

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Richter 34R-403**

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

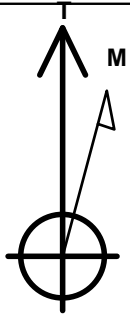
Ground Elevation: 4870.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1440180.38	3269189.75	40.537660	-104.531480	

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

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
BHL 500'FSL & 1320'FEL	7105.0	-5016.7	-2.8	Point



Azimuths to True North
Magnetic North: 8.58°

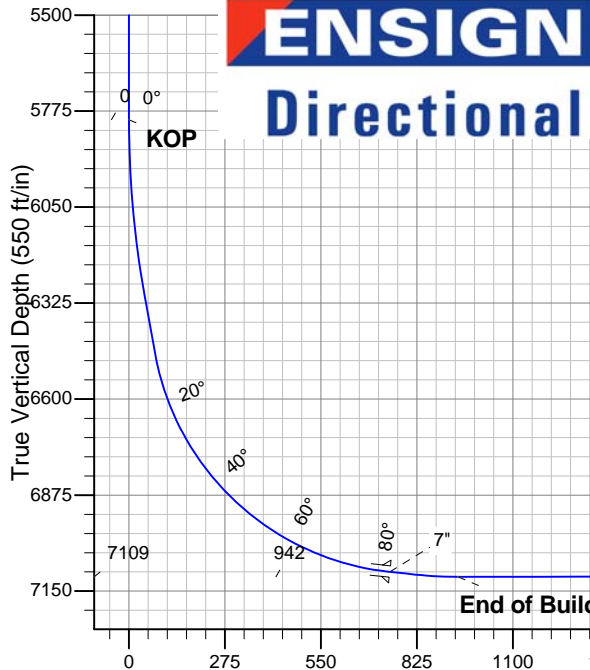
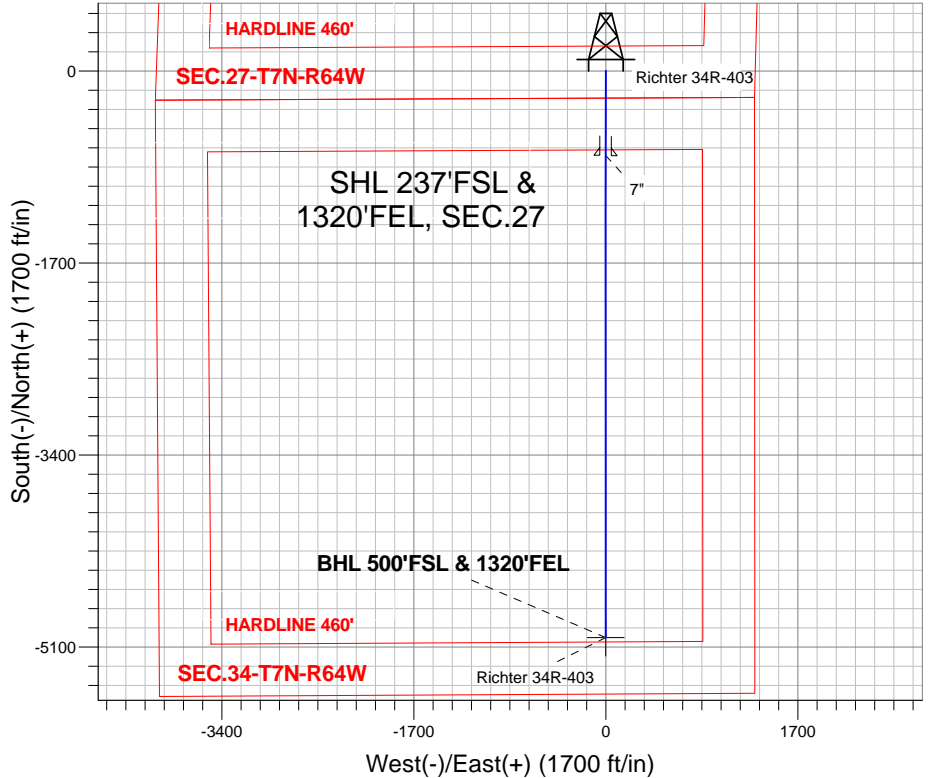
Magnetic Field
Strength: 53091.8nT
Dip Angle: 67.16°
Date: 9/28/2012
Model: IGRF2010

