

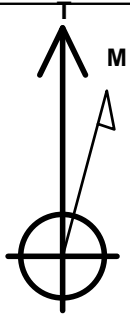
# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Richter 34R-223**

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 1440180.71 3269220.33 40.537660 -104.531370  
 RKB - 13' WELL @ 4883.0ft (RKB - 13')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape Point
BHL 500'FSL & 990'FEL	6925.0	-5013.0	297.5	Point



Azimuths to True North  
 Magnetic North: 8.58°

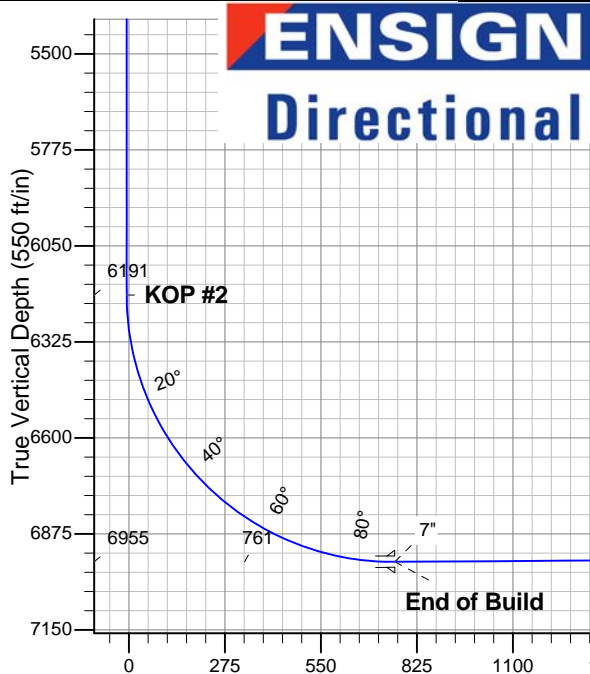
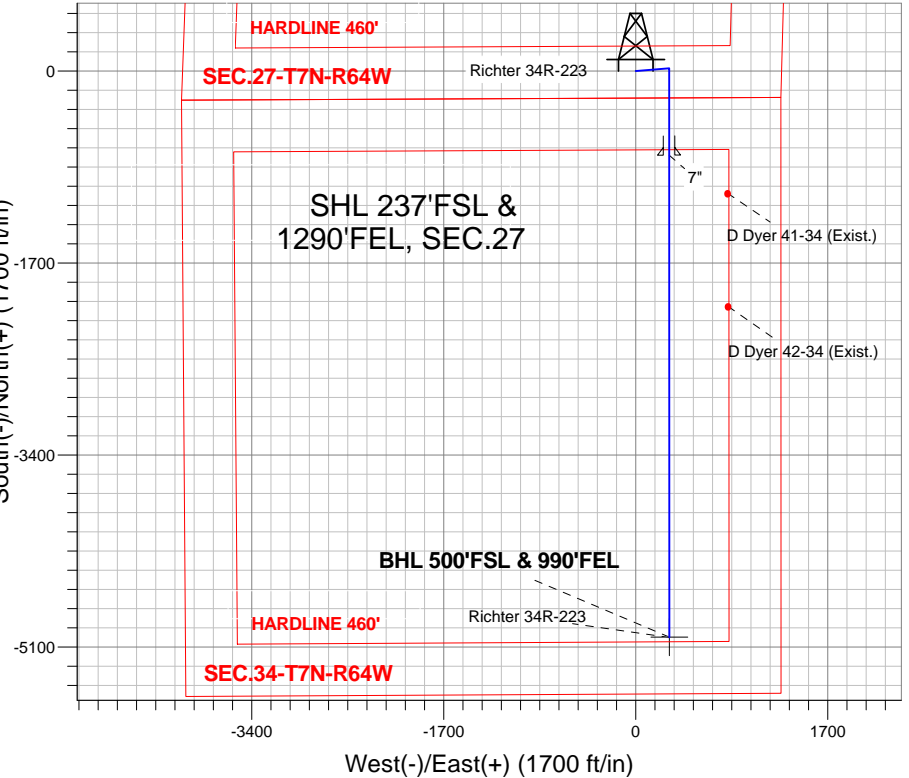
Magnetic Field  
 Strength: 53092.1srT  
 Dip Angle: 67.16°  
 Date: 9/27/2012  
 Model: IGRF2010

Richter 27T-HZ Pad Sec.27-T7N-R64W  
 Richter 34R-223  
 Plan #1 (9-27-12)  
 15:16, October 02 2012

## ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	KOP #1
6190.9	6210.3	KOP #2
6954.8	7415.6	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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1600.9	8.02	85.34	1599.6	2.3	27.9	2.00	85.34	-0.6	
4	3318.5	8.02	85.34	3300.4	21.7	266.7	0.00	0.00	-5.9	
5	3719.4	0.00	0.00	3700.0	24.0	294.6	2.00	180.00	-6.5	
6	6210.3	0.00	0.00	6190.9	24.0	294.6	0.00	0.00	-6.5	
7	7415.6	90.40	179.97	6954.8	-745.3	295.0	7.50	179.97	761.4	
	811683.5	90.40	179.97	6925.0	-5013.0	297.5	0.00	0.00	5021.9	BHL 500'FSL & 990'FEL

Vertical Section at 176.60° (550 ft/in)



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.27-T7N-R64W**

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

**Richter 34R-223**

**Wellbore #1**

**Plan: Plan #1 (9-27-12)**

## **Standard Planning Report**

**02 October, 2012**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-27-12)		

<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-223					
Well Position	+N-S	3.6 ft	Northing:	1,440,180.71 ft	Latitude:	40.537660
	+E-W	122.3 ft	Easting:	3,269,220.33 ft	Longitude:	-104.531370
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	9/27/2012	8.58	67.16	53,092

<b>Design</b>	Plan #1 (9-27-12)			
<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	176.60

<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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,600.9	8.02	85.34	1,599.6	2.3	27.9	2.00	2.00	0.00	85.34	
3,318.5	8.02	85.34	3,300.4	21.7	266.7	0.00	0.00	0.00	0.00	
3,719.4	0.00	0.00	3,700.0	24.0	294.6	2.00	-2.00	0.00	180.00	
6,210.3	0.00	0.00	6,190.9	24.0	294.6	0.00	0.00	0.00	0.00	
7,415.6	90.40	179.97	6,954.8	-745.3	295.0	7.50	7.50	0.00	179.97	
11,683.5	90.40	179.97	6,925.0	-5,013.0	297.5	0.00	0.00	0.00	0.00	BHL 500'FSL & 99C

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-27-12)		

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
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
1,240.0	0.80	85.34	1,240.0	0.0	0.3	0.0	2.00	2.00	0.00
1,280.0	1.60	85.34	1,280.0	0.1	1.1	0.0	2.00	2.00	0.00
1,320.0	2.40	85.34	1,320.0	0.2	2.5	-0.1	2.00	2.00	0.00
1,360.0	3.20	85.34	1,359.9	0.4	4.5	-0.1	2.00	2.00	0.00
1,400.0	4.00	85.34	1,399.8	0.6	7.0	-0.2	2.00	2.00	0.00
1,440.0	4.80	85.34	1,439.7	0.8	10.0	-0.2	2.00	2.00	0.00
1,480.0	5.60	85.34	1,479.6	1.1	13.6	-0.3	2.00	2.00	0.00
1,520.0	6.40	85.34	1,519.3	1.4	17.8	-0.4	2.00	2.00	0.00
1,560.0	7.20	85.34	1,559.1	1.8	22.5	-0.5	2.00	2.00	0.00
1,600.0	8.00	85.34	1,598.7	2.3	27.8	-0.6	2.00	2.00	0.00
1,600.9	8.02	85.34	1,599.6	2.3	27.9	-0.6	2.00	2.00	0.00
1,640.0	8.02	85.34	1,638.3	2.7	33.3	-0.7	0.00	0.00	0.00
1,680.0	8.02	85.34	1,677.9	3.2	38.9	-0.9	0.00	0.00	0.00
1,720.0	8.02	85.34	1,717.5	3.6	44.5	-1.0	0.00	0.00	0.00
1,760.0	8.02	85.34	1,757.1	4.1	50.0	-1.1	0.00	0.00	0.00
1,800.0	8.02	85.34	1,796.7	4.5	55.6	-1.2	0.00	0.00	0.00
1,840.0	8.02	85.34	1,836.4	5.0	61.2	-1.4	0.00	0.00	0.00
1,880.0	8.02	85.34	1,876.0	5.4	66.7	-1.5	0.00	0.00	0.00
1,920.0	8.02	85.34	1,915.6	5.9	72.3	-1.6	0.00	0.00	0.00
1,960.0	8.02	85.34	1,955.2	6.3	77.8	-1.7	0.00	0.00	0.00
2,000.0	8.02	85.34	1,994.8	6.8	83.4	-1.8	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-27-12)		

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	8.02	85.34	2,034.4	7.2	89.0	-2.0	0.00	0.00	0.00
2,080.0	8.02	85.34	2,074.0	7.7	94.5	-2.1	0.00	0.00	0.00
2,120.0	8.02	85.34	2,113.6	8.2	100.1	-2.2	0.00	0.00	0.00
2,160.0	8.02	85.34	2,153.2	8.6	105.6	-2.3	0.00	0.00	0.00
2,200.0	8.02	85.34	2,192.8	9.1	111.2	-2.5	0.00	0.00	0.00
2,240.0	8.02	85.34	2,232.4	9.5	116.8	-2.6	0.00	0.00	0.00
2,280.0	8.02	85.34	2,272.1	10.0	122.3	-2.7	0.00	0.00	0.00
2,320.0	8.02	85.34	2,311.7	10.4	127.9	-2.8	0.00	0.00	0.00
2,360.0	8.02	85.34	2,351.3	10.9	133.4	-2.9	0.00	0.00	0.00
2,400.0	8.02	85.34	2,390.9	11.3	139.0	-3.1	0.00	0.00	0.00
2,440.0	8.02	85.34	2,430.5	11.8	144.6	-3.2	0.00	0.00	0.00
2,480.0	8.02	85.34	2,470.1	12.2	150.1	-3.3	0.00	0.00	0.00
2,520.0	8.02	85.34	2,509.7	12.7	155.7	-3.4	0.00	0.00	0.00
2,560.0	8.02	85.34	2,549.3	13.1	161.2	-3.6	0.00	0.00	0.00
2,600.0	8.02	85.34	2,588.9	13.6	166.8	-3.7	0.00	0.00	0.00
2,640.0	8.02	85.34	2,628.5	14.0	172.4	-3.8	0.00	0.00	0.00
2,680.0	8.02	85.34	2,668.1	14.5	177.9	-3.9	0.00	0.00	0.00
2,720.0	8.02	85.34	2,707.8	14.9	183.5	-4.1	0.00	0.00	0.00
2,760.0	8.02	85.34	2,747.4	15.4	189.0	-4.2	0.00	0.00	0.00
2,800.0	8.02	85.34	2,787.0	15.9	194.6	-4.3	0.00	0.00	0.00
2,840.0	8.02	85.34	2,826.6	16.3	200.2	-4.4	0.00	0.00	0.00
2,880.0	8.02	85.34	2,866.2	16.8	205.7	-4.5	0.00	0.00	0.00
2,920.0	8.02	85.34	2,905.8	17.2	211.3	-4.7	0.00	0.00	0.00
2,960.0	8.02	85.34	2,945.4	17.7	216.8	-4.8	0.00	0.00	0.00
3,000.0	8.02	85.34	2,985.0	18.1	222.4	-4.9	0.00	0.00	0.00
3,040.0	8.02	85.34	3,024.6	18.6	228.0	-5.0	0.00	0.00	0.00
3,080.0	8.02	85.34	3,064.2	19.0	233.5	-5.2	0.00	0.00	0.00
3,120.0	8.02	85.34	3,103.8	19.5	239.1	-5.3	0.00	0.00	0.00
3,160.0	8.02	85.34	3,143.5	19.9	244.7	-5.4	0.00	0.00	0.00
3,200.0	8.02	85.34	3,183.1	20.4	250.2	-5.5	0.00	0.00	0.00
3,240.0	8.02	85.34	3,222.7	20.8	255.8	-5.7	0.00	0.00	0.00
3,280.0	8.02	85.34	3,262.3	21.3	261.3	-5.8	0.00	0.00	0.00
3,318.5	8.02	85.34	3,300.4	21.7	266.7	-5.9	0.00	0.00	0.00
3,320.0	7.99	85.34	3,301.9	21.7	266.9	-5.9	2.00	-2.00	0.00
3,360.0	7.19	85.34	3,341.5	22.2	272.2	-6.0	2.00	-2.00	0.00
3,400.0	6.39	85.34	3,381.3	22.6	276.9	-6.1	2.00	-2.00	0.00
3,440.0	5.59	85.34	3,421.0	22.9	281.0	-6.2	2.00	-2.00	0.00
3,480.0	4.79	85.34	3,460.9	23.2	284.6	-6.3	2.00	-2.00	0.00
3,520.0	3.99	85.34	3,500.8	23.4	287.7	-6.4	2.00	-2.00	0.00
3,560.0	3.19	85.34	3,540.7	23.6	290.2	-6.4	2.00	-2.00	0.00
3,600.0	2.39	85.34	3,580.6	23.8	292.1	-6.5	2.00	-2.00	0.00
3,640.0	1.59	85.34	3,620.6	23.9	293.5	-6.5	2.00	-2.00	0.00
3,680.0	0.79	85.34	3,660.6	24.0	294.3	-6.5	2.00	-2.00	0.00
3,719.4	0.00	0.00	3,700.0	24.0	294.6	-6.5	2.00	-2.00	0.00
3,720.0	0.00	0.00	3,700.6	24.0	294.6	-6.5	0.00	0.00	0.00
3,760.0	0.00	0.00	3,740.6	24.0	294.6	-6.5	0.00	0.00	0.00
3,800.0	0.00	0.00	3,780.6	24.0	294.6	-6.5	0.00	0.00	0.00
3,840.0	0.00	0.00	3,820.6	24.0	294.6	-6.5	0.00	0.00	0.00
3,880.0	0.00	0.00	3,860.6	24.0	294.6	-6.5	0.00	0.00	0.00
3,920.0	0.00	0.00	3,900.6	24.0	294.6	-6.5	0.00	0.00	0.00
3,960.0	0.00	0.00	3,940.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,000.0	0.00	0.00	3,980.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,040.0	0.00	0.00	4,020.6	24.0	294.6	-6.5	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-27-12)		

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)
4,080.0	0.00	0.00	4,060.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,120.0	0.00	0.00	4,100.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,160.0	0.00	0.00	4,140.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,200.0	0.00	0.00	4,180.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,240.0	0.00	0.00	4,220.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,280.0	0.00	0.00	4,260.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,320.0	0.00	0.00	4,300.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,360.0	0.00	0.00	4,340.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,400.0	0.00	0.00	4,380.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,440.0	0.00	0.00	4,420.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,480.0	0.00	0.00	4,460.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,520.0	0.00	0.00	4,500.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,560.0	0.00	0.00	4,540.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,600.0	0.00	0.00	4,580.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,640.0	0.00	0.00	4,620.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,680.0	0.00	0.00	4,660.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,720.0	0.00	0.00	4,700.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,760.0	0.00	0.00	4,740.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,800.0	0.00	0.00	4,780.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,840.0	0.00	0.00	4,820.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,880.0	0.00	0.00	4,860.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,920.0	0.00	0.00	4,900.6	24.0	294.6	-6.5	0.00	0.00	0.00
4,960.0	0.00	0.00	4,940.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,000.0	0.00	0.00	4,980.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,040.0	0.00	0.00	5,020.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,080.0	0.00	0.00	5,060.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,120.0	0.00	0.00	5,100.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,160.0	0.00	0.00	5,140.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,200.0	0.00	0.00	5,180.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,240.0	0.00	0.00	5,220.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,280.0	0.00	0.00	5,260.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,320.0	0.00	0.00	5,300.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,360.0	0.00	0.00	5,340.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,380.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,440.0	0.00	0.00	5,420.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,480.0	0.00	0.00	5,460.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,520.0	0.00	0.00	5,500.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,560.0	0.00	0.00	5,540.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,580.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,640.0	0.00	0.00	5,620.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,680.0	0.00	0.00	5,660.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,720.0	0.00	0.00	5,700.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,760.0	0.00	0.00	5,740.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,780.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,840.0	0.00	0.00	5,820.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,880.0	0.00	0.00	5,860.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,920.0	0.00	0.00	5,900.6	24.0	294.6	-6.5	0.00	0.00	0.00
5,960.0	0.00	0.00	5,940.6	24.0	294.6	-6.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,980.6	24.0	294.6	-6.5	0.00	0.00	0.00
6,040.0	0.00	0.00	6,020.6	24.0	294.6	-6.5	0.00	0.00	0.00
6,080.0	0.00	0.00	6,060.6	24.0	294.6	-6.5	0.00	0.00	0.00
6,120.0	0.00	0.00	6,100.6	24.0	294.6	-6.5	0.00	0.00	0.00
6,160.0	0.00	0.00	6,140.6	24.0	294.6	-6.5	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-27-12)		

