

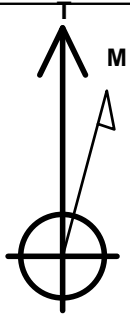
PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Ritcher 34R-243**

Surface Location: Richter 27T-HZ Pad Sec.27-T7N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4870.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1440176.40 3269159.22 40.537650 -104.531590
 RKB - 13' WELL @ 4883.0ft (RKB - 13')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape Point
BHL 500'FSL & 1650'FEL	6925.0	-5016.7	-300.3	Point



Azimuths to True North
 Magnetic North: 8.58°

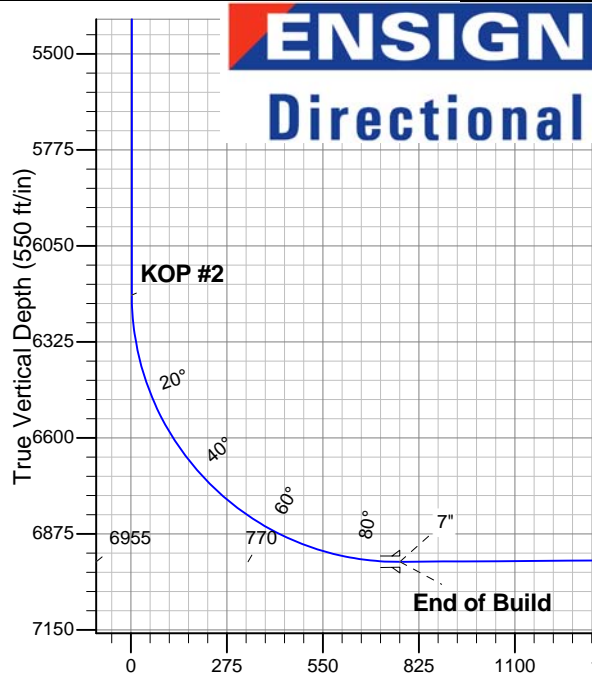
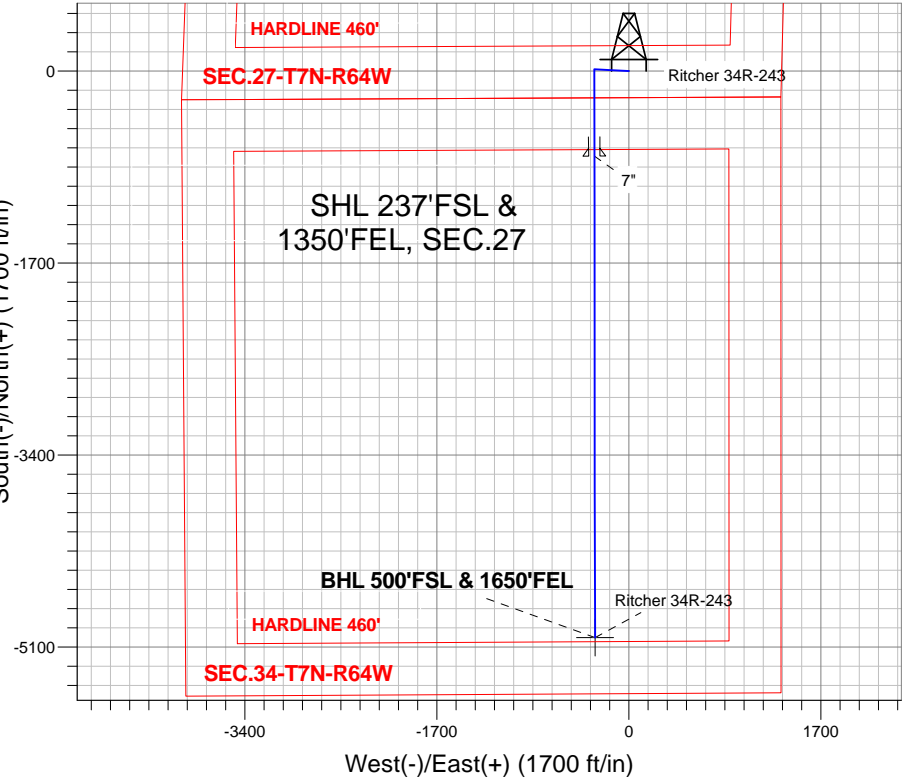
Magnetic Field
 Strength: 53092.1nT
 Dip Angle: 67.16°
 Date: 9/27/2012
 Model: IGRF2010

Richter 27T-HZ Pad Sec.27-T7N-R64W
 Richter 34R-243
 Plan #1 (9-27-12)
 13:57, October 02 2012

ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	KOP #1
6190.9	6214.2	KOP #2
6954.8	7419.5	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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1677.1	9.54	272.98	1674.9	2.1	-39.6	2.00	272.98	0.3	
4	3046.3	9.54	272.98	3025.1	13.8	-266.2	0.00	0.00	2.1	
5	3523.3	0.00	0.00	3500.0	15.9	-305.8	2.00	180.00	2.4	
6	6214.2	0.00	0.00	6190.8	15.9	-305.8	0.00	0.00	2.4	
7	7419.5	90.40	179.94	6954.8	-753.4	-305.0	7.50	179.94	770.3	
8	811682.9	90.40	179.94	6925.0	-5016.7	-300.3	0.00	0.00	5025.7	BHL 500'FSL & 1650'FEL

Vertical Section at 183.43° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.27-T7N-R64W

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

Ritcher 34R-243

Wellbore #1

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

Standard Planning Report

02 October, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Ritcher 34R-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Project:	SEC.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-27-12)		

Project	SEC.27-T7N-R64W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

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

Well	Ritcher 34R-243		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	61.1 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/27/2012	8.58	67.16	53,092

Design	Plan #1 (9-27-12)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	183.43

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,677.1	9.54	272.98	1,674.9	2.1	-39.6	2.00	2.00	0.00	272.98	
3,046.3	9.54	272.98	3,025.1	13.8	-266.2	0.00	0.00	0.00	0.00	
3,523.3	0.00	0.00	3,500.0	15.9	-305.8	2.00	-2.00	0.00	180.00	
6,214.2	0.00	0.00	6,190.8	15.9	-305.8	0.00	0.00	0.00	0.00	
7,419.5	90.40	179.94	6,954.8	-753.4	-305.0	7.50	7.50	0.00	179.94	
11,682.9	90.40	179.94	6,925.0	-5,016.7	-300.3	0.00	0.00	0.00	0.00	BHL 500'FSL & 165

Database:	Landmark	Local Co-ordinate Reference:	Well Ritcher 34R-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Project:	SEC.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-27-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.00	0.00	1,120.0	0.0	0.0	0.0	0.00	0.00	0.00
1,160.0	0.00	0.00	1,160.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,240.0	0.80	272.98	1,240.0	0.0	-0.3	0.0	2.00	2.00	0.00
1,280.0	1.60	272.98	1,280.0	0.1	-1.1	0.0	2.00	2.00	0.00
1,320.0	2.40	272.98	1,320.0	0.1	-2.5	0.0	2.00	2.00	0.00
1,360.0	3.20	272.98	1,359.9	0.2	-4.5	0.0	2.00	2.00	0.00
1,400.0	4.00	272.98	1,399.8	0.4	-7.0	0.1	2.00	2.00	0.00
1,440.0	4.80	272.98	1,439.7	0.5	-10.0	0.1	2.00	2.00	0.00
1,480.0	5.60	272.98	1,479.6	0.7	-13.7	0.1	2.00	2.00	0.00
1,520.0	6.40	272.98	1,519.3	0.9	-17.8	0.1	2.00	2.00	0.00
1,560.0	7.20	272.98	1,559.1	1.2	-22.6	0.2	2.00	2.00	0.00
1,600.0	8.00	272.98	1,598.7	1.4	-27.8	0.2	2.00	2.00	0.00
1,640.0	8.80	272.98	1,638.3	1.8	-33.7	0.3	2.00	2.00	0.00
1,677.1	9.54	272.98	1,674.9	2.1	-39.6	0.3	2.00	2.00	0.00
1,680.0	9.54	272.98	1,677.8	2.1	-40.1	0.3	0.00	0.00	0.00
1,720.0	9.54	272.98	1,717.2	2.4	-46.7	0.4	0.00	0.00	0.00
1,760.0	9.54	272.98	1,756.7	2.8	-53.3	0.4	0.00	0.00	0.00
1,800.0	9.54	272.98	1,796.1	3.1	-59.9	0.5	0.00	0.00	0.00
1,840.0	9.54	272.98	1,835.5	3.5	-66.5	0.5	0.00	0.00	0.00
1,880.0	9.54	272.98	1,875.0	3.8	-73.2	0.6	0.00	0.00	0.00
1,920.0	9.54	272.98	1,914.4	4.1	-79.8	0.6	0.00	0.00	0.00
1,960.0	9.54	272.98	1,953.9	4.5	-86.4	0.7	0.00	0.00	0.00
2,000.0	9.54	272.98	1,993.3	4.8	-93.0	0.7	0.00	0.00	0.00