Richter 27T-HZ Pad Sec.27-T7N-R64W
Richter 34R-403
Plan #1 (9-28-12)
12:52, October 03 2012

ANNOTATIONS

TVD	MD	Annotation
5799.6	5799.6	KOP
7109.0	7655.2	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	5799.6	0.00	0.00	5799.6	0.0	0.0	0.00	0.00	0.0	
3	6314.6	10.30	180.03	6311.8	-46.2	0.0	2.00	180.03	46.2	
4	6477.2	10.30	180.03	6471.8	-75.2	0.0	0.00	0.00	75.2	
5	7459.9	84.00	180.30	7095.0	-747.0	-3.1	7.50	0.28	747.0	
6	7533.9	84.00	180.30	7102.7	-820.6	-3.5	0.00	0.00	820.6	
7	7655.2	90.06	179.99	7109.0	-941.7	-3.8	5.00	-2.97	941.7	
8	811730.2	90.06	179.99	7105.0	-5016.7	-2.8	0.00	0.00	5016.7	BHL 500'FSL & 1320'FEL

Vertical Section at 180.03° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.27-T7N-R64W

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

Richter 34R-403

Wellbore #1

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

Standard Planning Report

03 October, 2012

Database:	Landmark	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-28-12)		

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

Well	Richter 34R-403					
Well Position	+N/-S	3.6 ft	Northing:	1,440,180.38 ft	Latitude:	40.537660
	+E/-W	91.7 ft	Easting:	3,269,189.75 ft	Longitude:	-104.531480
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,870.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/28/2012	8.58	67.16	53,092

Design	Plan #1 (9-28-12)			
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	180.03

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	
5,799.6	0.00	0.00	5,799.6	0.0	0.0	0.00	0.00	0.00	0.00	
6,314.6	10.30	180.03	6,311.8	-46.2	0.0	2.00	2.00	0.00	180.03	
6,477.2	10.30	180.03	6,471.8	-75.2	0.0	0.00	0.00	0.00	0.00	
7,459.9	84.00	180.30	7,095.0	-747.0	-3.1	7.50	7.50	0.03	0.28	
7,533.9	84.00	180.30	7,102.7	-820.6	-3.5	0.00	0.00	0.00	0.00	
7,655.2	90.06	179.99	7,109.0	-941.7	-3.8	5.00	4.99	-0.26	-2.97	
11,730.2	90.06	179.99	7,105.0	-5,016.7	-2.8	0.00	0.00	0.00	0.00	BHL 500'FSL & 132

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Site:	Richter 27T-HZ Pad Sec.27-T7N-R64W	North Reference:	True
Well:	Richter 34R-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-28-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
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
1,240.0	0.00	0.00	1,240.0	0.0	0.0	0.0	0.00	0.00	0.00
1,280.0	0.00	0.00	1,280.0	0.0	0.0	0.0	0.00	0.00	0.00
1,320.0	0.00	0.00	1,320.0	0.0	0.0	0.0	0.00	0.00	0.00
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	0.00
1,480.0	0.00	0.00	1,480.0	0.0	0.0	0.0	0.00	0.00	0.00
1,520.0	0.00	0.00	1,520.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	0.00
1,680.0	0.00	0.00	1,680.0	0.0	0.0	0.0	0.00	0.00	0.00
1,720.0	0.00	0.00	1,720.0	0.0	0.0	0.0	0.00	0.00	0.00
1,760.0	0.00	0.00	1,760.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,840.0	0.00	0.00	1,840.0	0.0	0.0	0.0	0.00	0.00	0.00
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	0.00
1,920.0	0.00	0.00	1,920.0	0.0	0.0	0.0	0.00	0.00	0.00
1,960.0	0.00	0.00	1,960.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	0.00
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	0.00

