

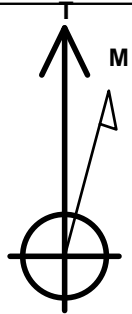
# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Richter 34M-203**

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 1440175.73 3269098.08 40.537650 -104.531810  
 RKB - 13' WELL @ 4883.0ft (RKB - 13')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 500'FSL & 2435'FEL	6925.0	-5020.3	-1025.9	Point



Azimuths to True North  
 Magnetic North: 8.58°

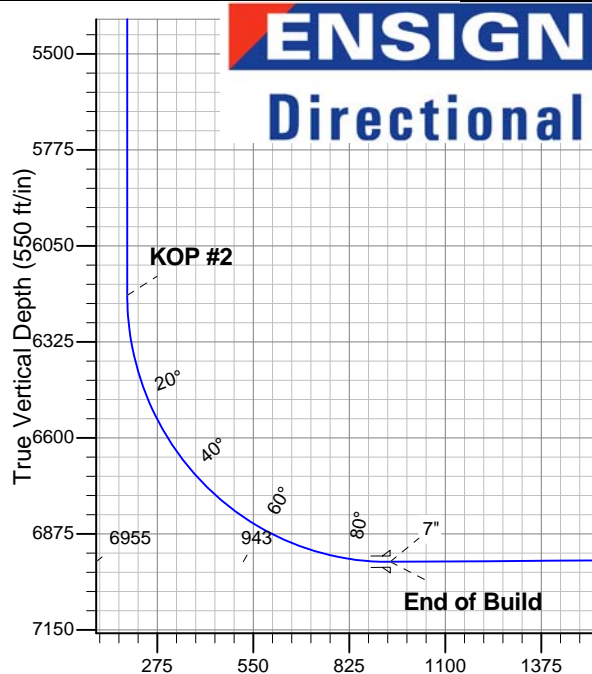
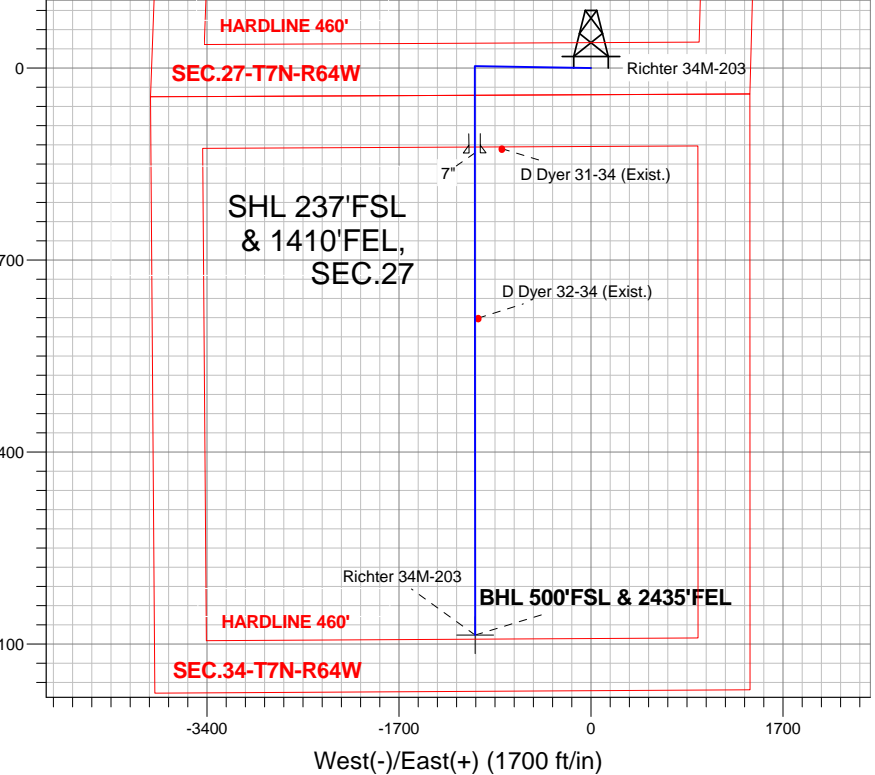
Magnetic Field  
 Strength: 53092.0nT  
 Dip Angle: 67.16°  
 Date: 9/27/2012  
 Model: IGRF2010

Richter 27T-HZ Pad Sec.27-T7N-R64W  
 Richter 34M-203  
 Plan #1 (9-27-12)  
 13:00, October 02 2012

## ANNOTATIONS

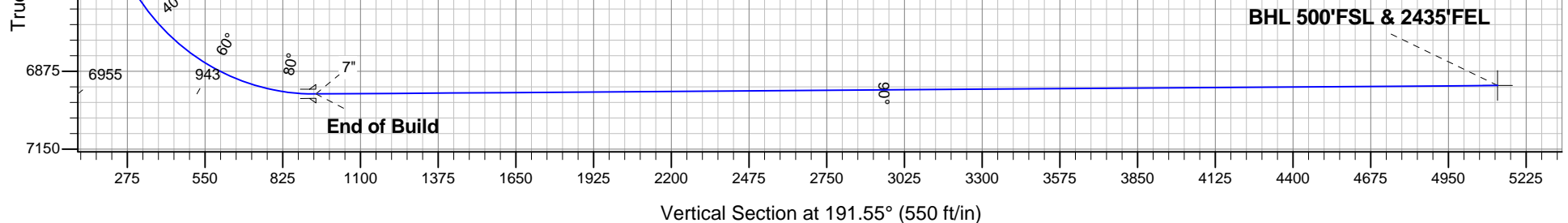
TVD	MD	Annotation
200.0	200.0	KOP #1
6190.9	6311.2	KOP #2
6954.8	7516.5	End of Build

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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	906.1	14.12	270.95	899.0	1.4	-86.6	2.00	270.95	15.9	
4	4414.1	14.12	270.95	4301.0	15.7	-942.4	0.00	0.00	173.3	
5	5120.3	0.00	0.00	5000.0	17.1	-1029.0	2.00	180.00	189.2	
6	6311.2	0.00	0.00	6190.9	17.1	-1029.0	0.00	0.00	189.2	
7	7516.5	90.40	179.96	6954.8	-752.2	-1028.5	7.50	179.96	942.8	
8	11784.7	90.40	179.96	6925.0	-5020.3	-1025.9	0.00	0.00	5124.0	BHL 500'FSL & 2435'FEL





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.27-T7N-R64W**

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

**Richter 34M-203**

**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 34M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-203	<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>Northing:</b>			1,440,175.74 ft			<b>Latitude:</b>			40.537650		
<b>From:</b>			Lat/Long			<b>Easting:</b>			3,269,098.08 ft			<b>Longitude:</b>			-104.531810		
<b>Position Uncertainty:</b>			0.0 ft			<b>Slot Radius:</b>			"			<b>Grid Convergence:</b>			0.63 °		

Well	Richter 34M-203					
Well Position	+N/-S	0.0 ft	Northing:	1,440,175.73 ft	Latitude:	40.537650
	+E/-W	0.0 ft	Easting:	3,269,098.08 ft	Longitude:	-104.531810
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	191.55

<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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
906.1	14.12	270.95	899.0	1.4	-86.6	2.00	2.00	0.00	270.95	
4,414.1	14.12	270.95	4,301.0	15.7	-942.4	0.00	0.00	0.00	0.00	
5,120.3	0.00	0.00	5,000.0	17.1	-1,029.0	2.00	-2.00	0.00	180.00	
6,311.2	0.00	0.00	6,190.9	17.1	-1,029.0	0.00	0.00	0.00	0.00	
7,516.5	90.40	179.96	6,954.8	-752.2	-1,028.5	7.50	7.50	0.00	179.96	
11,784.7	90.40	179.96	6,925.0	-5,020.3	-1,025.9	0.00	0.00	0.00	0.00	BHL 500'FSL & 243