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Project:	SEC.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	9.54	272.98	2,032.8	5.2	-99.7	0.8	0.00	0.00	0.00
2,080.0	9.54	272.98	2,072.2	5.5	-106.3	0.8	0.00	0.00	0.00
2,120.0	9.54	272.98	2,111.7	5.9	-112.9	0.9	0.00	0.00	0.00
2,160.0	9.54	272.98	2,151.1	6.2	-119.5	0.9	0.00	0.00	0.00
2,200.0	9.54	272.98	2,190.6	6.6	-126.1	1.0	0.00	0.00	0.00
2,240.0	9.54	272.98	2,230.0	6.9	-132.8	1.0	0.00	0.00	0.00
2,280.0	9.54	272.98	2,269.5	7.2	-139.4	1.1	0.00	0.00	0.00
2,320.0	9.54	272.98	2,308.9	7.6	-146.0	1.1	0.00	0.00	0.00
2,360.0	9.54	272.98	2,348.4	7.9	-152.6	1.2	0.00	0.00	0.00
2,400.0	9.54	272.98	2,387.8	8.3	-159.2	1.2	0.00	0.00	0.00
2,440.0	9.54	272.98	2,427.2	8.6	-165.9	1.3	0.00	0.00	0.00
2,480.0	9.54	272.98	2,466.7	9.0	-172.5	1.4	0.00	0.00	0.00
2,520.0	9.54	272.98	2,506.1	9.3	-179.1	1.4	0.00	0.00	0.00
2,560.0	9.54	272.98	2,545.6	9.7	-185.7	1.5	0.00	0.00	0.00
2,600.0	9.54	272.98	2,585.0	10.0	-192.4	1.5	0.00	0.00	0.00
2,640.0	9.54	272.98	2,624.5	10.3	-199.0	1.6	0.00	0.00	0.00
2,680.0	9.54	272.98	2,663.9	10.7	-205.6	1.6	0.00	0.00	0.00
2,720.0	9.54	272.98	2,703.4	11.0	-212.2	1.7	0.00	0.00	0.00
2,760.0	9.54	272.98	2,742.8	11.4	-218.8	1.7	0.00	0.00	0.00
2,800.0	9.54	272.98	2,782.3	11.7	-225.5	1.8	0.00	0.00	0.00
2,840.0	9.54	272.98	2,821.7	12.1	-232.1	1.8	0.00	0.00	0.00
2,880.0	9.54	272.98	2,861.2	12.4	-238.7	1.9	0.00	0.00	0.00
2,920.0	9.54	272.98	2,900.6	12.8	-245.3	1.9	0.00	0.00	0.00
2,960.0	9.54	272.98	2,940.1	13.1	-251.9	2.0	0.00	0.00	0.00
3,000.0	9.54	272.98	2,979.5	13.4	-258.6	2.0	0.00	0.00	0.00
3,040.0	9.54	272.98	3,018.9	13.8	-265.2	2.1	0.00	0.00	0.00
3,046.3	9.54	272.98	3,025.1	13.8	-266.2	2.1	0.00	0.00	0.00
3,080.0	8.87	272.98	3,058.4	14.1	-271.6	2.1	2.00	-2.00	0.00
3,120.0	8.07	272.98	3,098.0	14.4	-277.5	2.2	2.00	-2.00	0.00
3,160.0	7.27	272.98	3,137.6	14.7	-282.8	2.2	2.00	-2.00	0.00
3,200.0	6.47	272.98	3,177.3	15.0	-287.6	2.3	2.00	-2.00	0.00
3,240.0	5.67	272.98	3,217.1	15.2	-291.8	2.3	2.00	-2.00	0.00
3,280.0	4.87	272.98	3,256.9	15.4	-295.5	2.3	2.00	-2.00	0.00
3,320.0	4.07	272.98	3,296.8	15.5	-298.6	2.3	2.00	-2.00	0.00
3,360.0	3.27	272.98	3,336.7	15.7	-301.2	2.4	2.00	-2.00	0.00
3,400.0	2.47	272.98	3,376.7	15.8	-303.1	2.4	2.00	-2.00	0.00
3,440.0	1.67	272.98	3,416.7	15.8	-304.6	2.4	2.00	-2.00	0.00
3,480.0	0.87	272.98	3,456.7	15.9	-305.5	2.4	2.00	-2.00	0.00
3,520.0	0.07	272.98	3,496.7	15.9	-305.8	2.4	2.00	-2.00	0.00
3,523.3	0.00	0.00	3,500.0	15.9	-305.8	2.4	2.00	-2.00	0.00
3,560.0	0.00	0.00	3,536.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,600.0	0.00	0.00	3,576.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,640.0	0.00	0.00	3,616.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,680.0	0.00	0.00	3,656.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,720.0	0.00	0.00	3,696.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,760.0	0.00	0.00	3,736.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,800.0	0.00	0.00	3,776.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,840.0	0.00	0.00	3,816.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,880.0	0.00	0.00	3,856.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,920.0	0.00	0.00	3,896.7	15.9	-305.8	2.4	0.00	0.00	0.00
3,960.0	0.00	0.00	3,936.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,000.0	0.00	0.00	3,976.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,040.0	0.00	0.00	4,016.7	15.9	-305.8	2.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Ritcher 34R-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Project:	SEC.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-27-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,080.0	0.00	0.00	4,056.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,120.0	0.00	0.00	4,096.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,160.0	0.00	0.00	4,136.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,200.0	0.00	0.00	4,176.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,240.0	0.00	0.00	4,216.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,280.0	0.00	0.00	4,256.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,320.0	0.00	0.00	4,296.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,360.0	0.00	0.00	4,336.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,400.0	0.00	0.00	4,376.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,440.0	0.00	0.00	4,416.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,480.0	0.00	0.00	4,456.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,520.0	0.00	0.00	4,496.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,560.0	0.00	0.00	4,536.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,600.0	0.00	0.00	4,576.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,640.0	0.00	0.00	4,616.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,680.0	0.00	0.00	4,656.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,720.0	0.00	0.00	4,696.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,760.0	0.00	0.00	4,736.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,800.0	0.00	0.00	4,776.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,840.0	0.00	0.00	4,816.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,880.0	0.00	0.00	4,856.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,920.0	0.00	0.00	4,896.7	15.9	-305.8	2.4	0.00	0.00	0.00
4,960.0	0.00	0.00	4,936.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,000.0	0.00	0.00	4,976.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,040.0	0.00	0.00	5,016.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,080.0	0.00	0.00	5,056.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,120.0	0.00	0.00	5,096.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,160.0	0.00	0.00	5,136.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,200.0	0.00	0.00	5,176.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,240.0	0.00	0.00	5,216.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,280.0	0.00	0.00	5,256.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,320.0	0.00	0.00	5,296.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,360.0	0.00	0.00	5,336.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,400.0	0.00	0.00	5,376.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,440.0	0.00	0.00	5,416.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,480.0	0.00	0.00	5,456.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,520.0	0.00	0.00	5,496.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,560.0	0.00	0.00	5,536.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,600.0	0.00	0.00	5,576.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,640.0	0.00	0.00	5,616.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,680.0	0.00	0.00	5,656.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,720.0	0.00	0.00	5,696.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,760.0	0.00	0.00	5,736.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,800.0	0.00	0.00	5,776.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,840.0	0.00	0.00	5,816.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,880.0	0.00	0.00	5,856.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,920.0	0.00	0.00	5,896.7	15.9	-305.8	2.4	0.00	0.00	0.00
5,960.0	0.00	0.00	5,936.7	15.9	-305.8	2.4	0.00	0.00	0.00
6,000.0	0.00	0.00	5,976.7	15.9	-305.8	2.4	0.00	0.00	0.00
6,040.0	0.00	0.00	6,016.7	15.9	-305.8	2.4	0.00	0.00	0.00
6,080.0	0.00	0.00	6,056.7	15.9	-305.8	2.4	0.00	0.00	0.00
6,120.0	0.00	0.00	6,096.7	15.9	-305.8	2.4	0.00	0.00	0.00
6,160.0	0.00	0.00	6,136.7	15.9	-305.8	2.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Ritcher 34R-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Project:	SEC.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	6,176.7	15.9	-305.8	2.4	0.00	0.00	0.00
6,214.2	0.00	0.00	6,190.9	15.9	-305.8	2.4	0.00	0.00	0.00
KOP #2									
6,240.0	1.94	179.94	6,216.7	15.5	-305.8	2.8	7.51	7.51	0.00
6,280.0	4.94	179.94	6,256.6	13.1	-305.8	5.2	7.50	7.50	0.00
6,320.0	7.94	179.94	6,296.3	8.6	-305.8	9.7	7.50	7.50	0.00
6,360.0	10.94	179.94	6,335.8	2.0	-305.8	16.2	7.50	7.50	0.00
6,400.0	13.94	179.94	6,374.8	-6.6	-305.8	24.8	7.50	7.50	0.00
6,440.0	16.94	179.94	6,413.4	-17.2	-305.8	35.5	7.50	7.50	0.00
6,480.0	19.94	179.94	6,451.3	-29.9	-305.7	48.1	7.50	7.50	0.00
6,520.0	22.94	179.94	6,488.6	-44.5	-305.7	62.7	7.50	7.50	0.00
6,560.0	25.94	179.94	6,525.0	-61.0	-305.7	79.2	7.50	7.50	0.00
6,600.0	28.94	179.94	6,560.5	-79.5	-305.7	97.6	7.50	7.50	0.00
6,640.0	31.94	179.94	6,594.9	-99.7	-305.7	117.8	7.50	7.50	0.00
6,680.0	34.94	179.94	6,628.3	-121.8	-305.6	139.8	7.50	7.50	0.00
6,720.0	37.94	179.94	6,660.5	-145.5	-305.6	163.5	7.50	7.50	0.00
6,760.0	40.94	179.94	6,691.4	-170.9	-305.6	188.9	7.50	7.50	0.00
6,800.0	43.94	179.94	6,720.9	-197.9	-305.6	215.8	7.50	7.50	0.00
6,840.0	46.94	179.94	6,749.0	-226.4	-305.5	244.3	7.50	7.50	0.00
6,880.0	49.94	179.94	6,775.5	-256.3	-305.5	274.1	7.50	7.50	0.00
6,920.0	52.94	179.94	6,800.4	-287.6	-305.5	305.3	7.50	7.50	0.00
6,960.0	55.94	179.94	6,823.7	-320.1	-305.4	337.8	7.50	7.50	0.00
7,000.0	58.94	179.94	6,845.2	-353.9	-305.4	371.5	7.50	7.50	0.00
7,040.0	61.94	179.94	6,865.0	-388.6	-305.4	406.2	7.50	7.50	0.00
7,080.0	64.94	179.94	6,882.8	-424.4	-305.3	441.9	7.50	7.50	0.00
7,120.0	67.94	179.94	6,898.8	-461.1	-305.3	478.5	7.50	7.50	0.00
7,160.0	70.94	179.94	6,912.9	-498.5	-305.2	515.9	7.50	7.50	0.00
7,200.0	73.94	179.94	6,925.0	-536.7	-305.2	553.9	7.50	7.50	0.00
7,240.0	76.94	179.94	6,935.0	-575.4	-305.1	592.6	7.50	7.50	0.00
7,280.0	79.94	179.94	6,943.0	-614.6	-305.1	631.7	7.50	7.50	0.00
7,320.0	82.94	179.94	6,949.0	-654.1	-305.1	671.2	7.50	7.50	0.00
7,360.0	85.94	179.94	6,952.9	-693.9	-305.0	710.9	7.50	7.50	0.00
7,400.0	88.94	179.94	6,954.7	-733.9	-305.0	750.8	7.50	7.50	0.00
7,419.5	90.40	179.94	6,954.8	-753.4	-305.0	770.2	7.50	7.50	0.00
End of Build - 7"									
7,440.0	90.40	179.94	6,954.6	-773.9	-304.9	790.7	0.01	0.01	0.00
7,480.0	90.40	179.94	6,954.3	-813.9	-304.9	830.6	0.00	0.00	0.00
7,520.0	90.40	179.94	6,954.1	-853.9	-304.8	870.5	0.00	0.00	0.00
7,560.0	90.40	179.94	6,953.8	-893.9	-304.8	910.5	0.00	0.00	0.00
7,600.0	90.40	179.94	6,953.5	-933.9	-304.8	950.4	0.00	0.00	0.00
7,640.0	90.40	179.94	6,953.2	-973.9	-304.7	990.3	0.00	0.00	0.00
7,680.0	90.40	179.94	6,952.9	-1,013.9	-304.7	1,030.2	0.00	0.00	0.00
7,720.0	90.40	179.94	6,952.7	-1,053.9	-304.6	1,070.2	0.00	0.00	0.00
7,760.0	90.40	179.94	6,952.4	-1,093.9	-304.6	1,110.1	0.00	0.00	0.00
7,800.0	90.40	179.94	6,952.1	-1,133.9	-304.5	1,150.0	0.00	0.00	0.00
7,840.0	90.40	179.94	6,951.8	-1,173.9	-304.5	1,189.9	0.00	0.00	0.00
7,880.0	90.40	179.94	6,951.5	-1,213.8	-304.4	1,229.9	0.00	0.00	0.00
7,920.0	90.40	179.94	6,951.3	-1,253.8	-304.4	1,269.8	0.00	0.00	0.00
7,960.0	90.40	179.94	6,951.0	-1,293.8	-304.4	1,309.7	0.00	0.00	0.00
8,000.0	90.40	179.94	6,950.7	-1,333.8	-304.3	1,349.6	0.00	0.00	0.00
8,040.0	90.40	179.94	6,950.4	-1,373.8	-304.3	1,389.6	0.00	0.00	0.00
8,080.0	90.40	179.94	6,950.2	-1,413.8	-304.2	1,429.5	0.00	0.00	0.00
8,120.0	90.40	179.94	6,949.9	-1,453.8	-304.2	1,469.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Ritcher 34R-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Project:	SEC.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	179.94	6,949.6	-1,493.8	-304.1	1,509.3	0.00	0.00	0.00
8,200.0	90.40	179.94	6,949.3	-1,533.8	-304.1	1,549.3	0.00	0.00	0.00
8,240.0	90.40	179.94	6,949.0	-1,573.8	-304.0	1,589.2	0.00	0.00	0.00
8,280.0	90.40	179.94	6,948.8	-1,613.8	-304.0	1,629.1	0.00	0.00	0.00
8,320.0	90.40	179.94	6,948.5	-1,653.8	-304.0	1,669.0	0.00	0.00	0.00
8,360.0	90.40	179.94	6,948.2	-1,693.8	-303.9	1,709.0	0.00	0.00	0.00
8,400.0	90.40	179.94	6,947.9	-1,733.8	-303.9	1,748.9	0.00	0.00	0.00
8,440.0	90.40	179.94	6,947.6	-1,773.8	-303.8	1,788.8	0.00	0.00	0.00
8,480.0	90.40	179.94	6,947.4	-1,813.8	-303.8	1,828.7	0.00	0.00	0.00
8,520.0	90.40	179.94	6,947.1	-1,853.8	-303.7	1,868.7	0.00	0.00	0.00
8,560.0	90.40	179.94	6,946.8	-1,893.8	-303.7	1,908.6	0.00	0.00	0.00
8,600.0	90.40	179.94	6,946.5	-1,933.8	-303.7	1,948.5	0.00	0.00	0.00
8,640.0	90.40	179.94	6,946.2	-1,973.8	-303.6	1,988.4	0.00	0.00	0.00
8,680.0	90.40	179.94	6,946.0	-2,013.8	-303.6	2,028.4	0.00	0.00	0.00
8,720.0	90.40	179.94	6,945.7	-2,053.8	-303.5	2,068.3	0.00	0.00	0.00
8,760.0	90.40	179.94	6,945.4	-2,093.8	-303.5	2,108.2	0.00	0.00	0.00
8,800.0	90.40	179.94	6,945.1	-2,133.8	-303.4	2,148.1	0.00	0.00	0.00
8,840.0	90.40	179.94	6,944.8	-2,173.8	-303.4	2,188.1	0.00	0.00	0.00
8,880.0	90.40	179.94	6,944.6	-2,213.8	-303.3	2,228.0	0.00	0.00	0.00
8,920.0	90.40	179.94	6,944.3	-2,253.8	-303.3	2,267.9	0.00	0.00	0.00
8,960.0	90.40	179.94	6,944.0	-2,293.8	-303.3	2,307.8	0.00	0.00	0.00
9,000.0	90.40	179.94	6,943.7	-2,333.8	-303.2	2,347.8	0.00	0.00	0.00
9,040.0	90.40	179.94	6,943.5	-2,373.8	-303.2	2,387.7	0.00	0.00	0.00
9,080.0	90.40	179.94	6,943.2	-2,413.8	-303.1	2,427.6	0.00	0.00	0.00
9,120.0	90.40	179.94	6,942.9	-2,453.8	-303.1	2,467.5	0.00	0.00	0.00
9,160.0	90.40	179.94	6,942.6	-2,493.8	-303.0	2,507.5	0.00	0.00	0.00
9,200.0	90.40	179.94	6,942.3	-2,533.8	-303.0	2,547.4	0.00	0.00	0.00
9,240.0	90.40	179.94	6,942.1	-2,573.8	-302.9	2,587.3	0.00	0.00	0.00
9,280.0	90.40	179.94	6,941.8	-2,613.8	-302.9	2,627.2	0.00	0.00	0.00
9,320.0	90.40	179.94	6,941.5	-2,653.8	-302.9	2,667.2	0.00	0.00	0.00
9,360.0	90.40	179.94	6,941.2	-2,693.8	-302.8	2,707.1	0.00	0.00	0.00
9,400.0	90.40	179.94	6,940.9	-2,733.8	-302.8	2,747.0	0.00	0.00	0.00
9,440.0	90.40	179.94	6,940.7	-2,773.8	-302.7	2,786.9	0.00	0.00	0.00
9,480.0	90.40	179.94	6,940.4	-2,813.8	-302.7	2,826.9	0.00	0.00	0.00
9,520.0	90.40	179.94	6,940.1	-2,853.8	-302.6	2,866.8	0.00	0.00	0.00
9,560.0	90.40	179.94	6,939.8	-2,893.8	-302.6	2,906.7	0.00	0.00	0.00
9,600.0	90.40	179.94	6,939.5	-2,933.8	-302.5	2,946.6	0.00	0.00	0.00
9,640.0	90.40	179.94	6,939.3	-2,973.8	-302.5	2,986.6	0.00	0.00	0.00
9,680.0	90.40	179.94	6,939.0	-3,013.8	-302.5	3,026.5	0.00	0.00	0.00
9,720.0	90.40	179.94	6,938.7	-3,053.8	-302.4	3,066.4	0.00	0.00	0.00
9,760.0	90.40	179.94	6,938.4	-3,093.8	-302.4	3,106.3	0.00	0.00	0.00
9,800.0	90.40	179.94	6,938.1	-3,133.8	-302.3	3,146.3	0.00	0.00	0.00
9,840.0	90.40	179.94	6,937.9	-3,173.8	-302.3	3,186.2	0.00	0.00	0.00
9,880.0	90.40	179.94	6,937.6	-3,213.8	-302.2	3,226.1	0.00	0.00	0.00
9,920.0	90.40	179.94	6,937.3	-3,253.8	-302.2	3,266.0	0.00	0.00	0.00
9,960.0	90.40	179.94	6,937.0	-3,293.8	-302.2	3,306.0	0.00	0.00	0.00
10,000.0	90.40	179.94	6,936.7	-3,333.8	-302.1	3,345.9	0.00	0.00	0.00
10,040.0	90.40	179.94	6,936.5	-3,373.8	-302.1	3,385.8	0.00	0.00	0.00
10,080.0	90.40	179.94	6,936.2	-3,413.8	-302.0	3,425.7	0.00	0.00	0.00
10,120.0	90.40	179.94	6,935.9	-3,453.8	-302.0	3,465.7	0.00	0.00	0.00
10,160.0	90.40	179.94	6,935.6	-3,493.8	-301.9	3,505.6	0.00	0.00	0.00
10,200.0	90.40	179.94	6,935.4	-3,533.8	-301.9	3,545.5	0.00	0.00	0.00
10,240.0	90.40	179.94	6,935.1	-3,573.8	-301.8	3,585.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Ritcher 34R-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Project:	SEC.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	179.94	6,934.8	-3,613.8	-301.8	3,625.4	0.00	0.00	0.00
10,320.0	90.40	179.94	6,934.5	-3,653.8	-301.8	3,665.3	0.00	0.00	0.00
10,360.0	90.40	179.94	6,934.2	-3,693.8	-301.7	3,705.2	0.00	0.00	0.00
10,400.0	90.40	179.94	6,934.0	-3,733.8	-301.7	3,745.1	0.00	0.00	0.00
10,440.0	90.40	179.94	6,933.7	-3,773.8	-301.6	3,785.1	0.00	0.00	0.00
10,480.0	90.40	179.94	6,933.4	-3,813.8	-301.6	3,825.0	0.00	0.00	0.00
10,520.0	90.40	179.94	6,933.1	-3,853.8	-301.5	3,864.9	0.00	0.00	0.00
10,560.0	90.40	179.94	6,932.8	-3,893.8	-301.5	3,904.8	0.00	0.00	0.00
10,600.0	90.40	179.94	6,932.6	-3,933.8	-301.4	3,944.8	0.00	0.00	0.00
10,640.0	90.40	179.94	6,932.3	-3,973.8	-301.4	3,984.7	0.00	0.00	0.00
10,680.0	90.40	179.94	6,932.0	-4,013.8	-301.4	4,024.6	0.00	0.00	0.00
10,720.0	90.40	179.94	6,931.7	-4,053.8	-301.3	4,064.5	0.00	0.00	0.00
10,760.0	90.40	179.94	6,931.4	-4,093.8	-301.3	4,104.5	0.00	0.00	0.00
10,800.0	90.40	179.94	6,931.2	-4,133.8	-301.2	4,144.4	0.00	0.00	0.00
10,840.0	90.40	179.94	6,930.9	-4,173.8	-301.2	4,184.3	0.00	0.00	0.00
10,880.0	90.40	179.94	6,930.6	-4,213.8	-301.1	4,224.2	0.00	0.00	0.00
10,920.0	90.40	179.94	6,930.3	-4,253.8	-301.1	4,264.2	0.00	0.00	0.00
10,960.0	90.40	179.94	6,930.0	-4,293.8	-301.0	4,304.1	0.00	0.00	0.00
11,000.0	90.40	179.94	6,929.8	-4,333.8	-301.0	4,344.0	0.00	0.00	0.00
11,040.0	90.40	179.94	6,929.5	-4,373.8	-301.0	4,383.9	0.00	0.00	0.00
11,080.0	90.40	179.94	6,929.2	-4,413.8	-300.9	4,423.9	0.00	0.00	0.00
11,120.0	90.40	179.94	6,928.9	-4,453.8	-300.9	4,463.8	0.00	0.00	0.00
11,160.0	90.40	179.94	6,928.7	-4,493.8	-300.8	4,503.7	0.00	0.00	0.00
11,200.0	90.40	179.94	6,928.4	-4,533.8	-300.8	4,543.6	0.00	0.00	0.00
11,240.0	90.40	179.94	6,928.1	-4,573.8	-300.7	4,583.6	0.00	0.00	0.00
11,280.0	90.40	179.94	6,927.8	-4,613.8	-300.7	4,623.5	0.00	0.00	0.00
11,320.0	90.40	179.94	6,927.5	-4,653.8	-300.7	4,663.4	0.00	0.00	0.00
11,360.0	90.40	179.94	6,927.3	-4,693.8	-300.6	4,703.3	0.00	0.00	0.00
11,400.0	90.40	179.94	6,927.0	-4,733.8	-300.6	4,743.3	0.00	0.00	0.00
11,440.0	90.40	179.94	6,926.7	-4,773.8	-300.5	4,783.2	0.00	0.00	0.00
11,480.0	90.40	179.94	6,926.4	-4,813.8	-300.5	4,823.1	0.00	0.00	0.00
11,520.0	90.40	179.94	6,926.1	-4,853.8	-300.4	4,863.0	0.00	0.00	0.00
11,560.0	90.40	179.94	6,925.9	-4,893.8	-300.4	4,903.0	0.00	0.00	0.00
11,600.0	90.40	179.94	6,925.6	-4,933.8	-300.3	4,942.9	0.00	0.00	0.00
11,640.0	90.40	179.94	6,925.3	-4,973.8	-300.3	4,982.8	0.00	0.00	0.00
11,680.0	90.40	179.94	6,925.0	-5,013.8	-300.3	5,022.7	0.00	0.00	0.00
11,682.9	90.40	179.94	6,925.0	-5,016.7	-300.3	5,025.7	0.00	0.00	0.00

BHL 500'FSL & 1650'FEL

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 500'FSL & 1650'	0.00	0.00	6,925.0	-5,016.7	-300.3	1,435,156.91	3,268,913.78	40.523880	-104.532670
- plan hits target center									
- Point									

Database:	Landmark	Local Co-ordinate Reference:	Well Ritcher 34R-243
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Project:	SEC.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-27-12)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,419.5	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)	
1,200.0	1,200.0	0.0	0.0	KOP #1
6,214.2	6,190.9	15.9	-305.8	KOP #2
7,419.5	6,954.8	-753.4	-305.0	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.27-T7N-R64W

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

Ritcher 34R-243

Wellbore #1

Plan #1 (9-27-12)