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Well:	Richter 34R-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-28-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,120.0	0.00	0.00	2,120.0	0.0	0.0	0.0	0.00	0.00	0.00
2,160.0	0.00	0.00	2,160.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,240.0	0.00	0.00	2,240.0	0.0	0.0	0.0	0.00	0.00	0.00
2,280.0	0.00	0.00	2,280.0	0.0	0.0	0.0	0.00	0.00	0.00
2,320.0	0.00	0.00	2,320.0	0.0	0.0	0.0	0.00	0.00	0.00
2,360.0	0.00	0.00	2,360.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00
2,480.0	0.00	0.00	2,480.0	0.0	0.0	0.0	0.00	0.00	0.00
2,520.0	0.00	0.00	2,520.0	0.0	0.0	0.0	0.00	0.00	0.00
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,640.0	0.00	0.00	2,640.0	0.0	0.0	0.0	0.00	0.00	0.00
2,680.0	0.00	0.00	2,680.0	0.0	0.0	0.0	0.00	0.00	0.00
2,720.0	0.00	0.00	2,720.0	0.0	0.0	0.0	0.00	0.00	0.00
2,760.0	0.00	0.00	2,760.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,840.0	0.00	0.00	2,840.0	0.0	0.0	0.0	0.00	0.00	0.00
2,880.0	0.00	0.00	2,880.0	0.0	0.0	0.0	0.00	0.00	0.00
2,920.0	0.00	0.00	2,920.0	0.0	0.0	0.0	0.00	0.00	0.00
2,960.0	0.00	0.00	2,960.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,040.0	0.00	0.00	3,040.0	0.0	0.0	0.0	0.00	0.00	0.00
3,080.0	0.00	0.00	3,080.0	0.0	0.0	0.0	0.00	0.00	0.00
3,120.0	0.00	0.00	3,120.0	0.0	0.0	0.0	0.00	0.00	0.00
3,160.0	0.00	0.00	3,160.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,240.0	0.00	0.00	3,240.0	0.0	0.0	0.0	0.00	0.00	0.00
3,280.0	0.00	0.00	3,280.0	0.0	0.0	0.0	0.00	0.00	0.00
3,320.0	0.00	0.00	3,320.0	0.0	0.0	0.0	0.00	0.00	0.00
3,360.0	0.00	0.00	3,360.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,440.0	0.00	0.00	3,440.0	0.0	0.0	0.0	0.00	0.00	0.00
3,480.0	0.00	0.00	3,480.0	0.0	0.0	0.0	0.00	0.00	0.00
3,520.0	0.00	0.00	3,520.0	0.0	0.0	0.0	0.00	0.00	0.00
3,560.0	0.00	0.00	3,560.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,640.0	0.00	0.00	3,640.0	0.0	0.0	0.0	0.00	0.00	0.00
3,680.0	0.00	0.00	3,680.0	0.0	0.0	0.0	0.00	0.00	0.00
3,720.0	0.00	0.00	3,720.0	0.0	0.0	0.0	0.00	0.00	0.00
3,760.0	0.00	0.00	3,760.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,840.0	0.00	0.00	3,840.0	0.0	0.0	0.0	0.00	0.00	0.00
3,880.0	0.00	0.00	3,880.0	0.0	0.0	0.0	0.00	0.00	0.00
3,920.0	0.00	0.00	3,920.0	0.0	0.0	0.0	0.00	0.00	0.00
3,960.0	0.00	0.00	3,960.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,040.0	0.00	0.00	4,040.0	0.0	0.0	0.0	0.00	0.00	0.00
4,080.0	0.00	0.00	4,080.0	0.0	0.0	0.0	0.00	0.00	0.00
4,120.0	0.00	0.00	4,120.0	0.0	0.0	0.0	0.00	0.00	0.00
4,160.0	0.00	0.00	4,160.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00

