2	7,105.2	7,105.2	38.1	15.9	-89.80	-1,082.0	783.9	688.9	636.3	52.60	13.098		
8,600.0	7,108.1	7,105.1	7,105.1	39.8	15.9	-89.77	-1,082.0	783.9	785.6	731.2	54.35	14.455		
8,700.0	7,108.0	7,105.0	7,105.0	41.5	15.9	-89.74	-1,082.0	783.9	883.0	826.9	56.11	15.736		
8,800.0	7,107.9	7,104.9	7,104.9	43.2	15.9	-89.71	-1,082.0	783.9	980.9	923.0	57.89	16.944		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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 42-34 (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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,900.0	7,108.8	7,082.8	7,082.8	28.6	15.8	-90.27	-2,083.9	789.5	958.6	916.1	42.54	22.535	
8,000.0	7,108.7	7,082.7	7,082.7	30.0	15.8	-90.24	-2,083.9	789.5	860.9	816.8	44.12	19.511	
8,100.0	7,108.6	7,082.6	7,082.6	31.6	15.8	-90.22	-2,083.9	789.5	763.8	718.0	45.75	16.695	
8,200.0	7,108.5	7,082.5	7,082.5	33.2	15.8	-90.19	-2,083.9	789.5	667.5	620.1	47.40	14.080	
8,300.0	7,108.4	7,082.4	7,082.4	34.8	15.8	-90.16	-2,083.9	789.5	572.4	523.3	49.09	11.661	
8,400.0	7,108.3	7,082.3	7,082.3	36.4	15.8	-90.13	-2,083.9	789.5	479.4	428.6	50.80	9.437	
8,500.0	7,108.2	7,082.2	7,082.2	38.1	15.8	-90.10	-2,083.9	789.5	389.9	337.4	52.53	7.422	
8,600.0	7,108.1	7,082.1	7,082.1	39.8	15.8	-90.07	-2,083.9	789.5	306.9	252.6	54.28	5.654	
8,700.0	7,108.0	7,082.0	7,082.0	41.5	15.8	-90.04	-2,083.9	789.5	237.4	181.4	56.05	4.236	
8,800.0	7,107.9	7,081.9	7,081.9	43.2	15.8	-90.01	-2,083.9	789.5	196.3	138.5	57.83	3.395	
8,839.1	7,107.9	7,081.9	7,081.9	43.9	15.8	-90.00	-2,083.9	789.5	192.4	133.9	58.53	3.287	CC, ES, SF
8,900.0	7,107.8	7,081.8	7,081.8	44.9	15.8	-89.98	-2,083.9	789.5	201.8	142.2	59.62	3.384	
9,000.0	7,107.7	7,081.7	7,081.7	46.7	15.8	-89.95	-2,083.9	789.5	250.8	189.4	61.43	4.083	
9,100.0	7,107.6	7,081.6	7,081.6	48.5	15.8	-89.92	-2,083.9	789.5	324.1	260.9	63.24	5.126	
9,200.0	7,107.5	7,081.5	7,081.5	50.3	15.8	-89.89	-2,083.9	789.5	408.9	343.9	65.06	6.286	
9,300.0	7,107.4	7,081.4	7,081.4	52.1	15.8	-89.87	-2,083.9	789.5	499.4	432.5	66.89	7.466	
9,400.0	7,107.3	7,081.3	7,081.3	53.9	15.8	-89.84	-2,083.9	789.5	592.9	524.2	68.73	8.628	
9,500.0	7,107.2	7,081.2	7,081.2	55.7	15.8	-89.81	-2,083.9	789.5	688.3	617.7	70.57	9.754	
9,600.0	7,107.1	7,081.1	7,081.1	57.5	15.8	-89.78	-2,083.9	789.5	784.8	712.4	72.42	10.838	
9,700.0	7,107.0	7,081.0	7,081.0	59.3	15.8	-89.75	-2,083.9	789.5	882.1	807.8	74.27	11.877	
9,800.0	7,106.9	7,080.9	7,080.9	61.1	15.8	-89.72	-2,083.9	789.5	979.9	903.8	76.13	12.873	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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>												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 839-MWD												<b>Offset Well Error:</b>	0.0 ft
Richter 27T-HZ Pad Sec.27-T7N-R64W - Dryer USX AB35-67-1HN (Exist.) - Wellbore #1 - Wellbore #1													
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
8,000.0	7,108.7	6,817.0	6,608.5	30.0	25.3	-53.18	-1,790.8	1,266.8	1,000.0	954.6	45.32	22.063	
8,100.0	7,108.6	6,817.0	6,608.5	31.6	25.3	-53.18	-1,790.8	1,266.8	948.9	902.3	46.67	20.334	
8,200.0	7,108.5	6,817.0	6,608.5	33.2	25.3	-53.18	-1,790.8	1,266.8	906.1	858.1	48.04	18.862	
8,300.0	7,108.4	6,817.0	6,608.5	34.8	25.3	-53.18	-1,790.8	1,266.8	872.7	823.3	49.44	17.654	
8,400.0	7,108.3	6,817.0	6,608.5	36.4	25.3	-53.18	-1,790.8	1,266.8	849.9	799.0	50.85	16.712	
8,500.0	7,108.2	6,828.4	6,617.8	38.1	25.3	-53.96	-1,791.5	1,273.4	838.2	785.5	52.71	15.901	
8,547.9	7,108.2	6,830.0	6,619.0	38.9	25.3	-54.06	-1,791.6	1,274.3	836.8	783.4	53.47	15.649 CC, ES	
8,600.0	7,108.1	6,831.7	6,620.5	39.8	25.3	-54.19	-1,791.8	1,275.3	838.4	784.1	54.30	15.440	
8,700.0	7,108.0	6,835.3	6,623.3	41.5	25.4	-54.43	-1,792.0	1,277.4	850.5	794.6	55.92	15.209	
8,800.0	7,107.9	6,839.0	6,626.3	43.2	25.4	-54.68	-1,792.3	1,279.6	873.9	816.3	57.56	15.181 SF	
8,900.0	7,107.8	6,848.0	6,633.5	44.9	25.4	-55.30	-1,793.0	1,285.0	907.7	848.3	59.44	15.272	
9,000.0	7,107.7	6,848.0	6,633.5	46.7	25.4	-55.30	-1,793.0	1,285.0	950.8	889.9	60.96	15.597	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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>												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 839-MWD												<b>Offset Well Error:</b>	0.0 ft
Richter 27T-HZ Pad Sec.27-T7N-R64W - Dryer USX AB35-68-1HN (Exist.) - Wellbore #1 - Wellbore #1													
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
2,000.0	1,990.4	1,914.0	1,913.5	4.9	3.2	28.23	-576.0	944.8	995.8	988.3	7.55	131.811	
2,100.0	2,089.0	2,009.0	2,008.2	5.3	3.4	28.74	-581.3	950.4	989.0	981.0	8.00	123.623	
2,200.0	2,187.6	2,081.4	2,080.2	5.6	3.5	29.15	-586.4	955.6	984.2	975.8	8.41	117.006	
2,300.0	2,286.1	2,155.6	2,153.9	6.0	3.7	29.61	-593.2	962.0	981.9	973.1	8.84	111.133	
2,333.6	2,319.3	2,180.4	2,178.3	6.1	3.7	29.78	-595.9	964.3	981.8	972.8	8.98	109.336 CC, ES	
2,400.0	2,384.7	2,230.3	2,227.6	6.3	3.8	30.14	-602.0	969.4	982.3	973.1	9.27	105.971	
2,500.0	2,483.3	2,294.0	2,290.3	6.7	4.0	30.64	-611.2	976.1	985.4	975.7	9.69	101.724	
2,600.0	2,581.9	2,371.6	2,366.2	7.1	4.2	31.32	-624.6	985.4	991.4	981.2	10.15	97.661 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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)	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	-91.39	-91.39	-3.6	-150.1	150.1				
100.0	100.0	100.0	100.0	0.1	0.1	-91.39	-91.39	-3.6	-150.1	150.1	149.9	0.22	667.981	
200.0	200.0	200.0	200.0	0.3	0.3	-91.39	-91.39	-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	-91.37	-91.37	-3.6	-151.7	151.8	150.7	1.10	137.585	
400.0	400.0	389.8	389.6	0.8	0.8	-91.30	-91.30	-3.5	-156.4	156.8	155.2	1.54	101.818	
500.0	500.0	484.1	483.7	1.0	1.0	-91.19	-91.19	-3.4	-164.2	165.0	163.0	2.00	82.528	
600.0	600.0	577.9	576.8	1.2	1.3	-91.06	-91.06	-3.2	-175.0	176.5	174.1	2.49	70.906	
700.0	700.0	670.8	668.7	1.5	1.6	-90.91	-90.91	-3.0	-188.7	191.3	188.3	3.02	63.422	
800.0	800.0	762.8	759.2	1.7	1.9	-90.76	-90.76	-2.7	-205.2	209.2	205.6	3.58	58.395	
900.0	900.0	853.6	847.9	1.9	2.3	-90.62	-90.62	-2.4	-224.3	230.3	226.1	4.19	54.912	
1,000.0	1,000.0	946.3	938.0	2.1	2.7	-90.48	-90.48	-2.0	-246.5	254.2	249.3	4.85	52.375 SF	
1,100.0	1,100.0	1,042.9	1,031.6	2.3	3.2	173.39	173.39	-1.7	-270.0	280.2	275.5	4.74	59.172	
1,200.0	1,199.8	1,138.4	1,124.3	2.5	3.7	173.54	173.54	-1.3	-293.3	309.6	304.5	5.17	59.848	
1,300.0	1,299.5	1,232.9	1,215.9	2.8	4.2	173.71	173.71	-0.9	-316.4	342.3	336.7	5.60	61.084	
1,400.0	1,398.7	1,326.2	1,306.4	3.0	4.7	173.88	173.88	-0.5	-339.2	378.3	372.3	6.03	62.726	
1,482.9	1,480.6	1,402.6	1,380.4	3.2	5.1	174.03	174.03	-0.2	-357.8	410.6	404.2	6.38	64.397	
1,500.0	1,497.5	1,418.2	1,395.6	3.3	5.1	174.08	174.08	-0.1	-361.6	417.5	411.0	6.45	64.708	
1,600.0	1,596.1	1,509.7	1,484.4	3.6	5.6	174.32	174.32	0.2	-383.9	457.7	450.8	6.90	66.365	
1,700.0	1,694.6	1,601.3	1,573.1	3.9	6.1	174.52	174.52	0.6	-406.3	498.0	490.6	7.35	67.761	
1,800.0	1,793.2	1,692.8	1,661.9	4.2	6.6	174.69	174.69	1.0	-428.6	538.2	530.4	7.81	68.946	
1,900.0	1,891.8	1,784.3	1,750.7	4.6	7.1	174.84	174.84	1.4	-450.9	578.5	570.2	8.27	69.961	
2,000.0	1,990.4	1,875.9	1,839.4	4.9	7.5	174.97	174.97	1.7	-473.3	618.8	610.0	8.73	70.839	
2,100.0	2,089.0	1,967.4	1,928.2	5.3	8.0	175.08	175.08	2.1	-495.6	659.0	649.8	9.20	71.604	
2,200.0	2,187.6	2,058.9	2,016.9	5.6	8.5	175.18	175.18	2.5	-517.9	699.3	689.6	9.68	72.273	
2,300.0	2,286.1	2,150.4	2,105.7	6.0	9.0	175.27	175.27	2.8	-540.2	739.6	729.4	10.15	72.864	