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-203	<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
<b>KOP #1</b>									
240.0	0.80	270.95	240.0	0.0	-0.3	0.1	2.00	2.00	0.00
280.0	1.60	270.95	280.0	0.0	-1.1	0.2	2.00	2.00	0.00
320.0	2.40	270.95	320.0	0.0	-2.5	0.5	2.00	2.00	0.00
360.0	3.20	270.95	359.9	0.1	-4.5	0.8	2.00	2.00	0.00
400.0	4.00	270.95	399.8	0.1	-7.0	1.3	2.00	2.00	0.00
440.0	4.80	270.95	439.7	0.2	-10.0	1.8	2.00	2.00	0.00
480.0	5.60	270.95	479.6	0.2	-13.7	2.5	2.00	2.00	0.00
520.0	6.40	270.95	519.3	0.3	-17.9	3.3	2.00	2.00	0.00
560.0	7.20	270.95	559.1	0.4	-22.6	4.2	2.00	2.00	0.00
600.0	8.00	270.95	598.7	0.5	-27.9	5.1	2.00	2.00	0.00
640.0	8.80	270.95	638.3	0.6	-33.7	6.2	2.00	2.00	0.00
680.0	9.60	270.95	677.8	0.7	-40.1	7.4	2.00	2.00	0.00
720.0	10.40	270.95	717.1	0.8	-47.1	8.7	2.00	2.00	0.00
760.0	11.20	270.95	756.4	0.9	-54.6	10.0	2.00	2.00	0.00
800.0	12.00	270.95	795.6	1.0	-62.6	11.5	2.00	2.00	0.00
840.0	12.80	270.95	834.7	1.2	-71.2	13.1	2.00	2.00	0.00
880.0	13.60	270.95	873.6	1.3	-80.3	14.8	2.00	2.00	0.00
906.1	14.12	270.95	899.0	1.4	-86.6	15.9	2.00	2.00	0.00
920.0	14.12	270.95	912.5	1.5	-90.0	16.5	0.00	0.00	0.00
960.0	14.12	270.95	951.2	1.7	-99.7	18.3	0.00	0.00	0.00
1,000.0	14.12	270.95	990.0	1.8	-109.5	20.1	0.00	0.00	0.00
1,040.0	14.12	270.95	1,028.8	2.0	-119.2	21.9	0.00	0.00	0.00
1,080.0	14.12	270.95	1,067.6	2.1	-129.0	23.7	0.00	0.00	0.00
1,120.0	14.12	270.95	1,106.4	2.3	-138.8	25.5	0.00	0.00	0.00
1,160.0	14.12	270.95	1,145.2	2.5	-148.5	27.3	0.00	0.00	0.00
1,200.0	14.12	270.95	1,184.0	2.6	-158.3	29.1	0.00	0.00	0.00
1,240.0	14.12	270.95	1,222.8	2.8	-168.0	30.9	0.00	0.00	0.00
1,280.0	14.12	270.95	1,261.6	3.0	-177.8	32.7	0.00	0.00	0.00
1,320.0	14.12	270.95	1,300.4	3.1	-187.5	34.5	0.00	0.00	0.00
1,360.0	14.12	270.95	1,339.2	3.3	-197.3	36.3	0.00	0.00	0.00
1,400.0	14.12	270.95	1,377.9	3.4	-207.1	38.1	0.00	0.00	0.00
1,440.0	14.12	270.95	1,416.7	3.6	-216.8	39.9	0.00	0.00	0.00
1,480.0	14.12	270.95	1,455.5	3.8	-226.6	41.7	0.00	0.00	0.00
1,520.0	14.12	270.95	1,494.3	3.9	-236.3	43.5	0.00	0.00	0.00
1,560.0	14.12	270.95	1,533.1	4.1	-246.1	45.3	0.00	0.00	0.00
1,600.0	14.12	270.95	1,571.9	4.3	-255.9	47.1	0.00	0.00	0.00
1,640.0	14.12	270.95	1,610.7	4.4	-265.6	48.8	0.00	0.00	0.00
1,680.0	14.12	270.95	1,649.5	4.6	-275.4	50.6	0.00	0.00	0.00
1,720.0	14.12	270.95	1,688.3	4.7	-285.1	52.4	0.00	0.00	0.00
1,760.0	14.12	270.95	1,727.1	4.9	-294.9	54.2	0.00	0.00	0.00
1,800.0	14.12	270.95	1,765.9	5.1	-304.7	56.0	0.00	0.00	0.00
1,840.0	14.12	270.95	1,804.6	5.2	-314.4	57.8	0.00	0.00	0.00
1,880.0	14.12	270.95	1,843.4	5.4	-324.2	59.6	0.00	0.00	0.00
1,920.0	14.12	270.95	1,882.2	5.5	-333.9	61.4	0.00	0.00	0.00
1,960.0	14.12	270.95	1,921.0	5.7	-343.7	63.2	0.00	0.00	0.00
2,000.0	14.12	270.95	1,959.8	5.9	-353.4	65.0	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-203	<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	14.12	270.95	1,998.6	6.0	-363.2	66.8	0.00	0.00	0.00
2,080.0	14.12	270.95	2,037.4	6.2	-373.0	68.6	0.00	0.00	0.00
2,120.0	14.12	270.95	2,076.2	6.4	-382.7	70.4	0.00	0.00	0.00
2,160.0	14.12	270.95	2,115.0	6.5	-392.5	72.2	0.00	0.00	0.00
2,200.0	14.12	270.95	2,153.8	6.7	-402.2	74.0	0.00	0.00	0.00
2,240.0	14.12	270.95	2,192.6	6.8	-412.0	75.8	0.00	0.00	0.00
2,280.0	14.12	270.95	2,231.3	7.0	-421.8	77.6	0.00	0.00	0.00
2,320.0	14.12	270.95	2,270.1	7.2	-431.5	79.4	0.00	0.00	0.00
2,360.0	14.12	270.95	2,308.9	7.3	-441.3	81.1	0.00	0.00	0.00
2,400.0	14.12	270.95	2,347.7	7.5	-451.0	82.9	0.00	0.00	0.00
2,440.0	14.12	270.95	2,386.5	7.7	-460.8	84.7	0.00	0.00	0.00
2,480.0	14.12	270.95	2,425.3	7.8	-470.6	86.5	0.00	0.00	0.00
2,520.0	14.12	270.95	2,464.1	8.0	-480.3	88.3	0.00	0.00	0.00
2,560.0	14.12	270.95	2,502.9	8.1	-490.1	90.1	0.00	0.00	0.00
2,600.0	14.12	270.95	2,541.7	8.3	-499.8	91.9	0.00	0.00	0.00
2,640.0	14.12	270.95	2,580.5	8.5	-509.6	93.7	0.00	0.00	0.00
2,680.0	14.12	270.95	2,619.3	8.6	-519.3	95.5	0.00	0.00	0.00
2,720.0	14.12	270.95	2,658.0	8.8	-529.1	97.3	0.00	0.00	0.00
2,760.0	14.12	270.95	2,696.8	9.0	-538.9	99.1	0.00	0.00	0.00
2,800.0	14.12	270.95	2,735.6	9.1	-548.6	100.9	0.00	0.00	0.00
2,840.0	14.12	270.95	2,774.4	9.3	-558.4	102.7	0.00	0.00	0.00
2,880.0	14.12	270.95	2,813.2	9.4	-568.1	104.5	0.00	0.00	0.00
2,920.0	14.12	270.95	2,852.0	9.6	-577.9	106.3	0.00	0.00	0.00
2,960.0	14.12	270.95	2,890.8	9.8	-587.7	108.1	0.00	0.00	0.00
3,000.0	14.12	270.95	2,929.6	9.9	-597.4	109.9	0.00	0.00	0.00
3,040.0	14.12	270.95	2,968.4	10.1	-607.2	111.7	0.00	0.00	0.00
3,080.0	14.12	270.95	3,007.2	10.3	-616.9	113.5	0.00	0.00	0.00
3,120.0	14.12	270.95	3,046.0	10.4	-626.7	115.2	0.00	0.00	0.00
3,160.0	14.12	270.95	3,084.7	10.6	-636.4	117.0	0.00	0.00	0.00
3,200.0	14.12	270.95	3,123.5	10.7	-646.2	118.8	0.00	0.00	0.00
3,240.0	14.12	270.95	3,162.3	10.9	-656.0	120.6	0.00	0.00	0.00
3,280.0	14.12	270.95	3,201.1	11.1	-665.7	122.4	0.00	0.00	0.00
3,320.0	14.12	270.95	3,239.9	11.2	-675.5	124.2	0.00	0.00	0.00
3,360.0	14.12	270.95	3,278.7	11.4	-685.2	126.0	0.00	0.00	0.00
3,400.0	14.12	270.95	3,317.5	11.5	-695.0	127.8	0.00	0.00	0.00
3,440.0	14.12	270.95	3,356.3	11.7	-704.8	129.6	0.00	0.00	0.00
3,480.0	14.12	270.95	3,395.1	11.9	-714.5	131.4	0.00	0.00	0.00
3,520.0	14.12	270.95	3,433.9	12.0	-724.3	133.2	0.00	0.00	0.00
3,560.0	14.12	270.95	3,472.7	12.2	-734.0	135.0	0.00	0.00	0.00
3,600.0	14.12	270.95	3,511.4	12.4	-743.8	136.8	0.00	0.00	0.00
3,640.0	14.12	270.95	3,550.2	12.5	-753.6	138.6	0.00	0.00	0.00
3,680.0	14.12	270.95	3,589.0	12.7	-763.3	140.4	0.00	0.00	0.00
3,720.0	14.12	270.95	3,627.8	12.8	-773.1	142.2	0.00	0.00	0.00
3,760.0	14.12	270.95	3,666.6	13.0	-782.8	144.0	0.00	0.00	0.00
3,800.0	14.12	270.95	3,705.4	13.2	-792.6	145.8	0.00	0.00	0.00
3,840.0	14.12	270.95	3,744.2	13.3	-802.3	147.5	0.00	0.00	0.00
3,880.0	14.12	270.95	3,783.0	13.5	-812.1	149.3	0.00	0.00	0.00
3,920.0	14.12	270.95	3,821.8	13.7	-821.9	151.1	0.00	0.00	0.00
3,960.0	14.12	270.95	3,860.6	13.8	-831.6	152.9	0.00	0.00	0.00
4,000.0	14.12	270.95	3,899.4	14.0	-841.4	154.7	0.00	0.00	0.00
4,040.0	14.12	270.95	3,938.1	14.1	-851.1	156.5	0.00	0.00	0.00
4,080.0	14.12	270.95	3,976.9	14.3	-860.9	158.3	0.00	0.00	0.00
4,120.0	14.12	270.95	4,015.7	14.5	-870.7	160.1	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-203	<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)
4,160.0	14.12	270.95	4,054.5	14.6	-880.4	161.9	0.00	0.00	0.00
4,200.0	14.12	270.95	4,093.3	14.8	-890.2	163.7	0.00	0.00	0.00
4,240.0	14.12	270.95	4,132.1	15.0	-899.9	165.5	0.00	0.00	0.00
4,280.0	14.12	270.95	4,170.9	15.1	-909.7	167.3	0.00	0.00	0.00
4,320.0	14.12	270.95	4,209.7	15.3	-919.5	169.1	0.00	0.00	0.00
4,360.0	14.12	270.95	4,248.5	15.4	-929.2	170.9	0.00	0.00	0.00
4,400.0	14.12	270.95	4,287.3	15.6	-939.0	172.7	0.00	0.00	0.00
4,414.1	14.12	270.95	4,301.0	15.7	-942.4	173.3	0.00	0.00	0.00
4,440.0	13.61	270.95	4,326.1	15.8	-948.6	174.4	2.00	-2.00	0.00
4,480.0	12.81	270.95	4,365.0	15.9	-957.8	176.1	2.00	-2.00	0.00
4,520.0	12.01	270.95	4,404.1	16.1	-966.3	177.7	2.00	-2.00	0.00
4,560.0	11.21	270.95	4,443.3	16.2	-974.4	179.2	2.00	-2.00	0.00
4,600.0	10.41	270.95	4,482.6	16.3	-981.9	180.6	2.00	-2.00	0.00
4,640.0	9.61	270.95	4,522.0	16.4	-988.8	181.8	2.00	-2.00	0.00
4,680.0	8.81	270.95	4,561.4	16.5	-995.2	183.0	2.00	-2.00	0.00
4,720.0	8.01	270.95	4,601.0	16.6	-1,001.1	184.1	2.00	-2.00	0.00
4,760.0	7.21	270.95	4,640.7	16.7	-1,006.4	185.1	2.00	-2.00	0.00
4,800.0	6.41	270.95	4,680.4	16.8	-1,011.1	185.9	2.00	-2.00	0.00
4,840.0	5.61	270.95	4,720.2	16.9	-1,015.3	186.7	2.00	-2.00	0.00
4,880.0	4.81	270.95	4,760.0	16.9	-1,018.9	187.4	2.00	-2.00	0.00
4,920.0	4.01	270.95	4,799.9	17.0	-1,022.0	187.9	2.00	-2.00	0.00
4,960.0	3.21	270.95	4,839.8	17.0	-1,024.5	188.4	2.00	-2.00	0.00
5,000.0	2.41	270.95	4,879.7	17.1	-1,026.5	188.8	2.00	-2.00	0.00
5,040.0	1.61	270.95	4,919.7	17.1	-1,027.9	189.0	2.00	-2.00	0.00
5,080.0	0.81	270.95	4,959.7	17.1	-1,028.7	189.2	2.00	-2.00	0.00
5,120.0	0.01	270.95	4,999.7	17.1	-1,029.0	189.2	2.00	-2.00	0.00
5,120.3	0.00	0.00	5,000.0	17.1	-1,029.0	189.2	2.00	-2.00	0.00
5,160.0	0.00	0.00	5,039.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,200.0	0.00	0.00	5,079.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,240.0	0.00	0.00	5,119.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,280.0	0.00	0.00	5,159.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,320.0	0.00	0.00	5,199.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,360.0	0.00	0.00	5,239.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,400.0	0.00	0.00	5,279.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,440.0	0.00	0.00	5,319.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,480.0	0.00	0.00	5,359.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,520.0	0.00	0.00	5,399.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,560.0	0.00	0.00	5,439.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,600.0	0.00	0.00	5,479.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,640.0	0.00	0.00	5,519.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,680.0	0.00	0.00	5,559.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,720.0	0.00	0.00	5,599.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,760.0	0.00	0.00	5,639.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,800.0	0.00	0.00	5,679.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,840.0	0.00	0.00	5,719.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,880.0	0.00	0.00	5,759.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,920.0	0.00	0.00	5,799.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
5,960.0	0.00	0.00	5,839.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
6,000.0	0.00	0.00	5,879.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
6,040.0	0.00	0.00	5,919.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
6,080.0	0.00	0.00	5,959.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
6,120.0	0.00	0.00	5,999.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
6,160.0	0.00	0.00	6,039.7	17.1	-1,029.0	189.2	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-203	<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	6,079.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
6,240.0	0.00	0.00	6,119.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
6,280.0	0.00	0.00	6,159.7	17.1	-1,029.0	189.2	0.00	0.00	0.00