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Wellbore:	Wellbore #1		
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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)
4,240.0	0.00	0.00	4,240.0	0.0	0.0	0.0	0.00	0.00	0.00
4,280.0	0.00	0.00	4,280.0	0.0	0.0	0.0	0.00	0.00	0.00
4,320.0	0.00	0.00	4,320.0	0.0	0.0	0.0	0.00	0.00	0.00
4,360.0	0.00	0.00	4,360.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,440.0	0.00	0.00	4,440.0	0.0	0.0	0.0	0.00	0.00	0.00
4,480.0	0.00	0.00	4,480.0	0.0	0.0	0.0	0.00	0.00	0.00
4,520.0	0.00	0.00	4,520.0	0.0	0.0	0.0	0.00	0.00	0.00
4,560.0	0.00	0.00	4,560.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,640.0	0.00	0.00	4,640.0	0.0	0.0	0.0	0.00	0.00	0.00
4,680.0	0.00	0.00	4,680.0	0.0	0.0	0.0	0.00	0.00	0.00
4,720.0	0.00	0.00	4,720.0	0.0	0.0	0.0	0.00	0.00	0.00
4,760.0	0.00	0.00	4,760.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,840.0	0.00	0.00	4,840.0	0.0	0.0	0.0	0.00	0.00	0.00
4,880.0	0.00	0.00	4,880.0	0.0	0.0	0.0	0.00	0.00	0.00
4,920.0	0.00	0.00	4,920.0	0.0	0.0	0.0	0.00	0.00	0.00
4,960.0	0.00	0.00	4,960.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,040.0	0.00	0.00	5,040.0	0.0	0.0	0.0	0.00	0.00	0.00
5,080.0	0.00	0.00	5,080.0	0.0	0.0	0.0	0.00	0.00	0.00
5,120.0	0.00	0.00	5,120.0	0.0	0.0	0.0	0.00	0.00	0.00
5,160.0	0.00	0.00	5,160.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,240.0	0.00	0.00	5,240.0	0.0	0.0	0.0	0.00	0.00	0.00
5,280.0	0.00	0.00	5,280.0	0.0	0.0	0.0	0.00	0.00	0.00
5,320.0	0.00	0.00	5,320.0	0.0	0.0	0.0	0.00	0.00	0.00
5,360.0	0.00	0.00	5,360.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,440.0	0.00	0.00	5,440.0	0.0	0.0	0.0	0.00	0.00	0.00
5,480.0	0.00	0.00	5,480.0	0.0	0.0	0.0	0.00	0.00	0.00
5,520.0	0.00	0.00	5,520.0	0.0	0.0	0.0	0.00	0.00	0.00
5,560.0	0.00	0.00	5,560.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,640.0	0.0	0.0	0.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,680.0	0.0	0.0	0.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,720.0	0.0	0.0	0.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,760.0	0.0	0.0	0.0	0.00	0.00	0.00
5,799.6	0.00	0.00	5,799.6	0.0	0.0	0.0	0.00	0.00	0.00
KOP									
5,800.0	0.01	180.03	5,800.0	0.0	0.0	0.0	2.00	2.00	0.00
5,840.0	0.81	180.03	5,840.0	-0.3	0.0	0.3	2.00	2.00	0.00
5,880.0	1.61	180.03	5,880.0	-1.1	0.0	1.1	2.00	2.00	0.00
5,920.0	2.41	180.03	5,920.0	-2.5	0.0	2.5	2.00	2.00	0.00
5,960.0	3.21	180.03	5,959.9	-4.5	0.0	4.5	2.00	2.00	0.00
6,000.0	4.01	180.03	5,999.8	-7.0	0.0	7.0	2.00	2.00	0.00
6,040.0	4.81	180.03	6,039.7	-10.1	0.0	10.1	2.00	2.00	0.00
6,080.0	5.61	180.03	6,079.6	-13.7	0.0	13.7	2.00	2.00	0.00