Anticollision Report

02 October, 2012



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (9-27-12)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	10/2/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,682.9	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						
Richter 27T-HZ Pad Sec.27-T7N-R64W						
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	200.0	200.0	61.1	60.5	90.687	CC, ES
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	11,682.9	11,781.6	786.8	591.6	4.031	SF
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	30.6	26.3	7.159	CC, ES
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	11,682.9	11,772.8	376.6	203.3	2.172	SF
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	1,200.0	1,200.0	61.3	56.1	11.850	CC, ES
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	11,682.9	11,685.2	658.9	464.5	3.389	SF
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	1,200.0	1,200.0	30.8	25.6	5.956	CC, ES
Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)	11,682.9	11,739.0	374.2	199.6	2.144	SF
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	89.0	84.7	20.845	CC, ES
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	1,200.0	1,193.7	95.7	90.6	18.692	SF
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	119.6	118.9	177.333	CC, ES
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	1,200.0	1,148.0	273.2	266.9	43.445	SF

Offset Design											
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)											
Survey Program: 0-MWD											
Reference											
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)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)
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
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-61.1	61.1	60.5	0.67
300.0	300.0	297.9	297.9	0.6	0.5	-89.98	0.0	-62.8	62.9	61.7	1.11
400.0	400.0	395.5	395.4	0.8	0.8	-89.91	0.1	-67.8	68.0	66.4	1.55
500.0	500.0	492.7	492.2	1.0	1.0	-89.82	0.2	-76.1	76.5	74.5	2.02
600.0	600.0	589.2	588.0	1.2	1.3	-89.72	0.4	-87.5	88.4	85.8	2.52
700.0	700.0	684.9	682.6	1.5	1.6	-89.62	0.7	-102.1	103.6	100.5	3.06
800.0	800.0	779.4	775.5	1.7	2.0	-89.54	1.0	-119.5	122.0	118.4	3.65
900.0	900.0	872.7	866.6	1.9	2.4	-89.47	1.3	-139.8	143.7	139.4	4.28
1,000.0	1,000.0	968.0	959.0	2.1	2.8	-89.41	1.7	-162.8	167.9	162.9	4.96
1,100.0	1,100.0	1,065.0	1,053.1	2.4	3.3	-89.36	2.1	-186.5	192.3	186.6	5.67
1,200.0	1,200.0	1,162.0	1,147.1	2.6	3.8	-89.33	2.5	-210.1	216.7	210.3	6.39
1,300.0	1,300.0	1,259.4	1,241.6	2.8	4.3	-2.27	2.9	-233.9	239.4	233.7	5.74
1,400.0	1,399.8	1,357.5	1,336.7	3.0	4.8	-2.28	3.3	-257.8	258.7	252.5	6.20

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design Survey Program: 0-MWD												Offset Site Error: 0.0 ft	
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
1,500.0	1,499.5	1,456.2	1,432.5	3.2	5.3	-2.31	3.7	-281.9	274.6	267.9	6.66	41.218	
1,600.0	1,598.7	1,555.4	1,528.7	3.5	5.9	-2.38	4.1	-306.1	287.0	279.8	7.13	40.239	
1,677.1	1,674.9	1,632.1	1,603.1	3.7	6.3	-2.44	4.4	-324.8	294.2	286.7	7.50	39.241	
1,700.0	1,697.5	1,655.0	1,625.3	3.7	6.4	-2.47	4.5	-330.4	296.0	288.4	7.61	38.899	
1,800.0	1,796.1	1,754.7	1,721.9	4.0	6.9	-2.56	4.9	-354.7	304.0	295.9	8.11	37.506	
1,900.0	1,894.7	1,854.4	1,818.6	4.3	7.4	-2.66	5.3	-379.1	312.0	303.4	8.61	36.255	
2,000.0	1,993.3	1,954.1	1,915.3	4.6	7.9	-2.74	5.7	-403.4	320.0	310.9	9.11	35.125	
2,100.0	2,091.9	2,053.7	2,011.9	5.0	8.5	-2.83	6.1	-427.7	328.0	318.4	9.62	34.103	
2,200.0	2,190.6	2,153.4	2,108.6	5.3	9.0	-2.91	6.5	-452.0	336.0	325.9	10.13	33.174	
2,300.0	2,289.2	2,253.1	2,205.2	5.7	9.5	-2.98	6.9	-476.3	344.0	333.4	10.64	32.326	
2,400.0	2,387.8	2,352.8	2,301.9	6.0	10.1	-3.06	7.3	-500.7	352.1	340.9	11.16	31.550	
2,500.0	2,486.4	2,452.4	2,398.6	6.4	10.6	-3.13	7.7	-525.0	360.1	348.4	11.68	30.839	
2,600.0	2,585.0	2,552.1	2,495.2	6.7	11.1	-3.19	8.1	-549.3	368.1	355.9	12.19	30.183	
2,700.0	2,683.6	2,651.8	2,591.9	7.1	11.6	-3.25	8.5	-573.6	376.1	363.4	12.71	29.578	
2,800.0	2,782.3	2,751.5	2,688.6	7.4	12.2	-3.32	8.9	-597.9	384.1	370.9	13.24	29.017	
2,900.0	2,880.9	2,851.2	2,785.2	7.8	12.7	-3.37	9.3	-622.3	392.1	378.3	13.76	28.497	
3,000.0	2,979.5	2,950.8	2,881.9	8.2	13.2	-3.43	9.7	-646.6	400.1	385.8	14.28	28.013	
3,046.3	3,025.1	2,997.0	2,926.6	8.4	13.5	-3.46	9.9	-657.8	403.8	389.3	14.53	27.800	
3,100.0	3,078.2	3,050.5	2,978.5	8.5	13.8	-3.49	10.1	-670.9	408.6	393.8	14.80	27.614	
3,200.0	3,177.3	3,149.8	3,074.8	8.8	14.3	-3.52	10.5	-695.1	420.2	405.0	15.27	27.522	
3,300.0	3,276.9	3,248.6	3,170.7	9.0	14.8	-3.53	10.9	-719.2	435.3	419.6	15.71	27.699	
3,400.0	3,376.7	3,346.9	3,266.0	9.2	15.3	-3.52	11.3	-743.2	453.8	437.6	16.13	28.127	
3,500.0	3,476.7	3,444.5	3,360.6	9.4	15.8	-3.49	11.7	-767.0	475.7	459.2	16.52	28.789	
3,523.3	3,500.0	3,467.1	3,382.6	9.4	16.0	-90.50	11.8	-772.5	481.3	464.7	16.61	28.976	
3,600.0	3,576.7	3,541.5	3,454.7	9.5	16.4	-90.45	12.1	-790.7	500.0	483.0	16.96	29.473	
3,700.0	3,676.7	3,638.5	3,548.7	9.7	16.9	-90.38	12.5	-814.3	524.4	506.9	17.44	30.071	
3,800.0	3,776.7	3,735.4	3,642.8	9.9	17.4	-90.32	12.9	-838.0	548.8	530.9	17.91	30.636	
3,900.0	3,876.7	3,832.4	3,736.8	10.1	17.9	-90.27	13.3	-861.6	573.2	554.8	18.39	31.170	
4,000.0	3,976.7	3,929.4	3,830.9	10.3	18.4	-90.22	13.7	-885.3	597.6	578.7	18.87	31.675	
4,100.0	4,076.7	4,026.4	3,924.9	10.4	18.9	-90.17	14.1	-909.0	622.0	602.6	19.34	32.154	
4,200.0	4,176.7	4,123.3	4,019.0	10.6	19.5	-90.13	14.5	-932.6	646.4	626.5	19.82	32.609	
4,300.0	4,276.7	4,220.3	4,113.0	10.8	20.0	-90.09	14.9	-956.3	670.8	650.5	20.30	33.041	
4,400.0	4,376.7	4,317.3	4,207.1	11.0	20.5	-90.05	15.3	-979.9	695.1	674.4	20.78	33.452	
4,500.0	4,476.7	4,414.3	4,301.2	11.2	21.0	-90.02	15.7	-1,003.6	719.5	698.3	21.26	33.844	
4,600.0	4,576.7	4,545.2	4,428.8	11.4	21.5	-89.98	16.1	-1,032.6	741.7	719.9	21.78	34.048	
4,700.0	4,676.7	4,678.6	4,560.1	11.6	21.9	-89.95	16.5	-1,056.2	759.4	737.1	22.28	34.086	
4,800.0	4,776.7	4,813.9	4,694.2	11.8	22.3	-89.93	16.8	-1,073.8	772.4	749.6	22.76	33.944	
4,900.0	4,876.7	4,950.6	4,830.5	12.0	22.5	-89.92	17.0	-1,085.1	780.7	757.5	23.21	33.634	
5,000.0	4,976.7	5,088.1	4,967.9	12.1	22.7	-89.91	17.1	-1,090.0	784.2	760.6	23.65	33.162	
5,100.0	5,076.7	5,196.9	5,076.7	12.3	22.8	-89.91	17.1	-1,090.1	784.4	760.3	24.04	32.626	
5,200.0	5,176.7	5,296.9	5,176.7	12.5	22.9	-89.91	17.1	-1,090.1	784.4	759.9	24.42	32.114	
5,300.0	5,276.7	5,396.9	5,276.7	12.7	23.0	-89.91	17.1	-1,090.1	784.4	759.5	24.81	31.615	
5,400.0	5,376.7	5,496.9	5,376.7	12.9	23.1	-89.91	17.1	-1,090.1	784.4	759.2	25.20	31.128	
5,500.0	5,476.7	5,596.9	5,476.7	13.1	23.2	-89.91	17.1	-1,090.1	784.4	758.8	25.59	30.655	
5,600.0	5,576.7	5,696.9	5,576.7	13.3	23.4	-89.91	17.1	-1,090.1	784.4	758.4	25.98	30.193	
5,700.0	5,676.7	5,796.9	5,676.7	13.5	23.5	-89.91	17.1	-1,090.1	784.4	758.0	26.37	29.743	
5,800.0	5,776.7	5,896.9	5,776.7	13.7	23.6	-89.91	17.1	-1,090.1	784.4	757.6	26.77	29.305	
5,900.0	5,876.7	5,996.9	5,876.7	13.9	23.7	-89.91	17.1	-1,090.1	784.4	757.2	27.16	28.877	
6,000.0	5,976.7	6,096.9	5,976.7	14.1	23.8	-89.91	17.1	-1,090.1	784.4	756.8	27.56	28.461	
6,100.0	6,076.7	6,196.9	6,076.7	14.4	23.9	-89.91	17.1	-1,090.1	784.4	756.4	27.96	28.055	
6,200.0	6,176.7	6,296.9	6,176.7	14.6	24.1	-89.91	17.1	-1,090.1	784.4	756.0	28.36	27.658	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,214.2	6,190.8	6,311.1	6,190.8	14.6	24.1	-89.91		17.1	-1,090.1	784.4	755.9	28.42	27.603	
6,250.0	6,226.6	6,347.0	6,226.7	14.7	24.1	90.15		16.3	-1,090.1	784.4	755.8	28.55	27.474	
6,300.0	6,276.5	6,397.1	6,276.7	14.7	24.2	90.15		12.3	-1,090.1	784.4	755.6	28.72	27.311	
6,350.0	6,325.9	6,447.2	6,326.2	14.8	24.2	90.15		5.0	-1,090.1	784.4	755.5	28.89	27.152	
6,400.0	6,374.8	6,497.4	6,375.2	14.9	24.3	90.15		-5.5	-1,090.1	784.4	755.3	29.06	26.995	
6,450.0	6,422.9	6,547.5	6,423.4	15.0	24.3	90.14		-19.2	-1,090.1	784.4	755.1	29.23	26.835	
6,500.0	6,470.0	6,597.6	6,470.6	15.1	24.4	90.14		-36.0	-1,090.1	784.4	755.0	29.41	26.667	
6,550.0	6,515.9	6,647.7	6,516.6	15.2	24.4	90.14		-55.8	-1,090.1	784.4	754.8	29.61	26.487	
6,600.0	6,560.5	6,697.8	6,561.2	15.3	24.5	90.13		-78.7	-1,090.1	784.4	754.6	29.84	26.287	
6,650.0	6,603.4	6,747.9	6,604.2	15.4	24.6	90.13		-104.4	-1,090.1	784.4	754.3	30.10	26.062	
6,700.0	6,644.6	6,798.0	6,645.4	15.5	24.7	90.12		-132.8	-1,090.1	784.4	754.0	30.40	25.807	
6,750.0	6,683.8	6,848.0	6,684.6	15.6	24.7	90.12		-163.9	-1,090.0	784.4	753.7	30.74	25.515	
6,800.0	6,720.9	6,898.1	6,721.8	15.8	24.8	90.11		-197.5	-1,090.0	784.5	753.3	31.15	25.184	
6,850.0	6,755.8	6,948.2	6,756.6	16.0	25.0	90.10		-233.5	-1,090.0	784.5	752.9	31.62	24.810	
6,900.0	6,788.2	6,998.3	6,789.0	16.2	25.1	90.10		-271.6	-1,090.0	784.5	752.3	32.16	24.393	
6,950.0	6,818.0	7,048.3	6,818.9	16.5	25.2	90.09		-311.8	-1,089.9	784.5	751.7	32.78	23.934	
7,000.0	6,845.2	7,098.4	6,846.0	16.8	25.4	90.08		-353.9	-1,089.9	784.5	751.1	33.47	23.437	
7,050.0	6,869.6	7,148.5	6,870.3	17.2	25.6	90.07		-397.6	-1,089.9	784.5	750.3	34.25	22.905	
7,100.0	6,891.1	7,198.5	6,891.7	17.6	25.8	90.06		-442.9	-1,089.9	784.6	749.5	35.11	22.345	
7,150.0	6,909.6	7,248.6	6,910.1	18.0	26.1	90.05		-489.4	-1,089.8	784.6	748.5	36.05	21.763	
7,200.0	6,925.0	7,298.6	6,925.4	18.5	26.3	90.04		-537.0	-1,089.8	784.6	747.5	37.07	21.167	
7,250.0	6,937.2	7,348.6	6,937.6	19.0	26.6	90.03		-585.5	-1,089.8	784.6	746.5	38.16	20.564	
7,300.0	6,946.3	7,398.6	6,946.5	19.6	27.0	90.02		-634.7	-1,089.7	784.7	745.4	39.31	19.961	
7,350.0	6,952.1	7,448.7	6,952.3	20.2	27.4	90.01		-684.4	-1,089.7	784.7	744.2	40.52	19.365	
7,400.0	6,954.7	7,498.7	6,954.7	20.8	27.8	90.01		-734.4	-1,089.7	784.7	742.9	41.78	18.781	
7,419.5	6,954.8	7,518.2	6,954.8	21.1	27.9	90.00		-753.9	-1,089.7	784.7	742.4	42.29	18.556	
7,500.0	6,954.2	7,598.7	6,954.2	22.2	28.7	90.00		-834.3	-1,089.6	784.8	740.3	44.44	17.658	
7,600.0	6,953.5	7,698.7	6,953.5	23.6	29.7	90.00		-934.3	-1,089.6	784.8	737.5	47.26	16.605	
7,700.0	6,952.8	7,798.7	6,952.8	25.0	30.8	90.00		-1,034.3	-1,089.5	784.9	734.6	50.22	15.628	
7,800.0	6,952.1	7,898.7	6,952.1	26.6	32.0	90.00		-1,134.3	-1,089.4	784.9	731.6	53.29	14.728	
7,900.0	6,951.4	7,998.7	6,951.4	28.2	33.3	90.00		-1,234.3	-1,089.4	784.9	728.5	56.46	13.902	
8,000.0	6,950.7	8,098.7	6,950.7	29.8	34.6	90.00		-1,334.3	-1,089.3	785.0	725.3	59.71	13.147	
8,100.0	6,950.0	8,198.7	6,950.0	31.4	36.0	90.00		-1,434.3	-1,089.2	785.0	722.0	63.02	12.456	
8,200.0	6,949.3	8,298.7	6,949.3	33.1	37.5	90.00		-1,534.3	-1,089.2	785.1	718.7	66.40	11.824	
8,300.0	6,948.6	8,398.7	6,948.6	34.8	39.0	90.00		-1,634.3	-1,089.1	785.1	715.3	69.82	11.245	
8,400.0	6,947.9	8,498.7	6,947.9	36.6	40.5	90.00		-1,734.3	-1,089.1	785.2	711.9	73.28	10.714	
8,500.0	6,947.2	8,598.7	6,947.2	38.3	42.1	90.00		-1,834.3	-1,089.0	785.2	708.5	76.78	10.227	
8,600.0	6,946.5	8,698.7	6,946.5	40.1	43.7	90.00		-1,934.3	-1,088.9	785.3	705.0	80.32	9.777	
8,700.0	6,945.8	8,798.7	6,945.8	41.9	45.4	90.00		-2,034.3	-1,088.9	785.3	701.5	83.88	9.363	
8,800.0	6,945.1	8,898.7	6,945.1	43.6	47.0	90.00		-2,134.3	-1,088.8	785.4	697.9	87.46	8.980	
8,900.0	6,944.4	8,998.7	6,944.5	45.5	48.7	90.00		-2,234.3	-1,088.7	785.4	694.4	91.07	8.625	
9,000.0	6,943.7	9,098.7	6,943.8	47.3	50.4	90.00		-2,334.3	-1,088.7	785.5	690.8	94.69	8.295	
9,100.0	6,943.0	9,198.7	6,943.1	49.1	52.1	90.00		-2,434.3	-1,088.6	785.5	687.2	98.34	7.988	
9,200.0	6,942.3	9,298.7	6,942.4	50.9	53.8	90.00		-2,534.3	-1,088.6	785.6	683.6	101.99	7.702	
9,300.0	6,941.6	9,398.7	6,941.7	52.7	55.6	90.00		-2,634.3	-1,088.5	785.6	680.0	105.66	7.435	
9,400.0	6,940.9	9,498.7	6,941.0	54.6	57.3	90.00		-2,734.3	-1,088.4	785.7	676.3	109.35	7.185	
9,500.0	6,940.2	9,598.7	6,940.3	56.4	59.1	90.00		-2,834.3	-1,088.4	785.7	672.7	113.04	6.951	
9,600.0	6,939.5	9,698.7	6,939.6	58.3	60.9	90.00		-2,934.3	-1,088.3	785.8	669.0	116.75	6.731	
9,700.0	6,938.8	9,798.7	6,938.9	60.1	62.7	90.00		-3,034.3	-1,088.2	785.8	665.4	120.46	6.523	
9,800.0	6,938.1	9,898.7	6,938.2	62.0	64.5	90.00		-3,134.3	-1,088.2	785.9	661.7	124.18	6.328	
9,900.0	6,937.4	9,998.7	6,937.5	63.9	66.3	90.00		-3,234.3	-1,088.1	785.9	658.0	127.91	6.144	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,000.0	6,936.7	10,098.7	6,936.8	65.7	68.1	90.00	-3,334.3	-1,088.1	786.0	654.3	131.65	5.970		
10,100.0	6,936.1	10,198.7	6,936.1	67.6	69.9	90.00	-3,434.3	-1,088.0	786.0	650.6	135.39	5.806		
10,200.0	6,935.4	10,298.7	6,935.4	69.5	71.7	90.00	-3,534.3	-1,087.9	786.0	646.9	139.14	5.649		
10,300.0	6,934.7	10,398.7	6,934.7	71.4	73.5	90.00	-3,634.3	-1,087.9	786.1	643.2	142.89	5.501		
10,400.0	6,934.0	10,498.7	6,934.0	73.2	75.3	90.00	-3,734.3	-1,087.8	786.1	639.5	146.65	5.361		
10,500.0	6,933.3	10,598.7	6,933.3	75.1	77.2	90.00	-3,834.3	-1,087.7	786.2	635.8	150.41	5.227		
10,600.0	6,932.6	10,698.7	6,932.6	77.0	79.0	90.00	-3,934.3	-1,087.7	786.2	632.1	154.18	5.100		
10,700.0	6,931.9	10,798.7	6,931.9	78.9	80.9	90.00	-4,034.3	-1,087.6	786.3	628.3	157.95	4.978		
10,800.0	6,931.2	10,898.7	6,931.2	80.8	82.7	90.00	-4,134.3	-1,087.6	786.3	624.6	161.73	4.862		
10,900.0	6,930.5	10,998.7	6,930.5	82.7	84.6	90.00	-4,234.3	-1,087.5	786.4	620.9	165.50	4.751		
11,000.0	6,929.8	11,098.7	6,929.8	84.6	86.4	90.00	-4,334.3	-1,087.4	786.4	617.1	169.28	4.646		
11,100.0	6,929.1	11,198.7	6,929.1	86.4	88.3	90.00	-4,434.3	-1,087.4	786.5	613.4	173.07	4.544		
11,200.0	6,928.4	11,298.7	6,928.4	88.3	90.1	90.00	-4,534.3	-1,087.3	786.5	609.7	176.86	4.447		
11,300.0	6,927.7	11,398.7	6,927.7	90.2	92.0	90.00	-4,634.3	-1,087.2	786.6	605.9	180.65	4.354		
11,400.0	6,927.0	11,498.7	6,927.0	92.1	93.9	90.00	-4,734.3	-1,087.2	786.6	602.2	184.44	4.265		
11,500.0	6,926.3	11,598.7	6,926.3	94.0	95.7	90.00	-4,834.2	-1,087.1	786.7	598.4	188.23	4.179		
11,600.0	6,925.6	11,698.7	6,925.6	95.9	97.6	90.00	-4,934.2	-1,087.1	786.7	594.7	192.03	4.097		
11,682.9	6,925.0	11,781.6	6,925.0	97.5	99.1	90.00	-5,017.2	-1,087.0	786.8	591.6	195.18	4.031 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-30.6	30.6						
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-30.6	30.6	30.4	0.22	136.030			
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-30.6	30.6	29.9	0.67	45.343			
300.0	300.0	300.0	300.0	0.6	0.6	-90.01	0.0	-30.6	30.6	29.5	1.12	27.206			
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-30.6	30.6	29.0	1.57	19.433			
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-30.6	30.6	28.6	2.02	15.114			
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-30.6	30.6	28.1	2.47	12.366			
700.0	700.0	700.0	700.0	1.5	1.5	-90.01	0.0	-30.6	30.6	27.7	2.92	10.464			
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	0.0	-30.6	30.6	27.2	3.37	9.069			
900.0	900.0	900.0	900.0	1.9	1.9	-90.01	0.0	-30.6	30.6	26.8	3.82	8.002			
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.01	0.0	-30.6	30.6	26.3	4.27	7.159 CC, ES			
1,100.0	1,100.0	1,098.9	1,098.9	2.4	2.3	-90.33	-0.2	-32.3	32.3	27.6	4.70	6.866			
1,200.0	1,200.0	1,197.6	1,197.4	2.6	2.5	-91.13	-0.7	-37.3	37.4	32.3	5.13	7.300			
1,300.0	1,300.0	1,295.9	1,295.4	2.8	2.8	-5.22	-1.6	-45.8	44.3	38.8	5.53	8.001			
1,400.0	1,399.8	1,394.1	1,392.8	3.0	3.0	-6.64	-2.9	-57.5	51.1	45.2	5.93	8.613			
1,500.0	1,499.5	1,492.1	1,489.6	3.2	3.3	-8.26	-4.5	-72.5	57.9	51.6	6.33	9.140			
1,600.0	1,598.7	1,591.9	1,588.0	3.5	3.6	-10.07	-6.4	-89.3	62.9	56.1	6.74	9.326			
1,677.1	1,674.9	1,668.9	1,663.9	3.7	3.8	-11.71	-7.8	-102.3	64.4	57.3	7.06	9.122			
1,700.0	1,697.5	1,691.9	1,686.6	3.7	3.9	-12.24	-8.2	-106.2	64.6	57.4	7.16	9.016			
1,800.0	1,796.1	1,791.8	1,785.1	4.0	4.2	-14.52	-10.0	-123.0	65.4	57.7	7.62	8.581			
1,900.0	1,894.7	1,891.8	1,883.6	4.3	4.5	-16.74	-11.8	-139.9	66.3	58.2	8.09	8.194			
2,000.0	1,993.3	1,991.7	1,982.1	4.6	4.9	-18.90	-13.7	-156.7	67.2	58.7	8.57	7.847			
2,100.0	2,091.9	2,091.7	2,080.6	5.0	5.3	-20.99	-15.5	-173.5	68.3	59.3	9.07	7.534			
2,200.0	2,190.6	2,191.7	2,179.1	5.3	5.6	-23.02	-17.3	-190.4	69.5	59.9	9.58	7.252			
2,300.0	2,289.2	2,291.6	2,277.7	5.7	6.0	-24.97	-19.1	-207.2	70.7	60.6	10.11	6.995			
2,400.0	2,387.8	2,391.6	2,376.2	6.0	6.4	-26.86	-21.0	-224.1	72.1	61.4	10.66	6.760			
2,500.0	2,486.4	2,491.6	2,474.7	6.4	6.7	-28.68	-22.8	-240.9	73.5	62.3	11.23	6.546			
2,600.0	2,585.0	2,591.5	2,573.2	6.7	7.1	-30.42	-24.6	-257.8	75.0	63.2	11.81	6.349			
2,700.0	2,683.6	2,691.5	2,671.7	7.1	7.5	-32.10	-26.4	-274.6	76.5	64.1	12.40	6.168			
2,800.0	2,782.3	2,791.5	2,770.2	7.4	7.9	-33.71	-28.3	-291.5	78.1	65.1	13.02	6.001			
2,900.0	2,880.9	2,891.4	2,868.8	7.8	8.3	-35.25	-30.1	-308.3	79.8	66.1	13.64	5.847			
3,000.0	2,979.5	2,991.4	2,967.3	8.2	8.6	-36.73	-31.9	-325.2	81.5	67.2	14.29	5.705			
3,046.3	3,025.1	3,037.7	3,012.9	8.4	8.8	-37.40	-32.7	-333.0	82.3	67.7	14.59	5.643			
3,100.0	3,078.2	3,091.3	3,065.8	8.5	9.0	-37.95	-33.7	-342.0	83.7	68.8	14.92	5.609			
3,200.0	3,177.3	3,191.2	3,164.2	8.8	9.4	-37.88	-35.5	-358.9	88.3	72.9	15.43	5.724			
3,300.0	3,276.9	3,290.9	3,262.5	9.0	9.8	-36.57	-37.4	-375.7	95.7	79.9	15.84	6.045			
3,400.0	3,376.7	3,390.3	3,360.4	9.2	10.2	-34.40	-39.2	-392.4	106.1	89.9	16.16	6.564			
3,500.0	3,476.7	3,489.2	3,457.9	9.4	10.6	-31.76	-41.0	-409.1	119.5	103.1	16.42	7.277			
3,523.3	3,500.0	3,512.3	3,480.6	9.4	10.7	-118.13	-41.4	-413.0	123.1	106.6	16.47	7.472			
3,600.0	3,576.7	3,587.8	3,555.1	9.5	11.0	-116.08	-42.8	-425.7	135.2	118.5	16.69	8.104			
3,700.0	3,676.7	3,686.4	3,652.2	9.7	11.3	-113.90	-44.6	-442.3	151.3	134.3	17.02	8.890			
3,800.0	3,776.7	3,784.9	3,749.3	9.9	11.7	-112.13	-46.4	-458.9	167.5	150.2	17.38	9.641			
3,900.0	3,876.7	3,883.5	3,846.4	10.1	12.1	-110.68	-48.2	-475.5	183.9	166.2	17.76	10.355			
4,000.0	3,976.7	3,982.0	3,943.6	10.3	12.5	-109.47	-50.0	-492.1	200.4	182.2	18.16	11.035			
4,100.0	4,076.7	4,080.6	4,040.7	10.4	12.9	-108.44	-51.8	-508.7	216.9	198.4	18.57	11.683			
4,200.0	4,176.7	4,179.1	4,137.8	10.6	13.3	-107.56	-53.6	-525.4	233.5	214.6	18.99	12.300			
4,300.0	4,276.7	4,277.7	4,234.9	10.8	13.7	-106.79	-55.4	-542.0	250.2	230.8	19.41	12.888			
4,400.0	4,376.7	4,376.2	4,332.1	11.0	14.0	-106.12	-57.2	-558.6	266.9	247.0	19.84	13.449			
4,500.0	4,476.7	4,474.8	4,429.2	11.2	14.4	-105.53	-59.0	-575.2	283.6	263.3	20.28	13.985			
4,600.0	4,576.7	4,574.7	4,527.7	11.4	14.8	-105.00	-60.8	-592.0	300.3	279.6	20.72	14.495			
4,700.0	4,676.7	4,685.4	4,637.2	11.6	15.1	-104.55	-62.5	-608.0	314.7	293.6	21.15	14.883			