## 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	6,180.6	24.0	294.6	-6.5	0.00	0.00	0.00
6,210.3	0.00	0.00	6,190.9	24.0	294.6	-6.5	0.00	0.00	0.00
<b>KOP #2</b>									
6,240.0	2.23	179.97	6,220.6	23.4	294.6	-5.9	7.51	7.51	0.00
6,280.0	5.23	179.97	6,260.5	20.8	294.6	-3.3	7.50	7.50	0.00
6,320.0	8.23	179.97	6,300.2	16.1	294.6	1.3	7.50	7.50	0.00
6,360.0	11.23	179.97	6,339.6	9.4	294.6	8.1	7.50	7.50	0.00
6,400.0	14.23	179.97	6,378.7	0.6	294.6	16.9	7.50	7.50	0.00
6,440.0	17.23	179.97	6,417.1	-10.3	294.6	27.7	7.50	7.50	0.00
6,480.0	20.23	179.97	6,455.0	-23.1	294.6	40.5	7.50	7.50	0.00
6,520.0	23.23	179.97	6,492.2	-37.9	294.6	55.3	7.50	7.50	0.00
6,560.0	26.23	179.97	6,528.5	-54.7	294.6	72.0	7.50	7.50	0.00
6,600.0	29.23	179.97	6,563.9	-73.3	294.7	90.6	7.50	7.50	0.00
6,640.0	32.23	179.97	6,598.3	-93.7	294.7	111.0	7.50	7.50	0.00
6,680.0	35.23	179.97	6,631.6	-115.9	294.7	133.2	7.50	7.50	0.00
6,720.0	38.23	179.97	6,663.6	-139.8	294.7	157.0	7.50	7.50	0.00
6,760.0	41.23	179.97	6,694.4	-165.4	294.7	182.6	7.50	7.50	0.00
6,800.0	44.23	179.97	6,723.7	-192.5	294.7	209.7	7.50	7.50	0.00
6,840.0	47.23	179.97	6,751.7	-221.2	294.7	238.2	7.50	7.50	0.00
6,880.0	50.23	179.97	6,778.0	-251.2	294.8	268.3	7.50	7.50	0.00
6,920.0	53.23	179.97	6,802.8	-282.6	294.8	299.6	7.50	7.50	0.00
6,960.0	56.23	179.97	6,825.9	-315.3	294.8	332.2	7.50	7.50	0.00
7,000.0	59.23	179.97	6,847.3	-349.1	294.8	366.0	7.50	7.50	0.00
7,040.0	62.23	179.97	6,866.8	-384.0	294.8	400.8	7.50	7.50	0.00
7,080.0	65.23	179.97	6,884.5	-419.9	294.9	436.6	7.50	7.50	0.00
7,120.0	68.23	179.97	6,900.3	-456.6	294.9	473.3	7.50	7.50	0.00
7,160.0	71.23	179.97	6,914.2	-494.1	294.9	510.7	7.50	7.50	0.00
7,200.0	74.23	179.97	6,926.1	-532.3	294.9	548.8	7.50	7.50	0.00
7,240.0	77.23	179.97	6,935.9	-571.1	294.9	587.5	7.50	7.50	0.00
7,280.0	80.23	179.97	6,943.7	-610.3	295.0	626.7	7.50	7.50	0.00
7,320.0	83.23	179.97	6,949.5	-649.9	295.0	666.2	7.50	7.50	0.00
7,360.0	86.23	179.97	6,953.2	-689.7	295.0	706.0	7.50	7.50	0.00
7,400.0	89.23	179.97	6,954.7	-729.7	295.0	745.9	7.50	7.50	0.00
7,415.6	90.40	179.97	6,954.8	-745.3	295.0	761.4	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,440.0	90.40	179.97	6,954.6	-769.7	295.1	785.8	0.00	0.00	0.00
7,480.0	90.40	179.97	6,954.3	-809.7	295.1	825.7	0.00	0.00	0.00
7,520.0	90.40	179.97	6,954.1	-849.7	295.1	865.7	0.00	0.00	0.00
7,560.0	90.40	179.97	6,953.8	-889.7	295.1	905.6	0.00	0.00	0.00
7,600.0	90.40	179.97	6,953.5	-929.7	295.1	945.5	0.00	0.00	0.00
7,640.0	90.40	179.97	6,953.2	-969.7	295.2	985.4	0.00	0.00	0.00
7,680.0	90.40	179.97	6,952.9	-1,009.7	295.2	1,025.4	0.00	0.00	0.00
7,720.0	90.40	179.97	6,952.7	-1,049.7	295.2	1,065.3	0.00	0.00	0.00
7,760.0	90.40	179.97	6,952.4	-1,089.7	295.2	1,105.2	0.00	0.00	0.00
7,800.0	90.40	179.97	6,952.1	-1,129.7	295.3	1,145.2	0.00	0.00	0.00
7,840.0	90.40	179.97	6,951.8	-1,169.7	295.3	1,185.1	0.00	0.00	0.00
7,880.0	90.40	179.97	6,951.6	-1,209.7	295.3	1,225.0	0.00	0.00	0.00
7,920.0	90.40	179.97	6,951.3	-1,249.7	295.3	1,265.0	0.00	0.00	0.00
7,960.0	90.40	179.97	6,951.0	-1,289.7	295.3	1,304.9	0.00	0.00	0.00
8,000.0	90.40	179.97	6,950.7	-1,329.7	295.4	1,344.8	0.00	0.00	0.00
8,040.0	90.40	179.97	6,950.4	-1,369.7	295.4	1,384.7	0.00	0.00	0.00
8,080.0	90.40	179.97	6,950.2	-1,409.7	295.4	1,424.7	0.00	0.00	0.00
8,120.0	90.40	179.97	6,949.9	-1,449.7	295.4	1,464.6	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-27-12)		

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)
8,160.0	90.40	179.97	6,949.6	-1,489.7	295.5	1,504.5	0.00	0.00	0.00
8,200.0	90.40	179.97	6,949.3	-1,529.7	295.5	1,544.5	0.00	0.00	0.00
8,240.0	90.40	179.97	6,949.0	-1,569.7	295.5	1,584.4	0.00	0.00	0.00
8,280.0	90.40	179.97	6,948.8	-1,609.6	295.5	1,624.3	0.00	0.00	0.00
8,320.0	90.40	179.97	6,948.5	-1,649.6	295.6	1,664.3	0.00	0.00	0.00
8,360.0	90.40	179.97	6,948.2	-1,689.6	295.6	1,704.2	0.00	0.00	0.00
8,400.0	90.40	179.97	6,947.9	-1,729.6	295.6	1,744.1	0.00	0.00	0.00
8,440.0	90.40	179.97	6,947.6	-1,769.6	295.6	1,784.0	0.00	0.00	0.00
8,480.0	90.40	179.97	6,947.4	-1,809.6	295.6	1,824.0	0.00	0.00	0.00
8,520.0	90.40	179.97	6,947.1	-1,849.6	295.7	1,863.9	0.00	0.00	0.00
8,560.0	90.40	179.97	6,946.8	-1,889.6	295.7	1,903.8	0.00	0.00	0.00
8,600.0	90.40	179.97	6,946.5	-1,929.6	295.7	1,943.8	0.00	0.00	0.00
8,640.0	90.40	179.97	6,946.2	-1,969.6	295.7	1,983.7	0.00	0.00	0.00
8,680.0	90.40	179.97	6,946.0	-2,009.6	295.8	2,023.6	0.00	0.00	0.00
8,720.0	90.40	179.97	6,945.7	-2,049.6	295.8	2,063.6	0.00	0.00	0.00
8,760.0	90.40	179.97	6,945.4	-2,089.6	295.8	2,103.5	0.00	0.00	0.00
8,800.0	90.40	179.97	6,945.1	-2,129.6	295.8	2,143.4	0.00	0.00	0.00
8,840.0	90.40	179.97	6,944.9	-2,169.6	295.9	2,183.3	0.00	0.00	0.00
8,880.0	90.40	179.97	6,944.6	-2,209.6	295.9	2,223.3	0.00	0.00	0.00
8,920.0	90.40	179.97	6,944.3	-2,249.6	295.9	2,263.2	0.00	0.00	0.00
8,960.0	90.40	179.97	6,944.0	-2,289.6	295.9	2,303.1	0.00	0.00	0.00
9,000.0	90.40	179.97	6,943.7	-2,329.6	295.9	2,343.1	0.00	0.00	0.00
9,040.0	90.40	179.97	6,943.5	-2,369.6	296.0	2,383.0	0.00	0.00	0.00
9,080.0	90.40	179.97	6,943.2	-2,409.6	296.0	2,422.9	0.00	0.00	0.00
9,120.0	90.40	179.97	6,942.9	-2,449.6	296.0	2,462.9	0.00	0.00	0.00
9,160.0	90.40	179.97	6,942.6	-2,489.6	296.0	2,502.8	0.00	0.00	0.00
9,200.0	90.40	179.97	6,942.3	-2,529.6	296.1	2,542.7	0.00	0.00	0.00
9,240.0	90.40	179.97	6,942.1	-2,569.6	296.1	2,582.7	0.00	0.00	0.00
9,280.0	90.40	179.97	6,941.8	-2,609.6	296.1	2,622.6	0.00	0.00	0.00
9,320.0	90.40	179.97	6,941.5	-2,649.6	296.1	2,662.5	0.00	0.00	0.00
9,360.0	90.40	179.97	6,941.2	-2,689.6	296.1	2,702.4	0.00	0.00	0.00
9,400.0	90.40	179.97	6,940.9	-2,729.6	296.2	2,742.4	0.00	0.00	0.00
9,440.0	90.40	179.97	6,940.7	-2,769.6	296.2	2,782.3	0.00	0.00	0.00
9,480.0	90.40	179.97	6,940.4	-2,809.6	296.2	2,822.2	0.00	0.00	0.00
9,520.0	90.40	179.97	6,940.1	-2,849.6	296.2	2,862.2	0.00	0.00	0.00
9,560.0	90.40	179.97	6,939.8	-2,889.6	296.3	2,902.1	0.00	0.00	0.00
9,600.0	90.40	179.97	6,939.5	-2,929.6	296.3	2,942.0	0.00	0.00	0.00
9,640.0	90.40	179.97	6,939.3	-2,969.6	296.3	2,982.0	0.00	0.00	0.00
9,680.0	90.40	179.97	6,939.0	-3,009.6	296.3	3,021.9	0.00	0.00	0.00
9,720.0	90.40	179.97	6,938.7	-3,049.6	296.4	3,061.8	0.00	0.00	0.00
9,760.0	90.40	179.97	6,938.4	-3,089.6	296.4	3,101.7	0.00	0.00	0.00
9,800.0	90.40	179.97	6,938.1	-3,129.6	296.4	3,141.7	0.00	0.00	0.00
9,840.0	90.40	179.97	6,937.9	-3,169.6	296.4	3,181.6	0.00	0.00	0.00
9,880.0	90.40	179.97	6,937.6	-3,209.6	296.4	3,221.5	0.00	0.00	0.00
9,920.0	90.40	179.97	6,937.3	-3,249.6	296.5	3,261.5	0.00	0.00	0.00
9,960.0	90.40	179.97	6,937.0	-3,289.6	296.5	3,301.4	0.00	0.00	0.00
10,000.0	90.40	179.97	6,936.8	-3,329.6	296.5	3,341.3	0.00	0.00	0.00
10,040.0	90.40	179.97	6,936.5	-3,369.6	296.5	3,381.3	0.00	0.00	0.00
10,080.0	90.40	179.97	6,936.2	-3,409.6	296.6	3,421.2	0.00	0.00	0.00
10,120.0	90.40	179.97	6,935.9	-3,449.6	296.6	3,461.1	0.00	0.00	0.00
10,160.0	90.40	179.97	6,935.6	-3,489.6	296.6	3,501.0	0.00	0.00	0.00
10,200.0	90.40	179.97	6,935.4	-3,529.6	296.6	3,541.0	0.00	0.00	0.00
10,240.0	90.40	179.97	6,935.1	-3,569.6	296.6	3,580.9	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-27-12)		

## 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)
10,280.0	90.40	179.97	6,934.8	-3,609.6	296.7	3,620.8	0.00	0.00	0.00
10,320.0	90.40	179.97	6,934.5	-3,649.6	296.7	3,660.8	0.00	0.00	0.00
10,360.0	90.40	179.97	6,934.2	-3,689.6	296.7	3,700.7	0.00	0.00	0.00
10,400.0	90.40	179.97	6,934.0	-3,729.6	296.7	3,740.6	0.00	0.00	0.00
10,440.0	90.40	179.97	6,933.7	-3,769.6	296.8	3,780.6	0.00	0.00	0.00
10,480.0	90.40	179.97	6,933.4	-3,809.6	296.8	3,820.5	0.00	0.00	0.00
10,520.0	90.40	179.97	6,933.1	-3,849.6	296.8	3,860.4	0.00	0.00	0.00
10,560.0	90.40	179.97	6,932.8	-3,889.6	296.8	3,900.3	0.00	0.00	0.00
10,600.0	90.40	179.97	6,932.6	-3,929.6	296.9	3,940.3	0.00	0.00	0.00
10,640.0	90.40	179.97	6,932.3	-3,969.6	296.9	3,980.2	0.00	0.00	0.00
10,680.0	90.40	179.97	6,932.0	-4,009.6	296.9	4,020.1	0.00	0.00	0.00
10,720.0	90.40	179.97	6,931.7	-4,049.6	296.9	4,060.1	0.00	0.00	0.00
10,760.0	90.40	179.97	6,931.4	-4,089.6	296.9	4,100.0	0.00	0.00	0.00
10,800.0	90.40	179.97	6,931.2	-4,129.6	297.0	4,139.9	0.00	0.00	0.00
10,840.0	90.40	179.97	6,930.9	-4,169.6	297.0	4,179.9	0.00	0.00	0.00
10,880.0	90.40	179.97	6,930.6	-4,209.6	297.0	4,219.8	0.00	0.00	0.00
10,920.0	90.40	179.97	6,930.3	-4,249.6	297.0	4,259.7	0.00	0.00	0.00
10,960.0	90.40	179.97	6,930.1	-4,289.6	297.1	4,299.6	0.00	0.00	0.00
11,000.0	90.40	179.97	6,929.8	-4,329.6	297.1	4,339.6	0.00	0.00	0.00
11,040.0	90.40	179.97	6,929.5	-4,369.6	297.1	4,379.5	0.00	0.00	0.00
11,080.0	90.40	179.97	6,929.2	-4,409.6	297.1	4,419.4	0.00	0.00	0.00
11,120.0	90.40	179.97	6,928.9	-4,449.6	297.1	4,459.4	0.00	0.00	0.00
11,160.0	90.40	179.97	6,928.7	-4,489.6	297.2	4,499.3	0.00	0.00	0.00
11,200.0	90.40	179.97	6,928.4	-4,529.6	297.2	4,539.2	0.00	0.00	0.00
11,240.0	90.40	179.97	6,928.1	-4,569.6	297.2	4,579.2	0.00	0.00	0.00
11,280.0	90.40	179.97	6,927.8	-4,609.6	297.2	4,619.1	0.00	0.00	0.00
11,320.0	90.40	179.97	6,927.5	-4,649.6	297.3	4,659.0	0.00	0.00	0.00
11,360.0	90.40	179.97	6,927.3	-4,689.6	297.3	4,698.9	0.00	0.00	0.00
11,400.0	90.40	179.97	6,927.0	-4,729.6	297.3	4,738.9	0.00	0.00	0.00
11,440.0	90.40	179.97	6,926.7	-4,769.6	297.3	4,778.8	0.00	0.00	0.00
11,480.0	90.40	179.97	6,926.4	-4,809.6	297.4	4,818.7	0.00	0.00	0.00
11,520.0	90.40	179.97	6,926.1	-4,849.6	297.4	4,858.7	0.00	0.00	0.00
11,560.0	90.40	179.97	6,925.9	-4,889.6	297.4	4,898.6	0.00	0.00	0.00
11,600.0	90.40	179.97	6,925.6	-4,929.6	297.4	4,938.5	0.00	0.00	0.00
11,640.0	90.40	179.97	6,925.3	-4,969.6	297.4	4,978.5	0.00	0.00	0.00
11,680.0	90.40	179.97	6,925.0	-5,009.6	297.5	5,018.4	0.00	0.00	0.00
11,683.5	90.40	179.97	6,925.0	-5,013.0	297.5	5,021.9	0.00	0.00	0.00
BHL 500'FSL & 990'FEL									

## Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N-S (ft)	+E-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 500'FSL & 990'F	0.00	0.00	6,925.0	-5,013.0	297.5	1,435,171.39	3,269,572.53	40.523900	-104.530300
- plan hits target center									
- Point									

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (9-27-12)		

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,415.6	6,954.8	7"	7	7-1/2

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,200.0	1,200.0	0.0	0.0	KOP #1
6,210.3	6,190.9	24.0	294.6	KOP #2
7,415.6	6,954.8	-745.3	295.0	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.27-T7N-R64W**

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

**Richter 34R-223**

**Wellbore #1**

**Plan #1 (9-27-12)**

## **Anticollision Report**

**02 October, 2012**



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<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 (9-27-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (9-27-12)
<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	10/2/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,683.5	Plan #1 (9-27-12) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Dyer 34R-203 Pad Sec.34-T7N-R64W						
D Dyer 41-34 (Exist.) - Wellbore #1 - Design #1	7,752.7	6,949.4	516.4	475.5	12.628	CC, ES
D Dyer 41-34 (Exist.) - Wellbore #1 - Design #1	7,900.0	6,948.4	537.0	493.8	12.421	SF
D Dyer 42-34 (Exist.) - Wellbore #1 - Design #1	8,754.6	6,919.4	521.5	463.5	8.995	CC, ES
D Dyer 42-34 (Exist.) - Wellbore #1 - Design #1	8,800.0	6,919.1	523.4	464.6	8.903	SF
Richter 27T-HZ Pad Sec.27-T7N-R64W						
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	200.0	200.0	122.4	121.7	181.454	CC, ES
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	1,200.0	1,147.1	276.0	269.7	43.743	SF
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	91.8	87.5	21.495	CC, ES
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	7,900.0	7,982.1	999.9	945.0	18.199	SF
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	1,200.0	1,200.0	30.6	25.4	5.914	CC, ES
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	11,684.2	11,736.1	376.6	201.8	2.154	SF
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	27.8	23.5	6.509	CC, ES
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	11,684.2	11,782.8	376.6	203.3	2.173	SF
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	58.4	57.7	86.565	CC, ES
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	11,684.2	11,780.9	789.5	594.5	4.047	SF
Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	1,200.0	1,200.0	61.3	56.1	11.850	CC, ES
Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	11,684.2	11,677.1	658.9	464.2	3.385	SF

Offset Design												Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference				Offset			Semi Major Axis		Distance					
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
6,850.0	6,758.4	6,755.4	6,755.4	16.0	15.1	-42.10	-1,082.0	811.7	997.8	971.5	26.34	37.880		
6,900.0	6,790.6	6,787.6	6,787.6	16.2	15.1	-45.63	-1,082.0	811.7	965.3	938.7	26.60	36.285		
6,950.0	6,820.3	6,817.3	6,817.3	16.5	15.2	-49.61	-1,082.0	811.7	931.6	904.4	27.12	34.352		
7,000.0	6,847.3	6,844.3	6,844.3	16.8	15.3	-54.01	-1,082.0	811.7	896.8	868.9	27.89	32.156		
7,050.0	6,871.4	6,868.4	6,868.4	17.1	15.3	-58.76	-1,082.0	811.7	861.4	832.5	28.89	29.822		
7,100.0	6,892.7	6,889.7	6,889.7	17.6	15.4	-63.77	-1,082.0	811.7	825.6	795.6	30.03	27.491		
7,150.0	6,910.9	6,907.9	6,907.9	18.0	15.4	-68.86	-1,082.0	811.7	789.9	758.6	31.24	25.287		
7,200.0	6,926.1	6,923.1	6,923.1	18.5	15.4	-73.86	-1,082.0	811.7	754.5	722.1	32.40	23.287		
7,250.0	6,938.1	6,935.1	6,935.1	19.0	15.5	-78.57	-1,082.0	811.7	719.8	686.4	33.45	21.521		