2,400.0	2,384.7	2,242.0	2,194.5	6.3	9.5	175.35	175.35	3.2	-562.6	779.8	769.2	10.63	73.388	
2,500.0	2,483.3	2,333.5	2,283.2	6.7	10.0	175.42	175.42	3.6	-584.9	820.1	809.0	11.10	73.855	
2,600.0	2,581.9	2,425.0	2,372.0	7.1	10.4	175.48	175.48	3.9	-607.2	860.4	848.8	11.58	74.273	
2,700.0	2,680.5	2,516.5	2,460.7	7.5	10.9	175.54	175.54	4.3	-629.6	900.7	888.6	12.07	74.649	
2,800.0	2,779.0	2,608.1	2,549.5	7.8	11.4	175.59	175.59	4.7	-651.9	940.9	928.4	12.55	74.989	
2,900.0	2,877.6	2,699.6	2,638.3	8.2	11.9	175.64	175.64	5.1	-674.2	981.2	968.2	13.03	75.298	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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-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 (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-91.75	-91.75	-3.6	-119.5	119.6				
100.0	100.0	100.0	100.0	0.1	0.1	-91.75	-91.75	-3.6	-119.5	119.6	119.4	0.22	532.001	
200.0	200.0	200.0	200.0	0.3	0.3	-91.75	-91.75	-3.6	-119.5	119.6	118.9	0.67	177.334	
300.0	300.0	300.0	300.0	0.6	0.6	-91.75	-91.75	-3.6	-119.5	119.6	118.5	1.12	106.400	
400.0	400.0	400.0	400.0	0.8	0.8	-91.75	-91.75	-3.6	-119.5	119.6	118.0	1.57	76.000	
500.0	500.0	500.0	500.0	1.0	1.0	-91.75	-91.75	-3.6	-119.5	119.6	117.6	2.02	59.111	
600.0	600.0	600.0	600.0	1.2	1.2	-91.75	-91.75	-3.6	-119.5	119.6	117.1	2.47	48.364	
700.0	700.0	700.0	700.0	1.5	1.5	-91.75	-91.75	-3.6	-119.5	119.6	116.7	2.92	40.923	
800.0	800.0	800.0	800.0	1.7	1.7	-91.75	-91.75	-3.6	-119.5	119.6	116.2	3.37	35.467	
900.0	900.0	900.0	900.0	1.9	1.9	-91.75	-91.75	-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	-91.75	-91.75	-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	172.06	172.06	-3.8	-121.1	123.0	118.3	4.68	26.269	
1,200.0	1,199.8	1,191.1	1,191.0	2.5	2.5	172.17	172.17	-4.3	-125.9	133.1	128.1	5.07	26.249 SF	
1,300.0	1,299.5	1,285.1	1,284.6	2.8	2.7	172.31	172.31	-5.2	-133.6	150.0	144.5	5.47	27.429	
1,400.0	1,398.7	1,377.1	1,376.0	3.0	3.0	172.46	172.46	-6.3	-144.2	173.4	167.5	5.87	29.560	
1,482.9	1,480.6	1,451.6	1,449.7	3.2	3.1	172.56	172.56	-7.5	-154.8	197.7	191.5	6.20	31.903	
1,500.0	1,497.5	1,466.7	1,464.7	3.3	3.2	172.60	172.60	-7.7	-157.2	203.1	196.9	6.27	32.421	
1,600.0	1,596.1	1,559.6	1,556.2	3.6	3.5	172.75	172.75	-9.4	-172.8	236.1	229.4	6.69	35.310	
1,700.0	1,694.6	1,654.0	1,649.2	3.9	3.8	172.86	172.86	-11.1	-188.7	269.2	262.1	7.11	37.869	
1,800.0	1,793.2	1,748.4	1,742.2	4.2	4.1	172.95	172.95	-12.9	-204.6	302.2	294.7	7.54	40.098	
1,900.0	1,891.8	1,842.7	1,835.2	4.6	4.4	173.02	173.02	-14.6	-220.5	335.3	327.3	7.97	42.051	
2,000.0	1,990.4	1,937.1	1,928.3	4.9	4.7	173.08	173.08	-16.3	-236.4	368.3	359.9	8.42	43.764	
2,100.0	2,089.0	2,031.5	2,021.3	5.3	5.0	173.13	173.13	-18.0	-252.3	401.4	392.5	8.86	45.287	
2,200.0	2,187.6	2,125.9	2,114.3	5.6	5.4	173.17	173.17	-19.7	-268.2	434.4	425.1	9.31	46.643	
2,300.0	2,286.1	2,220.2	2,207.3	6.0	5.7	173.20	173.20	-21.5	-284.2	467.5	457.7	9.77	47.855	
2,400.0	2,384.7	2,314.6	2,300.3	6.3	6.1	173.23	173.23	-23.2	-300.1	500.5	490.3	10.23	48.944	
2,500.0	2,483.3	2,409.0	2,393.3	6.7	6.4	173.26	173.26	-24.9	-316.0	533.6	522.9	10.69	49.926	
2,600.0	2,581.9	2,503.4	2,486.3	7.1	6.8	173.29	173.29	-26.6	-331.9	566.7	555.5	11.15	50.816	
2,700.0	2,680.5	2,597.8	2,579.3	7.5	7.1	173.31	173.31	-28.4	-347.8	599.7	588.1	11.62	51.625	
2,800.0	2,779.0	2,692.1	2,672.4	7.8	7.5	173.33	173.33	-30.1	-363.7	632.8	620.7	12.08	52.363	
2,900.0	2,877.6	2,786.5	2,765.4	8.2	7.9	173.34	173.34	-31.8	-379.6	665.8	653.3	12.55	53.039	
3,000.0	2,976.2	2,880.9	2,858.4	8.6	8.2	173.36	173.36	-33.5	-395.5	698.9	685.9	13.02	53.660	
3,100.0	3,074.8	2,975.3	2,951.4	9.0	8.6	173.37	173.37	-35.2	-411.4	731.9	718.4	13.50	54.232	
3,200.0	3,173.4	3,069.7	3,044.4	9.4	8.9	173.39	173.39	-37.0	-427.3	765.0	751.0	13.97	54.760	
3,300.0	3,272.0	3,164.0	3,137.4	9.7	9.3	173.40	173.40	-38.7	-443.2	798.1	783.6	14.44	55.250	
3,400.0	3,370.5	3,258.4	3,230.4	10.1	9.7	173.41	173.41	-40.4	-459.1	831.1	816.2	14.92	55.704	
3,500.0	3,469.1	3,352.8	3,323.4	10.5	10.0	173.42	173.42	-42.1	-475.0	864.2	848.8	15.40	56.127	
3,600.0	3,567.7	3,447.2	3,416.5	10.9	10.4	173.43	173.43	-43.9	-490.9	897.2	881.3	15.87	56.521	
3,700.0	3,666.3	3,541.5	3,509.5	11.3	10.8	173.44	173.44	-45.6	-506.8	930.3	913.9	16.35	56.890	
3,800.0	3,764.9	3,635.9	3,602.5	11.7	11.1	173.44	173.44	-47.3	-522.8	963.3	946.5	16.83	57.235	
3,900.0	3,863.5	3,730.3	3,695.5	12.0	11.5	173.45	173.45	-49.0	-538.7	996.4	979.1	17.31	57.558	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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
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	-90.00	-90.00	0.0	-27.8	27.8				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-27.8	27.8	27.6	0.22	123.664	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-27.8	27.8	27.1	0.67	41.221	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-27.8	27.8	26.7	1.12	24.733	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-27.8	27.8	26.2	1.57	17.666	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-27.8	27.8	25.8	2.02	13.740	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-27.8	27.8	25.3	2.47	11.242	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-27.8	27.8	24.9	2.92	9.513	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-27.8	27.8	24.4	3.37	8.244	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	-90.00	0.0	-27.8	27.8	24.0	3.82	7.274	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	-90.00	0.0	-27.8	27.8	23.5	4.27	6.509 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	174.13	174.13	0.0	-27.8	29.5	24.8	4.70	6.278	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	175.00	175.00	0.0	-27.8	34.7	29.6	5.12	6.783	
1,300.0	1,299.5	1,300.9	1,300.9	2.8	2.8	176.30	176.30	0.1	-26.0	41.7	36.2	5.53	7.543	
1,400.0	1,398.7	1,402.3	1,402.1	3.0	3.0	178.03	178.03	0.6	-20.7	48.6	42.7	5.92	8.219	
1,482.9	1,480.6	1,486.4	1,486.0	3.2	3.2	179.67	179.67	1.2	-13.5	54.4	48.2	6.25	8.717	
1,500.0	1,497.5	1,503.8	1,503.3	3.3	3.2	-179.98	-179.98	1.3	-11.8	55.6	49.3	6.32	8.800	
1,600.0	1,596.1	1,605.6	1,604.3	3.6	3.5	-177.72	-177.72	2.3	0.8	60.3	53.6	6.75	8.941	
1,700.0	1,694.6	1,705.5	1,703.2	3.9	3.7	-175.46	-175.46	3.5	14.7	63.6	56.4	7.19	8.847	
1,800.0	1,793.2	1,805.4	1,802.1	4.2	4.0	-173.42	-173.42	4.6	28.6	67.0	59.3	7.64	8.761	
1,900.0	1,891.8	1,905.4	1,901.1	4.6	4.3	-171.58	-171.58	5.7	42.4	70.4	62.3	8.11	8.683	
2,000.0	1,990.4	2,005.3	2,000.0	4.9	4.6	-169.91	-169.91	6.9	56.3	73.9	65.3	8.58	8.611	
2,100.0	2,089.0	2,105.2	2,099.0	5.3	4.9	-168.40	-168.40	8.0	70.2	77.4	68.4	9.06	8.542	
2,200.0	2,187.6	2,205.1	2,197.9	5.6	5.2	-167.01	-167.01	9.1	84.1	81.0	71.5	9.56	8.477	
2,300.0	2,286.1	2,305.0	2,296.8	6.0	5.5	-165.75	-165.75	10.2	98.0	84.7	74.6	10.06	8.416	
2,400.0	2,384.7	2,404.9	2,395.8	6.3	5.8	-164.59	-164.59	11.4	111.9	88.4	77.8	10.57	8.357	
2,500.0	2,483.3	2,504.9	2,494.7	6.7	6.1	-163.52	-163.52	12.5	125.8	92.1	81.0	11.09	8.300	
2,600.0	2,581.9	2,604.8	2,593.7	7.1	6.4	-162.54	-162.54	13.6	139.7	95.8	84.2	11.62	8.246	
2,700.0	2,680.5	2,704.7	2,692.6	7.5	6.8	-161.63	-161.63	14.8	153.6	99.6	87.4	12.15	8.195	
2,800.0	2,779.0	2,804.6	2,791.5	7.8	7.1	-160.78	-160.78	15.9	167.5	103.4	90.7	12.69	8.146	
2,900.0	2,877.6	2,904.5	2,890.5	8.2	7.4	-160.00	-160.00	17.0	181.3	107.2	94.0	13.24	8.099	
3,000.0	2,976.2	3,004.4	2,989.4	8.6	7.8	-159.27	-159.27	18.2	195.2	111.0	97.3	13.79	8.054	
3,100.0	3,074.8	3,104.4	3,088.4	9.0	8.1	-158.59	-158.59	19.3	209.1	114.9	100.5	14.34	8.011	