6,120.0	6.41	180.03	6,119.3	-17.9	0.0	17.9	2.00	2.00	0.00
6,160.0	7.21	180.03	6,159.1	-22.6	0.0	22.6	2.00	2.00	0.00
6,200.0	8.01	180.03	6,198.7	-27.9	0.0	27.9	2.00	2.00	0.00
6,240.0	8.81	180.03	6,238.3	-33.8	0.0	33.8	2.00	2.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-28-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,280.0	9.61	180.03	6,277.8	-40.2	0.0	40.2	2.00	2.00	0.00
6,314.6	10.30	180.03	6,311.8	-46.2	0.0	46.2	2.00	2.00	0.00
6,320.0	10.30	180.03	6,317.1	-47.1	0.0	47.1	0.00	0.00	0.00
6,360.0	10.30	180.03	6,356.5	-54.3	0.0	54.3	0.00	0.00	0.00
6,400.0	10.30	180.03	6,395.9	-61.4	0.0	61.4	0.00	0.00	0.00
6,440.0	10.30	180.03	6,435.2	-68.6	0.0	68.6	0.00	0.00	0.00
6,477.2	10.30	180.03	6,471.8	-75.2	0.0	75.2	0.00	0.00	0.00
6,480.0	10.51	180.04	6,474.6	-75.7	0.0	75.7	7.50	7.50	0.20
6,520.0	13.51	180.10	6,513.7	-84.1	0.0	84.1	7.50	7.50	0.15
6,560.0	16.51	180.14	6,552.3	-94.4	-0.1	94.4	7.50	7.50	0.10
6,600.0	19.51	180.16	6,590.4	-106.8	-0.1	106.8	7.50	7.50	0.07
6,640.0	22.51	180.18	6,627.7	-121.1	-0.1	121.1	7.50	7.50	0.05
6,680.0	25.51	180.20	6,664.2	-137.4	-0.2	137.4	7.50	7.50	0.04
6,720.0	28.51	180.21	6,699.9	-155.6	-0.3	155.6	7.50	7.50	0.03
6,760.0	31.51	180.22	6,734.5	-175.6	-0.3	175.6	7.50	7.50	0.03
6,800.0	34.51	180.23	6,768.0	-197.4	-0.4	197.4	7.50	7.50	0.02
6,840.0	37.51	180.24	6,800.4	-220.9	-0.5	220.9	7.50	7.50	0.02
6,880.0	40.51	180.25	6,831.5	-246.0	-0.6	246.0	7.50	7.50	0.02
6,920.0	43.51	180.25	6,861.2	-272.8	-0.8	272.8	7.50	7.50	0.01
6,960.0	46.51	180.26	6,889.5	-301.1	-0.9	301.1	7.50	7.50	0.01
7,000.0	49.51	180.26	6,916.2	-330.8	-1.0	330.8	7.50	7.50	0.01
7,040.0	52.51	180.27	6,941.4	-361.9	-1.2	361.9	7.50	7.50	0.01
7,080.0	55.51	180.27	6,964.9	-394.3	-1.3	394.3	7.50	7.50	0.01
7,120.0	58.51	180.27	6,986.7	-427.8	-1.5	427.8	7.50	7.50	0.01
7,160.0	61.51	180.28	7,006.6	-462.5	-1.6	462.5	7.50	7.50	0.01
7,200.0	64.51	180.28	7,024.8	-498.1	-1.8	498.1	7.50	7.50	0.01
7,240.0	67.51	180.28	7,041.1	-534.6	-2.0	534.6	7.50	7.50	0.01
7,280.0	70.51	180.29	7,055.4	-572.0	-2.2	572.0	7.50	7.50	0.01
7,320.0	73.51	180.29	7,067.7	-610.0	-2.4	610.0	7.50	7.50	0.01
7,360.0	76.51	180.29	7,078.1	-648.7	-2.6	648.7	7.50	7.50	0.01
7,400.0	79.51	180.30	7,086.4	-687.8	-2.8	687.8	7.50	7.50	0.01
7,440.0	82.51	180.30	7,092.6	-727.3	-3.0	727.3	7.50	7.50	0.01
7,459.9	84.00	180.30	7,095.0	-747.0	-3.1	747.0	7.49	7.49	0.01
7"									
7,480.0	84.00	180.30	7,097.1	-767.0	-3.2	767.0	0.00	0.00	0.00
7,520.0	84.00	180.30	7,101.3	-806.8	-3.4	806.8	0.00	0.00	0.00
7,533.9	84.00	180.30	7,102.7	-820.6	-3.5	820.6	0.00	0.00	0.00