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-223
<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-223	<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 (9-27-12)	<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
Reference		Offset		Semi Major Axis			Distance							Warning		
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				
7,300.0	6,946.9	6,943.9	6,943.9	19.6	15.5	-82.82	-1,082.0	811.7	686.5	652.1	34.36	19.981				
7,350.0	6,952.4	6,949.4	6,949.4	20.2	15.5	-86.48	-1,082.0	811.7	654.8	619.7	35.13	18.641				
7,400.0	6,954.7	6,951.7	6,951.7	20.8	15.5	-89.47	-1,082.0	811.7	625.3	589.6	35.80	17.470				
7,415.6	6,954.8	6,951.8	6,951.8	21.0	15.5	-90.26	-1,082.0	811.7	616.7	580.7	35.99	17.135				
7,500.0	6,954.2	6,951.2	6,951.2	22.1	15.5	-90.20	-1,082.0	811.7	574.9	537.8	37.14	15.480				
7,600.0	6,953.5	6,950.5	6,950.5	23.6	15.5	-90.12	-1,082.0	811.7	538.5	499.9	38.57	13.961				
7,700.0	6,952.8	6,949.8	6,949.8	25.0	15.5	-90.04	-1,082.0	811.7	519.1	479.0	40.08	12.953				
7,752.7	6,952.4	6,949.4	6,949.4	25.8	15.5	-90.00	-1,082.0	811.7	516.4	475.5	40.90	12.628	CC, ES			
7,800.0	6,952.1	6,949.1	6,949.1	26.6	15.5	-89.96	-1,082.0	811.7	518.6	477.0	41.63	12.456				
7,900.0	6,951.4	6,948.4	6,948.4	28.1	15.5	-89.89	-1,082.0	811.7	537.0	493.8	43.24	12.421	SF			
8,000.0	6,950.7	6,947.7	6,947.7	29.8	15.5	-89.81	-1,082.0	811.7	572.6	527.7	44.88	12.759				
8,100.0	6,950.0	6,947.0	6,947.0	31.4	15.5	-89.73	-1,082.0	811.7	622.4	575.8	46.55	13.369				
8,200.0	6,949.3	6,946.3	6,946.3	33.1	15.5	-89.65	-1,082.0	811.7	683.2	635.0	48.25	14.159				
8,300.0	6,948.6	6,945.6	6,945.6	34.8	15.5	-89.58	-1,082.0	811.7	752.5	702.5	49.98	15.057				
8,400.0	6,947.9	6,944.9	6,944.9	36.5	15.5	-89.50	-1,082.0	811.7	828.1	776.4	51.72	16.010				
8,500.0	6,947.2	6,944.2	6,944.2	38.3	15.5	-89.42	-1,082.0	811.7	908.4	854.9	53.49	16.984				
8,600.0	6,946.5	6,943.5	6,943.5	40.0	15.5	-89.34	-1,082.0	811.7	992.3	937.0	55.26	17.956				

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<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 (9-27-12)	<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
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)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
8,000.0	6,950.7	6,924.7	6,924.7	29.8	15.5	-90.58	-2,083.9	817.3	917.2	872.4	44.81	20.468	
8,100.0	6,950.0	6,924.0	6,924.0	31.4	15.5	-90.50	-2,083.9	817.3	836.9	790.4	46.49	18.002	
8,200.0	6,949.3	6,923.3	6,923.3	33.1	15.4	-90.43	-2,083.9	817.3	761.2	713.0	48.19	15.796	
8,300.0	6,948.6	6,922.6	6,922.6	34.8	15.4	-90.35	-2,083.9	817.3	691.8	641.8	49.91	13.859	
8,400.0	6,947.9	6,921.9	6,921.9	36.5	15.4	-90.27	-2,083.9	817.3	630.6	578.9	51.66	12.206	
8,500.0	6,947.2	6,921.2	6,921.2	38.3	15.4	-90.20	-2,083.9	817.3	580.3	526.8	53.42	10.862	
8,600.0	6,946.5	6,920.5	6,920.5	40.0	15.4	-90.12	-2,083.9	817.3	543.9	488.7	55.20	9.853	
8,700.0	6,945.8	6,919.8	6,919.8	41.8	15.4	-90.04	-2,083.9	817.3	524.3	467.3	56.99	9.200	
8,754.6	6,945.4	6,919.4	6,919.4	42.8	15.4	-90.00	-2,083.9	817.3	521.5	463.5	57.97	8.995 CC, ES	
8,800.0	6,945.1	6,919.1	6,919.1	43.6	15.4	-89.97	-2,083.9	817.3	523.4	464.6	58.79	8.903 SF	
8,900.0	6,944.4	6,918.4	6,918.4	45.4	15.4	-89.89	-2,083.9	817.3	541.4	480.7	60.60	8.933	
9,000.0	6,943.7	6,917.7	6,917.7	47.2	15.4	-89.81	-2,083.9	817.3	576.3	513.9	62.43	9.232	
9,100.0	6,943.0	6,917.0	6,917.0	49.1	15.4	-89.74	-2,083.9	817.3	625.5	561.2	64.25	9.735	
9,200.0	6,942.3	6,916.3	6,916.3	50.9	15.4	-89.66	-2,083.9	817.3	685.8	619.7	66.09	10.377	
9,300.0	6,941.6	6,915.6	6,915.6	52.7	15.4	-89.58	-2,083.9	817.3	754.6	686.7	67.93	11.108	
9,400.0	6,940.9	6,914.9	6,914.9	54.6	15.4	-89.50	-2,083.9	817.3	829.8	760.0	69.78	11.891	
9,500.0	6,940.2	6,914.2	6,914.2	56.4	15.4	-89.43	-2,083.9	817.3	909.7	838.1	71.63	12.700	
9,600.0	6,939.5	6,913.5	6,913.5	58.3	15.4	-89.35	-2,083.9	817.3	993.3	919.8	73.49	13.517	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<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 (9-27-12)	<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	-91.71	-91.71	-3.6	-122.3	122.4				
100.0	100.0	100.0	100.0	0.1	0.1	-91.71	-91.71	-3.6	-122.3	122.4	122.1	0.22	544.362	
200.0	200.0	200.0	200.0	0.3	0.3	-91.71	-91.71	-3.6	-122.3	122.4	121.7	0.67	181.454 CC, ES	
300.0	300.0	295.9	295.9	0.6	0.5	-91.67	-91.67	-3.6	-123.9	124.0	122.9	1.11	112.226	
400.0	400.0	391.5	391.4	0.8	0.8	-91.58	-91.58	-3.5	-128.7	129.0	127.5	1.54	83.614	
500.0	500.0	486.8	486.3	1.0	1.0	-91.43	-91.43	-3.4	-136.6	137.4	135.4	2.01	68.494	
600.0	600.0	581.4	580.2	1.2	1.3	-91.25	-91.25	-3.2	-147.6	149.0	146.5	2.50	59.620	
700.0	700.0	675.1	673.0	1.5	1.6	-91.06	-91.06	-3.0	-161.6	163.9	160.8	3.03	54.088	
800.0	800.0	767.9	764.2	1.7	1.9	-90.87	-90.87	-2.7	-178.4	182.0	178.4	3.60	50.515	
900.0	900.0	859.5	853.6	1.9	2.3	-90.69	-90.69	-2.4	-197.9	203.2	199.0	4.22	48.155	
1,000.0	1,000.0	953.1	944.6	2.1	2.8	-90.52	-90.52	-2.0	-220.3	227.2	222.3	4.89	46.497	
1,100.0	1,100.0	1,050.1	1,038.6	2.4	3.2	-90.38	-90.38	-1.6	-244.0	251.6	246.0	5.59	44.979	
1,200.0	1,200.0	1,147.1	1,132.7	2.6	3.7	-90.26	-90.26	-1.2	-267.7	276.0	269.7	6.31	43.743 SF	
1,300.0	1,300.0	1,243.6	1,226.3	2.8	4.2	-175.49	-175.49	-0.8	-291.2	302.1	296.4	5.70	53.035	
1,400.0	1,399.8	1,339.2	1,319.0	3.0	4.7	-175.43	-175.43	-0.5	-314.5	331.5	325.4	6.14	54.028	
1,500.0	1,499.5	1,433.7	1,410.6	3.2	5.2	-175.42	-175.42	-0.1	-337.6	364.2	357.7	6.56	55.484	
1,600.9	1,599.6	1,527.8	1,501.9	3.5	5.7	-175.43	-175.43	0.3	-360.5	400.6	393.6	6.99	57.336	
1,700.0	1,697.7	1,619.6	1,590.9	3.7	6.2	-175.51	-175.51	0.7	-382.9	437.9	430.4	7.43	58.943	
1,800.0	1,796.7	1,712.2	1,680.8	4.0	6.7	-175.58	-175.58	1.1	-405.5	475.5	467.6	7.88	60.342	
1,900.0	1,895.8	1,804.9	1,770.6	4.3	7.2	-175.63	-175.63	1.4	-428.1	513.2	504.8	8.34	61.556	
2,000.0	1,994.8	1,897.5	1,860.4	4.6	7.7	-175.68	-175.68	1.8	-450.7	550.8	542.0	8.80	62.617	
2,100.0	2,093.8	1,990.2	1,950.3	4.9	8.1	-175.73	-175.73	2.2	-473.3	588.4	579.2	9.26	63.550	
2,200.0	2,192.8	2,082.8	2,040.1	5.2	8.6	-175.77	-175.77	2.6	-495.9	626.1	616.4	9.73	64.377	
2,300.0	2,291.9	2,175.5	2,130.0	5.5	9.1	-175.80	-175.80	2.9	-518.6	663.7	653.5	10.19	65.112	
2,400.0	2,390.9	2,268.1	2,219.8	5.8	9.6	-175.83	-175.83	3.3	-541.2	701.4	690.7	10.66	65.771	
2,500.0	2,489.9	2,360.7	2,309.6	6.1	10.1	-175.86	-175.86	3.7	-563.8	739.0	727.9	11.14	66.363	
2,600.0	2,588.9	2,453.4	2,399.5	6.4	10.6	-175.88	-175.88	4.1	-586.4	776.7	765.1	11.61	66.898	
2,700.0	2,687.9	2,546.0	2,489.3	6.8	11.1	-175.91	-175.91	4.4	-609.0	814.3	802.2	12.09	67.382	
2,800.0	2,787.0	2,638.7	2,579.2	7.1	11.6	-175.93	-175.93	4.8	-631.6	852.0	839.4	12.56	67.824	
2,900.0	2,886.0	2,731.3	2,669.0	7.4	12.1	-175.94	-175.94	5.2	-654.2	889.6	876.6	13.04	68.227	
3,000.0	2,985.0	2,824.0	2,758.9	7.7	12.6	-175.96	-175.96	5.6	-676.8	927.3	913.7	13.52	68.596	
3,100.0	3,084.0	2,916.6	2,848.7	8.1	13.0	-175.98	-175.98	5.9	-699.4	964.9	950.9	14.00	68.936	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<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 (9-27-12)	<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)	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	-92.28	-3.6	-91.7	91.8					
100.0	100.0	100.0	100.0	0.1	0.1	-92.28	-3.6	-91.7	91.8	91.6	0.22	408.413		
200.0	200.0	200.0	200.0	0.3	0.3	-92.28	-3.6	-91.7	91.8	91.1	0.67	136.138		
300.0	300.0	300.0	300.0	0.6	0.6	-92.28	-3.6	-91.7	91.8	90.7	1.12	81.683		
400.0	400.0	400.0	400.0	0.8	0.8	-92.28	-3.6	-91.7	91.8	90.2	1.57	58.345		
500.0	500.0	500.0	500.0	1.0	1.0	-92.28	-3.6	-91.7	91.8	89.8	2.02	45.379		
600.0	600.0	600.0	600.0	1.2	1.2	-92.28	-3.6	-91.7	91.8	89.3	2.47	37.128		
700.0	700.0	700.0	700.0	1.5	1.5	-92.28	-3.6	-91.7	91.8	88.9	2.92	31.416		
800.0	800.0	800.0	800.0	1.7	1.7	-92.28	-3.6	-91.7	91.8	88.4	3.37	27.228		
900.0	900.0	900.0	900.0	1.9	1.9	-92.28	-3.6	-91.7	91.8	88.0	3.82	24.024		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-92.28	-3.6	-91.7	91.8	87.5	4.27	21.495 CC, ES		
1,100.0	1,100.0	1,096.9	1,096.8	2.4	2.3	-92.35	-3.8	-93.4	93.5	88.8	4.70	19.894		
1,200.0	1,200.0	1,193.5	1,193.4	2.6	2.5	-92.54	-4.4	-98.2	98.5	93.4	5.12	19.244		
1,300.0	1,300.0	1,289.5	1,289.0	2.8	2.7	-178.18	-5.2	-106.3	108.7	103.2	5.53	19.649		
1,400.0	1,399.8	1,384.2	1,383.1	3.0	3.0	-178.54	-6.4	-117.3	125.6	119.6	5.93	21.160		
1,500.0	1,499.5	1,477.0	1,474.8	3.2	3.2	-178.90	-7.9	-131.1	149.1	142.8	6.34	23.525		
1,600.9	1,599.6	1,573.0	1,569.4	3.5	3.5	-179.21	-9.7	-147.3	178.2	171.4	6.74	26.420		
1,700.0	1,697.7	1,667.4	1,662.4	3.7	3.8	-179.45	-11.4	-163.2	208.4	201.3	7.15	29.139		
1,800.0	1,796.7	1,762.6	1,756.3	4.0	4.1	-179.63	-13.1	-179.2	238.9	231.4	7.57	31.554		
1,900.0	1,895.8	1,857.8	1,850.1	4.3	4.4	-179.77	-14.9	-195.3	269.5	261.5	8.00	33.683		
2,000.0	1,994.8	1,953.0	1,944.0	4.6	4.8	-179.88	-16.6	-211.3	300.0	291.6	8.43	35.576		
2,100.0	2,093.8	2,048.3	2,037.8	4.9	5.1	-179.97	-18.3	-227.4	330.5	321.6	8.87	37.266		
2,200.0	2,192.8	2,143.5	2,131.7	5.2	5.4	179.96	-20.1	-243.4	361.0	351.7	9.31	38.779		
2,300.0	2,291.9	2,238.7	2,225.5	5.5	5.8	179.90	-21.8	-259.5	391.6	381.8	9.75	40.141		
2,400.0	2,390.9	2,333.9	2,319.3	5.8	6.1	179.84	-23.5	-275.5	422.1	411.9	10.20	41.372		
2,500.0	2,489.9	2,429.2	2,413.2	6.1	6.5	179.80	-25.3	-291.6	452.6	442.0	10.65	42.488		
2,600.0	2,588.9	2,524.4	2,507.0	6.4	6.9	179.76	-27.0	-307.6	483.1	472.0	11.11	43.505		
2,700.0	2,687.9	2,619.6	2,600.9	6.8	7.2	179.72	-28.8	-323.7	513.7	502.1	11.56	44.434		
2,800.0	2,787.0	2,714.9	2,694.7	7.1	7.6	179.69	-30.5	-339.7	544.2	532.2	12.02	45.285		
2,900.0	2,886.0	2,810.1	2,788.6	7.4	7.9	179.66	-32.2	-355.8	574.7	562.3	12.48	46.068		
3,000.0	2,985.0	2,905.3	2,882.4	7.7	8.3	179.64	-34.0	-371.8	605.3	592.3	12.94	46.790		
3,100.0	3,084.0	3,000.5	2,976.3	8.1	8.7	179.61	-35.7	-387.9	635.8	622.4	13.40	47.458		
3,200.0	3,183.1	3,095.8	3,070.1	8.4	9.0	179.59	-37.4	-403.9	666.3	652.5	13.86	48.077		
3,300.0	3,282.1	3,191.0	3,164.0	8.7	9.4	179.57	-39.2	-420.0	696.9	682.5	14.32	48.652		
3,318.5	3,300.4	3,208.6	3,181.4	8.8	9.5	179.57	-39.5	-422.9	702.5	688.1	14.41	48.754		
3,400.0	3,381.3	3,286.5	3,258.2	9.0	9.8	179.56	-40.9	-436.1	726.3	711.5	14.82	49.010		
3,500.0	3,480.8	3,383.1	3,353.3	9.3	10.2	179.54	-42.7	-452.3	752.4	737.1	15.29	49.205		
3,600.0	3,580.6	3,480.4	3,449.2	9.5	10.5	179.53	-44.5	-468.8	775.1	759.4	15.75	49.218		
3,700.0	3,680.6	3,578.6	3,545.9	9.6	10.9	179.51	-46.3	-485.3	794.5	778.3	16.19	49.067		
3,719.4	3,700.0	3,597.7	3,564.8	9.7	11.0	-95.15	-46.6	-488.5	797.8	781.6	16.28	49.019		
3,800.0	3,780.6	3,677.1	3,643.1	9.8	11.3	-95.17	-48.1	-501.9	811.5	794.9	16.63	48.796		
3,900.0	3,880.6	3,775.6	3,740.2	10.0	11.7	-95.19	-49.9	-518.5	828.4	811.4	17.08	48.499		
4,000.0	3,980.6	3,874.2	3,837.3	10.2	12.1	-95.21	-51.6	-535.1	845.4	827.9	17.53	48.215		
4,100.0	4,080.6	3,972.7	3,934.4	10.3	12.5	-95.23	-53.4	-551.7	862.3	844.4	17.99	47.941		
4,200.0	4,180.6	4,071.3	4,031.6	10.5	12.8	-95.25	-55.2	-568.3	879.3	860.8	18.44	47.679		
4,300.0	4,280.6	4,169.9	4,128.7	10.7	13.2	-95.26	-57.0	-584.9	896.2	877.3	18.90	47.427		
4,400.0	4,380.6	4,268.4	4,225.8	10.9	13.6	-95.28	-58.8	-601.6	913.2	893.8	19.35	47.185		
4,500.0	4,480.6	4,367.0	4,322.9	11.1	14.0	-95.30	-60.6	-618.2	930.1	910.3	19.81	46.952		
4,600.0	4,580.6	4,465.5	4,420.1	11.3	14.4	-95.31	-62.4	-634.8	947.1	926.8	20.27	46.727		
4,700.0	4,680.6	4,565.5	4,518.6	11.5	14.8	-95.33	-64.3	-651.6	964.0	943.3	20.73	46.506		
4,800.0	4,780.6	4,715.3	4,666.8	11.7	15.2	-95.35	-66.6	-672.8	978.3	957.0	21.25	46.034		