6,311.2	0.00	0.00	6,190.9	17.1	-1,029.0	189.2	0.00	0.00	0.00
<b>KOP #2</b>									
6,320.0	0.66	179.96	6,199.7	17.0	-1,029.0	189.3	7.53	7.53	0.00
6,360.0	3.66	179.96	6,239.7	15.5	-1,029.0	190.8	7.50	7.50	0.00
6,400.0	6.66	179.96	6,279.5	11.9	-1,029.0	194.3	7.50	7.50	0.00
6,440.0	9.66	179.96	6,319.1	6.3	-1,029.0	199.8	7.50	7.50	0.00
6,480.0	12.66	179.96	6,358.3	-1.5	-1,029.0	207.4	7.50	7.50	0.00
6,520.0	15.66	179.96	6,397.1	-11.3	-1,029.0	217.0	7.50	7.50	0.00
6,560.0	18.66	179.96	6,435.3	-23.1	-1,029.0	228.6	7.50	7.50	0.00
6,600.0	21.66	179.96	6,472.9	-36.9	-1,029.0	242.1	7.50	7.50	0.00
6,640.0	24.66	179.96	6,509.6	-52.6	-1,029.0	257.5	7.50	7.50	0.00
6,680.0	27.66	179.96	6,545.5	-70.2	-1,028.9	274.8	7.50	7.50	0.00
6,720.0	30.66	179.96	6,580.5	-89.7	-1,028.9	293.9	7.50	7.50	0.00
6,760.0	33.66	179.96	6,614.3	-111.0	-1,028.9	314.7	7.50	7.50	0.00
6,800.0	36.66	179.96	6,647.0	-134.0	-1,028.9	337.3	7.50	7.50	0.00
6,840.0	39.66	179.96	6,678.5	-158.8	-1,028.9	361.5	7.50	7.50	0.00
6,880.0	42.66	179.96	6,708.6	-185.1	-1,028.9	387.3	7.50	7.50	0.00
6,920.0	45.66	179.96	6,737.3	-212.9	-1,028.9	414.6	7.50	7.50	0.00
6,960.0	48.66	179.96	6,764.5	-242.3	-1,028.8	443.3	7.50	7.50	0.00
7,000.0	51.66	179.96	6,790.1	-273.0	-1,028.8	473.4	7.50	7.50	0.00
7,040.0	54.66	179.96	6,814.1	-305.0	-1,028.8	504.8	7.50	7.50	0.00
7,080.0	57.66	179.96	6,836.3	-338.2	-1,028.8	537.3	7.50	7.50	0.00
7,120.0	60.66	179.96	6,856.8	-372.6	-1,028.8	570.9	7.50	7.50	0.00
7,160.0	63.66	179.96	6,875.5	-407.9	-1,028.7	605.6	7.50	7.50	0.00
7,200.0	66.66	179.96	6,892.3	-444.2	-1,028.7	641.1	7.50	7.50	0.00
7,240.0	69.66	179.96	6,907.2	-481.3	-1,028.7	677.5	7.50	7.50	0.00
7,280.0	72.66	179.96	6,920.1	-519.2	-1,028.7	714.6	7.50	7.50	0.00
7,320.0	75.66	179.96	6,931.0	-557.7	-1,028.6	752.3	7.50	7.50	0.00
7,360.0	78.66	179.96	6,939.9	-596.7	-1,028.6	790.5	7.50	7.50	0.00
7,400.0	81.66	179.96	6,946.7	-636.1	-1,028.6	829.1	7.50	7.50	0.00
7,440.0	84.66	179.96	6,951.5	-675.8	-1,028.6	868.0	7.50	7.50	0.00
7,480.0	87.66	179.96	6,954.2	-715.7	-1,028.5	907.1	7.50	7.50	0.00
7,516.5	90.40	179.96	6,954.8	-752.2	-1,028.5	942.8	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,520.0	90.40	179.96	6,954.8	-755.7	-1,028.5	946.3	0.00	0.00	0.00
7,560.0	90.40	179.96	6,954.5	-795.7	-1,028.5	985.5	0.00	0.00	0.00
7,600.0	90.40	179.96	6,954.2	-835.7	-1,028.5	1,024.6	0.00	0.00	0.00
7,640.0	90.40	179.96	6,953.9	-875.7	-1,028.4	1,063.8	0.00	0.00	0.00
7,680.0	90.40	179.96	6,953.7	-915.7	-1,028.4	1,103.0	0.00	0.00	0.00
7,720.0	90.40	179.96	6,953.4	-955.7	-1,028.4	1,142.2	0.00	0.00	0.00
7,760.0	90.40	179.96	6,953.1	-995.7	-1,028.4	1,181.4	0.00	0.00	0.00
7,800.0	90.40	179.96	6,952.8	-1,035.7	-1,028.3	1,220.6	0.00	0.00	0.00
7,840.0	90.40	179.96	6,952.5	-1,075.7	-1,028.3	1,259.7	0.00	0.00	0.00
7,880.0	90.40	179.96	6,952.3	-1,115.7	-1,028.3	1,298.9	0.00	0.00	0.00
7,920.0	90.40	179.96	6,952.0	-1,155.7	-1,028.3	1,338.1	0.00	0.00	0.00
7,960.0	90.40	179.96	6,951.7	-1,195.7	-1,028.2	1,377.3	0.00	0.00	0.00
8,000.0	90.40	179.96	6,951.4	-1,235.7	-1,028.2	1,416.5	0.00	0.00	0.00
8,040.0	90.40	179.96	6,951.1	-1,275.7	-1,028.2	1,455.7	0.00	0.00	0.00
8,080.0	90.40	179.96	6,950.9	-1,315.7	-1,028.2	1,494.9	0.00	0.00	0.00
8,120.0	90.40	179.96	6,950.6	-1,355.7	-1,028.1	1,534.0	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-203	<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	179.96	6,950.3	-1,395.7	-1,028.1	1,573.2	0.00	0.00	0.00
8,200.0	90.40	179.96	6,950.0	-1,435.7	-1,028.1	1,612.4	0.00	0.00	0.00
8,240.0	90.40	179.96	6,949.7	-1,475.7	-1,028.1	1,651.6	0.00	0.00	0.00
8,280.0	90.40	179.96	6,949.5	-1,515.7	-1,028.0	1,690.8	0.00	0.00	0.00
8,320.0	90.40	179.96	6,949.2	-1,555.7	-1,028.0	1,730.0	0.00	0.00	0.00
8,360.0	90.40	179.96	6,948.9	-1,595.7	-1,028.0	1,769.1	0.00	0.00	0.00
8,400.0	90.40	179.96	6,948.6	-1,635.7	-1,028.0	1,808.3	0.00	0.00	0.00
8,440.0	90.40	179.96	6,948.4	-1,675.7	-1,027.9	1,847.5	0.00	0.00	0.00
8,480.0	90.40	179.96	6,948.1	-1,715.7	-1,027.9	1,886.7	0.00	0.00	0.00
8,520.0	90.40	179.96	6,947.8	-1,755.7	-1,027.9	1,925.9	0.00	0.00	0.00
8,560.0	90.40	179.96	6,947.5	-1,795.7	-1,027.9	1,965.1	0.00	0.00	0.00
8,600.0	90.40	179.96	6,947.2	-1,835.7	-1,027.8	2,004.3	0.00	0.00	0.00
8,640.0	90.40	179.96	6,947.0	-1,875.7	-1,027.8	2,043.4	0.00	0.00	0.00
8,680.0	90.40	179.96	6,946.7	-1,915.7	-1,027.8	2,082.6	0.00	0.00	0.00
8,720.0	90.40	179.96	6,946.4	-1,955.7	-1,027.8	2,121.8	0.00	0.00	0.00
8,760.0	90.40	179.96	6,946.1	-1,995.7	-1,027.7	2,161.0	0.00	0.00	0.00
8,800.0	90.40	179.96	6,945.8	-2,035.7	-1,027.7	2,200.2	0.00	0.00	0.00
8,840.0	90.40	179.96	6,945.6	-2,075.6	-1,027.7	2,239.4	0.00	0.00	0.00
8,880.0	90.40	179.96	6,945.3	-2,115.6	-1,027.7	2,278.5	0.00	0.00	0.00
8,920.0	90.40	179.96	6,945.0	-2,155.6	-1,027.6	2,317.7	0.00	0.00	0.00
8,960.0	90.40	179.96	6,944.7	-2,195.6	-1,027.6	2,356.9	0.00	0.00	0.00
9,000.0	90.40	179.96	6,944.4	-2,235.6	-1,027.6	2,396.1	0.00	0.00	0.00
9,040.0	90.40	179.96	6,944.2	-2,275.6	-1,027.6	2,435.3	0.00	0.00	0.00
9,080.0	90.40	179.96	6,943.9	-2,315.6	-1,027.5	2,474.5	0.00	0.00	0.00
9,120.0	90.40	179.96	6,943.6	-2,355.6	-1,027.5	2,513.6	0.00	0.00	0.00
9,160.0	90.40	179.96	6,943.3	-2,395.6	-1,027.5	2,552.8	0.00	0.00	0.00
9,200.0	90.40	179.96	6,943.0	-2,435.6	-1,027.5	2,592.0	0.00	0.00	0.00
9,240.0	90.40	179.96	6,942.8	-2,475.6	-1,027.4	2,631.2	0.00	0.00	0.00
9,280.0	90.40	179.96	6,942.5	-2,515.6	-1,027.4	2,670.4	0.00	0.00	0.00
9,320.0	90.40	179.96	6,942.2	-2,555.6	-1,027.4	2,709.6	0.00	0.00	0.00
9,360.0	90.40	179.96	6,941.9	-2,595.6	-1,027.4	2,748.8	0.00	0.00	0.00
9,400.0	90.40	179.96	6,941.6	-2,635.6	-1,027.3	2,787.9	0.00	0.00	0.00
9,440.0	90.40	179.96	6,941.4	-2,675.6	-1,027.3	2,827.1	0.00	0.00	0.00
9,480.0	90.40	179.96	6,941.1	-2,715.6	-1,027.3	2,866.3	0.00	0.00	0.00
9,520.0	90.40	179.96	6,940.8	-2,755.6	-1,027.3	2,905.5	0.00	0.00	0.00
9,560.0	90.40	179.96	6,940.5	-2,795.6	-1,027.2	2,944.7	0.00	0.00	0.00
9,600.0	90.40	179.96	6,940.3	-2,835.6	-1,027.2	2,983.9	0.00	0.00	0.00
9,640.0	90.40	179.96	6,940.0	-2,875.6	-1,027.2	3,023.0	0.00	0.00	0.00
9,680.0	90.40	179.96	6,939.7	-2,915.6	-1,027.2	3,062.2	0.00	0.00	0.00
9,720.0	90.40	179.96	6,939.4	-2,955.6	-1,027.1	3,101.4	0.00	0.00	0.00
9,760.0	90.40	179.96	6,939.1	-2,995.6	-1,027.1	3,140.6	0.00	0.00	0.00
9,800.0	90.40	179.96	6,938.9	-3,035.6	-1,027.1	3,179.8	0.00	0.00	0.00
9,840.0	90.40	179.96	6,938.6	-3,075.6	-1,027.1	3,219.0	0.00	0.00	0.00
9,880.0	90.40	179.96	6,938.3	-3,115.6	-1,027.0	3,258.2	0.00	0.00	0.00
9,920.0	90.40	179.96	6,938.0	-3,155.6	-1,027.0	3,297.3	0.00	0.00	0.00
9,960.0	90.40	179.96	6,937.7	-3,195.6	-1,027.0	3,336.5	0.00	0.00	0.00
10,000.0	90.40	179.96	6,937.5	-3,235.6	-1,027.0	3,375.7	0.00	0.00	0.00
10,040.0	90.40	179.96	6,937.2	-3,275.6	-1,026.9	3,414.9	0.00	0.00	0.00
10,080.0	90.40	179.96	6,936.9	-3,315.6	-1,026.9	3,454.1	0.00	0.00	0.00
10,120.0	90.40	179.96	6,936.6	-3,355.6	-1,026.9	3,493.3	0.00	0.00	0.00
10,160.0	90.40	179.96	6,936.3	-3,395.6	-1,026.9	3,532.4	0.00	0.00	0.00
10,200.0	90.40	179.96	6,936.1	-3,435.6	-1,026.8	3,571.6	0.00	0.00	0.00
10,240.0	90.40	179.96	6,935.8	-3,475.6	-1,026.8	3,610.8	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-203	<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	179.96	6,935.5	-3,515.6	-1,026.8	3,650.0	0.00	0.00	0.00
10,320.0	90.40	179.96	6,935.2	-3,555.6	-1,026.8	3,689.2	0.00	0.00	0.00
10,360.0	90.40	179.96	6,934.9	-3,595.6	-1,026.7	3,728.4	0.00	0.00	0.00
10,400.0	90.40	179.96	6,934.7	-3,635.6	-1,026.7	3,767.6	0.00	0.00	0.00
10,440.0	90.40	179.96	6,934.4	-3,675.6	-1,026.7	3,806.7	0.00	0.00	0.00
10,480.0	90.40	179.96	6,934.1	-3,715.6	-1,026.7	3,845.9	0.00	0.00	0.00
10,520.0	90.40	179.96	6,933.8	-3,755.6	-1,026.6	3,885.1	0.00	0.00	0.00
10,560.0	90.40	179.96	6,933.6	-3,795.6	-1,026.6	3,924.3	0.00	0.00	0.00
10,600.0	90.40	179.96	6,933.3	-3,835.6	-1,026.6	3,963.5	0.00	0.00	0.00
10,640.0	90.40	179.96	6,933.0	-3,875.6	-1,026.6	4,002.7	0.00	0.00	0.00
10,680.0	90.40	179.96	6,932.7	-3,915.6	-1,026.5	4,041.8	0.00	0.00	0.00
10,720.0	90.40	179.96	6,932.4	-3,955.6	-1,026.5	4,081.0	0.00	0.00	0.00
10,760.0	90.40	179.96	6,932.2	-3,995.6	-1,026.5	4,120.2	0.00	0.00	0.00
10,800.0	90.40	179.96	6,931.9	-4,035.6	-1,026.5	4,159.4	0.00	0.00	0.00
10,840.0	90.40	179.96	6,931.6	-4,075.6	-1,026.4	4,198.6	0.00	0.00	0.00
10,880.0	90.40	179.96	6,931.3	-4,115.6	-1,026.4	4,237.8	0.00	0.00	0.00
10,920.0	90.40	179.96	6,931.0	-4,155.6	-1,026.4	4,276.9	0.00	0.00	0.00
10,960.0	90.40	179.96	6,930.8	-4,195.6	-1,026.4	4,316.1	0.00	0.00	0.00
11,000.0	90.40	179.96	6,930.5	-4,235.6	-1,026.3	4,355.3	0.00	0.00	0.00
11,040.0	90.40	179.96	6,930.2	-4,275.6	-1,026.3	4,394.5	0.00	0.00	0.00
11,080.0	90.40	179.96	6,929.9	-4,315.6	-1,026.3	4,433.7	0.00	0.00	0.00
11,120.0	90.40	179.96	6,929.6	-4,355.6	-1,026.3	4,472.9	0.00	0.00	0.00
11,160.0	90.40	179.96	6,929.4	-4,395.6	-1,026.2	4,512.1	0.00	0.00	0.00
11,200.0	90.40	179.96	6,929.1	-4,435.6	-1,026.2	4,551.2	0.00	0.00	0.00
11,240.0	90.40	179.96	6,928.8	-4,475.6	-1,026.2	4,590.4	0.00	0.00	0.00
11,280.0	90.40	179.96	6,928.5	-4,515.6	-1,026.2	4,629.6	0.00	0.00	0.00
11,320.0	90.40	179.96	6,928.2	-4,555.6	-1,026.1	4,668.8	0.00	0.00	0.00
11,360.0	90.40	179.96	6,928.0	-4,595.6	-1,026.1	4,708.0	0.00	0.00	0.00
11,400.0	90.40	179.96	6,927.7	-4,635.6	-1,026.1	4,747.2	0.00	0.00	0.00
11,440.0	90.40	179.96	6,927.4	-4,675.6	-1,026.1	4,786.3	0.00	0.00	0.00
11,480.0	90.40	179.96	6,927.1	-4,715.6	-1,026.0	4,825.5	0.00	0.00	0.00
11,520.0	90.40	179.96	6,926.8	-4,755.6	-1,026.0	4,864.7	0.00	0.00	0.00
11,560.0	90.40	179.96	6,926.6	-4,795.6	-1,026.0	4,903.9	0.00	0.00	0.00
11,600.0	90.40	179.96	6,926.3	-4,835.6	-1,026.0	4,943.1	0.00	0.00	0.00
11,640.0	90.40	179.96	6,926.0	-4,875.6	-1,025.9	4,982.3	0.00	0.00	0.00
11,680.0	90.40	179.96	6,925.7	-4,915.6	-1,025.9	5,021.5	0.00	0.00	0.00
11,720.0	90.40	179.96	6,925.5	-4,955.6	-1,025.9	5,060.6	0.00	0.00	0.00
11,760.0	90.40	179.96	6,925.2	-4,995.6	-1,025.9	5,099.8	0.00	0.00	0.00
11,784.7	90.40	179.96	6,925.0	-5,020.3	-1,025.9	5,124.0	0.00	0.00	0.00
BHL 500'FSL & 2435'FEL									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 500'FSL & 2435'FEL - hit/miss target - Shape - Point	0.00	0.00	6,925.0	-5,020.3	-1,025.9	1,435,144.69	3,268,127.12	40.523870	-104.535500