3,200.0	3,173.4	3,204.3	3,187.3	9.4	8.4	-157.96	-157.96	20.4	223.0	118.8	103.9	14.90	7.970	
3,300.0	3,272.0	3,304.2	3,286.2	9.7	8.8	-157.36	-157.36	21.6	236.9	122.6	107.2	15.46	7.930	
3,400.0	3,370.5	3,400.0	3,381.3	10.1	9.0	-157.11	-157.11	22.6	249.1	127.6	111.6	15.98	7.982	
3,500.0	3,469.1	3,497.1	3,477.9	10.5	9.2	-157.65	-157.65	23.3	258.2	135.2	118.8	16.42	8.234	
3,600.0	3,567.7	3,592.5	3,573.2	10.9	9.4	-158.81	-158.81	23.8	264.0	145.7	128.9	16.81	8.668	
3,700.0	3,666.3	3,687.2	3,667.8	11.3	9.6	-160.39	-160.39	24.0	266.6	159.1	142.0	17.17	9.271	
3,800.0	3,764.9	3,784.3	3,764.9	11.7	9.8	-162.18	-162.18	24.0	266.8	174.9	157.4	17.51	9.987	
3,900.0	3,863.5	3,882.9	3,863.5	12.0	9.9	-163.72	-163.72	24.0	266.8	191.0	173.1	17.89	10.675	
4,000.0	3,962.0	3,981.4	3,962.0	12.4	10.1	-165.02	-165.02	24.0	266.8	207.1	188.8	18.28	11.331	
4,100.0	4,060.6	4,080.0	4,060.6	12.8	10.3	-166.13	-166.13	24.0	266.8	223.4	204.7	18.68	11.956	
4,200.0	4,159.2	4,178.6	4,159.2	13.2	10.5	-167.09	-167.09	24.0	266.8	239.7	220.6	19.10	12.553	
4,300.0	4,257.8	4,277.2	4,257.8	13.6	10.7	-167.93	-167.93	24.0	266.8	256.1	236.6	19.52	13.122	
4,400.0	4,356.4	4,375.8	4,356.4	14.0	10.9	-168.66	-168.66	24.0	266.8	272.5	252.6	19.95	13.665	
4,500.0	4,455.0	4,474.4	4,455.0	14.4	11.0	-169.32	-169.32	24.0	266.8	289.0	268.6	20.38	14.184	
4,565.4	4,519.4	4,538.8	4,519.4	14.6	11.2	-169.71	-169.71	24.0	266.8	299.8	279.2	20.66	14.510	
4,600.0	4,553.6	4,573.0	4,553.6	14.7	11.2	-169.91	-169.91	24.0	266.8	305.3	284.5	20.82	14.666	
4,700.0	4,652.6	4,672.0	4,652.6	15.0	11.4	-170.40	-170.40	24.0	266.8	319.0	297.7	21.24	15.019	
4,800.0	4,752.1	4,771.5	4,752.1	15.2	11.6	-170.73	-170.73	24.0	266.8	329.2	307.6	21.64	15.216	

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 34R-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 34R-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	4,851.8	4,871.2	4,851.8	15.4	11.8	-170.94		24.0	266.8	336.1	314.1	22.01	15.267	
5,000.0	4,951.7	4,971.1	4,951.7	15.6	12.0	-171.04		24.0	266.8	339.5	317.1	22.36	15.181	
5,048.3	5,000.0	5,019.4	5,000.0	15.7	12.1	-74.82		24.0	266.8	339.9	317.3	22.53	15.088	
5,100.0	5,051.7	5,071.1	5,051.7	15.7	12.2	-74.82		24.0	266.8	339.9	317.1	22.73	14.951	
5,200.0	5,151.7	5,171.1	5,151.7	15.9	12.4	-74.82		24.0	266.8	339.9	316.7	23.14	14.689	
5,300.0	5,251.7	5,271.1	5,251.7	16.0	12.6	-74.82		24.0	266.8	339.9	316.3	23.54	14.436	
5,400.0	5,351.7	5,371.1	5,351.7	16.2	12.8	-74.82		24.0	266.8	339.9	315.9	23.95	14.190	
5,500.0	5,451.7	5,471.1	5,451.7	16.3	13.0	-74.82		24.0	266.8	339.9	315.5	24.36	13.952	
5,600.0	5,551.7	5,571.1	5,551.7	16.5	13.2	-74.82		24.0	266.8	339.9	315.1	24.77	13.721	
5,700.0	5,651.7	5,671.1	5,651.7	16.6	13.4	-74.82		24.0	266.8	339.9	314.7	25.18	13.497	
5,800.0	5,751.7	5,771.1	5,751.7	16.8	13.6	-74.82		24.0	266.8	339.9	314.3	25.59	13.279	
5,900.0	5,851.7	5,871.1	5,851.7	17.0	13.8	-74.82		24.0	266.8	339.9	313.8	26.01	13.068	
6,000.0	5,951.7	5,971.1	5,951.7	17.1	14.0	-74.82		24.0	266.8	339.9	313.4	26.42	12.862	
6,100.0	6,051.7	6,071.1	6,051.7	17.3	14.2	-74.82		24.0	266.8	339.9	313.0	26.84	12.663	
6,200.0	6,151.7	6,171.1	6,151.7	17.4	14.4	-74.82		24.0	266.8	339.9	312.6	27.26	12.469	
6,300.0	6,251.7	6,279.0	6,259.5	17.6	14.6	-75.32		20.9	266.8	339.1	311.5	27.65	12.265	
6,383.5	6,335.2	6,371.3	6,350.7	17.8	14.8	-77.60		7.1	266.8	336.2	308.3	27.90	12.047	
6,400.0	6,351.7	6,389.1	6,368.1	17.8	14.8	101.89		3.2	266.8	335.4	307.5	27.96	11.997	
6,450.0	6,401.7	6,442.5	6,419.6	17.9	14.9	100.12		-11.0	266.8	333.4	305.2	28.12	11.856	
6,500.0	6,451.3	6,495.1	6,469.1	17.9	15.0	98.31		-28.5	266.8	331.6	303.3	28.28	11.723	
6,550.0	6,500.4	6,546.8	6,516.6	18.0	15.1	96.47		-48.9	266.8	330.1	301.7	28.48	11.594	
6,600.0	6,548.9	6,597.7	6,561.9	18.1	15.2	94.60		-72.2	266.9	329.1	300.4	28.70	11.465	
6,650.0	6,596.4	6,647.9	6,604.9	18.2	15.3	92.71		-97.9	266.9	328.3	299.4	28.97	11.333	
6,700.0	6,642.8	6,697.3	6,645.6	18.3	15.4	90.83		-126.1	266.9	328.0	298.7	29.30	11.196	
6,719.9	6,660.9	6,716.8	6,661.1	18.4	15.5	90.08		-137.8	266.9	328.0	298.5	29.44	11.139	
6,750.0	6,687.8	6,746.0	6,683.8	18.5	15.6	88.95		-156.3	266.9	328.0	298.4	29.67	11.056	
6,800.0	6,731.4	6,794.1	6,719.5	18.6	15.7	87.08		-188.4	266.9	328.5	298.4	30.10	10.913	
6,850.0	6,773.3	6,841.5	6,752.7	18.7	15.9	85.25		-222.3	266.9	329.2	298.6	30.57	10.767	
6,900.0	6,813.3	6,888.3	6,783.3	18.9	16.1	83.45		-257.6	267.0	330.3	299.2	31.09	10.623	
6,950.0	6,851.2	6,934.6	6,811.4	19.1	16.4	81.70		-294.4	267.0	331.7	300.0	31.64	10.482	
7,000.0	6,887.0	6,980.3	6,837.0	19.3	16.7	80.00		-332.3	267.0	333.3	301.1	32.22	10.345	
7,050.0	6,920.3	7,025.5	6,860.0	19.6	17.0	78.37		-371.2	267.0	335.2	302.4	32.82	10.216	
7,100.0	6,951.2	7,070.3	6,880.4	19.8	17.3	76.80		-411.1	267.1	337.3	303.9	33.42	10.094	
7,150.0	6,979.4	7,114.6	6,898.3	20.1	17.7	75.30		-451.6	267.1	339.6	305.6	34.03	9.979	
7,200.0	7,004.9	7,158.6	6,913.7	20.5	18.1	73.87		-492.8	267.1	342.0	307.4	34.64	9.873	
7,250.0	7,027.5	7,200.0	6,926.1	20.9	18.5	72.58		-532.3	267.1	344.5	309.3	35.23	9.779	
7,300.0	7,047.2	7,245.3	6,937.1	21.3	19.0	71.27		-576.3	267.1	347.0	311.1	35.85	9.679	
7,350.0	7,063.8	7,288.2	6,945.1	21.7	19.5	70.09		-618.4	267.2	349.5	313.1	36.45	9.589	
7,400.0	7,077.2	7,330.8	6,950.7	22.2	20.0	69.00		-660.6	267.2	352.0	315.0	37.05	9.502	
7,450.0	7,087.5	7,373.2	6,953.9	22.7	20.5	67.99		-702.8	267.2	354.5	316.8	37.65	9.415	
7,503.5	7,095.0	7,418.6	6,954.8	23.3	21.1	67.00		-748.3	267.2	357.0	318.7	38.29	9.322	
7,577.5	7,102.7	7,492.2	6,954.3	24.2	22.0	65.81		-821.8	267.3	360.3	320.5	39.82	9.049	
7,600.0	7,104.8	7,514.6	6,954.1	24.5	22.4	65.43		-844.2	267.3	361.3	321.1	40.19	8.989	
7,698.6	7,109.0	7,613.0	6,953.4	25.8	23.7	64.65		-942.7	267.4	363.4	321.3	42.09	8.634	
7,700.0	7,109.0	7,614.4	6,953.4	25.8	23.8	64.65		-944.1	267.4	363.4	321.2	42.12	8.626	
7,800.0	7,108.9	7,714.4	6,952.7	27.1	25.2	64.57		-1,044.1	267.4	363.7	318.9	44.81	8.116	
7,900.0	7,108.8	7,814.4	6,952.0	28.6	26.8	64.49		-1,144.1	267.5	364.0	316.4	47.60	7.646	
8,000.0	7,108.7	7,914.4	6,951.3	30.0	28.4	64.41		-1,244.1	267.5	364.3	313.8	50.48	7.217	
8,100.0	7,108.6	8,014.4	6,950.6	31.6	30.0	64.32		-1,344.1	267.6	364.6	311.2	53.43	6.824	
8,200.0	7,108.5	8,114.4	6,949.9	33.2	31.7	64.24		-1,444.1	267.6	364.9	308.5	56.44	6.466	
8,300.0	7,108.4	8,214.4	6,949.2	34.8	33.3	64.16		-1,544.1	267.7	365.2	305.8	59.49	6.139	

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 34R-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 34R-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	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
8,400.0	7,108.3	8,314.4	6,948.5	36.4	35.1	64.08	-1,644.1	267.8	365.6	303.0	62.59	5.840	
8,500.0	7,108.2	8,414.4	6,947.8	38.1	36.8	64.00	-1,744.1	267.8	365.9	300.2	65.73	5.567	
8,600.0	7,108.1	8,514.4	6,947.1	39.8	38.5	63.92	-1,844.1	267.9	366.2	297.3	68.89	5.316	
8,700.0	7,108.0	8,614.4	6,946.4	41.5	40.3	63.84	-1,944.1	267.9	366.5	294.4	72.08	5.085	
8,800.0	7,107.9	8,714.4	6,945.7	43.2	42.1	63.76	-2,044.0	268.0	366.8	291.5	75.29	4.872	
8,900.0	7,107.8	8,814.4	6,945.0	44.9	43.9	63.68	-2,144.0	268.0	367.2	288.6	78.52	4.676	
9,000.0	7,107.7	8,914.4	6,944.3	46.7	45.7	63.60	-2,244.0	268.1	367.5	285.7	81.76	4.494	
9,100.0	7,107.6	9,014.4	6,943.6	48.5	47.5	63.52	-2,344.0	268.2	367.8	282.8	85.02	4.326	
9,200.0	7,107.5	9,114.4	6,942.9	50.3	49.3	63.44	-2,444.0	268.2	368.1	279.8	88.29	4.169	
9,300.0	7,107.4	9,214.4	6,942.2	52.1	51.1	63.36	-2,544.0	268.3	368.4	276.9	91.57	4.024	