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,776.7	4,797.2	4,748.4	11.8	15.4	-104.24	-63.8	-620.0	-620.0	325.4	303.8	21.57	15.084	
4,900.0	4,876.7	4,909.8	4,860.7	12.0	15.6	-104.05	-64.6	-627.6	-627.6	332.1	310.1	21.99	15.105	
5,000.0	4,976.7	5,022.8	4,973.6	12.1	15.8	-103.97	-65.0	-630.9	-630.9	335.0	312.6	22.40	14.955	
5,100.0	5,076.7	5,125.9	5,076.7	12.3	15.9	-103.97	-65.0	-631.0	-631.0	335.1	312.3	22.81	14.693	
5,200.0	5,176.7	5,225.9	5,176.7	12.5	16.1	-103.97	-65.0	-631.0	-631.0	335.1	311.9	23.21	14.436	
5,300.0	5,276.7	5,325.9	5,276.7	12.7	16.2	-103.97	-65.0	-631.0	-631.0	335.1	311.5	23.62	14.187	
5,400.0	5,376.7	5,425.9	5,376.7	12.9	16.4	-103.97	-65.0	-631.0	-631.0	335.1	311.1	24.03	13.945	
5,500.0	5,476.7	5,525.9	5,476.7	13.1	16.5	-103.97	-65.0	-631.0	-631.0	335.1	310.6	24.44	13.711	
5,600.0	5,576.7	5,625.9	5,576.7	13.3	16.7	-103.97	-65.0	-631.0	-631.0	335.1	310.2	24.85	13.484	
5,700.0	5,676.7	5,725.9	5,676.7	13.5	16.8	-103.97	-65.0	-631.0	-631.0	335.1	309.8	25.26	13.263	
5,800.0	5,776.7	5,825.9	5,776.7	13.7	17.0	-103.97	-65.0	-631.0	-631.0	335.1	309.4	25.68	13.049	
5,900.0	5,876.7	5,925.9	5,876.7	13.9	17.1	-103.97	-65.0	-631.0	-631.0	335.1	309.0	26.09	12.841	
6,000.0	5,976.7	6,025.9	5,976.7	14.1	17.3	-103.97	-65.0	-631.0	-631.0	335.1	308.6	26.51	12.639	
6,100.0	6,076.7	6,125.9	6,076.7	14.4	17.5	-103.97	-65.0	-631.0	-631.0	335.1	308.2	26.93	12.443	
6,200.0	6,176.7	6,225.9	6,176.7	14.6	17.6	-103.97	-65.0	-631.0	-631.0	335.1	307.7	27.35	12.253	
6,214.2	6,190.8	6,240.0	6,190.8	14.6	17.6	-103.97	-65.0	-631.0	-631.0	335.1	307.7	27.41	12.226	
6,250.0	6,226.6	6,275.8	6,226.6	14.7	17.7	76.25	-65.0	-631.0	-631.0	334.9	307.3	27.56	12.150	
6,300.0	6,276.5	6,325.7	6,276.5	14.7	17.8	76.97	-65.0	-631.0	-631.0	334.0	306.2	27.74	12.037	
6,350.0	6,325.9	6,375.1	6,325.9	14.8	17.9	78.29	-65.0	-631.0	-631.0	332.4	304.5	27.90	11.914	
6,400.0	6,374.8	6,421.2	6,372.0	14.9	17.9	79.91	-65.9	-631.0	-631.0	330.6	302.5	28.04	11.790	
6,450.0	6,422.9	6,466.9	6,417.6	15.0	18.0	81.57	-69.5	-631.0	-631.0	329.0	300.8	28.18	11.672	
6,500.0	6,470.0	6,513.2	6,463.4	15.1	18.1	83.29	-75.8	-631.0	-631.0	327.6	299.3	28.35	11.557	
6,550.0	6,515.9	6,560.0	6,509.3	15.2	18.2	85.05	-85.1	-631.0	-631.0	326.6	298.0	28.54	11.443	
6,600.0	6,560.5	6,607.4	6,555.1	15.3	18.3	86.85	-97.3	-631.0	-631.0	325.8	297.1	28.76	11.327	
6,650.0	6,603.4	6,655.5	6,600.6	15.4	18.4	88.68	-112.6	-631.0	-631.0	325.4	296.4	29.03	11.210	
6,682.8	6,630.7	6,687.4	6,630.3	15.5	18.4	89.89	-124.3	-631.0	-631.0	325.3	296.1	29.23	11.131	
6,700.0	6,644.6	6,704.1	6,645.7	15.5	18.5	90.52	-130.9	-631.0	-631.0	325.4	296.0	29.34	11.091	
6,750.0	6,683.8	6,753.5	6,690.1	15.6	18.6	92.38	-152.4	-631.0	-631.0	325.7	296.0	29.69	10.970	
6,800.0	6,720.9	6,803.5	6,733.6	15.8	18.7	94.23	-177.1	-631.0	-631.0	326.3	296.2	30.08	10.849	
6,850.0	6,755.8	6,854.3	6,776.1	16.0	18.8	96.07	-205.0	-631.0	-631.0	327.3	296.8	30.51	10.728	
6,900.0	6,788.2	6,905.9	6,817.1	16.2	19.0	97.88	-236.2	-631.0	-631.0	328.7	297.7	30.99	10.609	
6,950.0	6,818.0	6,958.3	6,856.6	16.5	19.2	99.67	-270.6	-631.0	-631.0	330.4	298.9	31.49	10.492	
7,000.0	6,845.2	7,011.5	6,894.2	16.8	19.4	101.41	-308.2	-631.0	-631.0	332.4	300.4	32.03	10.378	
7,050.0	6,869.6	7,065.5	6,929.6	17.2	19.7	103.09	-349.1	-631.0	-631.0	334.6	302.0	32.59	10.267	
7,100.0	6,891.1	7,120.4	6,962.5	17.6	20.0	104.71	-393.0	-631.0	-631.0	337.1	303.9	33.18	10.159	
7,150.0	6,909.6	7,176.2	6,992.7	18.0	20.3	106.26	-439.9	-631.0	-631.0	339.7	306.0	33.80	10.053	
7,200.0	6,925.0	7,232.9	7,019.7	18.5	20.7	107.73	-489.7	-631.0	-631.0	342.5	308.1	34.44	9.947	
7,250.0	6,937.2	7,290.4	7,043.3	19.0	21.1	109.11	-542.2	-631.0	-631.0	345.4	310.2	35.10	9.839	
7,300.0	6,946.3	7,348.8	7,063.1	19.6	21.6	110.39	-597.1	-631.0	-631.0	348.2	312.4	35.79	9.728	
7,350.0	6,952.1	7,408.0	7,078.9	20.2	22.2	111.58	-654.1	-631.0	-631.0	351.0	314.5	36.52	9.610	
7,400.0	6,954.7	7,468.0	7,090.3	20.8	22.8	112.65	-713.0	-631.0	-631.0	353.7	316.4	37.29	9.486	
7,419.5	6,954.8	7,491.7	7,093.5	21.1	23.1	113.04	-736.5	-631.0	-631.0	354.7	317.1	37.60	9.435	
7,500.0	6,954.2	7,574.0	7,102.2	22.2	24.0	114.40	-818.3	-631.0	-631.0	358.5	319.3	39.20	9.144	
7,600.0	6,953.5	7,688.4	7,108.9	23.6	25.5	115.47	-932.5	-631.0	-631.0	361.4	319.7	41.63	8.681	
7,700.0	6,952.8	7,789.9	7,108.9	25.0	26.8	115.56	-1,034.0	-631.0	-631.0	361.7	317.4	44.32	8.162	
7,800.0	6,952.1	7,889.9	7,108.8	26.6	28.3	115.64	-1,134.0	-631.0	-631.0	362.1	315.0	47.10	7.688	
7,900.0	6,951.4	7,989.9	7,108.7	28.2	29.7	115.72	-1,234.0	-631.0	-631.0	362.5	312.5	49.96	7.254	
8,000.0	6,950.7	8,089.9	7,108.6	29.8	31.3	115.79	-1,334.0	-631.0	-631.0	362.8	309.9	52.90	6.858	
8,100.0	6,950.0	8,189.9	7,108.5	31.4	32.8	115.87	-1,434.0	-631.0	-631.0	363.2	307.3	55.91	6.496	
8,200.0	6,949.3	8,289.9	7,108.4	33.1	34.5	115.95	-1,534.0	-631.0	-631.0	363.6	304.6	58.96	6.166	
8,300.0	6,948.6	8,389.9	7,108.3	34.8	36.1	116.03	-1,634.0	-631.0	-631.0	363.9	301.9	62.05	5.865	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)													
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,400.0	6,947.9	8,489.9	7,108.2	36.6	37.8	116.10	-1,734.0	-631.0	364.3	299.1	65.18	5.589	
8,500.0	6,947.2	8,589.9	7,108.1	38.3	39.4	116.18	-1,834.0	-631.0	364.7	296.3	68.35	5.335	
8,600.0	6,946.5	8,689.9	7,108.0	40.1	41.2	116.26	-1,934.0	-631.0	365.0	293.5	71.53	5.103	
8,700.0	6,945.8	8,789.9	7,107.9	41.9	42.9	116.33	-2,034.0	-631.0	365.4	290.6	74.74	4.889	
8,800.0	6,945.1	8,889.9	7,107.8	43.6	44.6	116.41	-2,134.0	-631.0	365.8	287.8	77.97	4.691	
8,900.0	6,944.4	8,989.9	7,107.7	45.5	46.4	116.49	-2,234.0	-631.0	366.1	284.9	81.22	4.508	
9,000.0	6,943.7	9,089.9	7,107.6	47.3	48.2	116.56	-2,334.0	-631.0	366.5	282.0	84.47	4.338	
9,100.0	6,943.0	9,189.9	7,107.5	49.1	49.9	116.64	-2,434.0	-631.0	366.9	279.1	87.74	4.181	
9,200.0	6,942.3	9,289.9	7,107.4	50.9	51.7	116.72	-2,534.0	-631.0	367.2	276.2	91.02	4.034	
9,300.0	6,941.6	9,389.9	7,107.3	52.7	53.5	116.79	-2,634.0	-631.0	367.6	273.3	94.31	3.898	
9,400.0	6,940.9	9,489.9	7,107.2	54.6	55.4	116.87	-2,734.0	-631.0	368.0	270.4	97.61	3.770	
9,500.0	6,940.2	9,589.9	7,107.1	56.4	57.2	116.94	-2,834.0	-631.0	368.3	267.4	100.91	3.650	
9,600.0	6,939.5	9,689.9	7,107.0	58.3	59.0	117.02	-2,934.0	-631.0	368.7	264.5	104.22	3.538	
9,700.0	6,938.8	9,789.9	7,106.9	60.1	60.8	117.09	-3,034.0	-631.0	369.1	261.6	107.53	3.432	
9,800.0	6,938.1	9,889.9	7,106.8	62.0	62.7	117.17	-3,134.0	-631.0	369.5	258.6	110.84	3.333	
9,900.0	6,937.4	9,989.9	7,106.7	63.9	64.5	117.24	-3,234.0	-631.0	369.8	255.7	114.16	3.240	
10,000.0	6,936.7	10,089.9	7,106.6	65.7	66.4	117.32	-3,334.0	-631.0	370.2	252.7	117.48	3.151	
10,100.0	6,936.1	10,189.9	7,106.5	67.6	68.2	117.39	-3,434.0	-631.0	370.6	249.8	120.80	3.068	
10,200.0	6,935.4	10,289.9	7,106.5	69.5	70.1	117.47	-3,534.0	-631.0	371.0	246.8	124.13	2.989	
10,300.0	6,934.7	10,389.9	7,106.4	71.4	71.9	117.54	-3,633.9	-631.0	371.3	243.9	127.45	2.914	
10,400.0	6,934.0	10,489.9	7,106.3	73.2	73.8	117.61	-3,733.9	-631.0	371.7	240.9	130.78	2.842	
10,500.0	6,933.3	10,589.9	7,106.2	75.1	75.6	117.69	-3,833.9	-631.0	372.1	238.0	134.10	2.775	
10,600.0	6,932.6	10,689.9	7,106.1	77.0	77.5	117.76	-3,933.9	-631.1	372.5	235.1	137.43	2.710	
10,700.0	6,931.9	10,789.9	7,106.0	78.9	79.4	117.83	-4,033.9	-631.1	372.9	232.1	140.75	2.649	
10,800.0	6,931.2	10,889.9	7,105.9	80.8	81.3	117.91	-4,133.9	-631.1	373.2	229.2	144.08	2.591	
10,900.0	6,930.5	10,989.9	7,105.8	82.7	83.1	117.98	-4,233.9	-631.1	373.6	226.2	147.40	2.535	
11,000.0	6,929.8	11,089.9	7,105.7	84.6	85.0	118.05	-4,333.9	-631.1	374.0	223.3	150.72	2.481	
11,100.0	6,929.1	11,189.9	7,105.6	86.4	86.9	118.13	-4,433.9	-631.1	374.4	220.3	154.05	2.430	
11,200.0	6,928.4	11,289.9	7,105.5	88.3	88.8	118.20	-4,533.9	-631.1	374.8	217.4	157.37	2.382	
11,300.0	6,927.7	11,389.9	7,105.4	90.2	90.6	118.27	-4,633.9	-631.1	375.2	214.5	160.68	2.335	
11,400.0	6,927.0	11,489.9	7,105.3	92.1	92.5	118.35	-4,733.9	-631.1	375.5	211.5	164.00	2.290	
11,500.0	6,926.3	11,589.9	7,105.2	94.0	94.4	118.42	-4,833.9	-631.1	375.9	208.6	167.32	2.247	
11,600.0	6,925.6	11,689.9	7,105.1	95.9	96.3	118.49	-4,933.9	-631.1	376.3	205.7	170.63	2.205	
11,682.9	6,925.0	11,772.8	7,105.0	97.5	97.9	118.55	-5,016.8	-631.1	376.6	203.3	173.37	2.172 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	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 (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	86.59	86.59	3.6	61.1	61.3				
100.0	100.0	100.0	100.0	0.1	0.1	86.59	86.59	3.6	61.1	61.3	61.0	0.22	272.542	
200.0	200.0	200.0	200.0	0.3	0.3	86.59	86.59	3.6	61.1	61.3	60.6	0.67	90.847	
300.0	300.0	300.0	300.0	0.6	0.6	86.59	86.59	3.6	61.1	61.3	60.1	1.12	54.508	
400.0	400.0	400.0	400.0	0.8	0.8	86.59	86.59	3.6	61.1	61.3	59.7	1.57	38.935	
500.0	500.0	500.0	500.0	1.0	1.0	86.59	86.59	3.6	61.1	61.3	59.2	2.02	30.282	
600.0	600.0	600.0	600.0	1.2	1.2	86.59	86.59	3.6	61.1	61.3	58.8	2.47	24.777	
700.0	700.0	700.0	700.0	1.5	1.5	86.59	86.59	3.6	61.1	61.3	58.3	2.92	20.965	
800.0	800.0	800.0	800.0	1.7	1.7	86.59	86.59	3.6	61.1	61.3	57.9	3.37	18.169	
900.0	900.0	900.0	900.0	1.9	1.9	86.59	86.59	3.6	61.1	61.3	57.4	3.82	16.032	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	86.59	86.59	3.6	61.1	61.3	57.0	4.27	14.344	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	86.59	86.59	3.6	61.1	61.3	56.5	4.72	12.978	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	86.59	86.59	3.6	61.1	61.3	56.1	5.17	11.850 CC, ES	
1,300.0	1,300.0	1,297.8	1,297.8	2.8	2.8	173.74	173.74	3.8	62.8	64.7	59.1	5.59	11.578	