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Project:</b>	SEC.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Richter 34M-203	<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 (")
7,516.5	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)	
200.0	200.0	0.0	0.0	KOP #1
6,311.2	6,190.9	17.1	-1,029.0	KOP #2
7,516.5	6,954.8	-752.2	-1,028.5	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.27-T7N-R64W**

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

**Richter 34M-203**

**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 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	10/2/2012		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,784.7	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 31-34 (Exist.) - Wellbore #1 - Design #1	7,478.5	6,938.1	239.1	202.4	6.509	CC, ES
D Dyer 31-34 (Exist.) - Wellbore #1 - Design #1	7,500.0	6,938.7	240.1	203.1	6.488	SF
D Dyer 32-34 (Exist.) - Wellbore #1 - Design #1	8,979.4	6,910.6	29.7	-31.3	0.487	Level 1, CC, ES, SF
Richter 27T-HZ Pad Sec.27-T7N-R64W						
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	30.6	29.9	45.343	CC, ES
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	11,785.5	11,776.3	490.2	304.7	2.642	SF
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	200.0	200.0	122.4	121.7	181.454	CC, ES
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	1,200.0	1,184.0	280.6	275.3	53.067	SF
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	91.8	91.1	136.138	CC, ES
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	800.0	795.6	154.3	150.9	45.374	SF
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	150.1	149.5	222.660	CC, ES
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	1,100.0	1,079.2	285.2	280.4	59.576	SF
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	180.7	180.0	267.992	CC, ES
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	800.0	742.4	299.8	296.4	87.692	SF
Richter 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	200.0	200.0	61.1	60.5	90.687	CC, ES
Ritcher 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	11,785.5	11,682.9	786.8	591.5	4.029	SF

<b>Offset Design</b> Dyer 34R-203 Pad Sec.34-T7N-R64W - D Dyer 31-34 (Exist.) - Wellbore #1 - Design #1												
Survey Program: 0-MWD												
Reference												
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
1,000.0	990.0	974.0	974.0	3.0	2.1	-48.30	-714.1	-789.4	987.3	982.6	4.73	208.767
1,100.0	1,087.0	1,071.0	1,071.0	3.5	2.3	-49.36	-714.1	-789.4	971.0	965.6	5.37	180.895
1,200.0	1,184.0	1,168.0	1,168.0	4.0	2.5	-50.45	-714.1	-789.4	955.0	949.0	6.02	158.571
1,300.0	1,281.0	1,265.0	1,265.0	4.5	2.7	-51.58	-714.1	-789.4	939.3	932.6	6.69	140.376
1,400.0	1,377.9	1,361.9	1,361.9	5.0	2.9	-52.74	-714.1	-789.4	924.1	916.7	7.37	125.316
1,500.0	1,474.9	1,458.9	1,458.9	5.6	3.2	-53.94	-714.1	-789.4	909.2	901.2	8.07	112.683
1,600.0	1,571.9	1,555.9	1,555.9	6.1	3.4	-55.18	-714.1	-789.4	894.8	886.0	8.78	101.962
1,700.0	1,668.9	1,652.9	1,652.9	6.6	3.6	-56.45	-714.1	-789.4	880.8	871.3	9.49	92.774
1,800.0	1,765.9	1,749.9	1,749.9	7.1	3.8	-57.77	-714.1	-789.4	867.3	857.0	10.22	84.832
1,900.0	1,862.8	1,846.8	1,846.8	7.7	4.0	-59.12	-714.1	-789.4	854.2	843.2	10.96	77.916