9,400.0	7,107.3	9,314.4	6,941.5	53.9	53.0	63.28	-2,644.0	268.3	368.8	273.9	94.85	3.888	
9,500.0	7,107.2	9,414.4	6,940.8	55.7	54.8	63.21	-2,744.0	268.4	369.1	270.9	98.15	3.761	
9,600.0	7,107.1	9,514.4	6,940.1	57.5	56.7	63.13	-2,844.0	268.4	369.4	268.0	101.45	3.641	
9,700.0	7,107.0	9,614.4	6,939.4	59.3	58.5	63.05	-2,944.0	268.5	369.7	265.0	104.75	3.530	
9,800.0	7,106.9	9,714.4	6,938.7	61.1	60.4	62.97	-3,044.0	268.6	370.1	262.0	108.06	3.425	
9,900.0	7,106.8	9,814.4	6,938.0	63.0	62.2	62.89	-3,144.0	268.6	370.4	259.0	111.37	3.326	
10,000.0	7,106.7	9,914.4	6,937.4	64.8	64.1	62.81	-3,244.0	268.7	370.7	256.0	114.69	3.232	
10,100.0	7,106.6	10,014.4	6,936.7	66.7	66.0	62.73	-3,344.0	268.7	371.0	253.0	118.00	3.144	
10,200.0	7,106.5	10,114.4	6,936.0	68.5	67.8	62.66	-3,444.0	268.8	371.4	250.1	121.32	3.061	
10,300.0	7,106.4	10,214.4	6,935.3	70.4	69.7	62.58	-3,544.0	268.8	371.7	247.1	124.64	2.982	
10,400.0	7,106.3	10,314.4	6,934.6	72.2	71.6	62.50	-3,644.0	268.9	372.0	244.1	127.96	2.907	
10,500.0	7,106.2	10,414.4	6,933.9	74.1	73.5	62.42	-3,744.0	269.0	372.4	241.1	131.28	2.836	
10,600.0	7,106.1	10,514.4	6,933.2	76.0	75.4	62.35	-3,844.0	269.0	372.7	238.1	134.60	2.769	
10,700.0	7,106.0	10,614.4	6,932.5	77.8	77.2	62.27	-3,944.0	269.1	373.0	235.1	137.92	2.705	
10,800.0	7,105.9	10,714.4	6,931.8	79.7	79.1	62.19	-4,044.0	269.1	373.4	232.1	141.24	2.643	
10,900.0	7,105.8	10,814.4	6,931.1	81.6	81.0	62.11	-4,144.0	269.2	373.7	229.1	144.56	2.585	
11,000.0	7,105.8	10,914.4	6,930.4	83.4	82.9	62.04	-4,244.0	269.2	374.0	226.2	147.88	2.529	
11,100.0	7,105.7	11,014.4	6,929.7	85.3	84.8	61.96	-4,344.0	269.3	374.4	223.2	151.20	2.476	
11,200.0	7,105.6	11,114.4	6,929.0	87.2	86.7	61.88	-4,443.9	269.4	374.7	220.2	154.51	2.425	
11,300.0	7,105.5	11,214.4	6,928.3	89.1	88.6	61.81	-4,543.9	269.4	375.0	217.2	157.82	2.376	
11,400.0	7,105.4	11,314.4	6,927.6	91.0	90.5	61.73	-4,643.9	269.5	375.4	214.2	161.13	2.330	
11,500.0	7,105.3	11,414.4	6,926.9	92.8	92.4	61.65	-4,743.9	269.5	375.7	211.3	164.44	2.285	
11,600.0	7,105.2	11,514.4	6,926.2	94.7	94.3	61.58	-4,843.9	269.6	376.1	208.3	167.75	2.242	
11,700.0	7,105.1	11,614.4	6,925.5	96.6	96.2	61.50	-4,943.9	269.6	376.4	205.3	171.06	2.200	
11,768.0	7,105.0	11,682.4	6,925.0	97.9	97.5	61.45	-5,012.0	269.7	376.6	203.3	173.30	2.173 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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)	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	-90.00	-90.00	0.0	-58.4	58.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-58.4	58.4	58.1	0.22	259.694	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-58.4	58.4	57.7	0.67	86.565	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-58.4	58.4	57.2	1.12	51.939	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-58.4	58.4	56.8	1.57	37.099	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-58.4	58.4	56.3	2.02	28.855	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-58.4	58.4	55.9	2.47	23.609	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-58.4	58.4	55.4	2.92	19.976	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-58.4	58.4	55.0	3.37	17.313	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	-90.00	0.0	-58.4	58.4	54.5	3.82	15.276	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	-90.00	0.0	-58.4	58.4	54.1	4.27	13.668 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	173.94	173.94	0.0	-58.4	60.1	55.4	4.70	12.778	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	174.42	174.42	0.0	-58.4	65.3	60.2	5.12	12.751	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	175.06	175.06	0.0	-58.4	74.0	68.5	5.54	13.356	
1,400.0	1,398.7	1,398.7	1,398.7	3.0	3.0	175.74	175.74	0.0	-58.4	86.1	80.2	5.96	14.463	
1,482.9	1,480.6	1,480.6	1,480.6	3.2	3.2	176.27	176.27	0.0	-58.4	98.8	92.5	6.30	15.692	
1,500.0	1,497.5	1,497.5	1,497.5	3.3	3.3	176.37	176.37	0.0	-58.4	101.7	95.3	6.37	15.958	
1,600.0	1,596.1	1,596.1	1,596.1	3.6	3.5	176.89	176.89	0.0	-58.4	118.4	111.6	6.81	17.392	
1,700.0	1,694.6	1,694.6	1,694.6	3.9	3.7	177.27	177.27	0.0	-58.4	135.2	127.9	7.25	18.643	
1,800.0	1,793.2	1,793.2	1,793.2	4.2	3.9	177.57	177.57	0.0	-58.4	152.0	144.3	7.70	19.740	
1,900.0	1,891.8	1,891.8	1,891.8	4.6	4.1	177.82	177.82	0.0	-58.4	168.7	160.6	8.15	20.709	
2,000.0	1,990.4	1,990.4	1,990.4	4.9	4.4	178.01	178.01	0.0	-58.4	185.5	176.9	8.60	21.570	
2,100.0	2,089.0	2,089.0	2,089.0	5.3	4.6	178.18	178.18	0.0	-58.4	202.3	193.2	9.05	22.339	
2,200.0	2,187.6	2,187.6	2,187.6	5.6	4.8	178.32	178.32	0.0	-58.4	219.0	209.5	9.51	23.031	
2,300.0	2,286.1	2,286.1	2,286.1	6.0	5.0	178.44	178.44	0.0	-58.4	235.8	225.8	9.97	23.655	
2,400.0	2,384.7	2,384.7	2,384.7	6.3	5.2	178.54	178.54	0.0	-58.4	252.6	242.1	10.43	24.222	
2,500.0	2,483.3	2,483.3	2,483.3	6.7	5.5	178.63	178.63	0.0	-58.4	269.3	258.5	10.89	24.737	
2,600.0	2,581.9	2,581.9	2,581.9	7.1	5.7	178.71	178.71	0.0	-58.4	286.1	274.8	11.35	25.209	
2,700.0	2,680.5	2,680.5	2,680.5	7.5	5.9	178.78	178.78	0.0	-58.4	302.9	291.1	11.81	25.641	
2,800.0	2,779.0	2,779.0	2,779.0	7.8	6.1	178.85	178.85	0.0	-58.4	319.7	307.4	12.28	26.039	
2,900.0	2,877.6	2,877.6	2,877.6	8.2	6.4	178.90	178.90	0.0	-58.4	336.4	323.7	12.74	26.406	
3,000.0	2,976.2	2,976.2	2,976.2	8.6	6.6	178.96	178.96	0.0	-58.4	353.2	340.0	13.21	26.747	
3,100.0	3,074.8	3,074.8	3,074.8	9.0	6.8	179.00	179.00	0.0	-58.4	370.0	356.3	13.67	27.063	
3,200.0	3,173.4	3,173.4	3,173.4	9.4	7.0	179.05	179.05	0.0	-58.4	386.8	372.6	14.14	27.357	
3,300.0	3,272.0	3,272.0	3,272.0	9.7	7.2	179.09	179.09	0.0	-58.4	403.5	388.9	14.60	27.631	
3,400.0	3,370.5	3,370.5	3,370.5	10.1	7.5	179.12	179.12	0.0	-58.4	420.3	405.2	15.07	27.887	
3,500.0	3,469.1	3,469.1	3,469.1	10.5	7.7	179.16	179.16	0.0	-58.4	437.1	421.5	15.54	28.128	
3,600.0	3,567.7	3,567.7	3,567.7	10.9	7.9	179.19	179.19	0.0	-58.4	453.9	437.8	16.01	28.353	
3,700.0	3,666.3	3,666.3	3,666.3	11.3	8.1	179.22	179.22	0.0	-58.4	470.6	454.2	16.48	28.565	
3,800.0	3,764.9	3,764.9	3,764.9	11.7	8.3	179.24	179.24	0.0	-58.4	487.4	470.5	16.94	28.765	
3,900.0	3,863.5	3,863.5	3,863.5	12.0	8.6	179.27	179.27	0.0	-58.4	504.2	486.8	17.41	28.954	
4,000.0	3,962.0	3,962.0	3,962.0	12.4	8.8	179.29	179.29	0.0	-58.4	521.0	503.1	17.88	29.132	
4,100.0	4,060.6	4,060.6	4,060.6	12.8	9.0	179.31	179.31	0.0	-58.4	537.7	519.4	18.35	29.301	
4,200.0	4,159.2	4,159.2	4,159.2	13.2	9.2	179.34	179.34	0.0	-58.4	554.5	535.7	18.82	29.461	
4,300.0	4,257.8	4,257.8	4,257.8	13.6	9.5	179.35	179.35	0.0	-58.4	571.3	552.0	19.29	29.613	
4,400.0	4,356.4	4,356.4	4,356.4	14.0	9.7	179.37	179.37	0.0	-58.4	588.1	568.3	19.76	29.757	
4,500.0	4,455.0	4,455.0	4,455.0	14.4	9.9	179.39	179.39	0.0	-58.4	604.8	584.6	20.23	29.894	
4,565.4	4,519.4	4,519.4	4,519.4	14.6	10.0	179.40	179.40	0.0	-58.4	615.8	595.3	20.54	29.981	
4,600.0	4,553.6	4,553.6	4,553.6	14.7	10.1	179.41	179.41	0.0	-58.4	621.4	600.7	20.72	29.997	
4,700.0	4,652.6	4,652.6	4,652.6	15.0	10.3	179.42	179.42	0.0	-58.4	635.3	614.1	21.18	29.989	
4,800.0	4,752.1	4,752.1	4,752.1	15.2	10.6	179.44	179.44	0.0	-58.4	645.6	624.0	21.62	29.859	

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 34R-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 34R-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
4,900.0	4,851.8	4,851.8	4,851.8	15.4	10.8	179.44		0.0	-58.4	652.6	630.5	22.03	29.615	
5,000.0	4,951.7	4,951.7	4,951.7	15.6	11.0	179.45		0.0	-58.4	656.0	633.6	22.42	29.264	
5,048.3	5,000.0	5,000.0	5,000.0	15.7	11.1	-84.32		0.0	-58.4	656.4	633.8	22.59	29.054	