7,560.0	85.30	180.23	7,105.1	-846.6	-3.6	846.6	5.00	4.99	-0.26
7,600.0	87.30	180.13	7,107.7	-886.5	-3.7	886.5	5.00	4.99	-0.26
7,640.0	89.30	180.03	7,108.9	-926.5	-3.8	926.5	5.00	4.99	-0.26
7,655.2	90.06	179.99	7,109.0	-941.7	-3.8	941.7	4.99	4.98	-0.26
End of Build									
7,680.0	90.06	179.99	7,109.0	-966.5	-3.8	966.5	0.00	0.00	0.00
7,720.0	90.06	179.99	7,108.9	-1,006.5	-3.7	1,006.5	0.00	0.00	0.00
7,760.0	90.06	179.99	7,108.9	-1,046.5	-3.7	1,046.5	0.00	0.00	0.00
7,800.0	90.06	179.99	7,108.9	-1,086.5	-3.7	1,086.5	0.00	0.00	0.00
7,840.0	90.06	179.99	7,108.8	-1,126.5	-3.7	1,126.5	0.00	0.00	0.00
7,880.0	90.06	179.99	7,108.8	-1,166.5	-3.7	1,166.5	0.00	0.00	0.00
7,920.0	90.06	179.99	7,108.7	-1,206.5	-3.7	1,206.5	0.00	0.00	0.00
7,960.0	90.06	179.99	7,108.7	-1,246.5	-3.7	1,246.5	0.00	0.00	0.00
8,000.0	90.06	179.99	7,108.7	-1,286.5	-3.7	1,286.5	0.00	0.00	0.00
8,040.0	90.06	179.99	7,108.6	-1,326.5	-3.7	1,326.5	0.00	0.00	0.00
8,080.0	90.06	179.99	7,108.6	-1,366.5	-3.7	1,366.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-28-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,120.0	90.06	179.99	7,108.5	-1,406.5	-3.6	1,406.5	0.00	0.00	0.00
8,160.0	90.06	179.99	7,108.5	-1,446.5	-3.6	1,446.5	0.00	0.00	0.00
8,200.0	90.06	179.99	7,108.5	-1,486.5	-3.6	1,486.5	0.00	0.00	0.00
8,240.0	90.06	179.99	7,108.4	-1,526.5	-3.6	1,526.5	0.00	0.00	0.00
8,280.0	90.06	179.99	7,108.4	-1,566.5	-3.6	1,566.5	0.00	0.00	0.00
8,320.0	90.06	179.99	7,108.3	-1,606.5	-3.6	1,606.5	0.00	0.00	0.00
8,360.0	90.06	179.99	7,108.3	-1,646.5	-3.6	1,646.5	0.00	0.00	0.00
8,400.0	90.06	179.99	7,108.3	-1,686.5	-3.6	1,686.5	0.00	0.00	0.00
8,440.0	90.06	179.99	7,108.2	-1,726.5	-3.6	1,726.5	0.00	0.00	0.00
8,480.0	90.06	179.99	7,108.2	-1,766.5	-3.6	1,766.5	0.00	0.00	0.00
8,520.0	90.06	179.99	7,108.1	-1,806.5	-3.6	1,806.5	0.00	0.00	0.00
8,560.0	90.06	179.99	7,108.1	-1,846.5	-3.5	1,846.5	0.00	0.00	0.00
8,600.0	90.06	179.99	7,108.1	-1,886.5	-3.5	1,886.5	0.00	0.00	0.00
8,640.0	90.06	179.99	7,108.0	-1,926.5	-3.5	1,926.5	0.00	0.00	0.00
8,680.0	90.06	179.99	7,108.0	-1,966.5	-3.5	1,966.5	0.00	0.00	0.00
8,720.0	90.06	179.99	7,108.0	-2,006.5	-3.5	2,006.5	0.00	0.00	0.00
8,760.0	90.06	179.99	7,107.9	-2,046.5	-3.5	2,046.5	0.00	0.00	0.00
8,800.0	90.06	179.99	7,107.9	-2,086.5	-3.5	2,086.5	0.00	0.00	0.00
8,840.0	90.06	179.99	7,107.8	-2,126.5	-3.5	2,126.5	0.00	0.00	0.00
8,880.0	90.06	179.99	7,107.8	-2,166.5	-3.5	2,166.5	0.00	0.00	0.00
8,920.0	90.06	179.99	7,107.8	-2,206.5	-3.5	2,206.5	0.00	0.00	0.00
8,960.0	90.06	179.99	7,107.7	-2,246.5	-3.4	2,246.5	0.00	0.00	0.00
9,000.0	90.06	179.99	7,107.7	-2,286.5	-3.4	2,286.5	0.00	0.00	0.00