1,400.0	1,399.8	1,394.9	1,394.7	3.0	3.0	174.04	174.04	4.2	67.8	75.0	69.0	5.99	12.529	
1,500.0	1,499.5	1,490.6	1,490.1	3.2	3.2	174.38	174.38	4.9	75.8	92.1	85.7	6.38	14.420	
1,600.0	1,598.7	1,584.4	1,583.2	3.5	3.4	174.69	174.69	5.8	86.8	115.8	109.0	6.78	17.074	
1,677.1	1,674.9	1,657.5	1,655.6	3.7	3.6	174.90	174.90	6.7	96.9	137.9	130.8	7.08	19.470	
1,700.0	1,697.5	1,679.4	1,677.3	3.7	3.7	174.97	174.97	6.9	100.0	144.8	137.6	7.18	20.174	
1,800.0	1,796.1	1,774.7	1,771.7	4.0	3.9	175.21	175.21	8.1	113.2	174.9	167.3	7.59	23.036	
1,900.0	1,894.7	1,870.1	1,866.2	4.3	4.2	175.38	175.38	9.2	126.5	205.0	197.0	8.01	25.584	
2,000.0	1,993.3	1,965.5	1,960.6	4.6	4.5	175.51	175.51	10.3	139.7	235.1	226.7	8.44	27.862	
2,100.0	2,091.9	2,060.8	2,055.0	5.0	4.7	175.61	175.61	11.4	153.0	265.2	256.4	8.87	29.890	
2,200.0	2,190.6	2,156.2	2,149.4	5.3	5.0	175.69	175.69	12.6	166.3	295.3	286.0	9.31	31.725	
2,300.0	2,289.2	2,251.5	2,243.9	5.7	5.3	175.75	175.75	13.7	179.5	325.4	315.7	9.75	33.380	
2,400.0	2,387.8	2,346.9	2,338.3	6.0	5.6	175.80	175.80	14.8	192.8	355.5	345.3	10.19	34.880	
2,500.0	2,486.4	2,442.3	2,432.7	6.4	5.9	175.85	175.85	15.9	206.0	385.6	375.0	10.64	36.244	
2,600.0	2,585.0	2,537.6	2,527.2	6.7	6.2	175.89	175.89	17.1	219.3	415.7	404.7	11.09	37.489	
2,700.0	2,683.6	2,633.0	2,621.6	7.1	6.5	175.92	175.92	18.2	232.5	445.8	434.3	11.54	38.630	
2,800.0	2,782.3	2,728.3	2,716.0	7.4	6.9	175.95	175.95	19.3	245.8	475.9	464.0	12.00	39.677	
2,900.0	2,880.9	2,823.7	2,810.4	7.8	7.2	175.98	175.98	20.4	259.1	506.1	493.6	12.45	40.642	
3,000.0	2,979.5	2,919.1	2,904.9	8.2	7.5	176.00	176.00	21.6	272.3	536.2	523.2	12.91	41.534	
3,046.3	3,025.1	2,963.2	2,948.6	8.4	7.6	176.01	176.01	22.1	278.4	550.1	537.0	13.12	41.924	
3,100.0	3,078.2	3,014.6	2,999.4	8.5	7.8	176.04	176.04	22.7	285.6	565.8	552.4	13.39	42.261	
3,200.0	3,177.3	3,111.0	3,094.9	8.8	8.1	176.07	176.07	23.8	299.0	592.4	578.6	13.86	42.749	
3,300.0	3,276.9	3,208.2	3,191.2	9.0	8.4	176.07	176.07	25.0	312.5	615.7	601.4	14.32	43.008	
3,400.0	3,376.7	3,306.2	3,288.2	9.2	8.8	176.05	176.05	26.1	326.1	635.6	620.8	14.76	43.063	
3,500.0	3,476.7	3,430.2	3,411.3	9.4	9.1	176.00	176.00	27.4	341.2	650.3	635.1	15.21	42.744	
3,523.3	3,500.0	3,460.2	3,441.2	9.4	9.2	88.96	88.96	27.7	344.1	652.6	637.3	15.31	42.616	
3,600.0	3,576.7	3,559.3	3,540.0	9.5	9.4	88.92	88.92	28.3	351.3	658.2	642.6	15.65	42.052	
3,700.0	3,676.7	3,689.1	3,669.7	9.7	9.6	88.90	88.90	28.6	355.6	661.5	645.4	16.10	41.086	
3,800.0	3,776.7	3,796.1	3,776.7	9.9	9.8	88.90	88.90	28.6	355.7	661.7	645.2	16.52	40.061	
3,900.0	3,876.7	3,896.1	3,876.7	10.1	10.0	88.90	88.90	28.6	355.7	661.7	644.7	16.93	39.076	
4,000.0	3,976.7	3,996.1	3,976.7	10.3	10.1	88.90	88.90	28.6	355.7	661.7	644.3	17.35	38.133	
4,100.0	4,076.7	4,096.1	4,076.7	10.4	10.3	88.90	88.90	28.6	355.7	661.7	643.9	17.77	37.232	
4,200.0	4,176.7	4,196.1	4,176.7	10.6	10.5	88.90	88.90	28.6	355.7	661.7	643.5	18.19	36.369	
4,300.0	4,276.7	4,296.1	4,276.7	10.8	10.7	88.90	88.90	28.6	355.7	661.7	643.1	18.62	35.543	
4,400.0	4,376.7	4,396.1	4,376.7	11.0	10.9	88.90	88.90	28.6	355.7	661.7	642.6	19.04	34.752	
4,500.0	4,476.7	4,496.1	4,476.7	11.2	11.1	88.90	88.90	28.6	355.7	661.7	642.2	19.47	33.992	
4,600.0	4,576.7	4,596.1	4,576.7	11.4	11.3	88.90	88.90	28.6	355.7	661.7	641.8	19.89	33.264	
4,700.0	4,676.7	4,696.1	4,676.7	11.6	11.5	88.90	88.90	28.6	355.7	661.7	641.4	20.32	32.565	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,776.7	4,796.1	4,776.7	11.8	11.7	88.90		28.6	355.7	661.7	640.9	20.75	31.892	
4,900.0	4,876.7	4,896.1	4,876.7	12.0	11.9	88.90		28.6	355.7	661.7	640.5	21.18	31.246	
5,000.0	4,976.7	4,996.1	4,976.7	12.1	12.1	88.90		28.6	355.7	661.7	640.1	21.61	30.624	
5,100.0	5,076.7	5,096.1	5,076.7	12.3	12.2	88.90		28.6	355.7	661.7	639.6	22.04	30.026	
5,200.0	5,176.7	5,196.1	5,176.7	12.5	12.4	88.90		28.6	355.7	661.7	639.2	22.47	29.449	
5,300.0	5,276.7	5,296.1	5,276.7	12.7	12.6	88.90		28.6	355.7	661.7	638.8	22.90	28.894	
5,400.0	5,376.7	5,396.1	5,376.7	12.9	12.8	88.90		28.6	355.7	661.7	638.3	23.33	28.358	
5,500.0	5,476.7	5,496.1	5,476.7	13.1	13.0	88.90		28.6	355.7	661.7	637.9	23.77	27.841	
5,600.0	5,576.7	5,596.1	5,576.7	13.3	13.2	88.90		28.6	355.7	661.7	637.5	24.20	27.341	
5,700.0	5,676.7	5,696.1	5,676.7	13.5	13.4	88.90		28.6	355.7	661.7	637.0	24.64	26.859	
5,800.0	5,776.7	5,796.1	5,776.7	13.7	13.7	88.90		28.6	355.7	661.7	636.6	25.07	26.393	
5,900.0	5,876.7	5,896.1	5,876.7	13.9	13.9	88.90		28.6	355.7	661.7	636.2	25.51	25.942	
6,000.0	5,976.7	5,996.1	5,976.7	14.1	14.1	88.90		28.6	355.7	661.7	635.7	25.94	25.506	
6,100.0	6,076.7	6,096.1	6,076.7	14.4	14.3	88.90		28.6	355.7	661.7	635.3	26.38	25.084	
6,200.0	6,176.7	6,196.1	6,176.7	14.6	14.5	88.90		28.6	355.7	661.7	634.9	26.82	24.675	
6,214.2	6,190.8	6,210.3	6,190.8	14.6	14.5	88.90		28.6	355.7	661.7	634.8	26.88	24.618	
6,250.0	6,226.6	6,246.6	6,227.2	14.7	14.6	-91.04		27.8	355.8	661.7	634.7	27.02	24.488	
6,300.0	6,276.5	6,297.5	6,277.9	14.7	14.7	-91.04		23.8	355.8	661.7	634.5	27.20	24.329	
6,350.0	6,325.9	6,348.3	6,328.1	14.8	14.7	-91.04		16.3	355.8	661.7	634.3	27.37	24.176	
6,400.0	6,374.8	6,399.1	6,377.8	14.9	14.8	-91.03		5.6	355.8	661.7	634.1	27.54	24.025	
6,450.0	6,422.9	6,449.9	6,426.6	15.0	14.9	-91.01		-8.4	355.8	661.6	633.9	27.72	23.873	
6,500.0	6,470.0	6,500.7	6,474.4	15.1	15.0	-90.99		-25.6	355.8	661.6	633.7	27.90	23.713	
6,550.0	6,515.9	6,551.5	6,520.9	15.2	15.1	-90.97		-46.0	355.8	661.6	633.5	28.10	23.541	
6,600.0	6,560.5	6,602.2	6,565.9	15.3	15.2	-90.94		-69.3	355.8	661.6	633.3	28.33	23.351	
6,650.0	6,603.4	6,653.0	6,609.3	15.4	15.3	-90.91		-95.7	355.8	661.6	633.0	28.60	23.135	
6,700.0	6,644.6	6,703.7	6,650.8	15.5	15.4	-90.87		-124.8	355.8	661.6	632.7	28.90	22.889	
6,750.0	6,683.8	6,754.3	6,690.3	15.6	15.6	-90.84		-156.5	355.9	661.5	632.3	29.26	22.608	
6,800.0	6,720.9	6,805.0	6,727.5	15.8	15.8	-90.79		-190.8	355.9	661.5	631.8	29.68	22.288	
6,850.0	6,755.8	6,855.6	6,762.4	16.0	16.0	-90.75		-227.5	355.9	661.5	631.3	30.17	21.927	
6,900.0	6,788.2	6,906.1	6,794.7	16.2	16.2	-90.70		-266.4	355.9	661.5	630.7	30.73	21.525	
6,950.0	6,818.0	6,956.7	6,824.4	16.5	16.5	-90.64		-307.2	355.9	661.4	630.1	31.37	21.084	
7,000.0	6,845.2	7,007.1	6,851.3	16.8	16.8	-90.59		-350.0	356.0	661.4	629.3	32.09	20.608	
7,050.0	6,869.6	7,057.6	6,875.2	17.2	17.2	-90.53		-394.3	356.0	661.4	628.5	32.90	20.100	
7,100.0	6,891.1	7,108.0	6,896.2	17.6	17.6	-90.47		-440.1	356.0	661.3	627.5	33.80	19.569	
7,150.0	6,909.6	7,158.3	6,914.1	18.0	18.1	-90.41		-487.1	356.0	661.3	626.5	34.77	19.020	
7,200.0	6,925.0	7,208.6	6,928.9	18.5	18.6	-90.35		-535.2	356.1	661.3	625.5	35.82	18.462	
7,250.0	6,937.2	7,258.8	6,940.5	19.0	19.1	-90.28		-584.1	356.1	661.2	624.3	36.94	17.900	
7,300.0	6,946.3	7,309.0	6,948.8	19.6	19.7	-90.21		-633.6	356.1	661.2	623.1	38.13	17.342	
7,350.0	6,952.1	7,359.1	6,953.8	20.2	20.3	-90.15		-683.4	356.2	661.2	621.8	39.37	16.793	
7,400.0	6,954.7	7,409.2	6,955.6	20.8	20.9	-90.08		-733.5	356.2	661.2	620.5	40.66	16.259	
7,419.5	6,954.8	7,428.7	6,955.5	21.1	21.2	-90.06		-753.0	356.2	661.1	620.0	41.18	16.054	
7,500.0	6,954.2	7,509.2	6,954.9	22.2	22.3	-90.06		-833.5	356.2	661.1	617.7	43.38	15.238	
7,600.0	6,953.5	7,609.2	6,954.2	23.6	23.7	-90.06		-933.5	356.3	661.1	614.8	46.26	14.289	
7,700.0	6,952.8	7,709.2	6,953.5	25.0	25.1	-90.06		-1,033.5	356.4	661.0	611.7	49.27	13.415	
7,800.0	6,952.1	7,809.2	6,952.7	26.6	26.7	-90.05		-1,133.5	356.4	660.9	608.6	52.39	12.615	
7,900.0	6,951.4	7,909.2	6,952.0	28.2	28.3	-90.05		-1,233.5	356.5	660.9	605.3	55.61	11.885	
8,000.0	6,950.7	8,009.2	6,951.3	29.8	29.9	-90.05		-1,333.5	356.5	660.8	601.9	58.89	11.221	
8,100.0	6,950.0	8,109.2	6,950.6	31.4	31.5	-90.05		-1,433.5	356.6	660.8	598.5	62.25	10.616	
8,200.0	6,949.3	8,209.2	6,949.9	33.1	33.2	-90.05		-1,533.5	356.6	660.7	595.1	65.65	10.064	
8,300.0	6,948.6	8,309.2	6,949.2	34.8	34.9	-90.05		-1,633.5	356.7	660.7	591.6	69.11	9.560	
8,400.0	6,947.9	8,409.2	6,948.4	36.6	36.7	-90.05		-1,733.5	356.8	660.6	588.0	72.60	9.099	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)													
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
8,500.0	6,947.2	8,509.2	6,947.7	38.3	38.4	-90.04	-1,833.5	356.8	660.6	584.4	76.13	8.677	
8,600.0	6,946.5	8,609.2	6,947.0	40.1	40.2	-90.04	-1,933.5	356.9	660.5	580.8	79.69	8.289	
8,700.0	6,945.8	8,709.2	6,946.3	41.9	42.0	-90.04	-2,033.5	356.9	660.5	577.2	83.27	7.932	
8,800.0	6,945.1	8,809.2	6,945.6	43.6	43.8	-90.04	-2,133.5	357.0	660.4	573.5	86.87	7.602	
8,900.0	6,944.4	8,909.2	6,944.9	45.5	45.6	-90.04	-2,233.5	357.0	660.4	569.9	90.50	7.297	
9,000.0	6,943.7	9,009.2	6,944.1	47.3	47.4	-90.04	-2,333.4	357.1	660.3	566.2	94.14	7.014	
9,100.0	6,943.0	9,109.2	6,943.4	49.1	49.2	-90.04	-2,433.4	357.2	660.3	562.4	97.80	6.751	
9,200.0	6,942.3	9,209.2	6,942.7	50.9	51.0	-90.03	-2,533.4	357.2	660.2	558.7	101.48	6.506	
9,300.0	6,941.6	9,309.2	6,942.0	52.7	52.9	-90.03	-2,633.4	357.3	660.1	555.0	105.16	6.277	
9,400.0	6,940.9	9,409.2	6,941.3	54.6	54.7	-90.03	-2,733.4	357.3	660.1	551.2	108.86	6.064	
9,500.0	6,940.2	9,509.2	6,940.6	56.4	56.5	-90.03	-2,833.4	357.4	660.0	547.5	112.57	5.863	
9,600.0	6,939.5	9,609.2	6,939.9	58.3	58.4	-90.03	-2,933.4	357.4	660.0	543.7	116.28	5.676	
9,700.0	6,938.8	9,709.2	6,939.1	60.1	60.3	-90.03	-3,033.4	357.5	659.9	539.9	120.01	5.499	
9,800.0	6,938.1	9,809.2	6,938.4	62.0	62.1	-90.02	-3,133.4	357.6	659.9	536.1	123.74	5.333	
9,900.0	6,937.4	9,909.2	6,937.7	63.9	64.0	-90.02	-3,233.4	357.6	659.8	532.3	127.48	5.176	