5,100.0	5,051.7	5,051.7	5,051.7	15.7	11.2	-84.32		0.0	-58.4	656.4	633.6	22.81	28.782	
5,200.0	5,151.7	5,151.7	5,151.7	15.9	11.5	-84.32		0.0	-58.4	656.4	633.2	23.22	28.265	
5,300.0	5,251.7	5,251.7	5,251.7	16.0	11.7	-84.32		0.0	-58.4	656.4	632.8	23.64	27.765	
5,400.0	5,351.7	5,351.7	5,351.7	16.2	11.9	-84.32		0.0	-58.4	656.4	632.3	24.06	27.281	
5,500.0	5,451.7	5,451.7	5,451.7	16.3	12.1	-84.32		0.0	-58.4	656.4	631.9	24.48	26.813	
5,600.0	5,551.7	5,551.7	5,551.7	16.5	12.4	-84.32		0.0	-58.4	656.4	631.5	24.90	26.360	
5,700.0	5,651.7	5,651.7	5,651.7	16.6	12.6	-84.32		0.0	-58.4	656.4	631.1	25.32	25.920	
5,800.0	5,751.7	5,751.7	5,751.7	16.8	12.8	-84.32		0.0	-58.4	656.4	630.6	25.75	25.494	
5,900.0	5,851.7	5,852.9	5,852.9	17.0	13.0	-84.36		-0.5	-58.4	656.3	630.2	26.16	25.092	
6,000.0	5,951.7	5,955.1	5,955.0	17.1	13.2	-84.68		-4.2	-58.4	656.0	629.5	26.54	24.717	
6,100.0	6,051.7	6,056.9	6,056.5	17.3	13.4	-85.32		-11.5	-58.4	655.4	628.5	26.91	24.351	
6,200.0	6,151.7	6,158.0	6,157.1	17.4	13.6	-86.27		-22.4	-58.4	654.6	627.3	27.29	23.985	
6,300.0	6,251.7	6,258.2	6,256.3	17.6	13.7	-87.51		-36.6	-58.4	653.8	626.1	27.68	23.620	
6,383.5	6,335.2	6,340.9	6,337.7	17.8	13.9	-88.76		-50.9	-58.4	653.4	625.3	28.02	23.321	
6,400.0	6,351.7	6,357.2	6,353.8	17.8	13.9	91.06		-53.8	-58.4	653.3	625.2	28.08	23.263	
6,450.0	6,401.7	6,406.8	6,402.6	17.9	14.0	90.52		-62.7	-58.4	653.2	624.9	28.28	23.098	
6,482.5	6,434.0	6,439.3	6,434.5	17.9	14.1	90.32		-68.5	-58.4	653.2	624.8	28.41	22.990	
6,500.0	6,451.3	6,456.7	6,451.6	17.9	14.1	90.26		-71.6	-58.4	653.2	624.7	28.48	22.934	
6,550.0	6,500.4	6,506.6	6,500.7	18.0	14.2	90.24		-81.1	-58.4	653.2	624.5	28.69	22.770	
6,600.0	6,548.9	6,556.5	6,549.0	18.1	14.3	90.23		-93.5	-58.4	653.3	624.4	28.91	22.599	
6,650.0	6,596.4	6,606.4	6,596.4	18.2	14.4	90.23		-109.0	-58.5	653.3	624.2	29.15	22.416	
6,700.0	6,642.8	6,656.4	6,642.7	18.3	14.5	90.22		-127.6	-58.5	653.4	624.0	29.41	22.218	
6,750.0	6,687.8	6,706.3	6,687.7	18.5	14.7	90.21		-149.1	-58.6	653.5	623.8	29.70	22.002	
6,800.0	6,731.4	6,756.2	6,731.2	18.6	14.8	90.21		-173.6	-58.7	653.6	623.6	30.03	21.763	
6,850.0	6,773.3	6,806.1	6,773.0	18.7	15.0	90.20		-200.8	-58.8	653.8	623.4	30.41	21.498	
6,900.0	6,813.3	6,856.0	6,812.9	18.9	15.2	90.19		-230.7	-58.9	653.9	623.1	30.84	21.203	
6,950.0	6,851.2	6,905.9	6,850.8	19.1	15.5	90.18		-263.2	-59.1	654.1	622.8	31.33	20.878	
7,000.0	6,887.0	6,955.8	6,886.5	19.3	15.7	90.17		-298.0	-59.2	654.3	622.4	31.89	20.520	
7,050.0	6,920.3	7,005.7	6,919.9	19.6	16.1	90.16		-335.2	-59.4	654.5	622.0	32.51	20.131	
7,100.0	6,951.2	7,055.6	6,950.7	19.8	16.4	90.14		-374.4	-59.6	654.7	621.5	33.21	19.713	
7,150.0	6,979.4	7,105.5	6,979.0	20.1	16.8	90.13		-415.5	-59.8	655.0	621.0	33.99	19.268	
7,200.0	7,004.9	7,155.4	7,004.5	20.5	17.2	90.12		-458.5	-60.0	655.2	620.4	34.85	18.801	
7,250.0	7,027.5	7,205.4	7,027.1	20.9	17.7	90.10		-502.9	-60.2	655.5	619.7	35.79	18.317	
7,300.0	7,047.2	7,255.3	7,046.8	21.3	18.2	90.09		-548.8	-60.4	655.7	619.0	36.80	17.821	
7,350.0	7,063.8	7,305.2	7,063.4	21.7	18.7	90.07		-595.9	-60.7	656.0	618.2	37.88	17.318	
7,400.0	7,077.2	7,355.2	7,076.9	22.2	19.3	90.06		-643.9	-60.9	656.3	617.3	39.03	16.814	
7,450.0	7,087.5	7,405.1	7,087.3	22.7	19.9	90.04		-692.8	-61.2	656.6	616.4	40.25	16.314	
7,503.5	7,095.0	7,458.5	7,094.8	23.3	20.6	90.03		-745.7	-61.4	657.0	615.4	41.61	15.790	
7,577.5	7,102.7	7,532.5	7,102.6	24.2	21.6	90.03		-819.3	-61.8	657.4	613.8	43.58	15.086	
7,600.0	7,104.8	7,555.7	7,104.8	24.5	21.9	90.02		-842.3	-61.9	657.6	613.3	44.21	14.874	
7,698.6	7,109.0	7,657.2	7,109.0	25.8	23.3	90.00		-943.7	-62.1	657.9	610.8	47.04	13.984	
7,700.0	7,109.0	7,658.6	7,109.0	25.8	23.4	90.00		-945.2	-62.1	657.9	610.8	47.09	13.972	
7,800.0	7,108.9	7,758.6	7,108.9	27.1	24.9	90.00		-1,045.2	-62.1	658.0	607.9	50.06	13.144	
7,900.0	7,108.8	7,858.6	7,108.8	28.6	26.4	90.00		-1,145.2	-62.1	658.0	604.9	53.14	12.384	
8,000.0	7,108.7	7,958.6	7,108.7	30.0	28.0	90.00		-1,245.2	-62.1	658.1	601.8	56.31	11.688	
8,100.0	7,108.6	8,058.6	7,108.6	31.6	29.6	90.00		-1,345.2	-62.0	658.2	598.7	59.56	11.051	
8,200.0	7,108.5	8,158.6	7,108.5	33.2	31.3	90.00		-1,445.2	-62.0	658.3	595.4	62.88	10.469	
8,300.0	7,108.4	8,258.6	7,108.4	34.8	33.0	90.00		-1,545.2	-62.0	658.4	592.2	66.26	9.937	

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 34R-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 34R-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)					
8,400.0	7,108.3	8,358.6	7,108.3	36.4	34.7	90.00	-1,645.2	-62.0	658.5	588.8	69.69	9.450	
8,500.0	7,108.2	8,458.6	7,108.2	38.1	36.4	90.00	-1,745.2	-61.9	658.6	585.5	73.15	9.003	
8,600.0	7,108.1	8,558.6	7,108.1	39.8	38.2	90.00	-1,845.2	-61.9	658.7	582.0	76.66	8.593	
8,700.0	7,108.0	8,658.6	7,108.0	41.5	39.9	90.00	-1,945.2	-61.9	658.8	578.6	80.20	8.215	
8,800.0	7,107.9	8,758.6	7,107.9	43.2	41.7	90.00	-2,045.2	-61.9	658.9	575.1	83.76	7.866	
8,900.0	7,107.8	8,858.6	7,107.8	44.9	43.5	90.00	-2,145.2	-61.8	659.0	571.6	87.35	7.544	
9,000.0	7,107.7	8,958.6	7,107.7	46.7	45.3	90.00	-2,245.2	-61.8	659.1	568.1	90.96	7.246	
9,100.0	7,107.6	9,058.6	7,107.6	48.5	47.2	90.00	-2,345.2	-61.8	659.2	564.6	94.59	6.969	
9,200.0	7,107.5	9,158.6	7,107.5	50.3	49.0	90.00	-2,445.2	-61.8	659.3	561.0	98.23	6.711	
9,300.0	7,107.4	9,258.6	7,107.4	52.1	50.8	90.00	-2,545.2	-61.7	659.4	557.5	101.89	6.471	
9,400.0	7,107.3	9,358.6	7,107.3	53.9	52.6	90.00	-2,645.2	-61.7	659.4	553.9	105.56	6.247	
9,500.0	7,107.2	9,458.6	7,107.2	55.7	54.5	90.00	-2,745.2	-61.7	659.5	550.3	109.25	6.037	
9,600.0	7,107.1	9,558.6	7,107.1	57.5	56.3	90.00	-2,845.2	-61.7	659.6	546.7	112.95	5.840	
9,700.0	7,107.0	9,658.6	7,107.0	59.3	58.2	90.00	-2,945.2	-61.6	659.7	543.1	116.65	5.655	
9,800.0	7,106.9	9,758.6	7,106.9	61.1	60.1	90.00	-3,045.2	-61.6	659.8	539.5	120.37	5.482	
9,900.0	7,106.8	9,858.6	7,106.8	63.0	61.9	90.00	-3,145.2	-61.6	659.9	535.8	124.09	5.318	
10,000.0	7,106.7	9,958.6	7,106.7	64.8	63.8	90.00	-3,245.2	-61.6	660.0	532.2	127.82	5.163	
10,100.0	7,106.6	10,058.6	7,106.6	66.7	65.7	90.00	-3,345.2	-61.6	660.1	528.5	131.56	5.017	
10,200.0	7,106.5	10,158.6	7,106.5	68.5	67.5	90.00	-3,445.2	-61.5	660.2	524.9	135.30	4.879	
10,300.0	7,106.4	10,258.6	7,106.4	70.4	69.4	90.00	-3,545.2	-61.5	660.3	521.2	139.05	4.748	
10,400.0	7,106.3	10,358.6	7,106.3	72.2	71.3	90.00	-3,645.2	-61.5	660.4	517.6	142.81	4.624	
10,500.0	7,106.2	10,458.6	7,106.2	74.1	73.2	90.00	-3,745.2	-61.5	660.5	513.9	146.57	4.506	
10,600.0	7,106.1	10,558.6	7,106.1	76.0	75.0	90.00	-3,845.2	-61.4	660.6	510.2	150.33	4.394	
10,700.0	7,106.0	10,658.6	7,106.1	77.8	76.9	90.00	-3,945.2	-61.4	660.7	506.6	154.10	4.287	
10,800.0	7,105.9	10,758.6	7,106.0	79.7	78.8	90.00	-4,045.2	-61.4	660.8	502.9	157.87	4.185	
10,900.0	7,105.8	10,858.6	7,105.9	81.6	80.7	90.00	-4,145.2	-61.4	660.8	499.2	161.65	4.088	
11,000.0	7,105.8	10,958.6	7,105.8	83.4	82.6	90.00	-4,245.2	-61.3	660.9	495.5	165.43	3.995	
11,100.0	7,105.7	11,058.6	7,105.7	85.3	84.5	90.00	-4,345.2	-61.3	661.0	491.8	169.21	3.907	
11,200.0	7,105.6	11,158.6	7,105.6	87.2	86.4	90.00	-4,445.2	-61.3	661.1	488.1	173.00	3.822	
11,300.0	7,105.5	11,258.6	7,105.5	89.1	88.3	90.00	-4,545.2	-61.3	661.2	484.4	176.78	3.740	
11,400.0	7,105.4	11,358.6	7,105.4	91.0	90.2	90.00	-4,645.2	-61.2	661.3	480.7	180.58	3.662	
11,500.0	7,105.3	11,458.6	7,105.3	92.8	92.1	90.00	-4,745.2	-61.2	661.4	477.0	184.37	3.587	
11,600.0	7,105.2	11,558.6	7,105.2	94.7	94.0	90.00	-4,845.2	-61.2	661.5	473.3	188.16	3.516	