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-223
<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-223	<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 (9-27-12)	<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	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	4,880.6	4,866.9	4,817.8	11.9	15.5	-95.36	-95.36	-68.0	-686.4	987.3	965.5	21.75	45.386	
5,000.0	4,980.6	5,019.5	4,970.3	12.1	15.8	-95.36	-95.36	-68.6	-692.0	991.0	968.7	22.24	44.553	
5,100.0	5,080.6	5,129.8	5,080.6	12.3	15.9	-95.36	-95.36	-68.6	-692.1	991.1	968.4	22.66	43.731	
5,200.0	5,180.6	5,229.8	5,180.6	12.5	16.1	-95.36	-95.36	-68.6	-692.1	991.1	968.0	23.07	42.958	
5,300.0	5,280.6	5,329.8	5,280.6	12.7	16.2	-95.36	-95.36	-68.6	-692.1	991.1	967.6	23.48	42.210	
5,400.0	5,380.6	5,429.8	5,380.6	12.9	16.4	-95.36	-95.36	-68.6	-692.1	991.1	967.2	23.89	41.484	
5,500.0	5,480.6	5,529.8	5,480.6	13.1	16.5	-95.36	-95.36	-68.6	-692.1	991.1	966.8	24.30	40.781	
5,600.0	5,580.6	5,629.8	5,580.6	13.3	16.7	-95.36	-95.36	-68.6	-692.1	991.1	966.3	24.72	40.100	
5,700.0	5,680.6	5,729.8	5,680.6	13.5	16.8	-95.36	-95.36	-68.6	-692.1	991.1	965.9	25.13	39.438	
5,800.0	5,780.6	5,829.8	5,780.6	13.7	17.0	-95.36	-95.36	-68.6	-692.1	991.1	965.5	25.55	38.797	
5,900.0	5,880.6	5,929.8	5,880.6	13.9	17.1	-95.36	-95.36	-68.6	-692.1	991.1	965.1	25.96	38.174	
6,000.0	5,980.6	6,029.8	5,980.6	14.1	17.3	-95.36	-95.36	-68.6	-692.1	991.1	964.7	26.38	37.569	
6,100.0	6,080.6	6,129.8	6,080.6	14.3	17.5	-95.36	-95.36	-68.6	-692.1	991.1	964.3	26.80	36.982	
6,200.0	6,180.6	6,229.8	6,180.6	14.5	17.6	-95.36	-95.36	-68.6	-692.1	991.1	963.8	27.22	36.412	
6,210.3	6,190.9	6,240.1	6,190.9	14.5	17.6	-95.36	-95.36	-68.6	-692.1	991.1	963.8	27.26	36.354	
6,250.0	6,230.6	6,279.8	6,230.6	14.6	17.7	84.74	84.74	-68.6	-692.1	991.0	963.5	27.42	36.136	
6,300.0	6,280.4	6,329.6	6,280.4	14.7	17.8	85.01	85.01	-68.6	-692.1	990.6	963.0	27.62	35.869	
6,350.0	6,329.8	6,379.0	6,329.8	14.7	17.9	85.48	85.48	-68.6	-692.1	990.0	962.2	27.81	35.598	
6,400.0	6,378.7	6,424.2	6,375.0	14.8	17.9	86.03	86.03	-69.7	-692.1	989.2	961.3	27.99	35.345	
6,450.0	6,426.7	6,469.3	6,420.0	14.9	18.0	86.60	86.60	-73.4	-692.1	988.6	960.4	28.17	35.094	
6,500.0	6,473.7	6,515.0	6,465.2	15.0	18.1	87.18	87.18	-79.8	-692.1	988.0	959.7	28.36	34.839	
6,550.0	6,519.5	6,561.2	6,510.4	15.1	18.2	87.77	87.77	-89.0	-692.1	987.6	959.0	28.56	34.573	
6,600.0	6,563.9	6,607.9	6,555.5	15.2	18.3	88.38	88.38	-101.1	-692.1	987.2	958.4	28.79	34.292	
6,650.0	6,606.7	6,655.2	6,600.4	15.3	18.4	89.00	89.00	-116.2	-692.1	987.0	957.9	29.04	33.987	
6,700.0	6,647.7	6,703.2	6,644.8	15.4	18.5	89.62	89.62	-134.2	-692.1	986.8	957.5	29.32	33.654	
6,725.1	6,667.6	6,727.5	6,666.9	15.5	18.5	89.94	89.94	-144.4	-692.1	986.8	957.3	29.49	33.468	
6,750.0	6,686.8	6,751.8	6,688.6	15.6	18.6	90.25	90.25	-155.3	-692.1	986.8	957.2	29.65	33.285	
6,800.0	6,723.7	6,801.2	6,731.6	15.8	18.7	90.88	90.88	-179.6	-692.1	987.0	956.9	30.02	32.875	
6,850.0	6,758.4	6,851.3	6,773.6	16.0	18.8	91.52	91.52	-206.9	-692.1	987.2	956.8	30.45	32.419	
6,900.0	6,790.6	6,902.1	6,814.2	16.2	19.0	92.15	92.15	-237.5	-692.1	987.6	956.7	30.94	31.915	
6,950.0	6,820.3	6,953.8	6,853.3	16.5	19.2	92.77	92.77	-271.2	-692.1	988.1	956.6	31.51	31.361	
7,000.0	6,847.3	7,006.3	6,890.7	16.8	19.4	93.40	93.40	-308.1	-692.1	988.7	956.6	32.15	30.757	
7,050.0	6,871.4	7,059.7	6,925.9	17.1	19.6	94.01	94.01	-348.2	-692.1	989.5	956.6	32.87	30.106	
7,100.0	6,892.7	7,114.0	6,958.8	17.6	19.9	94.60	94.60	-391.3	-692.1	990.3	956.6	33.67	29.413	
7,150.0	6,910.9	7,169.1	6,989.0	18.0	20.2	95.19	95.19	-437.5	-692.1	991.2	956.7	34.56	28.683	
7,200.0	6,926.1	7,225.2	7,016.2	18.5	20.6	95.75	95.75	-486.5	-692.1	992.2	956.7	35.53	27.925	
7,250.0	6,938.1	7,282.2	7,040.2	19.0	21.1	96.29	96.29	-538.2	-692.1	993.3	956.7	36.59	27.146	
7,300.0	6,946.9	7,340.1	7,060.4	19.6	21.6	96.81	96.81	-592.5	-692.1	994.3	956.6	37.73	26.355	
7,350.0	6,952.4	7,398.9	7,076.8	20.2	22.1	97.30	97.30	-648.9	-692.1	995.4	956.5	38.94	25.561	
7,400.0	6,954.7	7,458.6	7,088.8	20.8	22.7	97.75	97.75	-707.4	-692.1	996.5	956.2	40.23	24.768	
7,415.6	6,954.8	7,477.5	7,091.7	21.0	22.9	97.89	97.89	-726.0	-692.1	996.8	956.1	40.65	24.522	
7,500.0	6,954.2	7,566.2	7,101.4	22.1	23.9	98.48	98.48	-814.2	-692.1	998.2	955.4	42.87	23.283	
7,600.0	6,953.5	7,679.4	7,108.8	23.6	25.4	98.94	98.94	-927.1	-692.1	999.4	953.6	45.80	21.821	
7,700.0	6,952.8	7,782.1	7,108.9	25.0	26.7	98.98	98.98	-1,029.8	-692.1	999.6	950.8	48.76	20.498	
7,800.0	6,952.1	7,882.1	7,108.8	26.6	28.2	99.02	99.02	-1,129.8	-692.1	999.7	947.9	51.81	19.298	
7,900.0	6,951.4	7,982.1	7,108.7	28.1	29.6	99.05	99.05	-1,229.8	-692.1	999.9	945.0	54.94	18.199 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<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 (9-27-12)	<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 34R-403 - Wellbore #1 - Plan #1 (9-28-12)												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-30.6	30.6	30.4	0.22	136.030	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-30.6	30.6	29.9	0.67	45.343	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-30.6	30.6	29.5	1.12	27.206	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-30.6	30.6	29.0	1.57	19.433	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-30.6	30.6	28.6	2.02	15.114	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-30.6	30.6	28.1	2.47	12.366	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-30.6	30.6	27.7	2.92	10.464	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-30.6	30.6	27.2	3.37	9.069	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-30.6	30.6	26.8	3.82	8.002	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-30.6	30.6	26.3	4.27	7.159	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.00	0.0	-30.6	30.6	25.9	4.72	6.478	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.00	0.0	-30.6	30.6	25.4	5.17	5.914 CC, ES	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-175.59	0.0	-30.6	32.3	26.7	5.60	5.766	
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	-176.20	0.0	-30.6	37.5	31.5	6.02	6.230	
1,500.0	1,499.5	1,499.5	1,499.5	3.2	3.3	-176.91	0.0	-30.6	46.2	39.8	6.44	7.178	
1,600.9	1,599.6	1,599.6	1,599.6	3.5	3.5	-177.54	0.0	-30.6	58.5	51.7	6.86	8.536	
1,700.0	1,697.7	1,697.7	1,697.7	3.7	3.7	-178.01	0.0	-30.6	72.3	65.1	7.29	9.928	
1,800.0	1,796.7	1,796.7	1,796.7	4.0	3.9	-178.33	0.0	-30.6	86.3	78.6	7.72	11.170	
1,900.0	1,895.8	1,895.8	1,895.8	4.3	4.1	-178.57	0.0	-30.6	100.2	92.1	8.17	12.275	
2,000.0	1,994.8	1,994.8	1,994.8	4.6	4.4	-178.74	0.0	-30.6	114.2	105.6	8.61	13.262	
2,100.0	2,093.8	2,093.8	2,093.8	4.9	4.6	-178.88	0.0	-30.6	128.1	119.1	9.05	14.149	
2,200.0	2,192.8	2,192.8	2,192.8	5.2	4.8	-178.99	0.0	-30.6	142.1	132.6	9.50	14.949	
2,300.0	2,291.9	2,291.9	2,291.9	5.5	5.0	-179.08	0.0	-30.6	156.0	146.1	9.95	15.675	
2,400.0	2,390.9	2,390.9	2,390.9	5.8	5.3	-179.15	0.0	-30.6	170.0	159.5	10.40	16.336	
2,500.0	2,489.9	2,489.9	2,489.9	6.1	5.5	-179.22	0.0	-30.6	183.9	173.0	10.86	16.939	
2,600.0	2,588.9	2,588.9	2,588.9	6.4	5.7	-179.27	0.0	-30.6	197.8	186.5	11.31	17.492	
2,700.0	2,687.9	2,687.9	2,687.9	6.8	5.9	-179.32	0.0	-30.6	211.8	200.0	11.77	18.002	
2,800.0	2,787.0	2,787.0	2,787.0	7.1	6.2	-179.36	0.0	-30.6	225.7	213.5	12.22	18.471	
2,900.0	2,886.0	2,886.0	2,886.0	7.4	6.4	-179.40	0.0	-30.6	239.7	227.0	12.68	18.906	
3,000.0	2,985.0	2,985.0	2,985.0	7.7	6.6	-179.43	0.0	-30.6	253.6	240.5	13.13	19.310	
3,100.0	3,084.0	3,084.0	3,084.0	8.1	6.8	-179.46	0.0	-30.6	267.6	254.0	13.59	19.685	
3,200.0	3,183.1	3,183.1	3,183.1	8.4	7.0	-179.49	0.0	-30.6	281.5	267.5	14.05	20.036	
3,300.0	3,282.1	3,282.1	3,282.1	8.7	7.3	-179.51	0.0	-30.6	295.5	281.0	14.51	20.363	
3,318.5	3,300.4	3,300.4	3,300.4	8.8	7.3	-179.52	0.0	-30.6	298.1	283.5	14.60	20.421	
3,400.0	3,381.3	3,381.3	3,381.3	9.0	7.5	-179.54	0.0	-30.6	308.3	293.3	14.98	20.576	
3,500.0	3,480.8	3,480.8	3,480.8	9.3	7.7	-179.55	0.0	-30.6	317.7	302.2	15.42	20.598	
3,600.0	3,580.6	3,580.6	3,580.6	9.5	7.9	-179.56	0.0	-30.6	323.6	307.7	15.84	20.424	
3,700.0	3,680.6	3,680.6	3,680.6	9.6	8.2	-179.56	0.0	-30.6	326.0	309.8	16.24	20.070	
3,719.4	3,700.0	3,700.0	3,700.0	9.7	8.2	-94.22	0.0	-30.6	326.1	309.7	16.32	19.982	
3,800.0	3,780.6	3,780.6	3,780.6	9.8	8.4	-94.22	0.0	-30.6	326.1	309.4	16.66	19.574	
3,900.0	3,880.6	3,880.6	3,880.6	10.0	8.6	-94.22	0.0	-30.6	326.1	309.0	17.09	19.079	
4,000.0	3,980.6	3,980.6	3,980.6	10.2	8.8	-94.22	0.0	-30.6	326.1	308.5	17.52	18.607	
4,100.0	4,080.6	4,080.6	4,080.6	10.3	9.1	-94.22	0.0	-30.6	326.1	308.1	17.96	18.157	
4,200.0	4,180.6	4,180.6	4,180.6	10.5	9.3	-94.22	0.0	-30.6	326.1	307.7	18.39	17.727	
4,300.0	4,280.6	4,280.6	4,280.6	10.7	9.5	-94.22	0.0	-30.6	326.1	307.2	18.83	17.317	
4,400.0	4,380.6	4,380.6	4,380.6	10.9	9.7	-94.22	0.0	-30.6	326.1	306.8	19.27	16.925	
4,500.0	4,480.6	4,480.6	4,480.6	11.1	10.0	-94.22	0.0	-30.6	326.1	306.4	19.70	16.550	
4,600.0	4,580.6	4,580.6	4,580.6	11.3	10.2	-94.22	0.0	-30.6	326.1	305.9	20.14	16.190	
4,700.0	4,680.6	4,680.6	4,680.6	11.5	10.4	-94.22	0.0	-30.6	326.1	305.5	20.58	15.845	
4,800.0	4,780.6	4,780.6	4,780.6	11.7	10.6	-94.22	0.0	-30.6	326.1	305.0	21.02	15.515	

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-223
<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-223	<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 (9-27-12)	<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	4,880.6	4,880.6	4,880.6	11.9	10.9	-94.22	-94.22	0.0	-30.6	326.1	304.6	21.45	15.197	
5,000.0	4,980.6	4,980.6	4,980.6	12.1	11.1	-94.22	-94.22	0.0	-30.6	326.1	304.2	21.89	14.892	
5,100.0	5,080.6	5,080.6	5,080.6	12.3	11.3	-94.22	-94.22	0.0	-30.6	326.1	303.7	22.33	14.599	
5,200.0	5,180.6	5,180.6	5,180.6	12.5	11.5	-94.22	-94.22	0.0	-30.6	326.1	303.3	22.77	14.317	
5,300.0	5,280.6	5,280.6	5,280.6	12.7	11.8	-94.22	-94.22	0.0	-30.6	326.1	302.8	23.21	14.045	
5,400.0	5,380.6	5,380.6	5,380.6	12.9	12.0	-94.22	-94.22	0.0	-30.6	326.1	302.4	23.66	13.784	
5,500.0	5,480.6	5,480.6	5,480.6	13.1	12.2	-94.22	-94.22	0.0	-30.6	326.1	302.0	24.10	13.531	
5,600.0	5,580.6	5,580.6	5,580.6	13.3	12.4	-94.22	-94.22	0.0	-30.6	326.1	301.5	24.54	13.288	
5,700.0	5,680.6	5,680.6	5,680.6	13.5	12.7	-94.22	-94.22	0.0	-30.6	326.1	301.1	24.98	13.053	
5,800.0	5,780.6	5,780.6	5,780.6	13.7	12.9	-94.22	-94.22	0.0	-30.6	326.1	300.6	25.42	12.826	
5,852.0	5,832.6	5,832.6	5,832.6	13.8	13.0	-94.22	-94.22	0.0	-30.6	326.1	300.4	25.65	12.711	
5,900.0	5,880.6	5,880.3	5,880.3	13.9	13.1	-94.25	-94.25	-0.2	-30.6	326.1	300.2	25.85	12.612	
6,000.0	5,980.6	5,979.4	5,979.4	14.1	13.3	-94.73	-94.73	-2.9	-30.6	326.3	300.0	26.24	12.434	
6,100.0	6,080.6	6,078.2	6,077.9	14.3	13.4	-95.81	-95.81	-9.1	-30.6	326.9	300.2	26.63	12.277	
6,200.0	6,180.6	6,176.4	6,175.7	14.5	13.6	-97.46	-97.46	-18.6	-30.6	328.0	301.0	27.01	12.143	
6,210.3	6,190.9	6,186.5	6,185.7	14.5	13.6	-97.66	-97.66	-19.7	-30.6	328.2	301.1	27.05	12.130	
6,250.0	6,230.6	6,225.4	6,224.3	14.6	13.7	81.67	81.67	-24.6	-30.6	328.7	301.5	27.20	12.087	
6,300.0	6,280.4	6,274.4	6,272.9	14.7	13.8	81.18	81.18	-31.4	-30.6	329.1	301.8	27.36	12.028	
6,350.0	6,329.8	6,323.6	6,321.4	14.7	13.9	81.12	81.12	-39.1	-30.6	329.2	301.6	27.53	11.957	
6,400.0	6,378.7	6,373.0	6,370.1	14.8	13.9	81.52	81.52	-47.5	-30.6	328.9	301.2	27.70	11.872	
6,450.0	6,426.7	6,422.7	6,419.1	14.9	14.0	82.48	82.48	-56.2	-30.6	328.1	300.2	27.88	11.771	
6,500.0	6,473.7	6,472.0	6,467.6	15.0	14.1	84.02	84.02	-64.7	-30.6	327.1	299.1	28.06	11.657	
6,550.0	6,519.5	6,519.1	6,513.7	15.1	14.2	85.78	85.78	-74.3	-30.6	326.2	297.9	28.26	11.542	
6,600.0	6,563.9	6,566.8	6,559.7	15.2	14.3	87.58	87.58	-86.9	-30.6	325.6	297.1	28.48	11.433	
6,650.0	6,606.7	6,615.1	6,605.4	15.3	14.4	89.40	89.40	-102.5	-30.6	325.3	296.6	28.72	11.328	
6,663.6	6,618.0	6,628.3	6,617.7	15.3	14.5	89.89	89.89	-107.3	-30.6	325.3	296.5	28.79	11.299	
6,700.0	6,647.7	6,664.0	6,650.6	15.4	14.5	91.23	91.23	-121.3	-30.6	325.4	296.4	28.98	11.227	
6,750.0	6,686.8	6,713.6	6,695.1	15.6	14.7	93.06	93.06	-143.2	-30.6	325.8	296.6	29.28	11.129	
6,800.0	6,723.7	6,764.0	6,738.7	15.8	14.8	94.90	94.90	-168.4	-30.7	326.6	297.0	29.61	11.032	
6,850.0	6,758.4	6,815.1	6,781.1	16.0	15.0	96.71	96.71	-196.8	-30.7	327.8	297.8	29.97	10.935	
6,900.0	6,790.6	6,867.0	6,822.2	16.2	15.2	98.50	98.50	-228.5	-30.7	329.2	298.8	30.38	10.835	
6,950.0	6,820.3	6,919.6	6,861.6	16.5	15.5	100.25	100.25	-263.4	-30.7	331.0	300.2	30.84	10.731	
7,000.0	6,847.3	6,973.1	6,899.0	16.8	15.8	101.95	101.95	-301.6	-30.7	333.0	301.7	31.36	10.620	
7,050.0	6,871.4	7,027.5	6,934.3	17.1	16.1	103.60	103.60	-343.0	-30.8	335.3	303.4	31.94	10.499	
7,100.0	6,892.7	7,082.7	6,966.9	17.6	16.5	105.17	105.17	-387.5	-30.8	337.8	305.2	32.59	10.367	
7,150.0	6,910.9	7,138.7	6,996.7	18.0	17.0	106.68	106.68	-434.9	-30.8	340.5	307.2	33.31	10.222	
7,200.0	6,926.1	7,195.7	7,023.3	18.5	17.5	108.10	108.10	-485.2	-30.8	343.2	309.1	34.11	10.063	
7,250.0	6,938.1	7,253.4	7,046.5	19.0	18.1	109.43	109.43	-538.2	-30.9	346.0	311.0	34.99	9.888	
7,300.0	6,946.9	7,312.0	7,065.7	19.6	18.7	110.67	110.67	-593.5	-30.9	348.8	312.8	35.96	9.698	
7,350.0	6,952.4	7,371.5	7,080.9	20.2	19.4	111.80	111.80	-650.9	-30.9	351.5	314.5	37.02	9.495	
7,400.0	6,954.7	7,431.7	7,091.7	20.8	20.1	112.82	112.82	-710.1	-30.9	354.1	315.9	38.16	9.280	
7,415.6	6,954.8	7,450.6	7,094.1	21.0	20.4	113.12	113.12	-728.9	-31.0	354.9	316.4	38.53	9.211	
7,500.0	6,954.2	7,536.5	7,103.1	22.1	21.5	114.53	114.53	-814.3	-31.0	358.8	318.5	40.32	8.899	
7,600.0	6,953.5	7,651.7	7,109.0	23.6	23.1	115.49	115.49	-929.3	-31.1	361.4	318.5	42.87	8.429	
7,700.0	6,952.8	7,752.0	7,108.9	25.0	24.6	115.57	115.57	-1,029.6	-31.1	361.7	316.2	45.58	7.936	
7,800.0	6,952.1	7,852.0	7,108.8	26.6	26.2	115.64	115.64	-1,129.6	-31.2	362.1	313.7	48.38	7.485	
7,900.0	6,951.4	7,952.0	7,108.7	28.1	27.7	115.72	115.72	-1,229.6	-31.2	362.5	311.2	51.26	7.071	
8,000.0	6,950.7	8,052.0	7,108.6	29.8	29.4	115.80	115.80	-1,329.6	-31.3	362.8	308.6	54.22	6.692	
8,100.0	6,950.0	8,152.0	7,108.5	31.4	31.0	115.88	115.88	-1,429.6	-31.3	363.2	306.0	57.23	6.346	
8,200.0	6,949.3	8,252.0	7,108.4	33.1	32.7	115.95	115.95	-1,529.6	-31.4	363.6	303.3	60.29	6.030	
8,300.0	6,948.6	8,352.0	7,108.3	34.8	34.4	116.03	116.03	-1,629.6	-31.5	363.9	300.5	63.39	5.741	