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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 31-34 (Exist.) - Wellbore #1 - Design #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
2,000.0	1,959.8	1,943.8	1,943.8	8.2	4.3	-60.51	-714.1	-789.4	841.6	829.9	11.71	71.855		
2,100.0	2,056.8	2,040.8	2,040.8	8.7	4.5	-61.95	-714.1	-789.4	829.6	817.1	12.47	66.514		
2,200.0	2,153.8	2,137.8	2,137.8	9.2	4.7	-63.42	-714.1	-789.4	818.2	804.9	13.24	61.785		
2,300.0	2,250.7	2,234.7	2,234.7	9.8	4.9	-64.93	-714.1	-789.4	807.3	793.2	14.02	57.582		
2,400.0	2,347.7	2,331.7	2,331.7	10.3	5.1	-66.48	-714.1	-789.4	797.0	782.2	14.80	53.833		
2,500.0	2,444.7	2,428.7	2,428.7	10.8	5.3	-68.06	-714.1	-789.4	787.3	771.7	15.60	50.479		
2,600.0	2,541.7	2,525.7	2,525.7	11.4	5.6	-69.69	-714.1	-789.4	778.2	761.9	16.39	47.472		
2,700.0	2,638.7	2,622.7	2,622.7	11.9	5.8	-71.34	-714.1	-789.4	769.9	752.7	17.20	44.771		
2,800.0	2,735.6	2,719.6	2,719.6	12.4	6.0	-73.03	-714.1	-789.4	762.2	744.2	18.00	42.341		
2,900.0	2,832.6	2,816.6	2,816.6	13.0	6.2	-74.75	-714.1	-789.4	755.2	736.4	18.81	40.153		
3,000.0	2,929.6	2,913.6	2,913.6	13.5	6.4	-76.50	-714.1	-789.4	749.0	729.4	19.62	38.180		
3,100.0	3,026.6	3,010.6	3,010.6	14.0	6.7	-78.28	-714.1	-789.4	743.5	723.1	20.43	36.402		
3,200.0	3,123.5	3,107.5	3,107.5	14.6	6.9	-80.08	-714.1	-789.4	738.8	717.6	21.23	34.800		
3,300.0	3,220.5	3,204.5	3,204.5	15.1	7.1	-81.90	-714.1	-789.4	734.9	712.8	22.03	33.356		
3,400.0	3,317.5	3,301.5	3,301.5	15.6	7.3	-83.73	-714.1	-789.4	731.7	708.9	22.83	32.056		
3,500.0	3,414.5	3,398.5	3,398.5	16.1	7.5	-85.58	-714.1	-789.4	729.4	705.8	23.61	30.887		
3,600.0	3,511.4	3,495.4	3,495.4	16.7	7.7	-87.44	-714.1	-789.4	727.8	703.5	24.39	29.838		
3,700.0	3,608.4	3,592.4	3,592.4	17.2	8.0	-89.30	-714.1	-789.4	727.1	702.0	25.16	28.899		
3,737.5	3,644.7	3,628.7	3,628.7	17.4	8.0	-90.00	-714.1	-789.4	727.1	701.6	25.45	28.573		
3,800.0	3,705.4	3,689.4	3,689.4	17.7	8.2	-91.17	-714.1	-789.4	727.2	701.3	25.92	28.059		
3,900.0	3,802.4	3,786.4	3,786.4	18.3	8.4	-93.03	-714.1	-789.4	728.2	701.5	26.66	27.311		
4,000.0	3,899.4	3,883.4	3,883.4	18.8	8.6	-94.88	-714.1	-789.4	729.9	702.5	27.39	26.647		
4,100.0	3,996.3	3,980.3	3,980.3	19.3	8.8	-96.73	-714.1	-789.4	732.4	704.3	28.11	26.060		
4,200.0	4,093.3	4,077.3	4,077.3	19.9	9.1	-98.56	-714.1	-789.4	735.8	707.0	28.80	25.544		
4,300.0	4,190.3	4,174.3	4,174.3	20.4	9.3	-100.37	-714.1	-789.4	739.9	710.4	29.49	25.094		
4,400.0	4,287.3	4,271.3	4,271.3	20.9	9.5	-102.17	-714.1	-789.4	744.8	714.7	30.15	24.704		
4,414.1	4,301.0	4,285.0	4,285.0	21.0	9.5	-102.42	-714.1	-789.4	745.6	715.3	30.24	24.653		
4,500.0	4,384.5	4,368.5	4,368.5	21.4	9.7	-103.94	-714.1	-789.4	750.2	719.5	30.73	24.415		
4,600.0	4,482.6	4,466.6	4,466.6	21.7	9.9	-105.47	-714.1	-789.4	755.3	724.1	31.18	24.222		
4,700.0	4,581.2	4,565.2	4,565.2	22.0	10.1	-106.73	-714.1	-789.4	759.9	728.3	31.60	24.045		
4,800.0	4,680.4	4,664.4	4,664.4	22.3	10.4	-107.72	-714.1	-789.4	763.7	731.8	31.99	23.873		
4,900.0	4,779.9	4,763.9	4,763.9	22.5	10.6	-108.45	-714.1	-789.4	766.7	734.3	32.35	23.697		
5,000.0	4,879.7	4,863.7	4,863.7	22.6	10.8	-108.90	-714.1	-789.4	768.6	735.9	32.69	23.510		
5,100.0	4,979.7	4,963.7	4,963.7	22.7	11.0	-109.09	-714.1	-789.4	769.4	736.4	33.01	23.308		
5,120.3	5,000.0	4,984.0	4,984.0	22.7	11.1	161.86	-714.1	-789.4	769.4	736.3	33.08	23.263		
5,200.0	5,079.7	5,063.7	5,063.7	22.8	11.3	161.86	-714.1	-789.4	769.4	736.1	33.33	23.082		
5,300.0	5,179.7	5,163.7	5,163.7	22.9	11.5	161.86	-714.1	-789.4	769.4	735.7	33.66	22.855		
5,400.0	5,279.7	5,263.7	5,263.7	23.0	11.7	161.86	-714.1	-789.4	769.4	735.4	34.00	22.631		
5,500.0	5,379.7	5,363.7	5,363.7	23.1	11.9	161.86	-714.1	-789.4	769.4	735.1	34.33	22.411		
5,600.0	5,479.7	5,463.7	5,463.7	23.2	12.2	161.86	-714.1	-789.4	769.4	734.7	34.67	22.193		
5,700.0	5,579.7	5,563.7	5,563.7	23.4	12.4	161.86	-714.1	-789.4	769.4	734.4	35.01	21.979		
5,800.0	5,679.7	5,663.7	5,663.7	23.5	12.6	161.86	-714.1	-789.4	769.4	734.1	35.35	21.768		
5,900.0	5,779.7	5,763.7	5,763.7	23.6	12.8	161.86	-714.1	-789.4	769.4	733.7	35.69	21.559		
6,000.0	5,879.7	5,863.7	5,863.7	23.7	13.1	161.86	-714.1	-789.4	769.4	733.4	36.03	21.354		
6,100.0	5,979.7	5,963.7	5,963.7	23.8	13.3	161.86	-714.1	-789.4	769.4	733.0	36.38	21.152		
6,200.0	6,079.7	6,063.7	6,063.7	23.9	13.5	161.86	-714.1	-789.4	769.4	732.7	36.72	20.953		
6,300.0	6,179.7	6,163.7	6,163.7	24.1	13.7	161.86	-714.1	-789.4	769.4	732.3	37.07	20.756		
6,311.2	6,190.9	6,174.9	6,174.9	24.1	13.8	161.86	-714.1	-789.4	769.4	732.3	37.11	20.734		
6,350.0	6,229.7	6,213.7	6,213.7	24.1	13.9	-18.15	-714.1	-789.4	768.5	731.3	37.17	20.675		
6,400.0	6,279.5	6,263.5	6,263.5	24.2	14.0	-18.34	-714.1	-789.4	764.5	727.4	37.13	20.591		
6,450.0	6,328.9	6,312.9	6,312.9	24.2	14.1	-18.69	-714.1	-789.4	757.5	720.5	36.96	20.496		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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 31-34 (Exist.) - Wellbore #1 - Design #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	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
6,500.0	6,377.8	6,361.8	6,361.8	24.3	14.2	-19.20	-714.1	-789.4	747.4	710.7	36.65	20.390		
6,550.0	6,425.8	6,409.8	6,409.8	24.3	14.3	-19.90	-714.1	-789.4	734.3	698.1	36.23	20.269		
6,600.0	6,472.9	6,456.9	6,456.9	24.4	14.4	-20.80	-714.1	-789.4	718.3	682.6	35.68	20.131		
6,650.0	6,518.7	6,502.7	6,502.7	24.4	14.5	-21.94	-714.1	-789.4	699.5	664.5	35.03	19.969		
6,700.0	6,563.1	6,547.1	6,547.1	24.5	14.6	-23.35	-714.1	-789.4	678.0	643.7	34.29	19.774		
6,750.0	6,606.0	6,590.0	6,590.0	24.6	14.7	-25.08	-714.1	-789.4	654.0	620.5	33.48	19.534		
6,800.0	6,647.0	6,631.0	6,631.0	24.7	14.8	-27.20	-714.1	-789.4	627.5	594.9	32.63	19.231		
6,850.0	6,686.1	6,670.1	6,670.1	24.8	14.9	-29.77	-714.1	-789.4	598.8	567.0	31.79	18.837		
6,900.0	6,723.1	6,707.1	6,707.1	24.9	15.0	-32.89	-714.1	-789.4	568.2	537.1	31.02	18.318		
6,950.0	6,757.8	6,741.8	6,741.8	25.0	15.0	-36.66	-714.1	-789.4	535.7	505.3	30.39	17.630		
7,000.0	6,790.1	6,774.1	6,774.1	25.1	15.1	-41.15	-714.1	-789.4	501.9	471.9	30.00	16.731		
7,050.0	6,819.8	6,803.8	6,803.8	25.2	15.2	-46.41	-714.1	-789.4	466.9	437.0	29.94	15.597		
7,100.0	6,846.8	6,830.8	6,830.8	25.4	15.2	-52.42	-714.1	-789.4	431.3	401.1	30.27	14.250		
7,150.0	6,871.0	6,855.0	6,855.0	25.6	15.3	-59.03	-714.1	-789.4	395.7	364.7	30.97	12.774		
7,200.0	6,892.3	6,876.3	6,876.3	25.8	15.3	-65.90	-714.1	-789.4	360.7	328.7	31.94	11.291		
7,250.0	6,910.6	6,894.6	6,894.6	26.1	15.4	-72.61	-714.1	-789.4	327.3	294.3	33.00	9.917		
7,300.0	6,925.8	6,909.8	6,909.8	26.3	15.4	-78.65	-714.1	-789.4	296.8	262.8	34.00	8.729		
7,350.0	6,937.9	6,921.9	6,921.9	26.6	15.4	-83.64	-714.1	-789.4	270.9	236.0	34.89	7.766		
7,400.0	6,946.7	6,930.7	6,930.7	27.0	15.5	-87.29	-714.1	-789.4	251.6	215.9	35.65	7.056		
7,450.0	6,952.4	6,936.4	6,936.4	27.4	15.5	-89.45	-714.1	-789.4	240.8	204.5	36.36	6.624		
7,478.5	6,954.1	6,938.1	6,938.1	27.6	15.5	-90.00	-714.1	-789.4	239.1	202.4	36.74	6.509 CC, ES		
7,500.0	6,954.7	6,938.7	6,938.7	27.8	15.5	-90.08	-714.1	-789.4	240.1	203.1	37.01	6.488 SF		
7,516.5	6,954.8	6,938.8	6,938.8	27.9	15.5	-89.94	-714.1	-789.4	242.1	204.9	37.21	6.507		
7,600.0	6,954.2	6,938.2	6,938.2	28.7	15.5	-89.80	-714.1	-789.4	268.2	229.9	38.29	7.004		
7,700.0	6,953.5	6,937.5	6,937.5	29.7	15.5	-89.63	-714.1	-789.4	325.9	286.3	39.67	8.217		
7,800.0	6,952.8	6,936.8	6,936.8	30.8	15.5	-89.46	-714.1	-789.4	400.7	359.5	41.11	9.746		
7,900.0	6,952.1	6,936.1	6,936.1	32.0	15.5	-89.30	-714.1	-789.4	484.6	442.0	42.61	11.373		
8,000.0	6,951.4	6,935.4	6,935.4	33.3	15.5	-89.13	-714.1	-789.4	573.7	529.5	44.16	12.991		
8,100.0	6,950.7	6,934.7	6,934.7	34.6	15.5	-88.96	-714.1	-789.4	665.9	620.1	45.75	14.555		
8,200.0	6,950.0	6,934.0	6,934.0	36.1	15.5	-88.79	-714.1	-789.4	760.1	712.7	47.38	16.043		
8,300.0	6,949.3	6,933.3	6,933.3	37.5	15.5	-88.63	-714.1	-789.4	855.6	806.5	49.03	17.449		
8,400.0	6,948.6	6,932.6	6,932.6	39.0	15.5	-88.46	-714.1	-789.4	952.0	901.3	50.71	18.772		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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 32-34 (Exist.) - Wellbore #1 - Design #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
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
8,000.0	6,951.4	6,917.4	6,917.4	33.3	15.4	-102.98	-2,215.0	-997.9	979.8	935.8	44.05	22.242	
8,100.0	6,950.7	6,916.7	6,916.7	34.6	15.4	-101.69	-2,215.0	-997.9	879.9	834.2	45.72	19.245	
8,200.0	6,950.0	6,916.0	6,916.0	36.1	15.4	-100.39	-2,215.0	-997.9	780.0	732.5	47.42	16.449	
8,300.0	6,949.3	6,915.3	6,915.3	37.5	15.4	-99.08	-2,215.0	-997.9	680.0	630.9	49.14	13.840	
8,400.0	6,948.6	6,914.6	6,914.6	39.0	15.4	-97.76	-2,215.0	-997.9	580.2	529.3	50.87	11.405	
8,500.0	6,947.9	6,913.9	6,913.9	40.6	15.4	-96.44	-2,215.0	-997.9	480.3	427.7	52.61	9.129	
8,600.0	6,947.2	6,913.2	6,913.2	42.1	15.4	-95.10	-2,215.0	-997.9	380.6	326.2	54.36	7.000	
8,700.0	6,946.5	6,912.5	6,912.5	43.8	15.4	-93.76	-2,215.0	-997.9	281.0	224.9	56.11	5.007	
8,800.0	6,945.8	6,911.8	6,911.8	45.4	15.4	-92.42	-2,215.0	-997.9	181.8	124.0	57.85	3.143	
8,900.0	6,945.1	6,911.1	6,911.1	47.0	15.4	-91.07	-2,215.0	-997.9	84.8	25.2	59.59	1.423 Level 3	
8,979.4	6,944.6	6,910.6	6,910.6	48.4	15.4	-90.00	-2,215.0	-997.9	29.7	-31.3	60.96	0.487 Level 1, CC, ES, SF	
9,000.0	6,944.4	6,910.4	6,910.4	48.7	15.4	-89.72	-2,215.0	-997.9	36.1	-25.2	61.31	0.589 Level 1	
9,100.0	6,943.7	6,909.7	6,909.7	50.4	15.4	-88.37	-2,215.0	-997.9	124.2	61.2	63.01	1.971	
9,200.0	6,943.0	6,909.0	6,909.0	52.1	15.4	-87.03	-2,215.0	-997.9	222.6	157.9	64.69	3.440	
9,300.0	6,942.3	6,908.3	6,908.3	53.9	15.4	-85.69	-2,215.0	-997.9	321.9	255.6	66.35	4.852	
9,400.0	6,941.6	6,907.6	6,907.6	55.6	15.4	-84.35	-2,215.0	-997.9	421.6	353.6	67.98	6.202	
9,500.0	6,941.0	6,907.0	6,907.0	57.4	15.4	-83.02	-2,215.0	-997.9	521.4	451.8	69.58	7.493	
9,600.0	6,940.3	6,906.3	6,906.3	59.1	15.4	-81.69	-2,215.0	-997.9	621.3	550.1	71.15	8.732	
9,700.0	6,939.6	6,905.6	6,905.6	60.9	15.4	-80.38	-2,215.0	-997.9	721.2	648.5	72.69	9.921	
9,800.0	6,938.9	6,904.9	6,904.9	62.7	15.4	-79.07	-2,215.0	-997.9	821.1	746.9	74.19	11.068	
9,900.0	6,938.2	6,904.2	6,904.2	64.5	15.4	-77.78	-2,215.0	-997.9	921.0	845.4	75.65	12.174	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	30.6	30.6					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	30.6	30.6	30.4	0.22	136.030		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	30.6	30.6	29.9	0.67	45.343 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	179.10	0.0	30.6	32.3	31.2	1.12	28.854		
400.0	399.8	399.8	399.8	0.8	0.8	179.22	0.0	30.6	37.6	36.0	1.57	23.941		
500.0	499.5	499.5	499.5	1.0	1.0	179.37	0.0	30.6	46.3	44.2	2.02	22.873		
600.0	598.7	598.7	598.7	1.3	1.2	179.50	0.0	30.6	58.5	56.0	2.48	23.569		
700.0	697.5	697.5	697.5	1.7	1.5	179.60	0.0	30.6	74.1	71.2	2.94	25.203		
800.0	795.6	795.6	795.6	2.0	1.7	179.68	0.0	30.6	93.2	89.8	3.40	27.388		
906.1	899.0	899.0	899.0	2.5	1.9	179.74	0.0	30.6	117.2	113.3	3.90	30.077		
1,000.0	990.0	990.0	990.0	3.0	2.1	179.79	0.0	30.6	140.1	135.7	4.34	32.306		
1,100.0	1,087.0	1,092.2	1,092.2	3.5	2.3	179.88	-0.2	29.1	163.1	158.3	4.80	33.970		
1,200.0	1,184.0	1,196.6	1,196.4	4.0	2.5	-179.90	-0.7	23.9	182.6	177.3	5.26	34.733		
1,300.0	1,281.0	1,302.3	1,301.7	4.5	2.8	-179.57	-1.7	14.7	198.5	192.8	5.73	34.651		
1,400.0	1,377.9	1,409.1	1,407.7	5.0	3.0	-179.15	-3.1	1.6	210.9	204.6	6.22	33.903		
1,500.0	1,474.9	1,514.5	1,511.8	5.6	3.3	-178.64	-4.9	-15.1	219.6	212.9	6.72	32.684		
1,600.0	1,571.9	1,614.2	1,610.0	6.1	3.6	-178.16	-6.8	-31.9	227.4	220.2	7.22	31.483		
1,700.0	1,668.9	1,713.9	1,708.2	6.6	3.9	-177.70	-8.6	-48.7	235.2	227.5	7.73	30.412		
1,800.0	1,765.9	1,813.5	1,806.5	7.1	4.3	-177.28	-10.4	-65.5	243.1	234.8	8.25	29.451		
1,900.0	1,862.8	1,913.2	1,904.7	7.7	4.6	-176.89	-12.2	-82.3	250.9	242.1	8.77	28.595		
2,000.0	1,959.8	2,012.9	2,002.9	8.2	5.0	-176.51	-14.0	-99.1	258.7	249.4	9.30	27.817		
2,100.0	2,056.8	2,112.6	2,101.2	8.7	5.3	-176.16	-15.9	-115.9	266.6	256.8	9.83	27.111		