11,700.0	7,105.1	11,658.6	7,105.1	96.6	95.9	90.00	-4,945.2	-61.2	661.6	469.6	191.96	3.446	
11,768.0	7,105.0	11,726.7	7,105.0	97.9	97.1	90.00	-5,013.2	-61.2	661.7	467.2	194.45	3.403 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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)	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	90.01	0.0	30.6	30.6					
100.0	100.0	100.0	100.0	0.1	0.1	90.01	0.0	30.6	30.6	30.4	0.22	136.030		
200.0	200.0	200.0	200.0	0.3	0.3	90.01	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	89.93	0.0	32.3	32.3	31.2	1.11	29.057		
400.0	400.0	397.6	397.4	0.8	0.8	89.75	0.2	37.4	37.5	35.9	1.56	24.081		
500.0	500.0	495.8	495.3	1.0	1.0	89.54	0.4	45.8	46.1	44.0	2.03	22.740		
600.0	600.0	593.3	592.1	1.2	1.3	89.35	0.7	57.5	58.1	55.5	2.53	22.964		
700.0	700.0	689.9	687.5	1.5	1.6	89.20	1.0	72.3	73.4	70.4	3.07	23.908		
800.0	800.0	785.4	781.3	1.7	2.0	89.08	1.4	90.2	92.1	88.4	3.66	25.174		
900.0	900.0	879.6	873.2	1.9	2.4	88.99	2.0	110.8	114.0	109.7	4.29	26.553		
1,000.0	1,000.0	975.6	966.4	2.1	2.8	88.92	2.5	134.0	138.2	133.2	4.97	27.789		
1,100.0	1,100.0	1,073.0	1,060.9	2.3	3.3	-7.38	3.1	157.7	160.8	156.0	4.80	33.521		
1,200.0	1,199.8	1,171.1	1,156.0	2.5	3.8	-7.58	3.7	181.6	180.1	174.8	5.24	34.337		
1,300.0	1,299.5	1,269.9	1,251.8	2.8	4.3	-7.87	4.3	205.6	195.9	190.2	5.70	34.364		
1,400.0	1,398.7	1,369.1	1,348.0	3.0	4.8	-8.26	4.8	229.7	208.4	202.2	6.17	33.772		
1,482.9	1,480.6	1,451.6	1,428.1	3.2	5.3	-8.66	5.3	249.7	216.1	209.5	6.56	32.914		
1,500.0	1,497.5	1,468.6	1,444.6	3.3	5.4	-8.75	5.4	253.9	217.4	210.8	6.65	32.696		
1,600.0	1,596.1	1,568.3	1,541.3	3.6	5.9	-9.28	6.0	278.1	225.3	218.2	7.15	31.505		
1,700.0	1,694.6	1,668.0	1,638.0	3.9	6.4	-9.76	6.6	302.3	233.2	225.6	7.66	30.443		
1,800.0	1,793.2	1,767.6	1,734.6	4.2	6.9	-10.22	7.2	326.6	241.2	233.0	8.18	29.493		
1,900.0	1,891.8	1,867.3	1,831.3	4.6	7.4	-10.64	7.8	350.8	249.1	240.4	8.70	28.639		
2,000.0	1,990.4	1,967.0	1,928.0	4.9	7.9	-11.04	8.4	375.0	257.1	247.9	9.23	27.867		
2,100.0	2,089.0	2,066.6	2,024.7	5.3	8.5	-11.42	9.0	399.2	265.1	255.3	9.76	27.168		
2,200.0	2,187.6	2,166.3	2,121.3	5.6	9.0	-11.77	9.6	423.5	273.0	262.8	10.29	26.532		
2,300.0	2,286.1	2,266.0	2,218.0	6.0	9.5	-12.10	10.2	447.7	281.0	270.2	10.83	25.951		
2,400.0	2,384.7	2,365.6	2,314.7	6.3	10.0	-12.42	10.8	471.9	289.0	277.7	11.37	25.418		
2,500.0	2,483.3	2,465.3	2,411.4	6.7	10.6	-12.72	11.3	496.2	297.1	285.1	11.92	24.929		
2,600.0	2,581.9	2,565.0	2,508.1	7.1	11.1	-13.00	11.9	520.4	305.1	292.6	12.46	24.477		
2,700.0	2,680.5	2,664.6	2,604.7	7.5	11.6	-13.27	12.5	544.6	313.1	300.1	13.01	24.060		
2,800.0	2,779.0	2,764.3	2,701.4	7.8	12.1	-13.52	13.1	568.8	321.1	307.6	13.57	23.672		
2,900.0	2,877.6	2,864.0	2,798.1	8.2	12.6	-13.76	13.7	593.1	329.2	315.0	14.12	23.313		
3,000.0	2,976.2	2,963.6	2,894.8	8.6	13.2	-13.99	14.3	617.3	337.2	322.5	14.68	22.977		
3,100.0	3,074.8	3,063.3	2,991.4	9.0	13.7	-14.21	14.9	641.5	345.3	330.0	15.23	22.664		
3,200.0	3,173.4	3,163.0	3,088.1	9.4	14.2	-14.42	15.5	665.7	353.3	337.5	15.79	22.371		
3,300.0	3,272.0	3,262.6	3,184.8	9.7	14.7	-14.62	16.1	690.0	361.4	345.0	16.35	22.096		
3,400.0	3,370.5	3,362.3	3,281.5	10.1	15.3	-14.81	16.7	714.2	369.4	352.5	16.92	21.837		
3,500.0	3,469.1	3,462.0	3,378.1	10.5	15.8	-15.00	17.2	738.4	377.5	360.0	17.48	21.594		
3,600.0	3,567.7	3,561.6	3,474.8	10.9	16.3	-15.17	17.8	762.7	385.6	367.5	18.05	21.365		
3,700.0	3,666.3	3,661.3	3,571.5	11.3	16.8	-15.34	18.4	786.9	393.6	375.0	18.61	21.148		
3,800.0	3,764.9	3,761.0	3,668.2	11.7	17.4	-15.50	19.0	811.1	401.7	382.5	19.18	20.943		
3,900.0	3,863.5	3,860.6	3,764.8	12.0	17.9	-15.66	19.6	835.3	409.8	390.0	19.75	20.749		
4,000.0	3,962.0	3,960.3	3,861.5	12.4	18.4	-15.81	20.2	859.6	417.9	397.6	20.32	20.565		
4,100.0	4,060.6	4,060.0	3,958.2	12.8	18.9	-15.95	20.8	883.8	426.0	405.1	20.89	20.390		
4,200.0	4,159.2	4,159.6	4,054.9	13.2	19.5	-16.09	21.4	908.0	434.0	412.6	21.46	20.224		
4,300.0	4,257.8	4,259.3	4,151.5	13.6	20.0	-16.22	22.0	932.3	442.1	420.1	22.03	20.066		
4,400.0	4,356.4	4,359.0	4,248.2	14.0	20.5	-16.35	22.6	956.5	450.2	427.6	22.61	19.915		
4,500.0	4,455.0	4,466.7	4,352.8	14.4	21.0	-16.49	23.2	982.2	457.9	434.8	23.19	19.748		
4,565.4	4,519.4	4,544.2	4,428.6	14.6	21.3	-16.64	23.6	998.7	461.2	437.7	23.57	19.571		
4,600.0	4,553.6	4,585.4	4,469.0	14.7	21.5	-16.72	23.8	1,006.6	462.5	438.7	23.74	19.476		
4,700.0	4,652.6	4,704.3	4,586.3	15.0	21.8	-16.94	24.3	1,026.3	465.5	441.3	24.19	19.243		
4,800.0	4,752.1	4,823.5	4,704.5	15.2	22.1	-17.11	24.6	1,041.0	467.8	443.2	24.58	19.033		

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 34R-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 34R-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	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	
4,900.0	4,851.8	4,942.7	4,823.3	15.4	22.3	-17.21	24.9	1,050.8	469.3	444.4	24.91	18.843		
5,000.0	4,951.7	5,062.0	4,942.4	15.6	22.5	-17.27	25.0	1,055.7	470.1	444.9	25.18	18.672		
5,048.3	5,000.0	5,119.5	5,000.0	15.7	22.6	78.96	25.0	1,056.3	470.2	444.9	25.28	18.597		
5,100.0	5,051.7	5,171.3	5,051.7	15.7	22.6	78.96	25.0	1,056.3	470.2	444.7	25.46	18.468		
5,200.0	5,151.7	5,271.3	5,151.7	15.9	22.7	78.96	25.0	1,056.3	470.2	444.4	25.81	18.220		
5,300.0	5,251.7	5,371.3	5,251.7	16.0	22.8	78.96	25.0	1,056.3	470.2	444.0	26.16	17.975		
5,400.0	5,351.7	5,471.3	5,351.7	16.2	22.9	78.96	25.0	1,056.3	470.2	443.7	26.51	17.736		
5,500.0	5,451.7	5,571.3	5,451.7	16.3	23.0	78.96	25.0	1,056.3	470.2	443.3	26.87	17.500		
5,600.0	5,551.7	5,671.3	5,551.7	16.5	23.1	78.96	25.0	1,056.3	470.2	442.9	27.23	17.269		
5,700.0	5,651.7	5,771.3	5,651.7	16.6	23.3	78.96	25.0	1,056.3	470.2	442.6	27.59	17.043		
5,800.0	5,751.7	5,871.3	5,751.7	16.8	23.4	78.96	25.0	1,056.3	470.2	442.2	27.95	16.821		
5,900.0	5,851.7	5,971.3	5,851.7	17.0	23.5	78.96	25.0	1,056.3	470.2	441.8	28.32	16.603		
6,000.0	5,951.7	6,071.3	5,951.7	17.1	23.6	78.96	25.0	1,056.3	470.2	441.5	28.69	16.389		
6,100.0	6,051.7	6,171.3	6,051.7	17.3	23.7	78.96	25.0	1,056.3	470.2	441.1	29.06	16.180		
6,200.0	6,151.7	6,271.3	6,151.7	17.4	23.8	78.96	25.0	1,056.3	470.2	440.7	29.43	15.974		
6,300.0	6,251.7	6,379.2	6,259.6	17.6	24.0	79.34	21.9	1,056.3	469.7	439.9	29.78	15.769		
6,383.5	6,335.2	6,471.5	6,350.8	17.8	24.1	81.00	8.1	1,056.3	467.5	437.5	29.96	15.604		
6,400.0	6,351.7	6,489.4	6,368.2	17.8	24.1	-98.52	4.1	1,056.3	467.0	437.0	29.98	15.573		
6,450.0	6,401.7	6,542.8	6,419.7	17.9	24.1	-97.24	-10.1	1,056.3	465.4	435.4	30.05	15.487		
6,500.0	6,451.3	6,595.4	6,469.3	17.9	24.2	-95.94	-27.6	1,056.3	464.2	434.0	30.15	15.395		
6,550.0	6,500.4	6,647.2	6,516.8	18.0	24.3	-94.62	-48.0	1,056.3	463.1	432.8	30.28	15.296		
6,600.0	6,548.9	6,698.1	6,562.2	18.1	24.3	-93.28	-71.3	1,056.3	462.3	431.9	30.43	15.191		
6,650.0	6,596.4	6,748.3	6,605.2	18.2	24.4	-91.94	-97.1	1,056.3	461.8	431.2	30.62	15.080		
6,700.0	6,642.8	6,797.7	6,645.8	18.3	24.5	-90.60	-125.3	1,056.4	461.5	430.7	30.85	14.962		
6,725.0	6,665.5	6,822.2	6,665.2	18.4	24.5	-89.93	-140.2	1,056.4	461.5	430.5	30.98	14.898		
6,750.0	6,687.8	6,846.5	6,684.0	18.5	24.6	-89.26	-155.5	1,056.4	461.5	430.4	31.11	14.837		
6,800.0	6,731.4	6,894.5	6,719.7	18.6	24.7	-87.93	-187.7	1,056.4	461.8	430.4	31.40	14.705		
6,850.0	6,773.3	6,942.0	6,752.9	18.7	24.8	-86.63	-221.6	1,056.4	462.3	430.6	31.74	14.564		
6,900.0	6,813.3	6,988.8	6,783.6	18.9	24.9	-85.34	-257.0	1,056.4	463.0	430.9	32.12	14.414		
6,950.0	6,851.2	7,035.1	6,811.6	19.1	25.1	-84.08	-293.7	1,056.5	464.0	431.4	32.56	14.252		