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-223
<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-223	<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 (9-27-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,400.0	6,947.9	8,452.0	7,108.2	36.5	36.2	116.11	-1,729.6	-31.5	364.3	297.8	66.53	5.475	
8,500.0	6,947.2	8,552.0	7,108.1	38.3	37.9	116.18	-1,829.6	-31.6	364.6	295.0	69.70	5.232	
8,600.0	6,946.5	8,652.0	7,108.0	40.0	39.7	116.26	-1,929.6	-31.6	365.0	292.1	72.89	5.008	
8,700.0	6,945.8	8,752.0	7,107.9	41.8	41.5	116.34	-2,029.6	-31.7	365.4	289.3	76.10	4.801	
8,800.0	6,945.1	8,852.0	7,107.8	43.6	43.3	116.41	-2,129.6	-31.7	365.8	286.4	79.34	4.610	
8,900.0	6,944.4	8,952.0	7,107.7	45.4	45.1	116.49	-2,229.6	-31.8	366.1	283.5	82.58	4.433	
9,000.0	6,943.7	9,052.0	7,107.6	47.2	46.9	116.57	-2,329.6	-31.8	366.5	280.6	85.85	4.269	
9,100.0	6,943.0	9,152.0	7,107.5	49.1	48.7	116.64	-2,429.6	-31.9	366.9	277.7	89.12	4.116	
9,200.0	6,942.3	9,252.0	7,107.4	50.9	50.5	116.72	-2,529.6	-32.0	367.2	274.8	92.40	3.974	
9,300.0	6,941.6	9,352.0	7,107.4	52.7	52.4	116.79	-2,629.6	-32.0	367.6	271.9	95.69	3.841	
9,400.0	6,940.9	9,452.0	7,107.3	54.6	54.2	116.87	-2,729.6	-32.1	368.0	269.0	98.99	3.717	
9,500.0	6,940.2	9,551.9	7,107.2	56.4	56.1	116.94	-2,829.6	-32.1	368.3	266.0	102.30	3.601	
9,600.0	6,939.5	9,651.9	7,107.1	58.3	57.9	117.02	-2,929.6	-32.2	368.7	263.1	105.61	3.491	
9,700.0	6,938.8	9,751.9	7,107.0	60.1	59.8	117.09	-3,029.6	-32.2	369.1	260.2	108.92	3.389	
9,800.0	6,938.1	9,851.9	7,106.9	62.0	61.6	117.17	-3,129.6	-32.3	369.5	257.2	112.24	3.292	
9,900.0	6,937.5	9,951.9	7,106.8	63.8	63.5	117.24	-3,229.6	-32.4	369.8	254.3	115.56	3.200	
10,000.0	6,936.8	10,051.9	7,106.7	65.7	65.4	117.32	-3,329.6	-32.4	370.2	251.3	118.88	3.114	
10,100.0	6,936.1	10,151.9	7,106.6	67.6	67.2	117.39	-3,429.6	-32.5	370.6	248.4	122.20	3.033	
10,200.0	6,935.4	10,251.9	7,106.5	69.4	69.1	117.47	-3,529.6	-32.5	371.0	245.4	125.53	2.955	
10,300.0	6,934.7	10,351.9	7,106.4	71.3	71.0	117.54	-3,629.6	-32.6	371.3	242.5	128.86	2.882	
10,400.0	6,934.0	10,451.9	7,106.3	73.2	72.9	117.61	-3,729.6	-32.6	371.7	239.5	132.19	2.812	
10,500.0	6,933.3	10,551.9	7,106.2	75.1	74.8	117.69	-3,829.6	-32.7	372.1	236.6	135.51	2.746	
10,600.0	6,932.6	10,651.9	7,106.1	77.0	76.6	117.76	-3,929.6	-32.7	372.5	233.6	138.84	2.683	
10,700.0	6,931.9	10,751.9	7,106.0	78.8	78.5	117.84	-4,029.6	-32.8	372.9	230.7	142.17	2.623	
10,800.0	6,931.2	10,851.9	7,105.9	80.7	80.4	117.91	-4,129.6	-32.9	373.2	227.7	145.49	2.565	
10,900.0	6,930.5	10,951.9	7,105.8	82.6	82.3	117.98	-4,229.6	-32.9	373.6	224.8	148.82	2.511	
11,000.0	6,929.8	11,051.9	7,105.7	84.5	84.2	118.06	-4,329.6	-33.0	374.0	221.9	152.15	2.458	
11,100.0	6,929.1	11,151.9	7,105.6	86.4	86.1	118.13	-4,429.6	-33.0	374.4	218.9	155.47	2.408	
11,200.0	6,928.4	11,251.9	7,105.5	88.3	88.0	118.20	-4,529.6	-33.1	374.8	216.0	158.79	2.360	
11,300.0	6,927.7	11,351.9	7,105.4	90.2	89.9	118.27	-4,629.6	-33.1	375.1	213.0	162.11	2.314	
11,400.0	6,927.0	11,451.9	7,105.3	92.1	91.8	118.35	-4,729.6	-33.2	375.5	210.1	165.43	2.270	
11,500.0	6,926.3	11,551.9	7,105.2	94.0	93.7	118.42	-4,829.6	-33.3	375.9	207.2	168.75	2.228	
11,600.0	6,925.6	11,651.9	7,105.1	95.9	95.6	118.49	-4,929.6	-33.3	376.3	204.2	172.06	2.187	
11,683.5	6,925.0	11,735.4	7,105.0	97.5	97.2	118.55	-5,013.0	-33.4	376.6	201.8	174.83	2.154	
11,684.2	6,925.0	11,736.1	7,105.0	97.5	97.2	118.55	-5,013.8	-33.4	376.6	201.8	174.85	2.154 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<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 (9-27-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+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	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	1,099.0	1,099.0	2.4	2.3	90.28	90.28	-0.1	29.5	29.5	24.8	4.70	6.275	
1,200.0	1,200.0	1,197.8	1,197.6	2.6	2.5	90.95	90.95	-0.6	34.6	34.7	29.6	5.13	6.760	
1,300.0	1,300.0	1,296.2	1,295.7	2.8	2.8	6.61	6.61	-1.3	43.0	41.5	36.0	5.54	7.503	
1,400.0	1,399.8	1,394.4	1,393.2	3.0	3.0	7.99	7.99	-2.3	54.8	48.4	42.5	5.94	8.153	
1,500.0	1,499.5	1,492.6	1,490.2	3.2	3.3	9.61	9.61	-3.5	69.9	55.2	48.9	6.34	8.712	
1,600.9	1,599.6	1,593.4	1,589.5	3.5	3.6	11.50	11.50	-4.9	86.7	60.1	53.3	6.75	8.896	
1,700.0	1,697.7	1,692.4	1,687.2	3.7	3.9	13.46	13.46	-6.3	103.2	63.2	56.0	7.19	8.786	
1,800.0	1,796.7	1,792.4	1,785.7	4.0	4.2	15.25	15.25	-7.7	119.8	66.3	58.7	7.64	8.686	
1,900.0	1,895.8	1,892.3	1,884.2	4.3	4.5	16.88	16.88	-9.1	136.5	69.6	61.5	8.10	8.594	
2,000.0	1,994.8	1,992.2	1,982.7	4.6	4.9	18.35	18.35	-10.5	153.2	72.9	64.3	8.57	8.508	
2,100.0	2,093.8	2,092.1	2,081.3	4.9	5.2	19.70	19.70	-11.9	169.8	76.2	67.2	9.05	8.428	
2,200.0	2,192.8	2,192.1	2,179.8	5.2	5.6	20.94	20.94	-13.3	186.5	79.6	70.1	9.53	8.352	
2,300.0	2,291.9	2,292.0	2,278.3	5.5	5.9	22.07	22.07	-14.7	203.2	83.1	73.0	10.03	8.281	
2,400.0	2,390.9	2,391.9	2,376.8	5.8	6.3	23.11	23.11	-16.1	219.8	86.5	76.0	10.53	8.213	
2,500.0	2,489.9	2,491.9	2,475.3	6.1	6.7	24.08	24.08	-17.5	236.5	90.0	78.9	11.04	8.149	
2,600.0	2,588.9	2,591.8	2,573.9	6.4	7.1	24.97	24.97	-18.9	253.1	93.5	81.9	11.56	8.088	
2,700.0	2,687.9	2,691.7	2,672.4	6.8	7.4	25.79	25.79	-20.3	269.8	97.0	84.9	12.08	8.031	
2,800.0	2,787.0	2,791.6	2,770.9	7.1	7.8	26.56	26.56	-21.7	286.5	100.5	87.9	12.61	7.976	
2,900.0	2,886.0	2,891.6	2,869.4	7.4	8.2	27.28	27.28	-23.1	303.1	104.1	91.0	13.14	7.923	
3,000.0	2,985.0	2,991.5	2,967.9	7.7	8.6	27.95	27.95	-24.5	319.8	107.7	94.0	13.67	7.874	
3,100.0	3,084.0	3,091.4	3,066.5	8.1	8.9	28.57	28.57	-25.9	336.4	111.2	97.0	14.21	7.826	
3,200.0	3,183.1	3,191.4	3,165.0	8.4	9.3	29.16	29.16	-27.3	353.1	114.8	100.1	14.76	7.781	
3,300.0	3,282.1	3,291.3	3,263.5	8.7	9.7	29.71	29.71	-28.7	369.8	118.5	103.1	15.31	7.738	
3,318.5	3,300.4	3,309.8	3,281.8	8.8	9.8	29.81	29.81	-29.0	372.8	119.1	103.7	15.41	7.730	
3,400.0	3,381.3	3,391.2	3,362.0	9.0	10.1	30.00	30.00	-30.1	386.4	123.1	107.2	15.83	7.773	
3,500.0	3,480.8	3,490.9	3,460.3	9.3	10.5	29.54	29.54	-31.5	403.0	130.7	114.4	16.28	8.027	
3,600.0	3,580.6	3,590.3	3,558.3	9.5	10.8	28.49	28.49	-32.9	419.6	141.3	124.7	16.66	8.480	
3,700.0	3,680.6	3,689.2	3,655.8	9.6	11.2	27.02	27.02	-34.3	436.1	155.1	138.1	17.00	9.123	
3,719.4	3,700.0	3,708.4	3,674.7	9.7	11.3	112.04	112.04	-34.6	439.3	158.1	141.1	17.06	9.268	
3,800.0	3,780.6	3,787.8	3,753.0	9.8	11.6	110.71	110.71	-35.7	452.5	171.1	153.7	17.35	9.858	
3,900.0	3,880.6	3,886.4	3,850.2	10.0	12.0	109.31	109.31	-37.1	469.0	187.2	169.5	17.74	10.553	
4,000.0	3,980.6	3,985.0	3,947.4	10.2	12.4	108.13	108.13	-38.5	485.4	203.5	185.4	18.14	11.216	
4,100.0	4,080.6	4,083.6	4,044.6	10.3	12.7	107.12	107.12	-39.9	501.9	219.8	201.3	18.56	11.846	
4,200.0	4,180.6	4,182.2	4,141.8	10.5	13.1	106.26	106.26	-41.2	518.3	236.2	217.2	18.98	12.447	
4,300.0	4,280.6	4,280.8	4,239.0	10.7	13.5	105.50	105.50	-42.6	534.7	252.6	233.2	19.40	13.020	
4,400.0	4,380.6	4,379.4	4,336.2	10.9	13.9	104.84	104.84	-44.0	551.2	269.1	249.3	19.84	13.567	
4,500.0	4,480.6	4,477.9	4,433.4	11.1	14.3	104.26	104.26	-45.4	567.6	285.6	265.3	20.27	14.089	
4,600.0	4,580.6	4,577.7	4,531.8	11.3	14.6	103.73	103.73	-46.8	584.2	302.1	281.4	20.71	14.586	
4,700.0	4,680.6	4,688.5	4,641.4	11.5	15.0	103.28	103.28	-48.1	600.1	316.4	295.2	21.14	14.966	
4,800.0	4,780.6	4,800.4	4,752.7	11.7	15.2	102.97	102.97	-49.1	611.9	326.8	305.3	21.56	15.159	