10,000.0	6,936.7	10,009.2	6,937.0	65.7	65.8	-90.02	-3,333.4	357.7	659.8	528.5	131.23	5.028	
10,100.0	6,936.1	10,109.2	6,936.3	67.6	67.7	-90.02	-3,433.4	357.7	659.7	524.7	134.98	4.888	
10,200.0	6,935.4	10,209.2	6,935.6	69.5	69.6	-90.02	-3,533.4	357.8	659.7	520.9	138.73	4.755	
10,300.0	6,934.7	10,309.2	6,934.8	71.4	71.5	-90.02	-3,633.4	357.8	659.6	517.1	142.50	4.629	
10,400.0	6,934.0	10,409.2	6,934.1	73.2	73.3	-90.02	-3,733.4	357.9	659.6	513.3	146.26	4.509	
10,500.0	6,933.3	10,509.2	6,933.4	75.1	75.2	-90.01	-3,833.4	358.0	659.5	509.5	150.03	4.396	
10,600.0	6,932.6	10,609.2	6,932.7	77.0	77.1	-90.01	-3,933.4	358.0	659.5	505.6	153.81	4.288	
10,700.0	6,931.9	10,709.2	6,932.0	78.9	79.0	-90.01	-4,033.4	358.1	659.4	501.8	157.59	4.184	
10,800.0	6,931.2	10,809.2	6,931.3	80.8	80.9	-90.01	-4,133.4	358.1	659.3	498.0	161.37	4.086	
10,900.0	6,930.5	10,909.2	6,930.6	82.7	82.8	-90.01	-4,233.4	358.2	659.3	494.1	165.15	3.992	
11,000.0	6,929.8	11,009.2	6,929.8	84.6	84.7	-90.01	-4,333.4	358.2	659.2	490.3	168.94	3.902	
11,100.0	6,929.1	11,109.2	6,929.1	86.4	86.6	-90.00	-4,433.4	358.3	659.2	486.5	172.73	3.816	
11,200.0	6,928.4	11,209.2	6,928.4	88.3	88.4	-90.00	-4,533.4	358.3	659.1	482.6	176.52	3.734	
11,300.0	6,927.7	11,309.2	6,927.7	90.2	90.3	-90.00	-4,633.4	358.4	659.1	478.8	180.32	3.655	
11,400.0	6,927.0	11,409.2	6,927.0	92.1	92.2	-90.00	-4,733.4	358.5	659.0	474.9	184.11	3.579	
11,500.0	6,926.3	11,509.2	6,926.3	94.0	94.1	-90.00	-4,833.4	358.5	659.0	471.1	187.91	3.507	
11,600.0	6,925.6	11,609.2	6,925.5	95.9	96.0	-90.00	-4,933.4	358.6	658.9	467.2	191.68	3.438	
11,660.1	6,925.2	11,669.3	6,925.1	97.1	96.9	-90.00	-4,993.5	358.6	658.9	465.1	193.75	3.401	
11,682.9	6,925.0	11,685.2	6,925.0	97.5	97.2	-90.00	-5,009.4	358.6	658.9	464.5	194.43	3.389 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	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)	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	83.20	3.6	30.6	30.8					
100.0	100.0	100.0	100.0	0.1	0.1	83.20	3.6	30.6	30.8	30.6	0.22	136.992		
200.0	200.0	200.0	200.0	0.3	0.3	83.20	3.6	30.6	30.8	30.1	0.67	45.664		
300.0	300.0	300.0	300.0	0.6	0.6	83.20	3.6	30.6	30.8	29.7	1.12	27.398		
400.0	400.0	400.0	400.0	0.8	0.8	83.20	3.6	30.6	30.8	29.2	1.57	19.570		
500.0	500.0	500.0	500.0	1.0	1.0	83.20	3.6	30.6	30.8	28.8	2.02	15.221		
600.0	600.0	600.0	600.0	1.2	1.2	83.20	3.6	30.6	30.8	28.3	2.47	12.454		
700.0	700.0	700.0	700.0	1.5	1.5	83.20	3.6	30.6	30.8	27.9	2.92	10.538		
800.0	800.0	800.0	800.0	1.7	1.7	83.20	3.6	30.6	30.8	27.4	3.37	9.133		
900.0	900.0	900.0	900.0	1.9	1.9	83.20	3.6	30.6	30.8	27.0	3.82	8.058		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	83.20	3.6	30.6	30.8	26.5	4.27	7.210		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	83.20	3.6	30.6	30.8	26.1	4.72	6.523		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	83.20	3.6	30.6	30.8	25.6	5.17	5.956 CC, ES		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	170.74	3.6	30.6	32.5	26.9	5.60	5.801		
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	172.01	3.6	30.6	37.7	31.7	6.02	6.257		
1,500.0	1,499.5	1,499.5	1,499.5	3.2	3.3	173.49	3.6	30.6	46.3	39.9	6.44	7.195		
1,600.0	1,598.7	1,598.7	1,598.7	3.5	3.5	174.82	3.6	30.6	58.5	51.6	6.85	8.532		
1,677.1	1,674.9	1,674.9	1,674.9	3.7	3.7	175.67	3.6	30.6	70.2	63.0	7.17	9.792		
1,700.0	1,697.5	1,697.5	1,697.5	3.7	3.7	175.89	3.6	30.6	74.0	66.7	7.27	10.180		
1,800.0	1,796.1	1,796.1	1,796.1	4.0	3.9	176.64	3.6	30.6	90.5	82.8	7.70	11.751		
1,900.0	1,894.7	1,894.7	1,894.7	4.3	4.1	177.16	3.6	30.6	107.1	98.9	8.14	13.147		
2,000.0	1,993.3	1,993.3	1,993.3	4.6	4.4	177.54	3.6	30.6	123.6	115.0	8.59	14.395		
2,100.0	2,091.9	2,091.9	2,091.9	5.0	4.6	177.83	3.6	30.6	140.2	131.1	9.03	15.516		
2,200.0	2,190.6	2,190.6	2,190.6	5.3	4.8	178.06	3.6	30.6	156.7	147.3	9.48	16.526		
2,300.0	2,289.2	2,289.2	2,289.2	5.7	5.0	178.25	3.6	30.6	173.3	163.4	9.94	17.441		
2,400.0	2,387.8	2,387.8	2,387.8	6.0	5.3	178.40	3.6	30.6	189.9	179.5	10.39	18.274		
2,500.0	2,486.4	2,486.4	2,486.4	6.4	5.5	178.53	3.6	30.6	206.4	195.6	10.85	19.033		
2,600.0	2,585.0	2,585.0	2,585.0	6.7	5.7	178.64	3.6	30.6	223.0	211.7	11.30	19.729		
2,700.0	2,683.6	2,683.6	2,683.6	7.1	5.9	178.73	3.6	30.6	239.6	227.8	11.76	20.369		
2,800.0	2,782.3	2,782.3	2,782.3	7.4	6.1	178.81	3.6	30.6	256.2	243.9	12.22	20.958		
2,900.0	2,880.9	2,880.9	2,880.9	7.8	6.4	178.89	3.6	30.6	272.7	260.0	12.68	21.504		
3,000.0	2,979.5	2,979.5	2,979.5	8.2	6.6	178.95	3.6	30.6	289.3	276.2	13.14	22.009		
3,046.3	3,025.1	3,025.1	3,025.1	8.4	6.7	178.98	3.6	30.6	297.0	283.6	13.36	22.231		
3,100.0	3,078.2	3,078.2	3,078.2	8.5	6.8	179.01	3.6	30.6	305.4	291.8	13.62	22.421		
3,200.0	3,177.3	3,177.3	3,177.3	8.8	7.0	179.05	3.6	30.6	318.4	304.3	14.08	22.615		
3,300.0	3,276.9	3,276.9	3,276.9	9.0	7.3	179.08	3.6	30.6	327.9	313.4	14.52	22.584		
3,400.0	3,376.7	3,376.7	3,376.7	9.2	7.5	179.10	3.6	30.6	333.9	319.0	14.94	22.351		
3,500.0	3,476.7	3,476.7	3,476.7	9.4	7.7	179.11	3.6	30.6	336.5	321.2	15.34	21.933		
3,523.3	3,500.0	3,500.0	3,500.0	9.4	7.8	92.09	3.6	30.6	336.6	321.2	15.43	21.810		
3,600.0	3,576.7	3,576.7	3,576.7	9.5	7.9	92.09	3.6	30.6	336.6	320.8	15.76	21.363		
3,700.0	3,676.7	3,676.7	3,676.7	9.7	8.2	92.09	3.6	30.6	336.6	320.4	16.19	20.793		
3,800.0	3,776.7	3,776.7	3,776.7	9.9	8.4	92.09	3.6	30.6	336.6	320.0	16.62	20.251		
3,900.0	3,876.7	3,876.7	3,876.7	10.1	8.6	92.09	3.6	30.6	336.6	319.5	17.06	19.736		
4,000.0	3,976.7	3,976.7	3,976.7	10.3	8.8	92.09	3.6	30.6	336.6	319.1	17.49	19.245		
4,100.0	4,076.7	4,076.7	4,076.7	10.4	9.1	92.09	3.6	30.6	336.6	318.7	17.93	18.778		
4,200.0	4,176.7	4,176.7	4,176.7	10.6	9.3	92.09	3.6	30.6	336.6	318.2	18.36	18.331		
4,300.0	4,276.7	4,276.7	4,276.7	10.8	9.5	92.09	3.6	30.6	336.6	317.8	18.80	17.906		
4,400.0	4,376.7	4,376.7	4,376.7	11.0	9.7	92.09	3.6	30.6	336.6	317.4	19.24	17.498		
4,500.0	4,476.7	4,476.7	4,476.7	11.2	9.9	92.09	3.6	30.6	336.6	316.9	19.67	17.109		
4,600.0	4,576.7	4,576.7	4,576.7	11.4	10.2	92.09	3.6	30.6	336.6	316.5	20.11	16.736		
4,700.0	4,676.7	4,676.7	4,676.7	11.6	10.4	92.09	3.6	30.6	336.6	316.0	20.55	16.379		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-403 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,800.0	4,776.7	4,776.7	4,776.7	11.8	10.6	92.09	92.09	3.6	30.6	336.6	315.6	20.99	16.036	
4,900.0	4,876.7	4,876.7	4,876.7	12.0	10.8	92.09	92.09	3.6	30.6	336.6	315.2	21.43	15.707	
5,000.0	4,976.7	4,976.7	4,976.7	12.1	11.1	92.09	92.09	3.6	30.6	336.6	314.7	21.87	15.391	
5,100.0	5,076.7	5,076.7	5,076.7	12.3	11.3	92.09	92.09	3.6	30.6	336.6	314.3	22.31	15.087	
5,200.0	5,176.7	5,176.7	5,176.7	12.5	11.5	92.09	92.09	3.6	30.6	336.6	313.8	22.75	14.794	
5,300.0	5,276.7	5,276.7	5,276.7	12.7	11.7	92.09	92.09	3.6	30.6	336.6	313.4	23.19	14.513	
5,400.0	5,376.7	5,376.7	5,376.7	12.9	12.0	92.09	92.09	3.6	30.6	336.6	313.0	23.63	14.242	
5,500.0	5,476.7	5,476.7	5,476.7	13.1	12.2	92.09	92.09	3.6	30.6	336.6	312.5	24.08	13.980	
5,600.0	5,576.7	5,576.7	5,576.7	13.3	12.4	92.09	92.09	3.6	30.6	336.6	312.1	24.52	13.728	
5,700.0	5,676.7	5,676.7	5,676.7	13.5	12.6	92.09	92.09	3.6	30.6	336.6	311.6	24.96	13.485	
5,800.0	5,776.7	5,776.7	5,776.7	13.7	12.9	92.09	92.09	3.6	30.6	336.6	311.2	25.40	13.250	
5,854.6	5,831.3	5,831.3	5,831.3	13.9	13.0	92.09	92.09	3.6	30.6	336.6	311.0	25.65	13.125	
5,900.0	5,876.7	5,876.5	5,876.5	13.9	13.1	92.11	92.11	3.5	30.6	336.6	310.8	25.84	13.027	
6,000.0	5,976.7	5,976.0	5,976.0	14.1	13.3	92.56	92.56	0.9	30.6	336.7	310.5	26.23	12.838	
6,100.0	6,076.7	6,075.2	6,075.0	14.4	13.4	93.59	93.59	-5.2	30.6	337.0	310.4	26.61	12.666	
6,200.0	6,176.7	6,173.9	6,173.2	14.6	13.6	95.19	95.19	-14.6	30.6	337.8	310.8	27.00	12.512	
6,214.2	6,190.8	6,187.8	6,187.0	14.6	13.6	95.46	95.46	-16.3	30.6	337.9	310.9	27.05	12.492	
6,250.0	6,226.6	6,223.0	6,222.0	14.7	13.7	-83.85	-83.85	-20.6	30.6	338.3	311.1	27.18	12.445	
6,300.0	6,276.5	6,272.3	6,270.8	14.7	13.8	-83.34	-83.34	-27.4	30.6	338.6	311.2	27.35	12.380	
6,350.0	6,325.9	6,321.6	6,319.5	14.8	13.8	-83.24	-83.24	-35.1	30.6	338.7	311.1	27.52	12.306	
6,400.0	6,374.8	6,371.2	6,368.3	14.9	13.9	-83.59	-83.59	-43.6	30.6	338.4	310.7	27.69	12.221	
6,450.0	6,422.9	6,420.9	6,417.3	15.0	14.0	-84.47	-84.47	-52.2	30.5	337.9	310.0	27.87	12.123	
6,500.0	6,470.0	6,470.2	6,465.9	15.1	14.1	-85.91	-85.91	-60.8	30.5	337.2	309.1	28.06	12.016	
6,550.0	6,515.9	6,518.1	6,512.7	15.2	14.2	-87.60	-87.60	-70.4	30.5	336.5	308.3	28.26	11.910	
6,600.0	6,560.5	6,566.5	6,559.4	15.3	14.3	-89.31	-89.31	-83.1	30.5	336.2	307.8	28.48	11.808	
6,624.2	6,581.5	6,590.1	6,581.9	15.3	14.4	-90.15	-90.15	-90.4	30.5	336.2	307.6	28.59	11.760	
6,650.0	6,603.4	6,615.5	6,605.8	15.4	14.4	-91.04	-91.04	-99.0	30.5	336.3	307.5	28.71	11.711	
6,700.0	6,644.6	6,665.2	6,651.6	15.5	14.5	-92.76	-92.76	-118.1	30.5	336.6	307.6	28.98	11.616	
6,750.0	6,683.8	6,715.5	6,696.8	15.6	14.7	-94.49	-94.49	-140.5	30.5	337.2	307.9	29.27	11.522	
6,800.0	6,720.9	6,766.6	6,740.9	15.8	14.9	-96.20	-96.20	-166.1	30.5	338.1	308.6	29.59	11.427	
6,850.0	6,755.8	6,818.5	6,783.9	16.0	15.0	-97.89	-97.89	-195.1	30.5	339.4	309.4	29.96	11.329	
6,900.0	6,788.2	6,871.1	6,825.4	16.2	15.3	-99.55	-99.55	-227.5	30.5	340.9	310.5	30.37	11.225	
6,950.0	6,818.0	6,924.5	6,865.1	16.5	15.5	-101.16	-101.16	-263.2	30.4	342.6	311.8	30.83	11.114	
7,000.0	6,845.2	6,978.8	6,902.8	16.8	15.8	-102.73	-102.73	-302.1	30.4	344.6	313.3	31.35	10.992	
7,050.0	6,869.6	7,033.8	6,938.2	17.2	16.2	-104.23	-104.23	-344.3	30.4	346.8	314.8	31.94	10.857	
7,100.0	6,891.1	7,089.7	6,970.8	17.6	16.6	-105.67	-105.67	-389.6	30.4	349.1	316.5	32.60	10.707	