7,000.0	6,887.0	7,080.8	6,837.2	19.3	25.2	-82.86	-331.7	1,056.5	465.2	432.1	33.04	14.077		
7,050.0	6,920.3	7,126.1	6,860.1	19.6	25.4	-81.67	-370.6	1,056.5	466.5	432.9	33.59	13.887		
7,100.0	6,951.2	7,170.8	6,880.6	19.8	25.6	-80.53	-410.5	1,056.5	468.0	433.8	34.21	13.680		
7,150.0	6,979.4	7,215.2	6,898.5	20.1	25.9	-79.43	-451.0	1,056.6	469.6	434.7	34.90	13.455		
7,200.0	7,004.9	7,259.1	6,913.8	20.5	26.1	-78.38	-492.2	1,056.6	471.3	435.6	35.67	13.213		
7,250.0	7,027.5	7,300.0	6,926.0	20.9	26.4	-77.43	-531.2	1,056.6	473.0	436.5	36.50	12.960		
7,300.0	7,047.2	7,345.9	6,937.2	21.3	26.7	-76.43	-575.7	1,056.6	474.8	437.4	37.47	12.674		
7,350.0	7,063.8	7,388.8	6,945.1	21.7	27.0	-75.54	-617.9	1,056.7	476.7	438.2	38.50	12.380		
7,400.0	7,077.2	7,431.4	6,950.7	22.2	27.3	-74.71	-660.1	1,056.7	478.5	438.8	39.63	12.074		
7,450.0	7,087.5	7,473.7	6,953.9	22.7	27.7	-73.95	-702.3	1,056.7	480.2	439.4	40.84	11.759		
7,503.5	7,095.0	7,519.3	6,954.8	23.3	28.1	-73.19	-747.8	1,056.7	482.1	439.8	42.24	11.413		
7,577.5	7,102.7	7,592.8	6,954.2	24.2	28.8	-72.26	-821.4	1,056.8	484.5	440.5	43.97	11.018		
7,600.0	7,104.8	7,615.2	6,954.1	24.5	29.0	-71.97	-843.8	1,056.8	485.2	440.6	44.62	10.875		
7,698.6	7,109.0	7,713.7	6,953.4	25.8	30.0	-71.35	-942.2	1,056.8	486.7	439.0	47.65	10.214		
7,700.0	7,109.0	7,715.1	6,953.4	25.8	30.1	-71.35	-943.6	1,056.8	486.7	439.0	47.69	10.205		
7,800.0	7,108.9	7,815.1	6,952.7	27.1	31.2	-71.28	-1,043.6	1,056.9	486.8	436.3	50.49	9.641		
7,900.0	7,108.8	7,915.1	6,952.0	28.6	32.4	-71.22	-1,143.6	1,057.0	486.9	433.5	53.40	9.119		
8,000.0	7,108.7	8,015.1	6,951.3	30.0	33.8	-71.15	-1,243.6	1,057.0	487.1	430.7	56.39	8.637		
8,100.0	7,108.6	8,115.1	6,950.6	31.6	35.1	-71.08	-1,343.6	1,057.1	487.2	427.7	59.46	8.194		
8,200.0	7,108.5	8,215.1	6,949.9	33.2	36.5	-71.01	-1,443.6	1,057.1	487.3	424.8	62.59	7.786		
8,300.0	7,108.4	8,315.1	6,949.2	34.8	38.0	-70.94	-1,543.6	1,057.2	487.5	421.7	65.77	7.412		

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 34R-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 34R-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 Survey Program: 0-MWD												Offset Site Error: 0.0 ft	
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Between Centres (ft)	Between Ellipses (ft)					
8,400.0	7,108.3	8,415.1	6,948.5	36.4	39.5	-70.87	-1,643.6	1,057.2	487.6	418.6	69.00	7.067	
8,500.0	7,108.2	8,515.1	6,947.8	38.1	41.1	-70.80	-1,743.6	1,057.3	487.8	415.5	72.26	6.750	
8,600.0	7,108.1	8,615.1	6,947.1	39.8	42.6	-70.73	-1,843.6	1,057.4	487.9	412.4	75.56	6.457	
8,700.0	7,108.0	8,715.1	6,946.4	41.5	44.2	-70.66	-1,943.6	1,057.4	488.1	409.2	78.88	6.187	
8,800.0	7,107.9	8,815.1	6,945.7	43.2	45.9	-70.59	-2,043.6	1,057.5	488.2	406.0	82.23	5.937	
8,900.0	7,107.8	8,915.1	6,945.0	44.9	47.5	-70.53	-2,143.6	1,057.5	488.3	402.7	85.61	5.704	
9,000.0	7,107.7	9,015.0	6,944.3	46.7	49.2	-70.46	-2,243.6	1,057.6	488.5	399.5	89.00	5.489	
9,100.0	7,107.6	9,115.0	6,943.6	48.5	50.9	-70.39	-2,343.6	1,057.7	488.6	396.2	92.40	5.288	
9,200.0	7,107.5	9,215.0	6,942.9	50.3	52.6	-70.32	-2,443.6	1,057.7	488.8	393.0	95.83	5.101	
9,300.0	7,107.4	9,315.0	6,942.2	52.1	54.3	-70.25	-2,543.6	1,057.8	488.9	389.7	99.26	4.926	
9,400.0	7,107.3	9,415.0	6,941.5	53.9	56.1	-70.18	-2,643.6	1,057.8	489.1	386.4	102.70	4.762	
9,500.0	7,107.2	9,515.0	6,940.8	55.7	57.8	-70.11	-2,743.6	1,057.9	489.2	383.1	106.16	4.608	
9,600.0	7,107.1	9,615.0	6,940.1	57.5	59.6	-70.05	-2,843.6	1,057.9	489.4	379.8	109.62	4.464	
9,700.0	7,107.0	9,715.0	6,939.4	59.3	61.3	-69.98	-2,943.6	1,058.0	489.5	376.4	113.09	4.329	
9,800.0	7,106.9	9,815.0	6,938.7	61.1	63.1	-69.91	-3,043.6	1,058.1	489.7	373.1	116.57	4.201	
9,900.0	7,106.8	9,915.0	6,938.0	63.0	64.9	-69.84	-3,143.5	1,058.1	489.8	369.8	120.05	4.080	
10,000.0	7,106.7	10,015.0	6,937.3	64.8	66.7	-69.77	-3,243.5	1,058.2	490.0	366.4	123.53	3.966	
10,100.0	7,106.6	10,115.0	6,936.6	66.7	68.5	-69.70	-3,343.5	1,058.2	490.1	363.1	127.02	3.859	
10,200.0	7,106.5	10,215.0	6,935.9	68.5	70.3	-69.64	-3,443.5	1,058.3	490.3	359.8	130.52	3.756	
10,300.0	7,106.4	10,315.0	6,935.2	70.4	72.1	-69.57	-3,543.5	1,058.4	490.4	356.4	134.02	3.659	
10,400.0	7,106.3	10,415.0	6,934.5	72.2	73.9	-69.50	-3,643.5	1,058.4	490.6	353.1	137.52	3.567	
10,500.0	7,106.2	10,515.0	6,933.8	74.1	75.8	-69.43	-3,743.5	1,058.5	490.7	349.7	141.02	3.480	
10,600.0	7,106.1	10,615.0	6,933.1	76.0	77.6	-69.36	-3,843.5	1,058.5	490.9	346.4	144.52	3.397	
10,700.0	7,106.0	10,715.0	6,932.4	77.8	79.4	-69.30	-3,943.5	1,058.6	491.1	343.0	148.03	3.317	
10,800.0	7,105.9	10,815.0	6,931.7	79.7	81.3	-69.23	-4,043.5	1,058.6	491.2	339.7	151.54	3.242	
10,900.0	7,105.8	10,915.0	6,931.0	81.6	83.1	-69.16	-4,143.5	1,058.7	491.4	336.3	155.04	3.169	
11,000.0	7,105.8	11,015.0	6,930.3	83.4	85.0	-69.09	-4,243.5	1,058.8	491.5	333.0	158.55	3.100	
11,100.0	7,105.7	11,115.0	6,929.6	85.3	86.8	-69.02	-4,343.5	1,058.8	491.7	329.6	162.06	3.034	
11,200.0	7,105.6	11,215.0	6,929.0	87.2	88.7	-68.96	-4,443.5	1,058.9	491.8	326.3	165.57	2.971	
11,300.0	7,105.5	11,315.0	6,928.3	89.1	90.5	-68.89	-4,543.5	1,058.9	492.0	322.9	169.08	2.910	
11,400.0	7,105.4	11,415.0	6,927.6	91.0	92.4	-68.82	-4,643.5	1,059.0	492.2	319.6	172.59	2.852	
11,500.0	7,105.3	11,515.0	6,926.9	92.8	94.2	-68.75	-4,743.5	1,059.1	492.3	316.2	176.10	2.796	
11,600.0	7,105.2	11,615.0	6,926.2	94.7	96.1	-68.69	-4,843.5	1,059.1	492.5	312.9	179.60	2.742	
11,700.0	7,105.1	11,715.0	6,925.5	96.6	98.0	-68.62	-4,943.5	1,059.2	492.7	309.5	183.11	2.690	
11,768.0	7,105.0	11,780.9	6,925.0	97.9	99.2	-68.57	-5,009.4	1,059.2	492.8	307.3	185.46	2.657 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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-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	-92.35	-92.35	-3.6	-88.9	89.0				
100.0	100.0	100.0	100.0	0.1	0.1	-92.35	-92.35	-3.6	-88.9	89.0	88.8	0.22	396.056	
200.0	200.0	200.0	200.0	0.3	0.3	-92.35	-92.35	-3.6	-88.9	89.0	88.3	0.67	132.019	
300.0	300.0	300.0	300.0	0.6	0.6	-92.35	-92.35	-3.6	-88.9	89.0	87.9	1.12	79.211	
400.0	400.0	400.0	400.0	0.8	0.8	-92.35	-92.35	-3.6	-88.9	89.0	87.4	1.57	56.579	
500.0	500.0	500.0	500.0	1.0	1.0	-92.35	-92.35	-3.6	-88.9	89.0	87.0	2.02	44.006	
600.0	600.0	600.0	600.0	1.2	1.2	-92.35	-92.35	-3.6	-88.9	89.0	86.5	2.47	36.005	
700.0	700.0	700.0	700.0	1.5	1.5	-92.35	-92.35	-3.6	-88.9	89.0	86.1	2.92	30.466	
800.0	800.0	800.0	800.0	1.7	1.7	-92.35	-92.35	-3.6	-88.9	89.0	85.6	3.37	26.404	
900.0	900.0	900.0	900.0	1.9	1.9	-92.35	-92.35	-3.6	-88.9	89.0	85.2	3.82	23.297	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-92.35	-92.35	-3.6	-88.9	89.0	84.7	4.27	20.845 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	171.58	171.58	-3.6	-88.9	90.7	86.0	4.70	19.292	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	172.02	172.02	-3.6	-88.9	95.9	90.8	5.12	18.728 SF	
1,300.0	1,299.5	1,295.9	1,295.9	2.8	2.8	172.70	172.70	-3.6	-90.5	106.2	100.7	5.52	19.234	
1,400.0	1,398.7	1,390.7	1,390.5	3.0	3.0	173.51	173.51	-3.3	-95.3	123.3	117.3	5.92	20.833	
1,482.9	1,480.6	1,467.7	1,467.3	3.2	3.2	174.16	174.16	-3.0	-101.4	142.4	136.2	6.24	22.810	
1,500.0	1,497.5	1,483.4	1,483.0	3.3	3.2	174.30	174.30	-2.9	-102.9	146.9	140.6	6.31	23.263	
1,600.0	1,596.1	1,574.4	1,573.3	3.6	3.4	174.96	174.96	-2.4	-113.3	174.8	168.0	6.73	25.980	
1,700.0	1,694.6	1,663.5	1,661.5	3.9	3.6	175.46	175.46	-1.7	-126.3	205.7	198.5	7.14	28.788	
1,800.0	1,793.2	1,757.0	1,753.7	4.2	3.9	175.85	175.85	-0.9	-141.8	238.5	230.9	7.57	31.503	