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-223
<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-223	<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 (9-27-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,880.6	4,913.0	4,865.0	11.9	15.4	102.79		-49.7	619.4	333.5	311.5	21.98	15.172	
5,000.0	4,980.6	5,026.1	4,978.0	12.1	15.6	102.72		-50.0	622.5	336.2	313.8	22.39	15.014	
5,100.0	5,080.6	5,128.6	5,080.6	12.3	15.7	102.71		-50.0	622.6	336.2	313.4	22.80	14.750	
5,200.0	5,180.6	5,228.6	5,180.6	12.5	15.9	102.71		-50.0	622.6	336.2	313.0	23.20	14.492	
5,300.0	5,280.6	5,328.6	5,280.6	12.7	16.0	102.71		-50.0	622.6	336.2	312.6	23.61	14.242	
5,400.0	5,380.6	5,428.6	5,380.6	12.9	16.2	102.71		-50.0	622.6	336.2	312.2	24.02	13.999	
5,500.0	5,480.6	5,528.6	5,480.6	13.1	16.4	102.71		-50.0	622.6	336.2	311.8	24.43	13.764	
5,600.0	5,580.6	5,628.6	5,580.6	13.3	16.5	102.71		-50.0	622.6	336.2	311.4	24.84	13.536	
5,700.0	5,680.6	5,728.6	5,680.6	13.5	16.7	102.71		-50.0	622.6	336.2	311.0	25.25	13.315	
5,800.0	5,780.6	5,828.6	5,780.6	13.7	16.8	102.71		-50.0	622.6	336.2	310.6	25.67	13.100	
5,900.0	5,880.6	5,928.6	5,880.6	13.9	17.0	102.71		-50.0	622.6	336.2	310.2	26.08	12.891	
6,000.0	5,980.6	6,028.6	5,980.6	14.1	17.2	102.71		-50.0	622.6	336.2	309.7	26.50	12.689	
6,100.0	6,080.6	6,128.6	6,080.6	14.3	17.3	102.71		-50.0	622.6	336.2	309.3	26.92	12.492	
6,200.0	6,180.6	6,228.6	6,180.6	14.5	17.5	102.71		-50.0	622.6	336.2	308.9	27.34	12.301	
6,210.3	6,190.9	6,238.9	6,190.9	14.5	17.5	102.71		-50.0	622.6	336.2	308.9	27.38	12.281	
6,250.0	6,230.6	6,278.6	6,230.6	14.6	17.6	-77.44		-50.0	622.6	336.0	308.5	27.55	12.198	
6,300.0	6,280.4	6,328.4	6,280.4	14.7	17.6	-78.21		-50.0	622.6	335.1	307.4	27.73	12.087	
6,350.0	6,329.8	6,377.8	6,329.8	14.7	17.7	-79.56		-50.0	622.6	333.7	305.8	27.88	11.966	
6,400.0	6,378.7	6,423.9	6,375.9	14.8	17.8	-81.17		-51.1	622.6	332.0	304.0	28.03	11.847	
6,450.0	6,426.7	6,470.1	6,421.9	14.9	17.9	-82.83		-54.9	622.6	330.6	302.5	28.18	11.735	
6,500.0	6,473.7	6,516.8	6,468.1	15.0	17.9	-84.53		-61.6	622.6	329.5	301.2	28.34	11.625	
6,550.0	6,519.5	6,564.1	6,514.4	15.1	18.0	-86.28		-71.3	622.6	328.7	300.1	28.54	11.517	
6,600.0	6,563.9	6,611.9	6,560.5	15.2	18.1	-88.05		-84.0	622.6	328.2	299.4	28.76	11.409	
6,650.0	6,606.7	6,660.4	6,606.3	15.3	18.2	-89.84		-99.7	622.6	328.0	298.9	29.03	11.298	
6,653.0	6,609.2	6,663.4	6,609.1	15.3	18.2	-89.95		-100.8	622.6	328.0	298.9	29.05	11.291	
6,700.0	6,647.7	6,709.5	6,651.7	15.4	18.3	-91.65		-118.6	622.7	328.1	298.8	29.33	11.186	
6,750.0	6,686.8	6,759.4	6,696.3	15.6	18.4	-93.46		-140.7	622.7	328.6	298.9	29.68	11.072	
6,800.0	6,723.7	6,809.9	6,740.1	15.8	18.6	-95.26		-166.1	622.7	329.5	299.4	30.07	10.957	
6,850.0	6,758.4	6,861.2	6,782.6	16.0	18.7	-97.04		-194.7	622.7	330.6	300.1	30.50	10.842	
6,900.0	6,790.6	6,913.3	6,823.8	16.2	18.9	-98.79		-226.6	622.8	332.1	301.2	30.96	10.727	
6,950.0	6,820.3	6,966.2	6,863.2	16.5	19.1	-100.51		-261.8	622.8	333.9	302.4	31.46	10.613	
7,000.0	6,847.3	7,019.8	6,900.7	16.8	19.3	-102.17		-300.3	622.9	335.9	303.9	31.99	10.501	
7,050.0	6,871.4	7,074.4	6,935.9	17.1	19.6	-103.78		-341.9	622.9	338.2	305.6	32.55	10.390	
7,100.0	6,892.7	7,129.8	6,968.5	17.6	19.9	-105.32		-386.6	622.9	340.6	307.5	33.14	10.280	
7,150.0	6,910.9	7,186.0	6,998.2	18.0	20.3	-106.79		-434.4	623.0	343.2	309.5	33.75	10.169	
7,200.0	6,926.1	7,243.1	7,024.7	18.5	20.7	-108.17		-484.9	623.1	345.9	311.5	34.39	10.057	
7,250.0	6,938.1	7,301.0	7,047.6	19.0	21.1	-109.47		-538.1	623.1	348.6	313.5	35.06	9.941	
7,300.0	6,946.9	7,359.7	7,066.7	19.6	21.7	-110.67		-593.6	623.2	351.3	315.5	35.77	9.820	
7,350.0	6,952.4	7,419.3	7,081.6	20.2	22.3	-111.76		-651.2	623.2	353.9	317.4	36.51	9.692	
7,400.0	6,954.7	7,479.5	7,092.1	20.8	22.9	-112.75		-710.6	623.3	356.4	319.1	37.29	9.556	
7,415.6	6,954.8	7,498.5	7,094.5	21.0	23.1	-113.03		-729.4	623.3	357.1	319.6	37.54	9.512	
7,500.0	6,954.2	7,584.1	7,103.4	22.1	24.1	-114.42		-814.5	623.4	360.9	321.7	39.23	9.202	
7,600.0	6,953.5	7,699.2	7,109.0	23.6	25.6	-115.34		-929.4	623.5	363.3	321.6	41.71	8.712	
7,700.0	6,952.8	7,799.2	7,108.9	25.0	26.9	-115.42		-1,029.4	623.6	363.6	319.3	44.38	8.194	
7,800.0	6,952.1	7,899.2	7,108.8	26.6	28.3	-115.50		-1,129.4	623.8	364.0	316.8	47.15	7.718	
7,900.0	6,951.4	7,999.2	7,108.7	28.1	29.8	-115.58		-1,229.4	623.9	364.3	314.2	50.02	7.282	
8,000.0	6,950.7	8,099.2	7,108.6	29.8	31.3	-115.66		-1,329.4	624.0	364.6	311.6	52.96	6.884	
8,100.0	6,950.0	8,199.2	7,108.5	31.4	32.9	-115.74		-1,429.4	624.1	364.9	308.9	55.96	6.521	
8,200.0	6,949.3	8,299.2	7,108.4	33.1	34.5	-115.82		-1,529.4	624.2	365.2	306.2	59.01	6.189	
8,300.0	6,948.6	8,399.2	7,108.3	34.8	36.2	-115.90		-1,629.4	624.3	365.5	303.4	62.10	5.886	
8,400.0	6,947.9	8,499.2	7,108.2	36.5	37.8	-115.98		-1,729.4	624.5	365.8	300.6	65.23	5.608	

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-223
<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-223	<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 (9-27-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	6,947.2	8,599.2	7,108.1	38.3	39.5	-116.06	-116.06	-1,829.4	624.6	366.2	297.8	68.39	5.354	
8,600.0	6,946.5	8,699.2	7,108.0	40.0	41.2	-116.14	-116.14	-1,929.4	624.7	366.5	294.9	71.58	5.120	
8,700.0	6,945.8	8,799.2	7,107.9	41.8	42.9	-116.22	-116.22	-2,029.4	624.8	366.8	292.0	74.79	4.905	
8,800.0	6,945.1	8,899.2	7,107.8	43.6	44.7	-116.30	-116.30	-2,129.4	624.9	367.1	289.1	78.01	4.706	
8,900.0	6,944.4	8,999.2	7,107.7	45.4	46.5	-116.38	-116.38	-2,229.4	625.0	367.4	286.2	81.26	4.522	
9,000.0	6,943.7	9,099.2	7,107.6	47.2	48.2	-116.46	-116.46	-2,329.4	625.2	367.8	283.2	84.51	4.352	
9,100.0	6,943.0	9,199.2	7,107.5	49.1	50.0	-116.54	-116.54	-2,429.4	625.3	368.1	280.3	87.78	4.193	
9,200.0	6,942.3	9,299.2	7,107.4	50.9	51.8	-116.62	-116.62	-2,529.4	625.4	368.4	277.3	91.06	4.046	
9,300.0	6,941.6	9,399.2	7,107.3	52.7	53.6	-116.70	-116.70	-2,629.4	625.5	368.7	274.4	94.34	3.908	
9,400.0	6,940.9	9,499.2	7,107.2	54.6	55.4	-116.78	-116.78	-2,729.4	625.6	369.0	271.4	97.63	3.780	
9,500.0	6,940.2	9,599.2	7,107.1	56.4	57.2	-116.86	-116.86	-2,829.4	625.7	369.4	268.4	100.93	3.660	
9,600.0	6,939.5	9,699.2	7,107.0	58.3	59.0	-116.94	-116.94	-2,929.4	625.9	369.7	265.5	104.24	3.547	
9,700.0	6,938.8	9,799.2	7,106.9	60.1	60.9	-117.02	-117.02	-3,029.4	626.0	370.0	262.5	107.55	3.441	
9,800.0	6,938.1	9,899.2	7,106.8	62.0	62.7	-117.10	-117.10	-3,129.4	626.1	370.3	259.5	110.86	3.341	
9,900.0	6,937.5	9,999.2	7,106.7	63.8	64.6	-117.17	-117.17	-3,229.4	626.2	370.7	256.5	114.17	3.247	
10,000.0	6,936.8	10,099.2	7,106.6	65.7	66.4	-117.25	-117.25	-3,329.4	626.3	371.0	253.5	117.49	3.158	
10,100.0	6,936.1	10,199.2	7,106.5	67.6	68.2	-117.33	-117.33	-3,429.4	626.4	371.3	250.5	120.81	3.074	
10,200.0	6,935.4	10,299.1	7,106.4	69.4	70.1	-117.41	-117.41	-3,529.4	626.6	371.7	247.5	124.13	2.994	
10,300.0	6,934.7	10,399.1	7,106.3	71.3	72.0	-117.49	-117.49	-3,629.4	626.7	372.0	244.5	127.45	2.919	
10,400.0	6,934.0	10,499.1	7,106.3	73.2	73.8	-117.56	-117.56	-3,729.4	626.8	372.3	241.6	130.77	2.847	
10,500.0	6,933.3	10,599.1	7,106.2	75.1	75.7	-117.64	-117.64	-3,829.4	626.9	372.7	238.6	134.09	2.779	
10,600.0	6,932.6	10,699.1	7,106.1	77.0	77.6	-117.72	-117.72	-3,929.4	627.0	373.0	235.6	137.41	2.714	
10,700.0	6,931.9	10,799.1	7,106.0	78.8	79.4	-117.80	-117.80	-4,029.4	627.1	373.3	232.6	140.73	2.653	
10,800.0	6,931.2	10,899.1	7,105.9	80.7	81.3	-117.87	-117.87	-4,129.4	627.3	373.7	229.6	144.05	2.594	
10,900.0	6,930.5	10,999.1	7,105.8	82.6	83.2	-117.95	-117.95	-4,229.4	627.4	374.0	226.6	147.36	2.538	
11,000.0	6,929.8	11,099.1	7,105.7	84.5	85.0	-118.03	-118.03	-4,329.4	627.5	374.3	223.6	150.68	2.484	
11,100.0	6,929.1	11,199.1	7,105.6	86.4	86.9	-118.10	-118.10	-4,429.4	627.6	374.7	220.7	153.99	2.433	
11,200.0	6,928.4	11,299.1	7,105.5	88.3	88.8	-118.18	-118.18	-4,529.4	627.7	375.0	217.7	157.31	2.384	
11,300.0	6,927.7	11,399.1	7,105.4	90.2	90.7	-118.26	-118.26	-4,629.4	627.8	375.3	214.7	160.62	2.337	
11,400.0	6,927.0	11,499.1	7,105.3	92.1	92.6	-118.33	-118.33	-4,729.4	628.0	375.7	211.7	163.93	2.292	
11,500.0	6,926.3	11,599.1	7,105.2	94.0	94.5	-118.41	-118.41	-4,829.4	628.1	376.0	208.8	167.24	2.248	
11,600.0	6,925.6	11,699.1	7,105.1	95.9	96.4	-118.49	-118.49	-4,929.4	628.2	376.3	205.8	170.54	2.207	
11,683.5	6,925.0	11,782.6	7,105.0	97.5	97.9	-118.55	-118.55	-5,012.8	628.3	376.6	203.3	173.30	2.173	
11,684.2	6,925.0	11,782.8	7,105.0	97.5	97.9	-118.55	-118.55	-5,013.0	628.3	376.6	203.3	173.31	2.173 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<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 (9-27-12)	<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)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	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 CC, ES	
300.0	300.0	298.0	297.9	0.6	0.5	89.96	89.96	0.0	60.0	60.1	59.0	1.11	54.140	
400.0	400.0	395.7	395.6	0.8	0.8	89.86	89.86	0.2	65.1	65.2	63.7	1.55	42.001	
500.0	500.0	493.0	492.5	1.0	1.0	89.72	89.72	0.4	73.3	73.7	71.7	2.02	36.490	
600.0	600.0	589.6	588.4	1.2	1.3	89.57	89.57	0.6	84.8	85.6	83.1	2.52	33.963	
700.0	700.0	685.3	683.0	1.5	1.6	89.43	89.43	1.0	99.4	100.8	97.8	3.06	32.949	
800.0	800.0	780.0	776.0	1.7	2.0	89.30	89.30	1.4	116.9	119.3	115.7	3.64	32.752	
900.0	900.0	873.3	867.2	1.9	2.4	89.20	89.20	1.9	137.1	141.0	136.7	4.27	33.002	
1,000.0	1,000.0	968.9	959.8	2.1	2.8	89.11	89.11	2.5	160.2	165.2	160.2	4.95	33.363	
1,100.0	1,100.0	1,065.9	1,053.9	2.4	3.3	89.05	89.05	3.1	183.8	189.5	183.8	5.65	33.507	
1,200.0	1,200.0	1,162.9	1,148.0	2.6	3.8	89.00	89.00	3.6	207.3	213.8	207.4	6.37	33.576	
1,300.0	1,300.0	1,260.3	1,242.5	2.8	4.3	3.61	3.61	4.2	231.0	236.4	230.7	5.74	41.191	
1,400.0	1,399.8	1,358.4	1,337.7	3.0	4.8	3.63	3.63	4.8	254.9	255.6	249.4	6.20	41.242	
1,500.0	1,499.5	1,457.1	1,433.5	3.2	5.3	3.69	3.69	5.4	278.9	271.4	264.7	6.66	40.726	
1,600.9	1,599.6	1,557.2	1,530.6	3.5	5.8	3.79	3.79	6.0	303.2	283.8	276.7	7.14	39.759	
1,700.0	1,697.7	1,655.8	1,626.2	3.7	6.3	3.93	3.93	6.5	327.2	294.3	286.7	7.62	38.611	
1,800.0	1,796.7	1,755.2	1,722.6	4.0	6.8	4.05	4.05	7.1	351.3	304.9	296.8	8.12	37.570	
1,900.0	1,895.8	1,854.7	1,819.1	4.3	7.4	4.17	4.17	7.7	375.5	315.5	306.9	8.61	36.632	
2,000.0	1,994.8	1,954.1	1,915.5	4.6	7.9	4.27	4.27	8.3	399.7	326.1	317.0	9.11	35.784	
2,100.0	2,093.8	2,053.5	2,012.0	4.9	8.4	4.38	4.38	8.9	423.9	336.7	327.0	9.61	35.014	
2,200.0	2,192.8	2,153.0	2,108.4	5.2	8.9	4.47	4.47	9.5	448.0	347.2	337.1	10.12	34.313	
2,300.0	2,291.9	2,252.4	2,204.9	5.5	9.4	4.56	4.56	10.1	472.2	357.8	347.2	10.63	33.672	
2,400.0	2,390.9	2,351.8	2,301.3	5.8	10.0	4.64	4.64	10.7	496.4	368.4	357.3	11.14	33.084	
2,500.0	2,489.9	2,451.3	2,397.8	6.1	10.5	4.72	4.72	11.3	520.5	379.0	367.4	11.65	32.543	
2,600.0	2,588.9	2,550.7	2,494.2	6.4	11.0	4.80	4.80	11.8	544.7	389.6	377.4	12.16	32.043	
2,700.0	2,687.9	2,650.2	2,590.7	6.8	11.5	4.87	4.87	12.4	568.9	400.2	387.5	12.67	31.582	
2,800.0	2,787.0	2,749.6	2,687.1	7.1	12.0	4.94	4.94	13.0	593.1	410.8	397.6	13.19	31.153	
2,900.0	2,886.0	2,849.0	2,783.6	7.4	12.6	5.00	5.00	13.6	617.2	421.4	407.7	13.70	30.755	
3,000.0	2,985.0	2,948.5	2,880.0	7.7	13.1	5.06	5.06	14.2	641.4	432.0	417.7	14.22	30.383	
3,100.0	3,084.0	3,047.9	2,976.5	8.1	13.6	5.12	5.12	14.8	665.6	442.6	427.8	14.73	30.036	
3,200.0	3,183.1	3,147.3	3,072.9	8.4	14.1	5.18	5.18	15.4	689.7	453.1	437.9	15.25	29.712	
3,300.0	3,282.1	3,246.8	3,169.4	8.7	14.7	5.23	5.23	16.0	713.9	463.7	448.0	15.77	29.407	
3,318.5	3,300.4	3,265.2	3,187.3	8.8	14.8	5.24	5.24	16.1	718.4	465.7	449.8	15.87	29.353	
3,400.0	3,381.3	3,346.1	3,265.7	9.0	15.2	5.29	5.29	16.6	738.1	475.5	459.2	16.26	29.243	
3,500.0	3,480.8	3,444.9	3,361.6	9.3	15.7	5.31	5.31	17.1	762.1	490.6	473.9	16.70	29.376	
3,600.0	3,580.6	3,543.2	3,456.9	9.5	16.2	5.31	5.31	17.7	786.0	509.2	492.0	17.11	29.750	
3,700.0	3,680.6	3,640.7	3,551.5	9.6	16.7	5.28	5.28	18.3	809.7	531.1	513.6	17.50	30.351	
3,719.4	3,700.0	3,659.6	3,569.8	9.7	16.8	90.62	90.62	18.4	814.3	535.8	518.2	17.57	30.492	
3,800.0	3,780.6	3,737.7	3,645.6	9.8	17.2	90.54	90.54	18.9	833.3	555.3	537.4	17.94	30.951	
3,900.0	3,880.6	3,834.7	3,739.7	10.0	17.7	90.46	90.46	19.5	856.8	579.6	561.2	18.42	31.474	
4,000.0	3,980.6	3,931.7	3,833.8	10.2	18.3	90.39	90.39	20.0	880.4	604.0	585.1	18.89	31.970	
4,100.0	4,080.6	4,028.7	3,927.9	10.3	18.8	90.32	90.32	20.6	904.0	628.3	608.9	19.37	32.440	
4,200.0	4,180.6	4,125.7	4,022.0	10.5	19.3	90.26	90.26	21.2	927.6	652.6	632.7	19.84	32.885	
4,300.0	4,280.6	4,222.7	4,116.1	10.7	19.8	90.20	90.20	21.8	951.2	676.9	656.5	20.32	33.309	
4,400.0	4,380.6	4,319.7	4,210.2	10.9	20.3	90.14	90.14	22.3	974.7	701.2	680.4	20.80	33.712	
4,500.0	4,480.6	4,417.0	4,304.5	11.1	20.8	90.09	90.09	22.9	998.4	725.5	704.2	21.28	34.095	
4,600.0	4,580.6	4,548.3	4,432.6	11.3	21.3	90.03	90.03	23.6	1,027.3	747.5	725.7	21.80	34.289	
4,700.0	4,680.6	4,682.1	4,564.3	11.5	21.8	89.99	89.99	24.2	1,050.7	765.0	742.8	22.29	34.316	
4,800.0	4,780.6	4,817.8	4,698.8	11.7	22.1	89.95	89.95	24.6	1,068.2	777.9	755.1	22.77	34.164	