2,200.0	2,153.8	2,212.2	2,199.4	9.2	5.7	-175.83	-17.7	-132.7	274.4	264.1	10.37	26.470		
2,300.0	2,250.7	2,311.9	2,297.6	9.8	6.1	-175.52	-19.5	-149.5	282.3	271.4	10.91	25.884		
2,400.0	2,347.7	2,411.6	2,395.9	10.3	6.4	-175.23	-21.3	-166.3	290.2	278.8	11.45	25.347		
2,500.0	2,444.7	2,511.3	2,494.1	10.8	6.8	-174.95	-23.1	-183.1	298.1	286.1	11.99	24.853		
2,600.0	2,541.7	2,611.0	2,592.3	11.4	7.2	-174.68	-25.0	-199.9	306.0	293.4	12.54	24.397		
2,700.0	2,638.7	2,710.6	2,690.6	11.9	7.6	-174.43	-26.8	-216.7	313.9	300.8	13.09	23.976		
2,800.0	2,735.6	2,810.3	2,788.8	12.4	7.9	-174.19	-28.6	-233.5	321.8	308.1	13.64	23.586		
2,900.0	2,832.6	2,910.0	2,887.1	13.0	8.3	-173.96	-30.4	-250.3	329.7	315.5	14.20	23.223		
3,000.0	2,929.6	3,009.7	2,985.3	13.5	8.7	-173.75	-32.2	-267.1	337.6	322.9	14.75	22.884		
3,100.0	3,026.6	3,109.3	3,083.5	14.0	9.1	-173.54	-34.0	-283.9	345.5	330.2	15.31	22.568		
3,200.0	3,123.5	3,209.0	3,181.8	14.6	9.5	-173.34	-35.9	-300.7	353.5	337.6	15.87	22.272		
3,300.0	3,220.5	3,308.7	3,280.0	15.1	9.9	-173.15	-37.7	-317.5	361.4	345.0	16.43	21.995		
3,400.0	3,317.5	3,408.4	3,378.2	15.6	10.3	-172.97	-39.5	-334.3	369.3	352.3	16.99	21.734		
3,500.0	3,414.5	3,508.1	3,476.5	16.1	10.6	-172.80	-41.3	-351.1	377.3	359.7	17.56	21.489		
3,600.0	3,511.4	3,607.7	3,574.7	16.7	11.0	-172.63	-43.1	-367.9	385.2	367.1	18.12	21.257		
3,700.0	3,608.4	3,707.4	3,672.9	17.2	11.4	-172.47	-45.0	-384.7	393.1	374.4	18.69	21.038		
3,800.0	3,705.4	3,807.1	3,771.2	17.7	11.8	-172.32	-46.8	-401.5	401.1	381.8	19.25	20.832		
3,900.0	3,802.4	3,906.8	3,869.4	18.3	12.2	-172.17	-48.6	-418.3	409.0	389.2	19.82	20.636		
4,000.0	3,899.4	4,006.5	3,967.6	18.8	12.6	-172.03	-50.4	-435.1	417.0	396.6	20.39	20.450		
4,100.0	3,996.3	4,106.1	4,065.9	19.3	13.0	-171.89	-52.2	-451.9	424.9	404.0	20.96	20.274		
4,200.0	4,093.3	4,205.8	4,164.1	19.9	13.4	-171.76	-54.1	-468.7	432.9	411.4	21.53	20.106		
4,300.0	4,190.3	4,305.5	4,262.4	20.4	13.8	-171.63	-55.9	-485.5	440.8	418.7	22.10	19.946		
4,400.0	4,287.3	4,405.2	4,360.6	20.9	14.2	-171.51	-57.7	-502.3	448.8	426.1	22.67	19.794		
4,414.1	4,301.0	4,419.3	4,374.5	21.0	14.2	-171.50	-57.9	-504.7	449.9	427.2	22.76	19.773		
4,500.0	4,384.5	4,504.9	4,458.9	21.4	14.6	-171.39	-59.5	-519.1	455.5	432.2	23.25	19.591		
4,600.0	4,482.6	4,600.0	4,552.6	21.7	14.9	-171.21	-61.2	-534.9	459.1	435.3	23.75	19.330		
4,700.0	4,581.2	4,685.6	4,637.4	22.0	15.1	-171.07	-62.5	-546.9	461.6	437.5	24.14	19.124		
4,800.0	4,680.4	4,772.1	4,723.4	22.3	15.3	-170.97	-63.6	-556.5	463.6	439.2	24.48	18.940		
4,900.0	4,779.9	4,858.7	4,809.6	22.5	15.5	-170.89	-64.3	-563.5	465.1	440.4	24.77	18.776		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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	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	
5,000.0	4,879.7	4,945.2	4,896.0	22.6	15.7	-170.84	-64.8	-567.9	466.1	441.0	25.01	18.632		
5,100.0	4,979.7	5,031.6	4,982.5	22.7	15.8	-170.82	-65.0	-569.8	466.4	441.2	25.21	18.503		
5,120.3	5,000.0	5,049.2	5,000.0	22.7	15.8	100.14	-65.0	-569.8	466.5	441.2	25.25	18.474		
5,146.9	5,026.6	5,075.8	5,026.6	22.8	15.8	100.14	-65.0	-569.8	466.5	441.1	25.34	18.408		
5,200.0	5,079.7	5,128.9	5,079.7	22.8	15.9	100.14	-65.0	-569.8	466.5	440.9	25.52	18.276		
5,300.0	5,179.7	5,228.9	5,179.7	22.9	16.1	100.14	-65.0	-569.8	466.5	440.6	25.87	18.031		
5,400.0	5,279.7	5,328.9	5,279.7	23.0	16.2	100.14	-65.0	-569.8	466.5	440.2	26.22	17.790		
5,500.0	5,379.7	5,428.9	5,379.7	23.1	16.4	100.14	-65.0	-569.8	466.5	439.9	26.57	17.553		
5,600.0	5,479.7	5,528.9	5,479.7	23.2	16.5	100.14	-65.0	-569.8	466.5	439.5	26.93	17.320		
5,700.0	5,579.7	5,628.9	5,579.7	23.4	16.7	100.14	-65.0	-569.8	466.5	439.2	27.29	17.092		
5,800.0	5,679.7	5,728.9	5,679.7	23.5	16.8	100.14	-65.0	-569.8	466.5	438.8	27.65	16.869		
5,900.0	5,779.7	5,828.9	5,779.7	23.6	17.0	100.14	-65.0	-569.8	466.5	438.4	28.02	16.649		
6,000.0	5,879.7	5,928.9	5,879.7	23.7	17.1	100.14	-65.0	-569.8	466.5	438.1	28.38	16.434		
6,100.0	5,979.7	6,028.9	5,979.7	23.8	17.3	100.14	-65.0	-569.8	466.5	437.7	28.75	16.223		
6,200.0	6,079.7	6,128.9	6,079.7	23.9	17.5	100.14	-65.0	-569.8	466.5	437.3	29.12	16.016		
6,300.0	6,179.7	6,228.9	6,179.7	24.1	17.6	100.14	-65.0	-569.8	466.5	437.0	29.50	15.814		
6,311.2	6,190.9	6,240.1	6,190.9	24.1	17.6	100.14	-65.0	-569.8	466.5	436.9	29.54	15.791		
6,350.0	6,229.7	6,278.9	6,229.7	24.1	17.7	-79.96	-65.0	-569.8	466.3	436.7	29.63	15.736		
6,400.0	6,279.5	6,328.7	6,279.5	24.2	17.8	-80.52	-65.0	-569.8	465.6	435.9	29.72	15.666		
6,450.0	6,328.9	6,378.1	6,328.9	24.2	17.9	-81.50	-65.0	-569.8	464.4	434.6	29.78	15.595		
6,500.0	6,377.8	6,423.9	6,374.7	24.3	17.9	-82.66	-66.0	-569.8	463.1	433.2	29.84	15.521		
6,550.0	6,425.8	6,469.6	6,420.3	24.3	18.0	-83.86	-69.7	-569.8	461.9	432.0	29.92	15.437		
6,600.0	6,472.9	6,515.9	6,466.0	24.4	18.1	-85.09	-76.3	-569.8	460.9	430.8	30.04	15.344		
6,650.0	6,518.7	6,562.7	6,511.8	24.4	18.2	-86.35	-85.7	-569.8	460.1	429.9	30.19	15.241		
6,700.0	6,563.1	6,610.0	6,557.6	24.5	18.3	-87.63	-98.1	-569.8	459.5	429.1	30.37	15.131		
6,750.0	6,606.0	6,658.0	6,603.0	24.6	18.4	-88.93	-113.5	-569.8	459.2	428.6	30.59	15.012		
6,793.0	6,641.4	6,699.8	6,641.7	24.7	18.4	-90.07	-129.2	-569.8	459.1	428.3	30.80	14.904		
6,800.0	6,647.0	6,706.6	6,648.0	24.7	18.5	-90.25	-132.0	-569.8	459.1	428.2	30.84	14.886		
6,850.0	6,686.1	6,755.9	6,692.3	24.8	18.6	-91.57	-153.6	-569.8	459.2	428.1	31.13	14.751		
6,900.0	6,723.1	6,806.0	6,735.7	24.9	18.7	-92.90	-178.4	-569.8	459.7	428.2	31.47	14.607		
6,950.0	6,757.8	6,856.7	6,778.0	25.0	18.9	-94.21	-206.4	-569.8	460.3	428.5	31.85	14.451		
7,000.0	6,790.1	6,908.3	6,819.0	25.1	19.0	-95.52	-237.7	-569.8	461.3	429.0	32.30	14.282		
7,050.0	6,819.8	6,960.6	6,858.3	25.2	19.2	-96.81	-272.2	-569.8	462.4	429.6	32.81	14.095		
7,100.0	6,846.8	7,013.8	6,895.8	25.4	19.4	-98.08	-309.9	-569.8	463.8	430.4	33.39	13.889		
7,150.0	6,871.0	7,067.8	6,931.0	25.6	19.7	-99.31	-350.8	-569.8	465.3	431.3	34.07	13.660		
7,200.0	6,892.3	7,122.7	6,963.8	25.8	20.0	-100.51	-394.8	-569.8	467.0	432.2	34.84	13.406		
7,250.0	6,910.6	7,178.5	6,993.8	26.1	20.3	-101.66	-441.8	-569.8	468.9	433.2	35.72	13.128		
7,300.0	6,925.8	7,235.1	7,020.7	26.3	20.7	-102.76	-491.7	-569.8	470.9	434.1	36.72	12.824		
7,350.0	6,937.9	7,292.6	7,044.1	26.6	21.1	-103.81	-544.2	-569.8	472.9	435.0	37.84	12.497		
7,400.0	6,946.7	7,351.0	7,063.8	27.0	21.7	-104.79	-599.2	-569.8	474.9	435.8	39.09	12.150		
7,450.0	6,952.4	7,410.2	7,079.4	27.4	22.2	-105.70	-656.3	-569.8	476.9	436.4	40.46	11.786		
7,500.0	6,954.7	7,470.3	7,090.6	27.8	22.9	-106.54	-715.2	-569.8	478.9	436.9	41.96	11.412		
7,516.5	6,954.8	7,490.2	7,093.4	27.9	23.1	-106.79	-735.0	-569.8	479.5	437.0	42.48	11.287		
7,600.0	6,954.2	7,575.8	7,102.4	28.7	24.1	-107.90	-820.1	-569.8	482.2	437.7	44.52	10.832		
7,700.0	6,953.5	7,690.6	7,109.0	29.7	25.5	-108.72	-934.6	-569.8	484.2	436.9	47.30	10.237		
7,800.0	6,952.8	7,791.8	7,108.9	30.8	26.9	-108.80	-1,035.8	-569.8	484.3	434.2	50.11	9.665		
7,900.0	6,952.1	7,891.8	7,108.8	32.0	28.3	-108.87	-1,135.8	-569.8	484.5	431.5	53.01	9.139		
8,000.0	6,951.4	7,991.8	7,108.7	33.3	29.8	-108.94	-1,235.8	-569.8	484.6	428.6	56.00	8.654		
8,100.0	6,950.7	8,091.8	7,108.6	34.6	31.3	-109.01	-1,335.8	-569.8	484.7	425.7	59.06	8.208		
8,200.0	6,950.0	8,191.8	7,108.5	36.1	32.9	-109.08	-1,435.8	-569.8	484.9	422.7	62.18	7.798		
8,300.0	6,949.3	8,291.8	7,108.4	37.5	34.5	-109.15	-1,535.8	-569.8	485.0	419.7	65.35	7.421		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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
8,400.0	6,948.6	8,391.8	7,108.3	39.0	36.1	-109.22	-109.22	-1,635.8	-569.8	485.2	416.6	68.57	7.075	
8,500.0	6,947.9	8,491.8	7,108.2	40.6	37.8	-109.28	-109.28	-1,735.8	-569.8	485.3	413.5	71.83	6.756	
8,600.0	6,947.2	8,591.8	7,108.1	42.1	39.5	-109.35	-109.35	-1,835.8	-569.8	485.4	410.3	75.13	6.462	
8,700.0	6,946.5	8,691.8	7,108.0	43.8	41.2	-109.42	-109.42	-1,935.8	-569.9	485.6	407.1	78.45	6.190	
8,800.0	6,945.8	8,791.8	7,107.9	45.4	42.9	-109.49	-109.49	-2,035.8	-569.9	485.7	403.9	81.79	5.938	
8,900.0	6,945.1	8,891.8	7,107.8	47.0	44.7	-109.56	-109.56	-2,135.8	-569.9	485.8	400.7	85.16	5.705	
9,000.0	6,944.4	8,991.8	7,107.7	48.7	46.4	-109.63	-109.63	-2,235.8	-569.9	486.0	397.4	88.55	5.488	
9,100.0	6,943.7	9,091.8	7,107.6	50.4	48.2	-109.70	-109.70	-2,335.8	-569.9	486.1	394.2	91.95	5.287	
9,200.0	6,943.0	9,191.8	7,107.5	52.1	50.0	-109.77	-109.77	-2,435.8	-569.9	486.3	390.9	95.37	5.099	
9,300.0	6,942.3	9,291.8	7,107.4	53.9	51.8	-109.84	-109.84	-2,535.8	-569.9	486.4	387.6	98.80	4.923	
9,400.0	6,941.6	9,391.7	7,107.3	55.6	53.6	-109.91	-109.91	-2,635.8	-569.9	486.6	384.3	102.24	4.759	
9,500.0	6,941.0	9,491.7	7,107.2	57.4	55.4	-109.98	-109.98	-2,735.8	-569.9	486.7	381.0	105.69	4.605	
9,600.0	6,940.3	9,591.7	7,107.1	59.1	57.2	-110.05	-110.05	-2,835.8	-569.9	486.8	377.7	109.14	4.461	
9,700.0	6,939.6	9,691.7	7,107.0	60.9	59.0	-110.12	-110.12	-2,935.8	-569.9	487.0	374.4	112.61	4.325	
9,800.0	6,938.9	9,791.7	7,106.9	62.7	60.9	-110.18	-110.18	-3,035.8	-569.9	487.1	371.1	116.08	4.196	
9,900.0	6,938.2	9,891.7	7,106.8	64.5	62.7	-110.25	-110.25	-3,135.8	-569.9	487.3	367.7	119.56	4.076	
10,000.0	6,937.5	9,991.7	7,106.7	66.3	64.5	-110.32	-110.32	-3,235.8	-569.9	487.4	364.4	123.04	3.961	
10,100.0	6,936.8	10,091.7	7,106.6	68.1	66.4	-110.39	-110.39	-3,335.8	-569.9	487.6	361.0	126.53	3.854	
10,200.0	6,936.1	10,191.7	7,106.5	69.9	68.2	-110.46	-110.46	-3,435.8	-569.9	487.7	357.7	130.02	3.751	
10,300.0	6,935.4	10,291.7	7,106.4	71.7	70.1	-110.53	-110.53	-3,535.8	-569.9	487.9	354.4	133.51	3.654	
10,400.0	6,934.7	10,391.7	7,106.4	73.5	71.9	-110.60	-110.60	-3,635.8	-569.9	488.0	351.0	137.01	3.562	
10,500.0	6,934.0	10,491.7	7,106.3	75.4	73.8	-110.67	-110.67	-3,735.8	-569.9	488.2	347.7	140.51	3.474	
10,600.0	6,933.3	10,591.7	7,106.2	77.2	75.7	-110.73	-110.73	-3,835.8	-569.9	488.3	344.3	144.00	3.391	
10,700.0	6,932.6	10,691.7	7,106.1	79.0	77.5	-110.80	-110.80	-3,935.8	-569.9	488.5	341.0	147.51	3.312	
10,800.0	6,931.9	10,791.7	7,106.0	80.9	79.4	-110.87	-110.87	-4,035.8	-569.9	488.6	337.6	151.01	3.236	
10,900.0	6,931.2	10,891.7	7,105.9	82.7	81.3	-110.94	-110.94	-4,135.8	-569.9	488.8	334.3	154.51	3.163	
11,000.0	6,930.5	10,991.7	7,105.8	84.6	83.2	-111.01	-111.01	-4,235.8	-569.9	488.9	330.9	158.02	3.094	
11,100.0	6,929.8	11,091.7	7,105.7	86.4	85.0	-111.08	-111.08	-4,335.8	-569.9	489.1	327.6	161.52	3.028	
11,200.0	6,929.1	11,191.7	7,105.6	88.3	86.9	-111.15	-111.15	-4,435.8	-569.9	489.3	324.2	165.02	2.965	
11,300.0	6,928.4	11,291.7	7,105.5	90.2	88.8	-111.21	-111.21	-4,535.8	-569.9	489.4	320.9	168.53	2.904	
11,400.0	6,927.7	11,391.7	7,105.4	92.0	90.7	-111.28	-111.28	-4,635.8	-569.9	489.6	317.5	172.03	2.846	
11,500.0	6,927.0	11,491.7	7,105.3	93.9	92.6	-111.35	-111.35	-4,735.8	-569.9	489.7	314.2	175.54	2.790	
11,600.0	6,926.3	11,591.7	7,105.2	95.7	94.5	-111.42	-111.42	-4,835.8	-569.9	489.9	310.8	179.04	2.736	
11,700.0	6,925.6	11,691.7	7,105.1	97.6	96.3	-111.49	-111.49	-4,935.8	-569.9	490.0	307.5	182.54	2.685	
11,784.7	6,925.0	11,776.3	7,105.0	99.2	97.9	-111.54	-111.54	-5,020.3	-569.9	490.2	304.7	185.50	2.642	
11,785.5	6,925.0	11,776.3	7,105.0	99.3	97.9	-111.54	-111.54	-5,020.3	-569.9	490.2	304.7	185.51	2.642 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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-223 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	88.29	88.29	3.6	122.3	122.4				
100.0	100.0	100.0	100.0	0.1	0.1	88.29	88.29	3.6	122.3	122.4	122.1	0.22	544.362	
200.0	200.0	200.0	200.0	0.3	0.3	88.29	88.29	3.6	122.3	122.4	121.7	0.67	181.454 CC, ES	
300.0	300.0	300.0	300.0	0.6	0.6	177.38	177.38	3.6	122.3	124.1	123.0	1.12	110.790	
400.0	399.8	399.8	399.8	0.8	0.8	177.48	177.48	3.6	122.3	129.3	127.8	1.57	82.453	
500.0	499.5	499.5	499.5	1.0	1.0	177.63	177.63	3.6	122.3	138.0	136.0	2.02	68.245	
600.0	598.7	598.7	598.7	1.3	1.2	177.81	177.81	3.6	122.3	150.2	147.7	2.48	60.572	
700.0	697.5	697.5	697.5	1.7	1.5	178.01	178.01	3.6	122.3	165.8	162.9	2.94	56.418	
800.0	795.6	795.6	795.6	2.0	1.7	178.20	178.20	3.6	122.3	184.9	181.5	3.40	54.361	