7,150.0	6,909.6	7,146.4	7,000.5	18.0	17.1	-107.03	-107.03	-437.9	30.3	351.4	318.1	33.34	10.541	
7,200.0	6,925.0	7,203.9	7,026.9	18.5	17.6	-108.31	-108.31	-489.0	30.3	353.9	319.7	34.17	10.358	
7,250.0	6,937.2	7,262.2	7,049.6	19.0	18.2	-109.50	-109.50	-542.7	30.3	356.3	321.2	35.08	10.156	
7,300.0	6,946.3	7,321.3	7,068.4	19.6	18.8	-110.59	-110.59	-598.7	30.3	358.7	322.6	36.08	9.940	
7,350.0	6,952.1	7,381.1	7,082.9	20.2	19.5	-111.58	-111.58	-656.7	30.2	360.9	323.7	37.17	9.709	
7,400.0	6,954.7	7,441.5	7,093.0	20.8	20.3	-112.47	-112.47	-716.3	30.2	363.0	324.7	38.35	9.466	
7,419.5	6,954.8	7,464.2	7,095.6	21.1	20.6	-112.77	-112.77	-738.8	30.2	363.8	325.0	38.82	9.372	
7,500.0	6,954.2	7,545.8	7,104.0	22.2	21.6	-114.08	-114.08	-820.0	30.1	367.2	326.7	40.55	9.056	
7,600.0	6,953.5	7,660.2	7,109.0	23.6	23.3	-114.91	-114.91	-934.2	30.1	369.2	326.0	43.15	8.556	
7,700.0	6,952.8	7,760.2	7,108.9	25.0	24.7	-115.01	-115.01	-1,034.2	30.0	369.3	323.4	45.87	8.052	
7,800.0	6,952.1	7,860.2	7,108.8	26.6	26.3	-115.10	-115.10	-1,134.2	30.0	369.4	320.7	48.68	7.589	
7,900.0	6,951.4	7,960.2	7,108.7	28.2	27.9	-115.20	-115.20	-1,234.2	29.9	369.5	317.9	51.57	7.165	
8,000.0	6,950.7	8,060.2	7,108.6	29.8	29.5	-115.29	-115.29	-1,334.2	29.9	369.6	315.1	54.53	6.778	
8,100.0	6,950.0	8,160.2	7,108.5	31.4	31.2	-115.39	-115.39	-1,434.2	29.8	369.7	312.2	57.55	6.424	
8,200.0	6,949.3	8,260.2	7,108.4	33.1	32.9	-115.48	-115.48	-1,534.2	29.7	369.8	309.2	60.62	6.101	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	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 Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
8,300.0	6,948.6	8,360.2	7,108.3	34.8	34.6	-115.58	-1,634.2	29.7	369.9	306.2	63.72	5.805		
8,400.0	6,947.9	8,460.2	7,108.2	36.6	36.3	-115.67	-1,734.2	29.6	370.0	303.2	66.86	5.534		
8,500.0	6,947.2	8,560.2	7,108.1	38.3	38.1	-115.77	-1,834.2	29.6	370.1	300.1	70.03	5.285		
8,600.0	6,946.5	8,660.2	7,108.0	40.1	39.8	-115.86	-1,934.2	29.5	370.3	297.0	73.23	5.056		
8,700.0	6,945.8	8,760.2	7,107.9	41.9	41.6	-115.96	-2,034.2	29.5	370.4	293.9	76.44	4.845		
8,800.0	6,945.1	8,860.2	7,107.8	43.6	43.4	-116.05	-2,134.2	29.4	370.5	290.8	79.67	4.650		
8,900.0	6,944.4	8,960.2	7,107.7	45.5	45.2	-116.15	-2,234.2	29.4	370.6	287.7	82.92	4.469		
9,000.0	6,943.7	9,060.2	7,107.6	47.3	47.0	-116.24	-2,334.2	29.3	370.7	284.5	86.18	4.302		
9,100.0	6,943.0	9,160.2	7,107.5	49.1	48.8	-116.34	-2,434.2	29.2	370.8	281.4	89.44	4.146		
9,200.0	6,942.3	9,260.2	7,107.4	50.9	50.7	-116.43	-2,534.2	29.2	370.9	278.2	92.72	4.001		
9,300.0	6,941.6	9,360.2	7,107.3	52.7	52.5	-116.52	-2,634.2	29.1	371.1	275.1	96.01	3.865		
9,400.0	6,940.9	9,460.2	7,107.2	54.6	54.4	-116.62	-2,734.2	29.1	371.2	271.9	99.30	3.738		
9,500.0	6,940.2	9,560.2	7,107.1	56.4	56.2	-116.71	-2,834.2	29.0	371.3	268.7	102.59	3.619		
9,600.0	6,939.5	9,660.2	7,107.0	58.3	58.1	-116.81	-2,934.2	29.0	371.4	265.5	105.89	3.508		
9,700.0	6,938.8	9,760.1	7,106.9	60.1	59.9	-116.90	-3,034.2	28.9	371.5	262.4	109.20	3.403		
9,800.0	6,938.1	9,860.1	7,106.8	62.0	61.8	-117.00	-3,134.2	28.8	371.7	259.2	112.50	3.304		
9,900.0	6,937.4	9,960.1	7,106.8	63.9	63.7	-117.09	-3,234.2	28.8	371.8	256.0	115.81	3.210		
10,000.0	6,936.7	10,060.1	7,106.7	65.7	65.5	-117.18	-3,334.1	28.7	371.9	252.8	119.12	3.122		
10,100.0	6,936.1	10,160.1	7,106.6	67.6	67.4	-117.28	-3,434.1	28.7	372.0	249.6	122.43	3.039		
10,200.0	6,935.4	10,260.1	7,106.5	69.5	69.3	-117.37	-3,534.1	28.6	372.2	246.4	125.74	2.960		
10,300.0	6,934.7	10,360.1	7,106.4	71.4	71.1	-117.46	-3,634.1	28.6	372.3	243.3	129.04	2.885		
10,400.0	6,934.0	10,460.1	7,106.3	73.2	73.0	-117.56	-3,734.1	28.5	372.4	240.1	132.35	2.814		
10,500.0	6,933.3	10,560.1	7,106.2	75.1	74.9	-117.65	-3,834.1	28.5	372.6	236.9	135.66	2.746		
10,600.0	6,932.6	10,660.1	7,106.1	77.0	76.8	-117.75	-3,934.1	28.4	372.7	233.7	138.97	2.682		
10,700.0	6,931.9	10,760.1	7,106.0	78.9	78.7	-117.84	-4,034.1	28.3	372.8	230.6	142.27	2.621		
10,800.0	6,931.2	10,860.1	7,105.9	80.8	80.6	-117.93	-4,134.1	28.3	373.0	227.4	145.57	2.562		
10,900.0	6,930.5	10,960.1	7,105.8	82.7	82.5	-118.03	-4,234.1	28.2	373.1	224.2	148.87	2.506		
11,000.0	6,929.8	11,060.1	7,105.7	84.6	84.3	-118.12	-4,334.1	28.2	373.2	221.1	152.17	2.453		
11,100.0	6,929.1	11,160.1	7,105.6	86.4	86.2	-118.21	-4,434.1	28.1	373.4	217.9	155.47	2.402		
11,200.0	6,928.4	11,260.1	7,105.5	88.3	88.1	-118.30	-4,534.1	28.1	373.5	214.7	158.76	2.353		
11,300.0	6,927.7	11,360.1	7,105.4	90.2	90.0	-118.40	-4,634.1	28.0	373.6	211.6	162.05	2.306		
11,400.0	6,927.0	11,460.1	7,105.3	92.1	91.9	-118.49	-4,734.1	28.0	373.8	208.4	165.34	2.261		
11,500.0	6,926.3	11,560.1	7,105.2	94.0	93.8	-118.58	-4,834.1	27.9	373.9	205.3	168.62	2.218		
11,600.0	6,925.6	11,660.1	7,105.1	95.9	95.7	-118.68	-4,934.1	27.8	374.1	202.2	171.90	2.176		
11,641.5	6,925.3	11,701.6	7,105.0	96.7	96.5	-118.72	-4,975.6	27.8	374.1	200.9	173.26	2.159		
11,682.9	6,925.0	11,739.0	7,105.0	97.5	97.2	-118.75	-5,013.0	27.8	374.2	199.6	174.55	2.144 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	87.65	87.65	3.6	88.9	89.0	88.8	0.22	396.056	
100.0	100.0	100.0	100.0	0.1	0.1	87.65	87.65	3.6	88.9	89.0	88.8	0.67	132.019	
200.0	200.0	200.0	200.0	0.3	0.3	87.65	87.65	3.6	88.9	89.0	87.9	1.12	79.211	
300.0	300.0	300.0	300.0	0.6	0.6	87.65	87.65	3.6	88.9	89.0	87.4	1.57	56.579	
400.0	400.0	400.0	400.0	0.8	0.8	87.65	87.65	3.6	88.9	89.0	87.0	2.02	44.006	
500.0	500.0	500.0	500.0	1.0	1.0	87.65	87.65	3.6	88.9	89.0	86.5	2.47	36.005	
600.0	600.0	600.0	600.0	1.2	1.2	87.65	87.65	3.6	88.9	89.0	86.1	2.92	30.466	
700.0	700.0	700.0	700.0	1.5	1.5	87.65	87.65	3.6	88.9	89.0	85.6	3.37	26.404	
800.0	800.0	800.0	800.0	1.7	1.7	87.65	87.65	3.6	88.9	89.0	85.2	3.82	23.297	
900.0	900.0	900.0	900.0	1.9	1.9	87.65	87.65	3.6	88.9	89.0	84.7	4.27	20.845 CC, ES	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	87.65	87.65	3.6	88.9	89.0	86.0	4.70	19.299	
1,100.0	1,100.0	1,097.0	1,097.0	2.4	2.3	87.78	88.14	3.5	90.6	90.7	90.6	5.12	18.692 SF	
1,200.0	1,200.0	1,193.7	1,193.6	2.6	2.5	88.14	87.65	3.1	95.5	95.7	100.3	5.53	19.130	
1,300.0	1,300.0	1,289.8	1,289.3	2.8	2.7	175.74	176.45	2.4	103.5	105.8	116.8	5.94	20.669	
1,400.0	1,399.8	1,384.6	1,383.5	3.0	3.0	176.45	177.16	1.5	114.6	122.7	139.9	6.34	23.057	
1,500.0	1,499.5	1,477.5	1,475.3	3.2	3.2	177.16	177.77	0.3	128.5	146.2	168.0	6.74	25.920	
1,600.0	1,598.7	1,573.1	1,569.5	3.5	3.5	177.77	178.14	-1.0	144.4	174.8	192.0	7.04	28.260	
1,677.1	1,674.9	1,646.2	1,641.6	3.7	3.7	178.14	178.25	-2.0	156.6	199.0	199.4	7.14	28.940	
1,700.0	1,697.5	1,667.9	1,663.0	3.7	3.8	178.25	178.61	-2.4	160.2	206.6	231.8	7.56	31.684	
1,800.0	1,796.1	1,762.3	1,756.1	4.0	4.1	178.61	178.89	-3.7	176.0	239.4	264.2	7.98	34.104	
1,900.0	1,894.7	1,856.8	1,849.2	4.3	4.4	178.89	179.11	-5.0	191.7	272.2	296.6	8.41	36.257	
2,000.0	1,993.3	1,951.2	1,942.4	4.6	4.7	179.11	179.29	-6.3	207.5	305.0	329.0	8.85	38.179	
2,100.0	2,091.9	2,045.7	2,035.5	5.0	5.1	179.29	179.44	-7.6	223.2	337.8	361.4	9.29	39.901	
2,200.0	2,190.6	2,140.1	2,128.6	5.3	5.4	179.44	179.56	-9.0	239.0	370.7	393.8	9.73	41.449	
2,300.0	2,289.2	2,234.6	2,221.7	5.7	5.7	179.56	179.66	-10.3	254.7	403.5	426.1	10.18	42.848	
2,400.0	2,387.8	2,329.1	2,314.8	6.0	6.1	179.66	179.75	-11.6	270.5	436.3	458.5	10.63	44.116	
2,500.0	2,486.4	2,423.5	2,408.0	6.4	6.4	179.75	179.83	-12.9	286.2	469.2	490.9	11.09	45.271	
2,600.0	2,585.0	2,518.0	2,501.1	6.7	6.8	179.83	179.89	-14.3	302.0	502.0	523.3	11.55	46.325	
2,700.0	2,683.6	2,612.4	2,594.2	7.1	7.1	179.89	179.95	-15.6	317.7	534.8	555.7	12.00	47.290	
2,800.0	2,782.3	2,706.9	2,687.3	7.4	7.5	179.95	179.99	-16.9	333.5	567.7	588.0	12.46	48.178	
2,900.0	2,880.9	2,801.3	2,780.5	7.8	7.8	179.99	179.94	-18.2	349.2	600.5	620.4	12.93	48.995	
3,000.0	2,979.5	2,895.8	2,873.6	8.2	8.2	179.94	179.92	-19.6	365.0	633.3	635.4	13.14	49.352	
3,046.3	3,025.1	2,939.5	2,916.7	8.4	8.4	179.92	179.90	-20.2	372.3	648.5	652.3	13.41	49.632	
3,100.0	3,078.2	2,990.4	2,966.9	8.5	8.6	179.90	179.86	-20.9	380.7	665.7	681.2	13.89	50.032	
3,200.0	3,177.3	3,086.0	3,061.1	8.8	8.9	179.86	179.83	-22.2	396.7	695.1	706.8	14.36	50.213	
3,300.0	3,276.9	3,182.5	3,156.3	9.0	9.3	179.83	179.79	-23.6	412.8	721.1	729.0	14.82	50.200	
3,400.0	3,376.7	3,279.9	3,252.3	9.2	9.7	179.79	179.76	-24.9	429.0	743.8	747.8	15.26	50.015	
3,500.0	3,476.7	3,378.0	3,349.0	9.4	10.0	179.76	93.22	-26.3	445.4	763.0	751.7	15.36	49.949	
3,523.3	3,500.0	3,401.0	3,371.7	9.4	10.1	93.22	93.25	-26.6	449.2	767.0	764.1	15.69	49.697	
3,600.0	3,576.7	3,476.6	3,446.2	9.5	10.4	93.25	93.28	-27.7	461.8	779.8	780.4	16.14	49.349	
3,700.0	3,676.7	3,575.2	3,543.4	9.7	10.8	93.28	93.31	-29.1	478.2	796.6	796.7	16.59	49.015	
3,800.0	3,776.7	3,673.8	3,640.6	9.9	11.2	93.31	93.34	-30.5	494.7	813.3	813.0	17.04	48.696	
3,900.0	3,876.7	3,772.4	3,737.8	10.1	11.5	93.34	93.37	-31.8	511.1	830.0	829.2	17.50	48.391	
4,000.0	3,976.7	3,871.0	3,835.0	10.3	11.9	93.37	93.40	-33.2	527.6	846.7	845.5	17.95	48.098	
4,100.0	4,076.7	3,969.6	3,932.2	10.4	12.3	93.40	93.43	-34.6	544.0	863.5	861.8	18.41	47.817	
4,200.0	4,176.7	4,068.2	4,029.4	10.6	12.7	93.43	93.45	-36.0	560.4	880.2	878.0	18.86	47.548	
4,300.0	4,276.7	4,166.7	4,126.6	10.8	13.1	93.45	93.48	-37.4	576.9	896.9	894.3	19.32	47.290	
4,400.0	4,376.7	4,265.3	4,223.8	11.0	13.4	93.48	93.50	-38.8	593.3	913.6	910.6	19.78	47.041	
4,500.0	4,476.7	4,363.9	4,321.0	11.2	13.8	93.50	93.53	-40.1	609.7	930.4	926.9	20.24	46.803	
4,600.0	4,576.7	4,462.5	4,418.2	11.4	14.2	93.53	93.55	-41.5	626.2	947.1	943.1	20.69	46.573	
4,700.0	4,676.7	4,561.1	4,515.4	11.6	14.6	93.55		-42.9	642.6	963.8				