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-223
<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-223	<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 (9-27-12)	<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
Reference														
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
4,900.0	4,880.6	4,954.9	4,835.5	11.9	22.3	89.94	89.94	24.9	1,079.3	786.0	762.8	23.23	33.843	
5,000.0	4,980.6	5,092.7	4,973.2	12.1	22.5	89.93	89.93	25.0	1,083.9	789.4	765.7	23.66	33.361	
5,100.0	5,080.6	5,200.1	5,080.6	12.3	22.6	89.93	89.93	25.0	1,084.1	789.5	765.4	24.05	32.824	
5,200.0	5,180.6	5,300.1	5,180.6	12.5	22.7	89.93	89.93	25.0	1,084.1	789.5	765.0	24.43	32.310	
5,300.0	5,280.6	5,400.1	5,280.6	12.7	22.8	89.93	89.93	25.0	1,084.1	789.5	764.7	24.82	31.808	
5,400.0	5,380.6	5,500.1	5,380.6	12.9	22.9	89.93	89.93	25.0	1,084.1	789.5	764.3	25.21	31.320	
5,500.0	5,480.6	5,600.1	5,480.6	13.1	23.1	89.93	89.93	25.0	1,084.1	789.5	763.9	25.60	30.844	
5,600.0	5,580.6	5,700.1	5,580.6	13.3	23.2	89.93	89.93	25.0	1,084.1	789.5	763.5	25.99	30.380	
5,700.0	5,680.6	5,800.1	5,680.6	13.5	23.3	89.93	89.93	25.0	1,084.1	789.5	763.1	26.38	29.928	
5,800.0	5,780.6	5,900.1	5,780.6	13.7	23.4	89.93	89.93	25.0	1,084.1	789.5	762.7	26.77	29.488	
5,900.0	5,880.6	6,000.1	5,880.6	13.9	23.5	89.93	89.93	25.0	1,084.1	789.5	762.3	27.17	29.058	
6,000.0	5,980.6	6,100.1	5,980.6	14.1	23.6	89.93	89.93	25.0	1,084.1	789.5	761.9	27.57	28.639	
6,100.0	6,080.6	6,200.1	6,080.6	14.3	23.8	89.93	89.93	25.0	1,084.1	789.5	761.5	27.96	28.231	
6,200.0	6,180.6	6,300.1	6,180.6	14.5	23.9	89.93	89.93	25.0	1,084.1	789.5	761.1	28.36	27.833	
6,210.3	6,190.9	6,310.4	6,190.9	14.5	23.9	89.93	89.93	25.0	1,084.1	789.5	761.1	28.41	27.792	
6,211.2	6,191.8	6,311.4	6,191.8	14.5	23.9	-90.04	-90.04	25.0	1,084.1	789.5	761.1	28.41	27.789	
6,250.0	6,230.6	6,350.1	6,230.6	14.6	23.9	-90.04	-90.04	24.0	1,084.1	789.5	760.9	28.55	27.648	
6,300.0	6,280.4	6,400.2	6,280.5	14.7	24.0	-90.04	-90.04	19.7	1,084.1	789.5	760.7	28.72	27.485	
6,350.0	6,329.8	6,450.2	6,329.9	14.7	24.0	-90.04	-90.04	12.2	1,084.1	789.5	760.6	28.89	27.325	
6,400.0	6,378.7	6,500.3	6,378.8	14.8	24.1	-90.04	-90.04	1.5	1,084.1	789.5	760.4	29.06	27.168	
6,450.0	6,426.7	6,550.3	6,426.8	14.9	24.1	-90.04	-90.04	-12.4	1,084.1	789.5	760.2	29.23	27.007	
6,500.0	6,473.7	6,600.3	6,473.9	15.0	24.2	-90.04	-90.04	-29.4	1,084.1	789.5	760.1	29.41	26.839	
6,550.0	6,519.5	6,650.4	6,519.7	15.1	24.3	-90.04	-90.04	-49.4	1,084.1	789.5	759.9	29.62	26.658	
6,600.0	6,563.9	6,700.4	6,564.1	15.2	24.3	-90.03	-90.03	-72.4	1,084.1	789.5	759.6	29.84	26.457	
6,650.0	6,606.7	6,750.4	6,607.0	15.3	24.4	-90.03	-90.03	-98.3	1,084.1	789.5	759.4	30.10	26.231	
6,700.0	6,647.7	6,800.4	6,648.0	15.4	24.5	-90.03	-90.03	-126.9	1,084.2	789.5	759.1	30.40	25.973	
6,750.0	6,686.8	6,850.5	6,687.1	15.6	24.6	-90.03	-90.03	-158.1	1,084.2	789.5	758.7	30.74	25.679	
6,800.0	6,723.7	6,900.5	6,724.0	15.8	24.7	-90.03	-90.03	-191.8	1,084.2	789.5	758.3	31.15	25.344	
6,850.0	6,758.4	6,950.5	6,758.7	16.0	24.8	-90.03	-90.03	-227.9	1,084.2	789.5	757.9	31.62	24.967	
6,900.0	6,790.6	7,000.5	6,790.9	16.2	25.0	-90.02	-90.02	-266.1	1,084.2	789.5	757.3	32.16	24.546	
6,950.0	6,820.3	7,050.6	6,820.5	16.5	25.1	-90.02	-90.02	-306.4	1,084.3	789.5	756.7	32.78	24.083	
7,000.0	6,847.3	7,100.6	6,847.5	16.8	25.3	-90.02	-90.02	-348.5	1,084.3	789.5	756.0	33.48	23.581	
7,050.0	6,871.4	7,150.6	6,871.6	17.1	25.5	-90.02	-90.02	-392.3	1,084.3	789.5	755.2	34.26	23.045	
7,100.0	6,892.7	7,200.6	6,892.8	17.6	25.8	-90.01	-90.01	-437.6	1,084.3	789.5	754.4	35.12	22.481	
7,150.0	6,910.9	7,250.6	6,911.1	18.0	26.0	-90.01	-90.01	-484.2	1,084.4	789.5	753.4	36.06	21.895	
7,200.0	6,926.1	7,300.6	6,926.2	18.5	26.4	-90.01	-90.01	-531.8	1,084.4	789.5	752.4	37.07	21.296	
7,250.0	6,938.1	7,350.6	6,938.2	19.0	26.7	-90.01	-90.01	-580.4	1,084.4	789.5	751.3	38.16	20.690	
7,300.0	6,946.9	7,400.6	6,946.9	19.6	27.1	-90.00	-90.00	-629.6	1,084.5	789.5	750.2	39.31	20.084	
7,350.0	6,952.4	7,450.6	6,952.5	20.2	27.5	-90.00	-90.00	-679.3	1,084.5	789.5	749.0	40.52	19.485	
7,400.0	6,954.7	7,500.6	6,954.7	20.8	27.9	-90.00	-90.00	-729.2	1,084.5	789.5	747.7	41.78	18.898	
7,415.6	6,954.8	7,516.2	6,954.8	21.0	28.0	-90.00	-90.00	-744.8	1,084.5	789.5	747.3	42.18	18.718	
7,500.0	6,954.2	7,600.6	6,954.2	22.1	28.8	-90.00	-90.00	-829.2	1,084.6	789.5	745.1	44.43	17.770	
7,600.0	6,953.5	7,700.6	6,953.5	23.6	29.9	-90.00	-90.00	-929.2	1,084.6	789.5	742.2	47.24	16.711	
7,700.0	6,952.8	7,800.6	6,952.8	25.0	31.0	-90.00	-90.00	-1,029.2	1,084.7	789.5	739.3	50.20	15.728	
7,800.0	6,952.1	7,900.6	6,952.1	26.6	32.3	-90.00	-90.00	-1,129.2	1,084.7	789.5	736.2	53.27	14.822	
7,900.0	6,951.4	8,000.6	6,951.4	28.1	33.6	-90.00	-90.00	-1,229.2	1,084.8	789.5	733.1	56.43	13.991	
8,000.0	6,950.7	8,100.6	6,950.7	29.8	34.9	-90.00	-90.00	-1,329.2	1,084.9	789.5	729.8	59.67	13.230	
8,100.0	6,950.0	8,200.6	6,950.0	31.4	36.3	-90.00	-90.00	-1,429.2	1,084.9	789.5	726.5	62.98	12.535	
8,200.0	6,949.3	8,300.6	6,949.3	33.1	37.8	-90.00	-90.00	-1,529.2	1,085.0	789.5	723.1	66.35	11.898	
8,300.0	6,948.6	8,400.6	6,948.6	34.8	39.3	-90.00	-90.00	-1,629.2	1,085.0	789.5	719.7	69.77	11.315	
8,400.0	6,947.9	8,500.6	6,947.9	36.5	40.8	-90.00	-90.00	-1,729.2	1,085.1	789.5	716.3	73.24	10.780	

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-223
<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-223	<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 (9-27-12)	<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
Reference													
Measured Depth (ft)		Vertical Depth (ft)		Offset		Semi Major Axis		Distance					
Reference	Offset	Reference	Offset	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
8,500.0	6,947.2	8,600.6	6,947.2	38.3	42.4	-90.00	-1,829.2	1,085.2	789.5	712.8	76.73	10.289	
8,600.0	6,946.5	8,700.6	6,946.5	40.0	44.0	-90.00	-1,929.2	1,085.2	789.5	709.2	80.26	9.836	
8,700.0	6,945.8	8,800.6	6,945.8	41.8	45.6	-90.00	-2,029.2	1,085.3	789.5	705.7	83.82	9.419	
8,800.0	6,945.1	8,900.6	6,945.1	43.6	47.3	-90.00	-2,129.2	1,085.3	789.5	702.1	87.41	9.033	
8,900.0	6,944.4	9,000.6	6,944.4	45.4	49.0	-90.00	-2,229.2	1,085.4	789.5	698.5	91.01	8.675	
9,000.0	6,943.7	9,100.6	6,943.7	47.2	50.6	-90.00	-2,329.2	1,085.4	789.5	694.9	94.64	8.343	
9,100.0	6,943.0	9,200.6	6,943.0	49.1	52.4	-90.00	-2,429.2	1,085.5	789.5	691.2	98.28	8.034	
9,200.0	6,942.3	9,300.6	6,942.3	50.9	54.1	-90.00	-2,529.2	1,085.6	789.5	687.6	101.93	7.745	
9,300.0	6,941.6	9,400.6	6,941.6	52.7	55.8	-90.00	-2,629.2	1,085.6	789.5	683.9	105.60	7.476	
9,400.0	6,940.9	9,500.6	6,940.9	54.6	57.6	-90.00	-2,729.2	1,085.7	789.5	680.2	109.28	7.224	
9,500.0	6,940.2	9,600.6	6,940.2	56.4	59.3	-90.00	-2,829.2	1,085.7	789.5	676.5	112.98	6.988	
9,600.0	6,939.5	9,700.6	6,939.5	58.3	61.1	-90.00	-2,929.2	1,085.8	789.5	672.8	116.68	6.766	
9,700.0	6,938.8	9,800.6	6,938.8	60.1	62.9	-90.00	-3,029.2	1,085.9	789.5	669.1	120.39	6.558	
9,800.0	6,938.1	9,900.6	6,938.1	62.0	64.6	-90.00	-3,129.2	1,085.9	789.5	665.4	124.11	6.361	
9,900.0	6,937.5	10,000.6	6,937.4	63.8	66.4	-90.00	-3,229.1	1,086.0	789.5	661.7	127.84	6.176	
10,000.0	6,936.8	10,100.6	6,936.7	65.7	68.2	-90.00	-3,329.1	1,086.0	789.5	657.9	131.58	6.000	
10,100.0	6,936.1	10,200.6	6,936.0	67.6	70.1	-90.00	-3,429.1	1,086.1	789.5	654.2	135.32	5.834	
10,200.0	6,935.4	10,300.6	6,935.3	69.4	71.9	-90.00	-3,529.1	1,086.1	789.5	650.5	139.07	5.677	
10,300.0	6,934.7	10,400.6	6,934.6	71.3	73.7	-90.00	-3,629.1	1,086.2	789.5	646.7	142.82	5.528	
10,400.0	6,934.0	10,500.6	6,933.9	73.2	75.5	-90.00	-3,729.1	1,086.3	789.5	642.9	146.58	5.386	
10,500.0	6,933.3	10,600.6	6,933.2	75.1	77.3	-90.00	-3,829.1	1,086.3	789.5	639.2	150.34	5.252	
10,600.0	6,932.6	10,700.6	6,932.5	77.0	79.2	-90.00	-3,929.1	1,086.4	789.5	635.4	154.11	5.123	
10,700.0	6,931.9	10,800.6	6,931.8	78.8	81.0	-90.00	-4,029.1	1,086.4	789.5	631.6	157.88	5.001	
10,800.0	6,931.2	10,900.6	6,931.1	80.7	82.9	-90.00	-4,129.1	1,086.5	789.5	627.9	161.65	4.884	
10,900.0	6,930.5	11,000.6	6,930.4	82.6	84.7	-90.00	-4,229.1	1,086.6	789.5	624.1	165.43	4.773	
11,000.0	6,929.8	11,100.6	6,929.7	84.5	86.5	-90.00	-4,329.1	1,086.6	789.5	620.3	169.21	4.666	
11,100.0	6,929.1	11,200.6	6,929.1	86.4	88.4	-90.00	-4,429.1	1,086.7	789.5	616.5	172.99	4.564	
11,200.0	6,928.4	11,300.6	6,928.4	88.3	90.3	-90.00	-4,529.1	1,086.7	789.5	612.8	176.78	4.466	
11,300.0	6,927.7	11,400.6	6,927.7	90.2	92.1	-90.00	-4,629.1	1,086.8	789.5	609.0	180.57	4.372	
11,400.0	6,927.0	11,500.6	6,927.0	92.1	94.0	-90.00	-4,729.1	1,086.8	789.5	605.2	184.36	4.283	
11,500.0	6,926.3	11,600.6	6,926.3	94.0	95.8	-90.00	-4,829.1	1,086.9	789.5	601.4	188.16	4.196	
11,600.0	6,925.6	11,700.6	6,925.6	95.9	97.7	-90.00	-4,929.1	1,087.0	789.5	597.6	191.95	4.113	
11,648.8	6,925.2	11,749.5	6,925.2	96.8	98.6	-90.00	-4,977.9	1,087.0	789.5	595.7	193.81	4.074	
11,683.5	6,925.0	11,780.9	6,925.0	97.5	99.2	-90.00	-5,009.4	1,087.0	789.5	594.5	195.06	4.048	
11,684.2	6,925.0	11,780.9	6,925.0	97.5	99.2	-90.00	-5,009.4	1,087.0	789.5	594.5	195.07	4.047 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34R-223
<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-223	<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 (9-27-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-93.41	-93.41	-3.6	-61.1	61.3				
100.0	100.0	100.0	100.0	0.1	0.1	-93.41	-93.41	-3.6	-61.1	61.3	61.0	0.22	272.542	
200.0	200.0	200.0	200.0	0.3	0.3	-93.41	-93.41	-3.6	-61.1	61.3	60.6	0.67	90.847	
300.0	300.0	300.0	300.0	0.6	0.6	-93.41	-93.41	-3.6	-61.1	61.3	60.1	1.12	54.508	
400.0	400.0	400.0	400.0	0.8	0.8	-93.41	-93.41	-3.6	-61.1	61.3	59.7	1.57	38.935	
500.0	500.0	500.0	500.0	1.0	1.0	-93.41	-93.41	-3.6	-61.1	61.3	59.2	2.02	30.282	
600.0	600.0	600.0	600.0	1.2	1.2	-93.41	-93.41	-3.6	-61.1	61.3	58.8	2.47	24.777	
700.0	700.0	700.0	700.0	1.5	1.5	-93.41	-93.41	-3.6	-61.1	61.3	58.3	2.92	20.965	
800.0	800.0	800.0	800.0	1.7	1.7	-93.41	-93.41	-3.6	-61.1	61.3	57.9	3.37	18.169	
900.0	900.0	900.0	900.0	1.9	1.9	-93.41	-93.41	-3.6	-61.1	61.3	57.4	3.82	16.032	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-93.41	-93.41	-3.6	-61.1	61.3	57.0	4.27	14.344	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-93.41	-93.41	-3.6	-61.1	61.3	56.5	4.72	12.978	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-93.41	-93.41	-3.6	-61.1	61.3	56.1	5.17	11.850 CC, ES	
1,300.0	1,300.0	1,297.8	1,297.8	2.8	2.8	-178.62	-178.62	-3.6	-62.8	64.7	59.1	5.59	11.578	
1,400.0	1,399.8	1,394.9	1,394.8	3.0	3.0	-178.29	-178.29	-3.3	-67.8	75.0	69.0	5.99	12.529	
1,500.0	1,499.5	1,490.7	1,490.2	3.2	3.2	-177.91	-177.91	-2.9	-75.9	92.1	85.7	6.38	14.421	
1,600.9	1,599.6	1,585.2	1,584.1	3.5	3.4	-177.55	-177.55	-2.3	-87.0	116.0	109.2	6.78	17.102	
1,700.0	1,697.7	1,677.1	1,674.9	3.7	3.7	-177.26	-177.26	-1.6	-100.7	144.3	137.1	7.20	20.058	
1,800.0	1,796.7	1,771.4	1,767.9	4.0	3.9	-177.01	-177.01	-0.8	-116.3	174.4	166.8	7.61	22.914	
1,900.0	1,895.8	1,866.8	1,862.0	4.3	4.2	-176.83	-176.83	0.0	-132.1	204.5	196.5	8.03	25.464	
2,000.0	1,994.8	1,962.2	1,956.0	4.6	4.5	-176.70	-176.70	0.9	-147.9	234.6	226.2	8.46	27.743	
2,100.0	2,093.8	2,057.5	2,050.1	4.9	4.8	-176.60	-176.60	1.7	-163.7	264.7	255.8	8.89	29.776	
2,200.0	2,192.8	2,152.9	2,144.1	5.2	5.2	-176.52	-176.52	2.5	-179.5	294.8	285.5	9.32	31.618	
2,300.0	2,291.9	2,248.2	2,238.1	5.5	5.5	-176.45	-176.45	3.3	-195.3	324.9	315.2	9.76	33.279	
2,400.0	2,390.9	2,343.6	2,332.2	5.8	5.8	-176.40	-176.40	4.2	-211.1	355.0	344.8	10.21	34.784	
2,500.0	2,489.9	2,439.0	2,426.2	6.1	6.1	-176.35	-176.35	5.0	-226.8	385.1	374.5	10.65	36.154	
2,600.0	2,588.9	2,534.3	2,520.3	6.4	6.5	-176.31	-176.31	5.8	-242.6	415.2	404.1	11.10	37.405	
2,700.0	2,687.9	2,629.7	2,614.3	6.8	6.8	-176.28	-176.28	6.6	-258.4	445.3	433.8	11.55	38.551	
2,800.0	2,787.0	2,725.1	2,708.4	7.1	7.2	-176.25	-176.25	7.4	-274.2	475.4	463.4	12.00	39.603	
2,900.0	2,886.0	2,820.4	2,802.4	7.4	7.5	-176.22	-176.22	8.3	-290.0	505.5	493.1	12.46	40.573	
3,000.0	2,985.0	2,915.8	2,896.4	7.7	7.9	-176.20	-176.20	9.1	-305.8	535.6	522.7	12.92	41.470	
3,100.0	3,084.0	3,011.1	2,990.5	8.1	8.2	-176.18	-176.18	9.9	-321.6	565.7	552.4	13.37	42.300	
3,200.0	3,183.1	3,122.2	3,100.2	8.4	8.6	-176.16	-176.16	10.8	-339.0	595.0	581.2	13.85	42.963	
3,300.0	3,282.1	3,244.9	3,222.0	8.7	8.9	-176.18	-176.18	11.6	-353.4	620.6	606.2	14.32	43.327	
3,318.5	3,300.4	3,267.9	3,244.9	8.8	8.9	-176.18	-176.18	11.7	-355.6	624.8	610.4	14.41	43.359	
3,400.0	3,381.3	3,370.4	3,347.2	9.0	9.2	-176.24	-176.24	12.0	-362.9	640.7	625.9	14.83	43.220	
3,500.0	3,480.8	3,498.5	3,475.2	9.3	9.4	-176.30	-176.30	12.3	-366.8	653.2	637.9	15.30	42.691	
3,600.0	3,580.6	3,604.0	3,580.6	9.5	9.5	-176.34	-176.34	12.3	-366.9	659.2	643.4	15.72	41.924	
3,700.0	3,680.6	3,703.9	3,680.6	9.6	9.7	-176.36	-176.36	12.3	-366.9	661.6	645.5	16.13	41.020	
3,719.4	3,700.0	3,723.3	3,700.0	9.7	9.8	-91.02	-91.02	12.3	-366.9	661.7	645.4	16.21	40.830	
3,800.0	3,780.6	3,803.9	3,780.6	9.8	9.9	-91.02	-91.02	12.3	-366.9	661.7	645.1	16.53	40.024	
3,900.0	3,880.6	3,903.9	3,880.6	10.0	10.1	-91.02	-91.02	12.3	-366.9	661.7	644.7	16.95	39.039	
4,000.0	3,980.6	4,003.9	3,980.6	10.2	10.3	-91.02	-91.02	12.3	-366.9	661.7	644.3	17.37	38.098	
4,100.0	4,080.6	4,103.9	4,080.6	10.3	10.4	-91.02	-91.02	12.3	-366.9	661.7	643.9	17.79	37.198	
4,200.0	4,180.6	4,203.9	4,180.6	10.5	10.6	-91.02	-91.02	12.3	-366.9	661.7	643.4	18.21	36.337	
4,300.0	4,280.6	4,303.9	4,280.6	10.7	10.8	-91.02	-91.02	12.3	-366.9	661.7	643.0	18.63	35.513	
4,400.0	4,380.6	4,403.9	4,380.6	10.9	11.0	-91.02	-91.02	12.3	-366.9	661.7	642.6	19.06	34.722	
4,500.0	4,480.6	4,503.9	4,480.6	11.1	11.2	-91.02	-91.02	12.3	-366.9	661.7	642.2	19.48	33.964	
4,600.0	4,580.6	4,603.9	4,580.6	11.3	11.4	-91.02	-91.02	12.3	-366.9	661.7	641.7	19.91	33.237	
4,700.0	4,680.6	4,703.9	4,680.6	11.5	11.6	-91.02	-91.02	12.3	-366.9	661.7	641.3	20.33	32.539	
4,800.0	4,780.6	4,803.9	4,780.6	11.7	11.8	-91.02	-91.02	12.3	-366.9	661.7	640.9	20.76	31.867	