906.1	899.0	899.0	899.0	2.5	1.9	178.39	178.39	3.6	122.3	208.9	205.0	3.89	53.633	
1,000.0	990.0	990.0	990.0	3.0	2.1	178.55	178.55	3.6	122.3	231.8	227.4	4.33	53.472	
1,100.0	1,087.0	1,087.0	1,087.0	3.5	2.3	178.69	178.69	3.6	122.3	256.2	251.4	4.81	53.272	
1,200.0	1,184.0	1,184.0	1,184.0	4.0	2.5	178.80	178.80	3.6	122.3	280.6	275.3	5.29	53.067 SF	
1,300.0	1,281.0	1,273.2	1,273.2	4.5	2.7	178.88	178.88	3.7	123.2	306.0	300.3	5.75	53.246	
1,400.0	1,377.9	1,359.5	1,359.4	5.0	2.9	178.90	178.90	4.0	126.7	334.3	328.1	6.20	53.900	
1,500.0	1,474.9	1,444.2	1,443.9	5.6	3.1	178.88	178.88	4.5	132.7	365.4	358.8	6.66	54.911	
1,600.0	1,571.9	1,527.2	1,526.5	6.1	3.3	178.84	178.84	5.2	140.9	399.3	392.2	7.11	56.196	
1,700.0	1,668.9	1,609.6	1,608.3	6.6	3.5	178.77	178.77	6.1	151.4	435.9	428.4	7.56	57.683	
1,800.0	1,765.9	1,702.3	1,700.0	7.1	3.7	178.70	178.70	7.2	164.3	473.6	465.5	8.02	59.018	
1,900.0	1,862.8	1,794.9	1,791.7	7.7	4.0	178.64	178.64	8.3	177.2	511.2	502.7	8.49	60.238	
2,000.0	1,959.8	1,887.6	1,883.5	8.2	4.2	178.59	178.59	9.4	190.1	548.9	539.9	8.95	61.309	
2,100.0	2,056.8	1,980.2	1,975.2	8.7	4.5	178.54	178.54	10.5	202.9	586.5	577.1	9.42	62.262	
2,200.0	2,153.8	2,072.9	2,066.9	9.2	4.8	178.50	178.50	11.6	215.8	624.1	614.3	9.89	63.085	
2,300.0	2,250.7	2,165.5	2,158.7	9.8	5.1	178.46	178.46	12.7	228.7	661.8	651.4	10.37	63.839	
2,400.0	2,347.7	2,258.1	2,250.4	10.3	5.4	178.43	178.43	13.8	241.6	699.4	688.6	10.84	64.511	
2,500.0	2,444.7	2,350.8	2,342.1	10.8	5.6	178.40	178.40	14.9	254.5	737.1	725.8	11.32	65.117	
2,600.0	2,541.7	2,443.4	2,433.9	11.4	5.9	178.37	178.37	16.0	267.3	774.7	762.9	11.80	65.665	
2,700.0	2,638.7	2,536.1	2,525.6	11.9	6.2	178.35	178.35	17.0	280.2	812.4	800.1	12.28	66.162	
2,800.0	2,735.6	2,628.7	2,617.3	12.4	6.5	178.33	178.33	18.1	293.1	850.0	837.3	12.76	66.615	
2,900.0	2,832.6	2,721.3	2,709.1	13.0	6.8	178.31	178.31	19.2	306.0	887.7	874.4	13.24	67.030	
3,000.0	2,929.6	2,814.0	2,800.8	13.5	7.1	178.29	178.29	20.3	318.9	925.3	911.6	13.73	67.410	
3,100.0	3,026.6	2,906.6	2,892.6	14.0	7.4	178.27	178.27	21.4	331.7	963.0	948.8	14.21	67.760	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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 (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	87.72		3.6	91.7	91.8				
100.0	100.0	100.0	100.0	0.1	0.1	87.72		3.6	91.7	91.8	91.6	0.22	408.413	
200.0	200.0	200.0	200.0	0.3	0.3	87.72		3.6	91.7	91.8	91.1	0.67	136.138 CC, ES	
300.0	300.0	300.0	300.0	0.6	0.6	176.83		3.6	91.7	93.5	92.4	1.12	83.510	
400.0	399.8	399.8	399.8	0.8	0.8	176.99		3.6	91.7	98.8	97.2	1.57	62.970	
500.0	499.5	499.5	499.5	1.0	1.0	177.23		3.6	91.7	107.5	105.4	2.02	53.135	
600.0	598.7	598.7	598.7	1.3	1.2	177.50		3.6	91.7	119.6	117.2	2.48	48.246	
700.0	697.5	697.5	697.5	1.7	1.5	177.78		3.6	91.7	135.3	132.3	2.94	46.019	
800.0	795.6	795.6	795.6	2.0	1.7	178.04		3.6	91.7	154.3	150.9	3.40	45.374 SF	
906.1	899.0	899.0	899.0	2.5	1.9	178.29		3.6	91.7	178.3	174.4	3.89	45.784	
1,000.0	990.0	990.0	990.0	3.0	2.1	178.48		3.6	91.7	201.2	196.9	4.33	46.419	
1,100.0	1,087.0	1,087.0	1,087.0	3.5	2.3	178.65		3.6	91.7	225.6	220.8	4.81	46.914	
1,200.0	1,184.0	1,184.0	1,184.0	4.0	2.5	178.78		3.6	91.7	250.0	244.7	5.29	47.284	
1,300.0	1,281.0	1,281.0	1,281.0	4.5	2.8	178.89		3.6	91.7	274.4	268.6	5.77	47.568	
1,400.0	1,377.9	1,377.9	1,377.9	5.0	3.0	178.98		3.6	91.7	298.8	292.5	6.25	47.791	
1,500.0	1,474.9	1,474.9	1,474.9	5.6	3.2	179.05		3.6	91.7	323.2	316.4	6.74	47.968	
1,600.0	1,571.9	1,571.9	1,571.9	6.1	3.4	179.12		3.6	91.7	347.6	340.4	7.22	48.112	
1,700.0	1,668.9	1,668.9	1,668.9	6.6	3.6	179.18		3.6	91.7	372.0	364.3	7.71	48.231	
1,800.0	1,765.9	1,765.9	1,765.9	7.1	3.9	179.23		3.6	91.7	396.4	388.2	8.20	48.330	
1,900.0	1,862.8	1,862.8	1,862.8	7.7	4.1	179.27		3.6	91.7	420.8	412.1	8.69	48.413	
2,000.0	1,959.8	1,959.8	1,959.8	8.2	4.3	179.31		3.6	91.7	445.2	436.0	9.18	48.484	
2,100.0	2,056.8	2,056.8	2,056.8	8.7	4.5	179.35		3.6	91.7	469.6	459.9	9.67	48.545	
2,200.0	2,153.8	2,153.8	2,153.8	9.2	4.7	179.38		3.6	91.7	494.0	483.8	10.16	48.597	
2,300.0	2,250.7	2,250.7	2,250.7	9.8	4.9	179.41		3.6	91.7	518.4	507.7	10.66	48.643	
2,400.0	2,347.7	2,347.7	2,347.7	10.3	5.2	179.44		3.6	91.7	542.8	531.6	11.15	48.683	
2,500.0	2,444.7	2,444.7	2,444.7	10.8	5.4	179.46		3.6	91.7	567.2	555.5	11.64	48.718	
2,600.0	2,541.7	2,541.7	2,541.7	11.4	5.6	179.48		3.6	91.7	591.6	579.4	12.14	48.749	
2,700.0	2,638.7	2,638.7	2,638.7	11.9	5.8	179.50		3.6	91.7	616.0	603.3	12.63	48.776	
2,800.0	2,735.6	2,735.6	2,735.6	12.4	6.0	179.52		3.6	91.7	640.4	627.2	13.12	48.801	
2,900.0	2,832.6	2,832.6	2,832.6	13.0	6.3	179.54		3.6	91.7	664.8	651.2	13.62	48.823	
3,000.0	2,929.6	2,929.6	2,929.6	13.5	6.5	179.56		3.6	91.7	689.2	675.1	14.11	48.843	
3,100.0	3,026.6	3,026.6	3,026.6	14.0	6.7	179.57		3.6	91.7	713.6	699.0	14.60	48.860	
3,200.0	3,123.5	3,123.5	3,123.5	14.6	6.9	179.59		3.6	91.7	738.0	722.9	15.10	48.876	
3,300.0	3,220.5	3,220.5	3,220.5	15.1	7.1	179.60		3.6	91.7	762.4	746.8	15.59	48.891	
3,400.0	3,317.5	3,317.5	3,317.5	15.6	7.3	179.61		3.6	91.7	786.8	770.7	16.09	48.904	
3,500.0	3,414.5	3,414.5	3,414.5	16.1	7.6	179.62		3.6	91.7	811.2	794.6	16.58	48.916	
3,600.0	3,511.4	3,511.4	3,511.4	16.7	7.8	179.63		3.6	91.7	835.6	818.5	17.08	48.927	
3,700.0	3,608.4	3,608.4	3,608.4	17.2	8.0	179.64		3.6	91.7	860.0	842.4	17.57	48.936	
3,800.0	3,705.4	3,705.4	3,705.4	17.7	8.2	179.65		3.6	91.7	884.4	866.3	18.07	48.945	
3,900.0	3,802.4	3,802.4	3,802.4	18.3	8.4	179.66		3.6	91.7	908.8	890.2	18.56	48.954	
4,000.0	3,899.4	3,899.4	3,899.4	18.8	8.7	179.67		3.6	91.7	933.2	914.1	19.06	48.961	
4,100.0	3,996.3	3,996.3	3,996.3	19.3	8.9	179.68		3.6	91.7	957.6	938.0	19.56	48.968	
4,200.0	4,093.3	4,093.3	4,093.3	19.9	9.1	179.69		3.6	91.7	982.0	961.9	20.05	48.974	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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-423 - 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	
0.0	0.0	0.0	0.0	0.0	0.0	88.61	3.6	150.1	150.1					
100.0	100.0	100.0	100.0	0.1	0.1	88.61	3.6	150.1	150.1	149.9	0.22	667.981		
200.0	200.0	200.0	200.0	0.3	0.3	88.61	3.6	150.1	150.1	149.5	0.67	222.660 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	177.68	3.6	150.1	151.9	150.8	1.12	135.596		
400.0	399.8	399.8	399.8	0.8	0.8	177.75	3.6	150.1	157.1	155.5	1.57	100.168		
500.0	499.5	499.5	499.5	1.0	1.0	177.87	3.6	150.1	165.8	163.8	2.02	81.983		
600.0	598.7	598.7	598.7	1.3	1.2	178.00	3.6	150.1	178.0	175.5	2.48	71.777		
700.0	697.5	697.5	697.5	1.7	1.5	178.15	3.6	150.1	193.6	190.7	2.94	65.872		
800.0	795.6	795.6	795.6	2.0	1.7	178.31	3.6	150.1	212.7	209.3	3.40	62.531		
906.1	899.0	899.0	899.0	2.5	1.9	178.47	3.6	150.1	236.7	232.8	3.89	60.769		
1,000.0	990.0	990.0	990.0	3.0	2.1	178.60	3.6	150.1	259.6	255.2	4.33	59.884		
1,100.0	1,087.0	1,079.2	1,079.2	3.5	2.3	178.73	3.6	151.2	285.2	280.4	4.79	59.576 SF		
1,200.0	1,184.0	1,166.0	1,165.9	4.0	2.5	178.89	3.2	154.9	313.7	308.4	5.24	59.892		
1,300.0	1,281.0	1,251.2	1,250.9	4.5	2.7	179.05	2.7	161.1	345.0	339.4	5.69	60.664		
1,400.0	1,377.9	1,334.7	1,333.9	5.0	2.9	179.22	2.0	169.6	379.2	373.0	6.14	61.781		
1,500.0	1,474.9	1,416.3	1,414.9	5.6	3.1	179.39	1.1	180.2	416.0	409.4	6.59	63.158		
1,600.0	1,571.9	1,498.4	1,495.9	6.1	3.3	179.55	0.0	193.1	455.4	448.4	7.05	64.638		
1,700.0	1,668.9	1,589.9	1,586.2	6.6	3.5	179.72	-1.3	208.4	495.6	488.1	7.50	66.055		
1,800.0	1,765.9	1,681.5	1,676.4	7.1	3.8	179.86	-2.5	223.7	535.9	527.9	7.97	67.276		
1,900.0	1,862.8	1,773.0	1,766.7	7.7	4.1	179.98	-3.8	238.9	576.1	567.7	8.43	68.332		
2,000.0	1,959.8	1,864.6	1,856.9	8.2	4.4	-179.91	-5.1	254.2	616.4	607.5	8.90	69.233		
2,100.0	2,056.8	1,956.1	1,947.1	8.7	4.8	-179.82	-6.4	269.4	656.6	647.3	9.38	70.038		
2,200.0	2,153.8	2,047.6	2,037.4	9.2	5.1	-179.74	-7.7	284.7	696.9	687.0	9.85	70.747		
2,300.0	2,250.7	2,139.2	2,127.6	9.8	5.4	-179.66	-9.0	300.0	737.1	726.8	10.33	71.373		
2,400.0	2,347.7	2,230.7	2,217.9	10.3	5.7	-179.60	-10.2	315.2	777.4	766.6	10.81	71.930		
2,500.0	2,444.7	2,322.2	2,308.1	10.8	6.1	-179.54	-11.5	330.5	817.6	806.4	11.29	72.428		
2,600.0	2,541.7	2,413.8	2,398.4	11.4	6.4	-179.49	-12.8	345.8	857.9	846.1	11.77	72.875		
2,700.0	2,638.7	2,505.3	2,488.6	11.9	6.7	-179.44	-14.1	361.0	898.2	885.9	12.26	73.279		
2,800.0	2,735.6	2,596.9	2,578.9	12.4	7.1	-179.39	-15.4	376.3	938.4	925.7	12.74	73.644		
2,900.0	2,832.6	2,688.4	2,669.1	13.0	7.4	-179.35	-16.6	391.5	978.7	965.4	13.23	73.976		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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 34U-203 - 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	
0.0	0.0	0.0	0.0	0.0	0.0	88.84	3.6	180.7	180.7					
100.0	100.0	100.0	100.0	0.1	0.1	88.84	3.6	180.7	180.7	180.5	0.22	803.977		
200.0	200.0	200.0	200.0	0.3	0.3	88.84	3.6	180.7	180.7	180.0	0.67	267.992 CC, ES		
300.0	300.0	294.0	293.9	0.6	0.5	177.91	3.7	182.2	184.1	183.0	1.10	166.798		
400.0	399.8	387.3	387.2	0.8	0.7	177.95	3.8	186.8	194.2	192.7	1.55	125.063		
500.0	499.5	479.4	478.9	1.0	1.0	178.00	4.0	194.3	211.0	209.0	2.02	104.649		
600.0	598.7	569.6	568.6	1.3	1.2	178.07	4.2	204.5	234.3	231.8	2.48	94.330		
700.0	697.5	657.4	655.5	1.7	1.5	178.13	4.5	217.1	264.0	261.1	2.95	89.420		
800.0	795.6	742.4	739.2	2.0	1.8	178.19	4.9	231.9	299.8	296.4	3.42	87.692 SF		
906.1	899.0	829.1	824.0	2.5	2.2	178.24	5.3	249.4	344.3	340.4	3.91	88.034		
1,000.0	990.0	903.7	896.6	3.0	2.5	178.30	5.7	266.6	387.6	383.2	4.34	89.397		
1,100.0	1,087.0	991.0	981.3	3.5	2.9	178.35	6.3	287.9	434.8	430.0	4.80	90.585		
1,200.0	1,184.0	1,079.1	1,066.8	4.0	3.4	178.39	6.8	309.3	482.0	476.8	5.26	91.641		
1,300.0	1,281.0	1,167.2	1,152.3	4.5	3.8	178.43	7.3	330.7	529.3	523.5	5.73	92.445		
1,400.0	1,377.9	1,255.4	1,237.8	5.0	4.3	178.46	7.8	352.1	576.5	570.3	6.20	93.007		
1,500.0	1,474.9	1,343.5	1,323.3	5.6	4.7	178.48	8.3	373.6	623.7	617.1	6.68	93.417		
1,600.0	1,571.9	1,431.7	1,408.8	6.1	5.2	178.51	8.9	395.0	671.0	663.8	7.16	93.759		
1,700.0	1,668.9	1,519.8	1,494.3	6.6	5.6	178.52	9.4	416.4	718.2	710.6	7.64	94.011		
1,800.0	1,765.9	1,607.9	1,579.7	7.1	6.1	178.54	9.9	437.8	765.5	757.3	8.13	94.201		
1,900.0	1,862.8	1,696.1	1,665.2	7.7	6.5	178.55	10.4	459.3	812.7	804.1	8.61	94.344		
2,000.0	1,959.8	1,784.2	1,750.7	8.2	7.0	178.57	11.0	480.7	859.9	850.8	9.10	94.450		
2,100.0	2,056.8	1,872.4	1,836.2	8.7	7.5	178.58	11.5	502.1	907.2	897.6	9.60	94.531		
2,200.0	2,153.8	1,960.5	1,921.7	9.2	7.9	178.59	12.0	523.5	954.4	944.3	10.09	94.591		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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 (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	61.1	61.1					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	61.1	61.1	60.9	0.22	272.060		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	61.1	61.1	60.5	0.67	90.687 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	179.07	0.0	61.1	62.9	61.8	1.12	56.150		
400.0	399.8	399.8	399.8	0.8	0.8	179.14	0.0	61.1	68.1	66.6	1.57	43.434		
500.0	499.5	499.5	499.5	1.0	1.0	179.24	0.0	61.1	76.8	74.8	2.02	37.989		
600.0	598.7	598.7	598.7	1.3	1.2	179.34	0.0	61.1	89.0	86.5	2.48	35.897		
700.0	697.5	697.5	697.5	1.7	1.5	179.43	0.0	61.1	104.7	101.7	2.94	35.603		
800.0	795.6	795.6	795.6	2.0	1.7	179.52	0.0	61.1	123.7	120.3	3.40	36.375		
906.1	899.0	899.0	899.0	2.5	1.9	179.59	0.0	61.1	147.7	143.8	3.90	37.927		
1,000.0	990.0	990.0	990.0	3.0	2.1	179.65	0.0	61.1	170.6	166.3	4.34	39.359		
1,100.0	1,087.0	1,087.0	1,087.0	3.5	2.3	179.69	0.0	61.1	195.0	190.2	4.81	40.551		
1,200.0	1,184.0	1,184.0	1,184.0	4.0	2.5	179.73	0.0	61.1	219.4	214.1	5.29	41.497		
1,300.0	1,281.0	1,288.5	1,288.5	4.5	2.8	179.74	0.1	59.8	242.6	236.8	5.77	42.051		
1,400.0	1,377.9	1,396.0	1,395.9	5.0	3.0	179.72	0.4	54.5	262.1	255.9	6.24	42.001		
1,500.0	1,474.9	1,505.0	1,504.4	5.6	3.2	179.67	0.8	44.9	278.0	271.3	6.73	41.327		
1,600.0	1,571.9	1,615.2	1,613.8	6.1	3.5	179.59	1.6	31.2	290.1	282.8	7.23	40.143		
1,700.0	1,668.9	1,721.1	1,718.3	6.6	3.8	179.48	2.4	14.3	298.7	290.9	7.73	38.656		
1,800.0	1,765.9	1,820.8	1,816.6	7.1	4.1	179.39	3.3	-2.2	306.7	298.4	8.22	37.289		