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design												Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
4,800.0	4,776.7	4,708.1	4,660.9	11.8	15.0	93.57	-44.7	663.7	978.2	957.0	21.21	46.115				
4,900.0	4,876.7	4,859.7	4,811.8	12.0	15.3	93.59	-45.8	677.6	987.4	965.7	21.72	45.471				
5,000.0	4,976.7	5,012.3	4,964.3	12.1	15.6	93.60	-46.3	683.5	991.4	969.2	22.21	44.644				
5,100.0	5,076.7	5,124.7	5,076.7	12.3	15.7	93.60	-46.4	683.7	991.5	968.9	22.63	43.812				
5,200.0	5,176.7	5,224.7	5,176.7	12.5	15.9	93.60	-46.4	683.7	991.5	968.5	23.04	43.035				
5,300.0	5,276.7	5,324.7	5,276.7	12.7	16.0	93.60	-46.4	683.7	991.5	968.1	23.45	42.281				
5,400.0	5,376.7	5,424.7	5,376.7	12.9	16.2	93.60	-46.4	683.7	991.5	967.6	23.86	41.552				
5,500.0	5,476.7	5,524.7	5,476.7	13.1	16.4	93.60	-46.4	683.7	991.5	967.2	24.27	40.845				
5,600.0	5,576.7	5,624.7	5,576.7	13.3	16.5	93.60	-46.4	683.7	991.5	966.8	24.69	40.159				
5,700.0	5,676.7	5,724.7	5,676.7	13.5	16.7	93.60	-46.4	683.7	991.5	966.4	25.10	39.495				
5,800.0	5,776.7	5,824.7	5,776.7	13.7	16.8	93.60	-46.4	683.7	991.5	966.0	25.52	38.850				
5,900.0	5,876.7	5,924.7	5,876.7	13.9	17.0	93.60	-46.4	683.7	991.5	965.6	25.94	38.224				
6,000.0	5,976.7	6,024.7	5,976.7	14.1	17.1	93.60	-46.4	683.7	991.5	965.1	26.36	37.617				
6,100.0	6,076.7	6,124.7	6,076.7	14.4	17.3	93.60	-46.4	683.7	991.5	964.7	26.78	37.027				
6,200.0	6,176.7	6,224.7	6,176.7	14.6	17.5	93.60	-46.4	683.7	991.5	964.3	27.20	36.455				
6,214.2	6,190.8	6,238.9	6,190.8	14.6	17.5	93.60	-46.4	683.7	991.5	964.2	27.26	36.375				
6,250.0	6,226.6	6,274.7	6,226.6	14.7	17.6	-86.39	-46.4	683.7	991.4	964.0	27.40	36.179				
6,300.0	6,276.5	6,324.5	6,276.5	14.7	17.6	-86.64	-46.4	683.7	991.2	963.6	27.60	35.917				
6,350.0	6,325.9	6,374.0	6,325.9	14.8	17.7	-87.08	-46.4	683.7	990.8	963.0	27.79	35.654				
6,400.0	6,374.8	6,420.8	6,372.8	14.9	17.8	-87.62	-47.3	683.7	990.4	962.4	27.97	35.405				
6,450.0	6,422.9	6,467.6	6,419.4	15.0	17.9	-88.18	-51.0	683.8	990.0	961.8	28.16	35.162				
6,500.0	6,470.0	6,514.9	6,466.2	15.1	17.9	-88.74	-57.7	683.8	989.7	961.4	28.35	34.913				
6,550.0	6,515.9	6,562.8	6,513.1	15.2	18.0	-89.32	-67.4	683.8	989.5	961.0	28.55	34.655				
6,600.0	6,560.5	6,611.3	6,559.9	15.3	18.1	-89.90	-80.2	683.8	989.5	960.7	28.78	34.380				
6,609.4	6,568.7	6,620.5	6,568.7	15.3	18.1	-90.00	-82.9	683.8	989.5	960.6	28.83	34.323				
6,650.0	6,603.4	6,660.5	6,606.4	15.4	18.2	-90.48	-96.1	683.8	989.5	960.5	29.03	34.081				
6,700.0	6,644.6	6,710.3	6,652.4	15.5	18.3	-91.06	-115.3	683.8	989.6	960.3	29.32	33.752				
6,750.0	6,683.8	6,760.8	6,697.6	15.6	18.4	-91.65	-137.8	683.8	989.9	960.2	29.65	33.386				
6,800.0	6,720.9	6,812.0	6,741.9	15.8	18.6	-92.23	-163.6	683.9	990.2	960.2	30.03	32.975				
6,850.0	6,755.8	6,864.0	6,784.9	16.0	18.7	-92.80	-192.7	683.9	990.7	960.2	30.47	32.516				
6,900.0	6,788.2	6,916.8	6,826.4	16.2	18.9	-93.37	-225.2	683.9	991.3	960.3	30.97	32.006				
6,950.0	6,818.0	6,970.3	6,866.2	16.5	19.1	-93.93	-261.1	684.0	991.9	960.3	31.55	31.441				
7,000.0	6,845.2	7,024.7	6,903.9	16.8	19.3	-94.47	-300.2	684.0	992.6	960.4	32.20	30.824				
7,050.0	6,869.6	7,079.8	6,939.2	17.2	19.6	-95.00	-342.6	684.1	993.4	960.4	32.94	30.156				
7,100.0	6,891.1	7,135.8	6,971.8	17.6	19.9	-95.51	-388.0	684.1	994.2	960.4	33.77	29.444				
7,150.0	6,909.6	7,192.6	7,001.5	18.0	20.3	-96.00	-436.5	684.2	995.0	960.4	34.68	28.694				
7,200.0	6,925.0	7,250.2	7,027.7	18.5	20.7	-96.46	-487.8	684.2	995.9	960.2	35.68	27.914				
7,250.0	6,937.2	7,308.6	7,050.3	19.0	21.2	-96.89	-541.6	684.3	996.8	960.0	36.77	27.110				
7,300.0	6,946.3	7,367.8	7,069.0	19.6	21.7	-97.29	-597.7	684.3	997.7	959.7	37.94	26.294				
7,350.0	6,952.1	7,427.6	7,083.4	20.2	22.3	-97.66	-655.8	684.4	998.5	959.3	39.19	25.477				
7,400.0	6,954.7	7,488.2	7,093.3	20.8	23.0	-97.99	-715.5	684.4	999.2	958.7	40.51	24.667				
7,419.5	6,954.8	7,510.3	7,095.7	21.1	23.2	-98.10	-737.5	684.5	999.5	958.5	41.02	24.366				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (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	88.26	3.6	119.5	119.6					
100.0	100.0	100.0	100.0	0.1	0.1	88.26	3.6	119.5	119.6	119.4	0.22	532.000		
200.0	200.0	200.0	200.0	0.3	0.3	88.26	3.6	119.5	119.6	118.9	0.67	177.333 CC, ES		
300.0	300.0	296.0	295.9	0.6	0.5	88.26	3.7	121.1	121.3	120.1	1.11	109.698		
400.0	400.0	391.7	391.6	0.8	0.8	88.27	3.8	125.9	126.3	124.7	1.54	81.830		
500.0	500.0	487.0	486.5	1.0	1.0	88.29	4.0	133.9	134.6	132.6	2.00	67.160		
600.0	600.0	581.7	580.6	1.2	1.3	88.32	4.3	144.9	146.3	143.8	2.50	58.590		
700.0	700.0	675.6	673.4	1.5	1.6	88.34	4.6	158.9	161.2	158.1	3.03	53.278		
800.0	800.0	768.4	764.7	1.7	1.9	88.37	5.0	175.7	179.3	175.7	3.60	49.870		
900.0	900.0	860.0	854.2	1.9	2.3	88.39	5.5	195.2	200.6	196.4	4.21	47.642		
1,000.0	1,000.0	954.0	945.4	2.1	2.7	88.41	6.0	217.7	224.5	219.7	4.87	46.065		
1,100.0	1,100.0	1,051.0	1,039.5	2.4	3.2	88.43	6.6	241.3	248.8	243.3	5.58	44.624		
1,200.0	1,200.0	1,148.0	1,133.6	2.6	3.7	88.45	7.2	264.9	273.2	266.9	6.29	43.445 SF		
1,300.0	1,300.0	1,244.5	1,227.2	2.8	4.2	175.47	7.8	288.3	299.2	293.5	5.70	52.497		
1,400.0	1,399.8	1,340.1	1,320.0	3.0	4.7	175.50	8.3	311.6	328.5	322.4	6.14	53.521		
1,500.0	1,499.5	1,434.6	1,411.6	3.2	5.2	175.56	8.9	334.6	361.2	354.6	6.57	55.003		
1,600.0	1,598.7	1,527.9	1,502.1	3.5	5.7	175.64	9.4	357.2	397.1	390.1	6.98	56.860		
1,677.1	1,674.9	1,599.0	1,571.0	3.7	6.0	175.71	9.9	374.5	427.0	419.7	7.30	58.512		
1,700.0	1,697.5	1,620.0	1,591.4	3.7	6.1	175.74	10.0	379.6	436.1	428.7	7.40	58.947		
1,800.0	1,796.1	1,711.6	1,680.3	4.0	6.6	175.88	10.5	401.9	476.2	468.3	7.85	60.691		
1,900.0	1,894.7	1,803.3	1,769.2	4.3	7.1	175.99	11.1	424.2	516.2	507.9	8.30	62.207		
2,000.0	1,993.3	1,894.9	1,858.1	4.6	7.6	176.09	11.6	446.4	556.2	547.5	8.75	63.532		
2,100.0	2,091.9	1,986.5	1,947.0	5.0	8.0	176.17	12.2	468.7	596.2	587.0	9.22	64.699		
2,200.0	2,190.6	2,078.2	2,035.9	5.3	8.5	176.25	12.7	491.0	636.3	626.6	9.68	65.733		
2,300.0	2,289.2	2,169.8	2,124.8	5.7	9.0	176.31	13.2	513.3	676.3	666.1	10.15	66.654		
2,400.0	2,387.8	2,261.4	2,213.6	6.0	9.5	176.37	13.8	535.5	716.3	705.7	10.62	67.477		
2,500.0	2,486.4	2,353.1	2,302.5	6.4	10.0	176.42	14.3	557.8	756.3	745.2	11.09	68.218		
2,600.0	2,585.0	2,444.7	2,391.4	6.7	10.4	176.47	14.9	580.1	796.4	784.8	11.56	68.887		
2,700.0	2,683.6	2,536.4	2,480.3	7.1	10.9	176.51	15.4	602.4	836.4	824.3	12.04	69.494		
2,800.0	2,782.3	2,628.0	2,569.2	7.4	11.4	176.55	16.0	624.6	876.4	863.9	12.51	70.046		
2,900.0	2,880.9	2,719.6	2,658.1	7.8	11.9	176.58	16.5	646.9	916.4	903.4	12.99	70.550		
3,000.0	2,979.5	2,811.3	2,747.0	8.2	12.4	176.61	17.0	669.2	956.5	943.0	13.47	71.012		
3,046.3	3,025.1	2,853.7	2,788.1	8.4	12.6	176.63	17.3	679.5	975.0	961.3	13.69	71.213		
3,100.0	3,078.2	2,903.1	2,836.0	8.5	12.8	176.67	17.6	691.5	996.0	982.0	13.99	71.200		

Reference Depths are relative to WELL @ 4883.0ft (RKB - 13')	Coordinates are relative to: Richter 34R-243
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.63°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Ritcher 34R-243
Project:	SEC.27-T7N-R64W	TVD Reference:	WELL @ 4883.0ft (RKB - 13')
Reference Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	MD Reference:	WELL @ 4883.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Ritcher 34R-243	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-27-12)	Offset TVD Reference:	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: Ritcher 34R-243
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.63°