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-223
<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-223	<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 (9-27-12)	<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
4,900.0	4,880.6	4,903.9	4,880.6	11.9	12.0	-91.02	-91.02	12.3	-366.9	661.7	640.5	21.19	31.222	
5,000.0	4,980.6	5,003.9	4,980.6	12.1	12.2	-91.02	-91.02	12.3	-366.9	661.7	640.0	21.62	30.601	
5,100.0	5,080.6	5,103.9	5,080.6	12.3	12.4	-91.02	-91.02	12.3	-366.9	661.7	639.6	22.05	30.004	
5,200.0	5,180.6	5,203.9	5,180.6	12.5	12.5	-91.02	-91.02	12.3	-366.9	661.7	639.2	22.48	29.428	
5,300.0	5,280.6	5,303.9	5,280.6	12.7	12.7	-91.02	-91.02	12.3	-366.9	661.7	638.7	22.92	28.873	
5,400.0	5,380.6	5,403.9	5,380.6	12.9	12.9	-91.02	-91.02	12.3	-366.9	661.7	638.3	23.35	28.338	
5,500.0	5,480.6	5,503.9	5,480.6	13.1	13.1	-91.02	-91.02	12.3	-366.9	661.7	637.9	23.78	27.821	
5,600.0	5,580.6	5,603.9	5,580.6	13.3	13.3	-91.02	-91.02	12.3	-366.9	661.7	637.4	24.22	27.323	
5,700.0	5,680.6	5,703.9	5,680.6	13.5	13.5	-91.02	-91.02	12.3	-366.9	661.7	637.0	24.65	26.841	
5,800.0	5,780.6	5,803.9	5,780.6	13.7	13.7	-91.02	-91.02	12.3	-366.9	661.7	636.6	25.09	26.375	
5,900.0	5,880.6	5,903.9	5,880.6	13.9	14.0	-91.02	-91.02	12.3	-366.9	661.7	636.1	25.52	25.925	
6,000.0	5,980.6	6,003.9	5,980.6	14.1	14.2	-91.02	-91.02	12.3	-366.9	661.7	635.7	25.96	25.490	
6,100.0	6,080.6	6,103.9	6,080.6	14.3	14.4	-91.02	-91.02	12.3	-366.9	661.7	635.3	26.39	25.068	
6,200.0	6,180.6	6,203.9	6,180.6	14.5	14.6	-91.02	-91.02	12.3	-366.9	661.7	634.8	26.83	24.660	
6,210.3	6,190.9	6,214.2	6,190.8	14.5	14.6	-91.02	-91.02	12.3	-366.9	661.7	634.8	26.88	24.619	
6,211.8	6,192.4	6,215.8	6,192.4	14.5	14.6	89.02	89.02	12.3	-366.9	661.7	634.8	26.88	24.613	
6,250.0	6,230.6	6,253.4	6,230.0	14.6	14.7	89.02	89.02	11.3	-366.9	661.7	634.6	27.03	24.477	
6,300.0	6,280.4	6,302.7	6,279.1	14.7	14.7	89.02	89.02	7.1	-366.9	661.7	634.4	27.20	24.322	
6,350.0	6,329.8	6,352.0	6,327.9	14.7	14.8	89.03	89.03	-0.1	-366.9	661.6	634.3	27.37	24.171	
6,400.0	6,378.7	6,401.3	6,376.1	14.8	14.9	89.04	89.04	-10.5	-366.9	661.6	634.1	27.54	24.022	
6,450.0	6,426.7	6,450.6	6,423.5	14.9	15.0	89.06	89.06	-24.0	-366.9	661.6	633.9	27.72	23.871	
6,500.0	6,473.7	6,500.0	6,470.0	15.0	15.1	89.08	89.08	-40.6	-366.9	661.6	633.7	27.90	23.714	
6,550.0	6,519.5	6,549.3	6,515.3	15.1	15.2	89.11	89.11	-60.1	-366.9	661.6	633.5	28.10	23.544	
6,600.0	6,563.9	6,598.6	6,559.3	15.2	15.3	89.14	89.14	-82.5	-366.8	661.6	633.3	28.33	23.356	
6,650.0	6,606.7	6,648.0	6,601.7	15.3	15.4	89.17	89.17	-107.7	-366.8	661.6	633.0	28.58	23.144	
6,700.0	6,647.7	6,697.4	6,642.5	15.4	15.5	89.21	89.21	-135.6	-366.8	661.5	632.7	28.89	22.903	
6,750.0	6,686.8	6,746.9	6,681.4	15.6	15.6	89.25	89.25	-166.1	-366.8	661.5	632.3	29.24	22.627	
6,800.0	6,723.7	6,796.3	6,718.3	15.8	15.8	89.29	89.29	-199.0	-366.7	661.5	631.8	29.65	22.313	
6,850.0	6,758.4	6,845.8	6,752.9	16.0	16.0	89.34	89.34	-234.3	-366.7	661.5	631.3	30.12	21.959	
6,900.0	6,790.6	6,895.4	6,785.3	16.2	16.2	89.38	89.38	-271.8	-366.6	661.4	630.8	30.67	21.564	
6,950.0	6,820.3	6,944.9	6,815.1	16.5	16.5	89.44	89.44	-311.4	-366.6	661.4	630.1	31.30	21.131	
7,000.0	6,847.3	6,994.5	6,842.4	16.8	16.8	89.49	89.49	-352.8	-366.5	661.4	629.4	32.01	20.662	
7,050.0	6,871.4	7,044.2	6,866.9	17.1	17.1	89.54	89.54	-396.0	-366.5	661.4	628.6	32.80	20.162	
7,100.0	6,892.7	7,093.9	6,888.6	17.6	17.5	89.60	89.60	-440.7	-366.5	661.3	627.7	33.68	19.637	
7,150.0	6,910.9	7,143.6	6,907.4	18.0	17.9	89.66	89.66	-486.7	-366.4	661.3	626.7	34.64	19.093	
7,200.0	6,926.1	7,193.4	6,923.1	18.5	18.4	89.72	89.72	-533.9	-366.3	661.3	625.6	35.67	18.538	
7,250.0	6,938.1	7,243.2	6,935.7	19.0	19.0	89.79	89.79	-582.1	-366.3	661.2	624.5	36.78	17.979	
7,300.0	6,946.9	7,293.0	6,945.2	19.6	19.5	89.85	89.85	-631.0	-366.2	661.2	623.3	37.95	17.422	
7,350.0	6,952.4	7,342.9	6,951.5	20.2	20.1	89.91	89.91	-680.6	-366.2	661.2	622.0	39.19	16.873	
7,400.0	6,954.7	7,392.9	6,954.5	20.8	20.7	89.98	89.98	-730.4	-366.1	661.2	620.7	40.47	16.337	
7,415.6	6,954.8	7,408.5	6,954.8	21.0	20.9	90.00	90.00	-746.0	-366.1	661.2	620.3	40.88	16.173	
7,500.0	6,954.2	7,492.9	6,954.3	22.1	22.1	90.00	90.00	-830.4	-366.0	661.1	617.9	43.18	15.312	
7,600.0	6,953.5	7,592.9	6,953.6	23.6	23.5	90.00	90.00	-930.4	-365.9	661.1	615.0	46.04	14.357	
7,700.0	6,952.8	7,692.9	6,952.9	25.0	24.9	90.00	90.00	-1,030.4	-365.8	661.0	612.0	49.05	13.477	
7,800.0	6,952.1	7,792.9	6,952.2	26.6	26.5	90.00	90.00	-1,130.4	-365.7	660.9	608.8	52.16	12.672	
7,900.0	6,951.4	7,892.9	6,951.5	28.1	28.0	90.00	90.00	-1,230.4	-365.6	660.9	605.5	55.37	11.937	
8,000.0	6,950.7	7,992.9	6,950.8	29.8	29.7	90.00	90.00	-1,330.4	-365.5	660.8	602.2	58.65	11.268	
8,100.0	6,950.0	8,092.9	6,950.1	31.4	31.3	90.00	90.00	-1,430.4	-365.4	660.8	598.8	62.00	10.658	
8,200.0	6,949.3	8,192.9	6,949.4	33.1	33.0	90.00	90.00	-1,530.4	-365.2	660.7	595.3	65.40	10.103	
8,300.0	6,948.6	8,292.9	6,948.7	34.8	34.7	90.00	90.00	-1,630.4	-365.1	660.7	591.8	68.85	9.596	
8,400.0	6,947.9	8,392.9	6,948.0	36.5	36.4	90.00	90.00	-1,730.4	-365.0	660.6	588.3	72.34	9.132	

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-223
<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-223	<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 (9-27-12)	<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	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
8,500.0	6,947.2	8,492.9	6,947.3	38.3	38.2	90.00	-1,830.4	-364.9	660.6	584.7	75.87	8.707	
8,600.0	6,946.5	8,592.9	6,946.6	40.0	40.0	90.00	-1,930.4	-364.8	660.5	581.1	79.42	8.317	
8,700.0	6,945.8	8,692.9	6,945.9	41.8	41.7	90.00	-2,030.4	-364.7	660.5	577.5	83.00	7.957	
8,800.0	6,945.1	8,792.9	6,945.2	43.6	43.5	90.00	-2,130.4	-364.6	660.4	573.8	86.61	7.625	
8,900.0	6,944.4	8,892.9	6,944.5	45.4	45.3	90.00	-2,230.4	-364.5	660.4	570.1	90.23	7.318	
9,000.0	6,943.7	8,992.9	6,943.8	47.2	47.1	90.00	-2,330.4	-364.4	660.3	566.4	93.87	7.034	
9,100.0	6,943.0	9,092.9	6,943.1	49.1	49.0	90.00	-2,430.4	-364.3	660.3	562.7	97.53	6.770	
9,200.0	6,942.3	9,192.9	6,942.4	50.9	50.8	90.00	-2,530.4	-364.1	660.2	559.0	101.21	6.523	
9,300.0	6,941.6	9,292.9	6,941.7	52.7	52.6	90.00	-2,630.4	-364.0	660.1	555.3	104.89	6.294	
9,400.0	6,940.9	9,392.9	6,941.0	54.6	54.5	90.00	-2,730.4	-363.9	660.1	551.5	108.59	6.079	
9,500.0	6,940.2	9,492.9	6,940.3	56.4	56.3	90.00	-2,830.3	-363.8	660.0	547.7	112.29	5.878	
9,600.0	6,939.5	9,592.9	6,939.6	58.3	58.2	90.00	-2,930.3	-363.7	660.0	544.0	116.01	5.689	
9,700.0	6,938.8	9,692.9	6,938.9	60.1	60.0	90.00	-3,030.3	-363.6	659.9	540.2	119.73	5.512	
9,800.0	6,938.1	9,792.9	6,938.2	62.0	61.9	90.00	-3,130.3	-363.5	659.9	536.4	123.47	5.345	
9,900.0	6,937.5	9,892.9	6,937.5	63.8	63.7	90.00	-3,230.3	-363.4	659.8	532.6	127.20	5.187	
10,000.0	6,936.8	9,992.9	6,936.8	65.7	65.6	90.00	-3,330.3	-363.3	659.8	528.8	130.95	5.038	
10,100.0	6,936.1	10,092.9	6,936.1	67.6	67.5	90.00	-3,430.3	-363.2	659.7	525.0	134.70	4.898	
10,200.0	6,935.4	10,192.9	6,935.4	69.4	69.3	90.00	-3,530.3	-363.0	659.7	521.2	138.46	4.764	
10,300.0	6,934.7	10,292.9	6,934.7	71.3	71.2	90.00	-3,630.3	-362.9	659.6	517.4	142.22	4.638	
10,400.0	6,934.0	10,392.9	6,934.0	73.2	73.1	90.00	-3,730.3	-362.8	659.6	513.6	145.99	4.518	
10,500.0	6,933.3	10,492.9	6,933.3	75.1	75.0	90.00	-3,830.3	-362.7	659.5	509.8	149.76	4.404	
10,600.0	6,932.6	10,592.9	6,932.6	77.0	76.9	90.00	-3,930.3	-362.6	659.5	505.9	153.53	4.295	
10,700.0	6,931.9	10,692.9	6,931.9	78.8	78.8	90.00	-4,030.3	-362.5	659.4	502.1	157.31	4.192	
10,800.0	6,931.2	10,792.9	6,931.2	80.7	80.6	90.00	-4,130.3	-362.4	659.4	498.3	161.09	4.093	
10,900.0	6,930.5	10,892.9	6,930.5	82.6	82.5	90.00	-4,230.3	-362.3	659.3	494.4	164.87	3.999	
11,000.0	6,929.8	10,992.9	6,929.8	84.5	84.4	90.00	-4,330.3	-362.2	659.2	490.6	168.66	3.909	
11,100.0	6,929.1	11,092.9	6,929.1	86.4	86.3	90.00	-4,430.3	-362.1	659.2	486.7	172.45	3.823	
11,200.0	6,928.4	11,192.9	6,928.4	88.3	88.2	90.00	-4,530.3	-361.9	659.1	482.9	176.24	3.740	
11,300.0	6,927.7	11,292.9	6,927.7	90.2	90.1	90.00	-4,630.3	-361.8	659.1	479.0	180.04	3.661	
11,400.0	6,927.0	11,392.9	6,927.0	92.1	92.0	90.00	-4,730.3	-361.7	659.0	475.2	183.83	3.585	
11,500.0	6,926.3	11,492.9	6,926.3	94.0	93.9	90.00	-4,830.3	-361.6	659.0	471.3	187.63	3.512	
11,600.0	6,925.6	11,592.9	6,925.6	95.9	95.8	90.00	-4,930.3	-361.5	658.9	467.5	191.43	3.442	
11,683.5	6,925.0	11,676.4	6,925.0	97.5	97.4	90.00	-5,013.8	-361.4	658.9	464.3	194.61	3.386	
11,684.2	6,925.0	11,677.1	6,925.0	97.5	97.4	90.00	-5,014.5	-361.4	658.9	464.2	194.63	3.385 SF	



Reference Depths are relative to WELL @ 4883.0ft (RKB - 13')	Coordinates are relative to: Richter 34R-223
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.63°



Coordinates are relative to: Richter 34R-223  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.63°