1,900.0	1,891.8	1,851.4	1,846.8	4.6	4.2	176.16	176.16	-0.1	-157.4	271.3	263.3	8.00	33.934	
2,000.0	1,990.4	1,945.9	1,940.0	4.9	4.5	176.39	176.39	0.7	-173.0	304.2	295.8	8.43	36.096	
2,100.0	2,089.0	2,040.3	2,033.1	5.3	4.8	176.58	176.58	1.5	-188.7	337.0	328.2	8.87	38.011	
2,200.0	2,187.6	2,134.8	2,126.2	5.6	5.1	176.74	176.74	2.4	-204.3	369.9	360.6	9.31	39.744	
2,300.0	2,286.1	2,229.2	2,219.4	6.0	5.4	176.87	176.87	3.2	-219.9	402.8	393.0	9.75	41.299	
2,400.0	2,384.7	2,323.7	2,312.5	6.3	5.7	176.99	176.99	4.0	-235.6	435.6	425.4	10.20	42.704	
2,500.0	2,483.3	2,418.1	2,405.6	6.7	6.1	177.08	177.08	4.8	-251.2	468.5	457.8	10.65	43.978	
2,600.0	2,581.9	2,512.5	2,498.8	7.1	6.4	177.17	177.17	5.6	-266.8	501.4	490.2	11.11	45.137	
2,700.0	2,680.5	2,607.0	2,591.9	7.5	6.7	177.24	177.24	6.4	-282.5	534.2	522.7	11.56	46.196	
2,800.0	2,779.0	2,701.4	2,685.1	7.8	7.1	177.30	177.30	7.2	-298.1	567.1	555.1	12.02	47.167	
2,900.0	2,877.6	2,795.9	2,778.2	8.2	7.4	177.36	177.36	8.0	-313.7	600.0	587.5	12.48	48.058	
3,000.0	2,976.2	2,890.3	2,871.3	8.6	7.8	177.41	177.41	8.9	-329.4	632.8	619.9	12.95	48.880	
3,100.0	3,074.8	2,984.8	2,964.5	9.0	8.1	177.46	177.46	9.7	-345.0	665.7	652.3	13.41	49.640	
3,200.0	3,173.4	3,089.8	3,068.1	9.4	8.5	177.51	177.51	10.6	-362.0	698.3	684.4	13.89	50.272	
3,300.0	3,272.0	3,217.1	3,194.3	9.7	8.8	177.56	177.56	11.4	-378.4	727.6	713.3	14.38	50.596	
3,400.0	3,370.5	3,347.7	3,324.4	10.1	9.1	177.62	177.62	12.0	-389.4	752.6	737.8	14.87	50.609	
3,500.0	3,469.1	3,481.1	3,457.7	10.5	9.3	177.69	177.69	12.2	-394.4	773.1	757.8	15.36	50.325	
3,600.0	3,567.7	3,591.1	3,567.7	10.9	9.5	177.74	177.74	12.3	-394.7	790.1	774.3	15.82	49.952	
3,700.0	3,666.3	3,689.6	3,666.3	11.3	9.7	177.79	177.79	12.3	-394.7	806.9	790.6	16.27	49.597	
3,800.0	3,764.9	3,788.2	3,764.9	11.7	9.9	177.83	177.83	12.3	-394.7	823.6	806.9	16.72	49.254	
3,900.0	3,863.5	3,886.8	3,863.5	12.0	10.0	177.88	177.88	12.3	-394.7	840.4	823.2	17.18	48.927	
4,000.0	3,962.0	3,985.4	3,962.0	12.4	10.2	177.92	177.92	12.3	-394.7	857.2	839.5	17.63	48.613	
4,100.0	4,060.6	4,084.0	4,060.6	12.8	10.4	177.96	177.96	12.3	-394.7	873.9	855.9	18.09	48.313	
4,200.0	4,159.2	4,182.5	4,159.2	13.2	10.6	178.00	178.00	12.3	-394.7	890.7	872.2	18.55	48.026	
4,300.0	4,257.8	4,281.1	4,257.8	13.6	10.8	178.03	178.03	12.3	-394.7	907.5	888.5	19.00	47.750	
4,400.0	4,356.4	4,379.7	4,356.4	14.0	11.0	178.07	178.07	12.3	-394.7	924.2	904.8	19.46	47.486	
4,500.0	4,455.0	4,478.3	4,455.0	14.4	11.1	178.10	178.10	12.3	-394.7	941.0	921.1	19.92	47.231	
4,565.4	4,519.4	4,542.7	4,519.4	14.6	11.3	178.13	178.13	12.3	-394.7	952.0	931.7	20.22	47.071	
4,600.0	4,553.6	4,576.9	4,553.6	14.7	11.3	178.14	178.14	12.3	-394.7	957.6	937.2	20.40	46.934	
4,700.0	4,652.6	4,675.9	4,652.6	15.0	11.5	178.18	178.18	12.3	-394.7	971.4	950.5	20.88	46.526	
4,800.0	4,752.1	4,775.4	4,752.1	15.2	11.7	178.20	178.20	12.3	-394.7	981.8	960.5	21.33	46.031	

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 34R-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 34R-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-243 - Wellbore #1 - Plan #1 (9-27-12)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
4,900.0	4,851.8	4,875.2	4,851.8	15.4	11.9	178.22	12.3	-394.7	988.7	967.0	21.75	45.456					
5,000.0	4,951.7	4,975.1	4,951.7	15.6	12.1	178.23	12.3	-394.7	992.2	970.0	22.14	44.804					
5,048.3	5,000.0	5,023.3	5,000.0	15.7	12.2	-85.54	12.3	-394.7	992.6	970.2	22.33	44.458					
5,100.0	5,051.7	5,075.1	5,051.7	15.7	12.3	-85.54	12.3	-394.7	992.6	970.0	22.53	44.047					
5,200.0	5,151.7	5,175.1	5,151.7	15.9	12.5	-85.54	12.3	-394.7	992.6	969.6	22.94	43.263					
5,300.0	5,251.7	5,275.1	5,251.7	16.0	12.7	-85.54	12.3	-394.7	992.6	969.2	23.35	42.504					
5,400.0	5,351.7	5,375.1	5,351.7	16.2	12.9	-85.54	12.3	-394.7	992.6	968.8	23.76	41.769					
5,500.0	5,451.7	5,475.1	5,451.7	16.3	13.1	-85.54	12.3	-394.7	992.6	968.4	24.18	41.057					
5,600.0	5,551.7	5,575.1	5,551.7	16.5	13.3	-85.54	12.3	-394.7	992.6	968.0	24.59	40.366					
5,700.0	5,651.7	5,675.1	5,651.7	16.6	13.5	-85.54	12.3	-394.7	992.6	967.6	25.00	39.697					
5,800.0	5,751.7	5,775.1	5,751.7	16.8	13.7	-85.54	12.3	-394.7	992.6	967.1	25.42	39.047					
5,900.0	5,851.7	5,875.1	5,851.7	17.0	13.9	-85.54	12.3	-394.7	992.6	966.7	25.84	38.417					
6,000.0	5,951.7	5,975.1	5,951.7	17.1	14.1	-85.54	12.3	-394.7	992.6	966.3	26.25	37.805					
6,100.0	6,051.7	6,075.1	6,051.7	17.3	14.3	-85.54	12.3	-394.7	992.6	965.9	26.67	37.211					
6,200.0	6,151.7	6,175.1	6,151.7	17.4	14.5	-85.54	12.3	-394.7	992.6	965.5	27.09	36.634					
6,300.0	6,251.7	6,281.9	6,258.4	17.6	14.7	-85.71	9.3	-394.7	992.3	964.8	27.51	36.072					
6,383.5	6,335.2	6,372.7	6,348.3	17.8	14.9	-86.48	-4.1	-394.7	991.5	963.6	27.85	35.607					
6,400.0	6,351.7	6,390.3	6,365.4	17.8	14.9	93.39	-8.0	-394.7	991.3	963.4	27.91	35.515					
6,450.0	6,401.7	6,443.0	6,416.2	17.9	15.0	92.79	-21.8	-394.7	990.7	962.6	28.11	35.245					
6,500.0	6,451.3	6,494.9	6,465.2	17.9	15.1	92.19	-38.7	-394.7	990.2	961.9	28.31	34.974					
6,550.0	6,500.4	6,545.9	6,512.3	18.0	15.2	91.59	-58.7	-394.7	989.9	961.3	28.53	34.697					
6,600.0	6,548.9	6,596.3	6,557.2	18.1	15.3	90.98	-81.3	-394.6	989.6	960.8	28.76	34.405					
6,650.0	6,596.4	6,645.9	6,599.9	18.2	15.4	90.37	-106.5	-394.6	989.5	960.5	29.02	34.094					
6,681.5	6,625.7	6,676.8	6,625.7	18.3	15.4	89.99	-123.6	-394.6	989.5	960.3	29.20	33.881					
6,700.0	6,642.8	6,694.8	6,640.4	18.3	15.5	89.77	-134.0	-394.6	989.5	960.2	29.31	33.756					
6,750.0	6,687.8	6,743.1	6,678.5	18.5	15.6	89.17	-163.6	-394.6	989.6	959.9	29.64	33.386					
6,800.0	6,731.4	6,790.7	6,714.2	18.6	15.8	88.57	-195.2	-394.5	989.8	959.8	30.01	32.981					
6,850.0	6,773.3	6,837.8	6,747.5	18.7	15.9	87.99	-228.4	-394.5	990.1	959.7	30.43	32.536					
6,900.0	6,813.3	6,884.3	6,778.3	18.9	16.1	87.42	-263.3	-394.4	990.5	959.6	30.90	32.051					
6,950.0	6,851.2	6,930.3	6,806.6	19.1	16.4	86.85	-299.5	-394.4	991.0	959.6	31.43	31.528					
7,000.0	6,887.0	6,975.8	6,832.4	19.3	16.6	86.31	-336.9	-394.4	991.6	959.6	32.02	30.967					
7,050.0	6,920.3	7,020.8	6,855.7	19.6	16.9	85.78	-375.4	-394.3	992.2	959.6	32.67	30.372					
7,100.0	6,951.2	7,065.4	6,876.5	19.8	17.3	85.27	-414.9	-394.3	992.9	959.6	33.38	29.748					
7,150.0	6,979.4	7,109.6	6,894.9	20.1	17.6	84.77	-455.1	-394.2	993.7	959.5	34.15	29.100					
7,200.0	7,004.9	7,153.4	6,910.7	20.5	18.0	84.30	-495.9	-394.2	994.5	959.5	34.97	28.434					
7,250.0	7,027.5	7,196.9	6,924.1	20.9	18.5	83.85	-537.3	-394.1	995.3	959.4	35.86	27.755					
7,300.0	7,047.2	7,240.0	6,935.0	21.3	18.9	83.43	-579.0	-394.1	996.1	959.3	36.80	27.067					
7,350.0	7,063.8	7,282.9	6,943.5	21.7	19.4	83.03	-621.0	-394.0	996.9	959.1	37.79	26.380					
7,400.0	7,077.2	7,325.5	6,949.6	22.2	19.9	82.66	-663.2	-394.0	997.7	958.9	38.83	25.698					
7,450.0	7,087.5	7,367.9	6,953.4	22.7	20.4	82.31	-705.4	-394.0	998.5	958.6	39.90	25.025					
7,503.5	7,095.0	7,412.9	6,954.8	23.3	21.0	81.98	-750.4	-393.9	999.3	958.2	41.09	24.322					



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-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 34R-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')

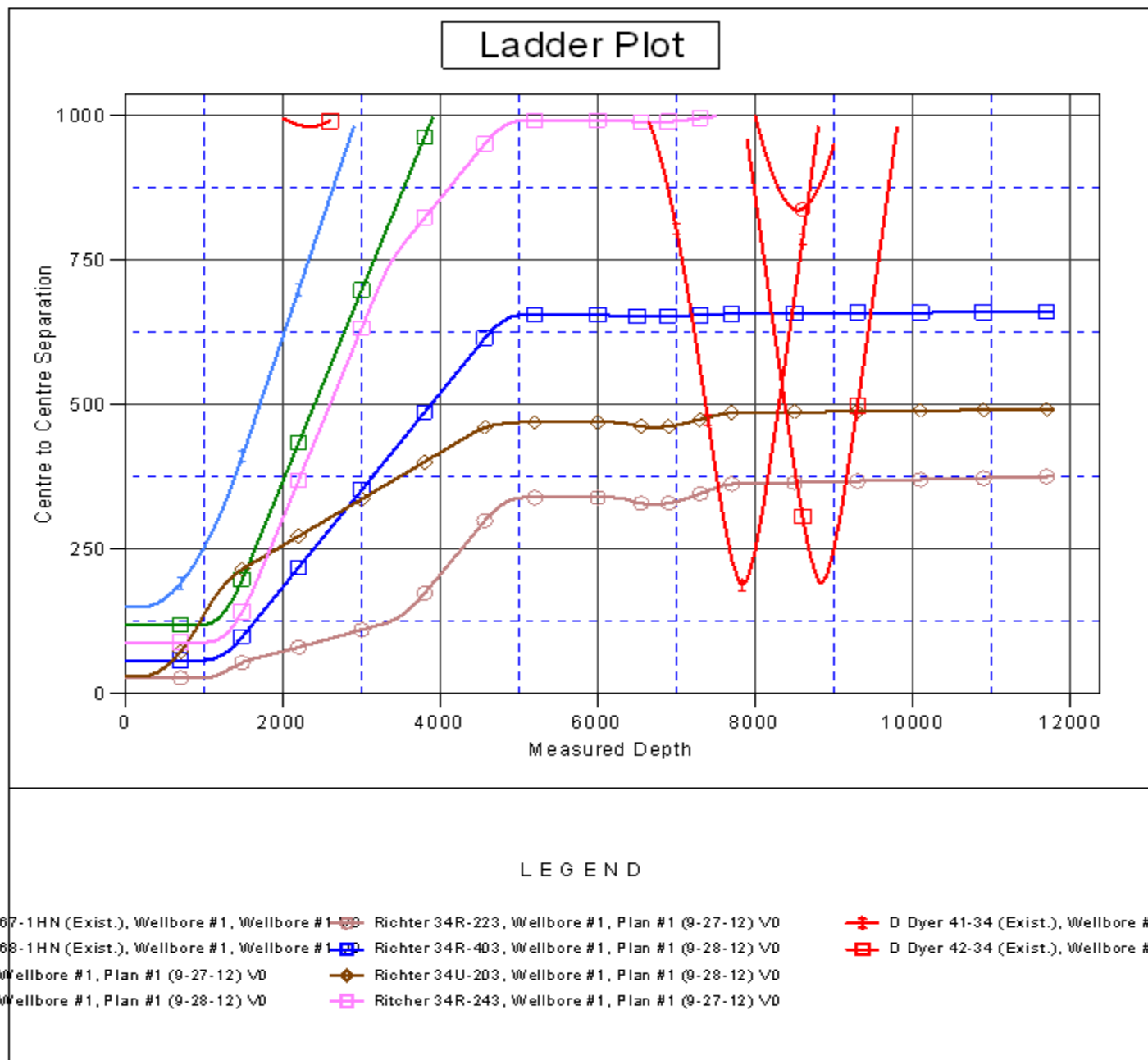
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Richter 34R-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 34R-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 34R-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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