1,900.0	1,862.8	1,920.5	1,914.9	7.7	4.4	179.30	4.2	-18.7	314.7	305.9	8.73	36.058		
2,000.0	1,959.8	2,020.2	2,013.2	8.2	4.7	179.21	5.0	-35.2	322.7	313.4	9.23	34.956		
2,100.0	2,056.8	2,119.9	2,111.5	8.7	5.0	179.13	5.9	-51.7	330.7	320.9	9.74	33.949		
2,200.0	2,153.8	2,219.5	2,209.8	9.2	5.4	179.05	6.7	-68.2	338.7	328.4	10.25	33.034		
2,300.0	2,250.7	2,319.2	2,308.1	9.8	5.7	178.98	7.6	-84.7	346.7	335.9	10.77	32.200		
2,400.0	2,347.7	2,418.9	2,406.4	10.3	6.1	178.90	8.4	-101.2	354.7	343.4	11.28	31.436		
2,500.0	2,444.7	2,518.6	2,504.7	10.8	6.4	178.84	9.3	-117.7	362.7	350.9	11.80	30.734		
2,600.0	2,541.7	2,618.2	2,603.0	11.4	6.8	178.77	10.2	-134.2	370.7	358.4	12.32	30.088		
2,700.0	2,638.7	2,717.9	2,701.3	11.9	7.1	178.71	11.0	-150.7	378.7	365.9	12.84	29.490		
2,800.0	2,735.6	2,817.6	2,799.6	12.4	7.5	178.65	11.9	-167.2	386.7	373.4	13.36	28.937		
2,900.0	2,832.6	2,917.3	2,897.9	13.0	7.9	178.59	12.7	-183.7	394.8	380.9	13.89	28.423		
3,000.0	2,929.6	3,017.0	2,996.2	13.5	8.2	178.53	13.6	-200.2	402.8	388.3	14.41	27.945		
3,100.0	3,026.6	3,107.8	3,085.9	14.0	8.5	178.49	14.3	-214.6	411.5	396.6	14.90	27.612		
3,200.0	3,123.5	3,200.0	3,177.3	14.6	8.8	178.47	15.0	-226.4	423.2	407.8	15.38	27.524		
3,300.0	3,220.5	3,280.6	3,257.5	15.1	9.0	178.48	15.4	-234.4	437.8	422.0	15.82	27.673		
3,400.0	3,317.5	3,365.7	3,342.5	15.6	9.1	178.50	15.7	-240.3	455.4	439.1	16.27	27.988		
3,500.0	3,414.5	3,450.0	3,426.6	16.1	9.3	178.54	15.9	-243.7	475.9	459.1	16.71	28.470		
3,600.0	3,511.4	3,534.8	3,511.4	16.7	9.4	178.60	15.9	-244.7	499.2	482.0	17.16	29.090		
3,700.0	3,608.4	3,631.8	3,608.4	17.2	9.6	178.66	15.9	-244.7	523.6	505.9	17.63	29.696		
3,800.0	3,705.4	3,728.7	3,705.4	17.7	9.8	178.72	15.9	-244.7	547.9	529.8	18.11	30.259		
3,900.0	3,802.4	3,825.7	3,802.4	18.3	9.9	178.78	15.9	-244.7	572.3	553.8	18.59	30.791		
4,000.0	3,899.4	3,922.7	3,899.4	18.8	10.1	178.83	15.9	-244.7	596.7	577.7	19.07	31.295		
4,100.0	3,996.3	4,019.7	3,996.3	19.3	10.3	178.87	15.9	-244.7	621.1	601.6	19.55	31.773		
4,200.0	4,093.3	4,116.7	4,093.3	19.9	10.5	178.92	15.9	-244.7	645.5	625.5	20.03	32.227		
4,300.0	4,190.3	4,213.6	4,190.3	20.4	10.6	178.96	15.9	-244.7	669.9	649.4	20.51	32.658		
4,400.0	4,287.3	4,310.6	4,287.3	20.9	10.8	178.99	15.9	-244.7	694.3	673.3	21.00	33.068		
4,414.1	4,301.0	4,324.3	4,301.0	21.0	10.9	179.00	15.9	-244.7	697.8	676.7	21.07	33.124		
4,500.0	4,384.5	4,407.9	4,384.5	21.4	11.0	179.03	15.9	-244.7	717.5	696.0	21.50	33.378		
4,600.0	4,482.6	4,505.9	4,482.6	21.7	11.2	179.06	15.9	-244.7	737.2	715.3	21.95	33.594		
4,700.0	4,581.2	4,604.6	4,581.2	22.0	11.4	179.09	15.9	-244.7	753.6	731.2	22.36	33.696		
4,800.0	4,680.4	4,703.7	4,680.4	22.3	11.6	179.11	15.9	-244.7	766.5	743.7	22.75	33.692		
4,900.0	4,779.9	4,803.3	4,779.9	22.5	11.8	179.12	15.9	-244.7	775.9	752.8	23.10	33.588		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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
5,000.0	4,879.7	4,903.1	4,879.7	22.6	12.0	179.13		15.9	-244.7	781.8	758.4	23.42	33.389	
5,100.0	4,979.7	5,003.1	4,979.7	22.7	12.2	179.14		15.9	-244.7	784.3	760.6	23.70	33.099	
5,120.3	5,000.0	5,023.3	5,000.0	22.7	12.2	90.09		15.9	-244.7	784.4	760.6	23.75	33.027	
5,200.0	5,079.7	5,103.1	5,079.7	22.8	12.4	90.09		15.9	-244.7	784.4	760.3	24.05	32.610	
5,300.0	5,179.7	5,203.1	5,179.7	22.9	12.5	90.09		15.9	-244.7	784.4	759.9	24.44	32.098	
5,400.0	5,279.7	5,303.1	5,279.7	23.0	12.7	90.09		15.9	-244.7	784.4	759.5	24.82	31.600	
5,500.0	5,379.7	5,403.1	5,379.7	23.1	12.9	90.09		15.9	-244.7	784.4	759.1	25.21	31.114	
5,600.0	5,479.7	5,503.1	5,479.7	23.2	13.1	90.09		15.9	-244.7	784.4	758.8	25.60	30.640	
5,700.0	5,579.7	5,603.1	5,579.7	23.4	13.3	90.09		15.9	-244.7	784.4	758.4	25.99	30.179	
5,800.0	5,679.7	5,703.1	5,679.7	23.5	13.5	90.09		15.9	-244.7	784.4	758.0	26.38	29.730	
5,900.0	5,779.7	5,803.1	5,779.7	23.6	13.7	90.09		15.9	-244.7	784.4	757.6	26.78	29.292	
6,000.0	5,879.7	5,903.1	5,879.7	23.7	13.9	90.09		15.9	-244.7	784.4	757.2	27.17	28.865	
6,100.0	5,979.7	6,003.1	5,979.7	23.8	14.2	90.09		15.9	-244.7	784.4	756.8	27.57	28.448	
6,200.0	6,079.7	6,103.1	6,079.7	23.9	14.4	90.09		15.9	-244.7	784.4	756.4	27.97	28.042	
6,300.0	6,179.7	6,203.1	6,179.7	24.1	14.6	90.09		15.9	-244.7	784.4	756.0	28.37	27.646	
6,302.4	6,182.1	6,205.5	6,182.1	24.1	14.6	90.09		15.9	-244.7	784.4	756.0	28.38	27.637	
6,311.2	6,190.9	6,214.2	6,190.8	24.1	14.6	90.09		15.9	-244.7	784.4	755.9	28.42	27.603	
6,350.0	6,229.7	6,253.0	6,229.6	24.1	14.7	-89.88		14.9	-244.6	784.4	755.8	28.56	27.464	
6,400.0	6,279.5	6,302.8	6,279.3	24.2	14.7	-89.88		10.8	-244.6	784.4	755.6	28.73	27.302	
6,450.0	6,328.9	6,352.7	6,328.6	24.2	14.8	-89.88		3.4	-244.6	784.4	755.5	28.90	27.143	
6,500.0	6,377.8	6,402.6	6,377.3	24.3	14.9	-89.88		-7.2	-244.6	784.4	755.3	29.07	26.986	
6,550.0	6,425.8	6,452.4	6,425.2	24.3	15.0	-89.88		-20.9	-244.6	784.4	755.1	29.24	26.826	
6,600.0	6,472.9	6,502.3	6,472.2	24.4	15.1	-89.88		-37.8	-244.6	784.4	755.0	29.42	26.658	
6,650.0	6,518.7	6,552.2	6,517.9	24.4	15.2	-89.89		-57.7	-244.6	784.4	754.8	29.62	26.477	
6,700.0	6,563.1	6,602.0	6,562.3	24.5	15.3	-89.89		-80.5	-244.5	784.4	754.5	29.85	26.277	
6,750.0	6,606.0	6,651.9	6,605.0	24.6	15.4	-89.90		-106.1	-244.5	784.4	754.3	30.11	26.052	
6,800.0	6,647.0	6,701.8	6,646.0	24.7	15.5	-89.90		-134.5	-244.5	784.4	754.0	30.41	25.795	
6,850.0	6,686.1	6,751.7	6,685.1	24.8	15.6	-89.90		-165.5	-244.5	784.4	753.7	30.76	25.503	
6,900.0	6,723.1	6,801.6	6,722.1	24.9	15.8	-89.91		-199.0	-244.4	784.5	753.3	31.17	25.170	
6,950.0	6,757.8	6,851.5	6,756.8	25.0	16.0	-89.92		-234.9	-244.4	784.5	752.8	31.64	24.795	
7,000.0	6,790.1	6,901.4	6,789.1	25.1	16.2	-89.92		-272.9	-244.3	784.5	752.3	32.18	24.377	
7,050.0	6,819.8	6,951.3	6,818.8	25.2	16.5	-89.93		-313.0	-244.3	784.5	751.7	32.80	23.918	
7,100.0	6,846.8	7,001.3	6,845.9	25.4	16.8	-89.93		-354.9	-244.2	784.5	751.0	33.50	23.420	
7,150.0	6,871.0	7,051.2	6,870.2	25.6	17.2	-89.94		-398.6	-244.2	784.5	750.3	34.28	22.887	
7,200.0	6,892.3	7,101.1	6,891.5	25.8	17.6	-89.95		-443.7	-244.1	784.6	749.4	35.14	22.327	
7,250.0	6,910.6	7,151.1	6,909.9	26.1	18.0	-89.96		-490.1	-244.1	784.6	748.5	36.08	21.745	
7,300.0	6,925.8	7,201.0	6,925.2	26.3	18.5	-89.96		-537.7	-244.0	784.6	747.5	37.10	21.149	
7,350.0	6,937.9	7,251.0	6,937.4	26.6	19.0	-89.97		-586.1	-244.0	784.6	746.4	38.19	20.547	
7,400.0	6,946.7	7,301.0	6,946.4	27.0	19.6	-89.98		-635.3	-243.9	784.7	745.3	39.34	19.944	
7,450.0	6,952.4	7,351.0	6,952.2	27.4	20.2	-89.99		-684.9	-243.9	784.7	744.1	40.56	19.348	
7,500.0	6,954.7	7,401.0	6,954.7	27.8	20.8	-90.00		-734.8	-243.8	784.7	742.9	41.82	18.765	
7,516.5	6,954.8	7,417.5	6,954.8	27.9	21.1	-90.00		-751.3	-243.8	784.7	742.5	42.25	18.575	
7,600.0	6,954.2	7,501.0	6,954.2	28.7	22.2	-90.00		-834.8	-243.7	784.8	740.3	44.48	17.643	
7,700.0	6,953.5	7,601.0	6,953.5	29.7	23.6	-90.00		-934.8	-243.6	784.8	737.5	47.30	16.591	
7,800.0	6,952.8	7,701.0	6,952.8	30.8	25.1	-90.00		-1,034.8	-243.5	784.9	734.6	50.26	15.615	
7,900.0	6,952.1	7,801.0	6,952.1	32.0	26.6	-90.00		-1,134.8	-243.4	784.9	731.6	53.34	14.716	
8,000.0	6,951.4	7,901.0	6,951.4	33.3	28.2	-90.00		-1,234.8	-243.3	784.9	728.4	56.51	13.891	
8,100.0	6,950.7	8,001.0	6,950.7	34.6	29.8	-90.00		-1,334.8	-243.2	785.0	725.2	59.75	13.137	
8,200.0	6,950.0	8,101.0	6,950.0	36.1	31.5	-90.00		-1,434.8	-243.1	785.0	722.0	63.07	12.447	
8,300.0	6,949.3	8,201.0	6,949.3	37.5	33.1	-90.00		-1,534.8	-242.9	785.1	718.6	66.44	11.816	
8,400.0	6,948.6	8,301.0	6,948.6	39.0	34.8	-90.00		-1,634.8	-242.8	785.1	715.3	69.87	11.238	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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-243 - Wellbore #1 - Plan #1 (9-27-12)												Offset Well Error:	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
8,500.0	6,947.9	8,401.0	6,947.9	40.6	36.6	-90.00	-1,734.8	-242.7	785.2	711.9	73.33	10.707	
8,600.0	6,947.2	8,501.0	6,947.2	42.1	38.3	-90.00	-1,834.8	-242.6	785.2	708.4	76.83	10.220	
8,700.0	6,946.5	8,601.0	6,946.5	43.8	40.1	-90.00	-1,934.8	-242.5	785.3	704.9	80.37	9.771	
8,800.0	6,945.8	8,701.0	6,945.8	45.4	41.9	-90.00	-2,034.8	-242.4	785.3	701.4	83.93	9.357	
8,900.0	6,945.1	8,801.0	6,945.1	47.0	43.7	-90.00	-2,134.8	-242.3	785.4	697.9	87.51	8.975	
9,000.0	6,944.4	8,901.0	6,944.4	48.7	45.5	-90.00	-2,234.8	-242.2	785.4	694.3	91.12	8.620	
9,100.0	6,943.7	9,001.0	6,943.7	50.4	47.3	-90.00	-2,334.8	-242.1	785.5	690.7	94.74	8.290	
9,200.0	6,943.0	9,101.0	6,943.0	52.1	49.1	-90.00	-2,434.8	-241.9	785.5	687.1	98.39	7.984	
9,300.0	6,942.3	9,201.0	6,942.3	53.9	50.9	-90.00	-2,534.8	-241.8	785.6	683.5	102.04	7.698	
9,400.0	6,941.6	9,301.0	6,941.6	55.6	52.8	-90.00	-2,634.8	-241.7	785.6	679.9	105.72	7.431	
9,500.0	6,941.0	9,401.0	6,940.9	57.4	54.6	-90.00	-2,734.8	-241.6	785.7	676.3	109.40	7.182	
9,600.0	6,940.3	9,501.0	6,940.2	59.1	56.5	-90.00	-2,834.8	-241.5	785.7	672.6	113.09	6.947	
9,700.0	6,939.6	9,601.0	6,939.5	60.9	58.3	-90.00	-2,934.8	-241.4	785.8	669.0	116.80	6.728	
9,800.0	6,938.9	9,701.0	6,938.8	62.7	60.2	-90.00	-3,034.8	-241.3	785.8	665.3	120.51	6.521	
9,900.0	6,938.2	9,801.0	6,938.1	64.5	62.0	-90.00	-3,134.8	-241.2	785.9	661.6	124.23	6.326	
10,000.0	6,937.5	9,901.0	6,937.4	66.3	63.9	-90.00	-3,234.8	-241.1	785.9	657.9	127.96	6.142	
10,100.0	6,936.8	10,001.0	6,936.7	68.1	65.8	-90.00	-3,334.8	-241.0	786.0	654.3	131.70	5.968	
10,200.0	6,936.1	10,101.0	6,936.0	69.9	67.6	-90.00	-3,434.7	-240.8	786.0	650.6	135.44	5.803	
10,300.0	6,935.4	10,201.0	6,935.3	71.7	69.5	-90.00	-3,534.7	-240.7	786.0	646.9	139.19	5.647	
10,400.0	6,934.7	10,301.0	6,934.6	73.5	71.4	-90.00	-3,634.7	-240.6	786.1	643.2	142.94	5.499	
10,500.0	6,934.0	10,401.0	6,933.9	75.4	73.3	-90.00	-3,734.7	-240.5	786.1	639.4	146.70	5.359	
10,600.0	6,933.3	10,501.0	6,933.3	77.2	75.1	-90.00	-3,834.7	-240.4	786.2	635.7	150.46	5.225	
10,700.0	6,932.6	10,601.0	6,932.6	79.0	77.0	-90.00	-3,934.7	-240.3	786.2	632.0	154.23	5.098	
10,800.0	6,931.9	10,701.0	6,931.9	80.9	78.9	-90.00	-4,034.7	-240.2	786.3	628.3	158.00	4.976	
10,900.0	6,931.2	10,801.0	6,931.2	82.7	80.8	-90.00	-4,134.7	-240.1	786.3	624.6	161.78	4.861	
11,000.0	6,930.5	10,901.0	6,930.5	84.6	82.7	-90.00	-4,234.7	-240.0	786.4	620.8	165.56	4.750	
11,100.0	6,929.8	11,001.0	6,929.8	86.4	84.6	-90.00	-4,334.7	-239.9	786.4	617.1	169.34	4.644	
11,200.0	6,929.1	11,101.0	6,929.1	88.3	86.5	-90.00	-4,434.7	-239.7	786.5	613.4	173.12	4.543	
11,300.0	6,928.4	11,201.0	6,928.4	90.2	88.4	-90.00	-4,534.7	-239.6	786.5	609.6	176.91	4.446	
11,400.0	6,927.7	11,301.0	6,927.7	92.0	90.3	-90.00	-4,634.7	-239.5	786.6	605.9	180.70	4.353	
11,500.0	6,927.0	11,401.0	6,927.0	93.9	92.1	-90.00	-4,734.7	-239.4	786.6	602.1	184.49	4.264	
11,600.0	6,926.3	11,501.0	6,926.3	95.7	94.0	-90.00	-4,834.7	-239.3	786.7	598.4	188.29	4.178	
11,700.0	6,925.6	11,601.0	6,925.6	97.6	95.9	-90.00	-4,934.7	-239.2	786.7	594.6	192.08	4.096	
11,743.0	6,925.3	11,644.0	6,925.3	98.4	96.8	-90.00	-4,977.7	-239.1	786.7	593.0	193.72	4.061	
11,784.7	6,925.0	11,682.9	6,925.0	99.2	97.5	-90.00	-5,016.7	-239.1	786.8	591.5	195.25	4.030	
11,785.5	6,925.0	11,682.9	6,925.0	99.3	97.5	-90.00	-5,016.7	-239.1	786.8	591.5	195.26	4.029 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
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<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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

Reference Depths are relative to WELL @ 4883.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Richter 34M-203

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.63°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Richter 34M-203
<b>Project:</b>	SEC.27-T7N-R64W	<b>TVD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Reference Site:</b>	Richter 27T-HZ Pad Sec.27-T7N-R64W	<b>MD Reference:</b>	WELL @ 4883.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Richter 34M-203	<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

Reference Depths are relative to WELL @ 4883.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Richter 34M-203

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.63°