9,040.0	90.06	179.99	7,107.6	-2,326.5	-3.4	2,326.5	0.00	0.00	0.00
9,080.0	90.06	179.99	7,107.6	-2,366.5	-3.4	2,366.5	0.00	0.00	0.00
9,120.0	90.06	179.99	7,107.6	-2,406.5	-3.4	2,406.5	0.00	0.00	0.00
9,160.0	90.06	179.99	7,107.5	-2,446.5	-3.4	2,446.5	0.00	0.00	0.00
9,200.0	90.06	179.99	7,107.5	-2,486.5	-3.4	2,486.5	0.00	0.00	0.00
9,240.0	90.06	179.99	7,107.4	-2,526.5	-3.4	2,526.5	0.00	0.00	0.00
9,280.0	90.06	179.99	7,107.4	-2,566.5	-3.4	2,566.5	0.00	0.00	0.00
9,320.0	90.06	179.99	7,107.4	-2,606.5	-3.4	2,606.5	0.00	0.00	0.00
9,360.0	90.06	179.99	7,107.3	-2,646.5	-3.4	2,646.5	0.00	0.00	0.00
9,400.0	90.06	179.99	7,107.3	-2,686.5	-3.3	2,686.5	0.00	0.00	0.00
9,440.0	90.06	179.99	7,107.2	-2,726.5	-3.3	2,726.5	0.00	0.00	0.00
9,480.0	90.06	179.99	7,107.2	-2,766.5	-3.3	2,766.5	0.00	0.00	0.00
9,520.0	90.06	179.99	7,107.2	-2,806.5	-3.3	2,806.5	0.00	0.00	0.00
9,560.0	90.06	179.99	7,107.1	-2,846.5	-3.3	2,846.5	0.00	0.00	0.00
9,600.0	90.06	179.99	7,107.1	-2,886.5	-3.3	2,886.5	0.00	0.00	0.00
9,640.0	90.06	179.99	7,107.1	-2,926.5	-3.3	2,926.5	0.00	0.00	0.00
9,680.0	90.06	179.99	7,107.0	-2,966.5	-3.3	2,966.5	0.00	0.00	0.00
9,720.0	90.06	179.99	7,107.0	-3,006.5	-3.3	3,006.5	0.00	0.00	0.00
9,760.0	90.06	179.99	7,106.9	-3,046.5	-3.3	3,046.5	0.00	0.00	0.00
9,800.0	90.06	179.99	7,106.9	-3,086.5	-3.2	3,086.5	0.00	0.00	0.00
9,840.0	90.06	179.99	7,106.9	-3,126.5	-3.2	3,126.5	0.00	0.00	0.00
9,880.0	90.06	179.99	7,106.8	-3,166.5	-3.2	3,166.5	0.00	0.00	0.00
9,920.0	90.06	179.99	7,106.8	-3,206.5	-3.2	3,206.5	0.00	0.00	0.00
9,960.0	90.06	179.99	7,106.7	-3,246.5	-3.2	3,246.5	0.00	0.00	0.00
10,000.0	90.06	179.99	7,106.7	-3,286.5	-3.2	3,286.5	0.00	0.00	0.00
10,040.0	90.06	179.99	7,106.7	-3,326.5	-3.2	3,326.5	0.00	0.00	0.00
10,080.0	90.06	179.99	7,106.6	-3,366.5	-3.2	3,366.5	0.00	0.00	0.00
10,120.0	90.06	179.99	7,106.6	-3,406.5	-3.2	3,406.5	0.00	0.00	0.00
10,160.0	90.06	179.99	7,106.5	-3,446.5	-3.2	3,446.5	0.00	0.00	0.00
10,200.0	90.06	179.99	7,106.5	-3,486.5	-3.1	3,486.5	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-28-12)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,240.0	90.06	179.99	7,106.5	-3,526.5	-3.1	3,526.5	0.00	0.00	0.00
10,280.0	90.06	179.99	7,106.4	-3,566.5	-3.1	3,566.5	0.00	0.00	0.00
10,320.0	90.06	179.99	7,106.4	-3,606.5	-3.1	3,606.5	0.00	0.00	0.00
10,360.0	90.06	179.99	7,106.3	-3,646.5	-3.1	3,646.5	0.00	0.00	0.00
10,400.0	90.06	179.99	7,106.3	-3,686.5	-3.1	3,686.5	0.00	0.00	0.00
10,440.0	90.06	179.99	7,106.3	-3,726.5	-3.1	3,726.5	0.00	0.00	0.00
10,480.0	90.06	179.99	7,106.2	-3,766.5	-3.1	3,766.5	0.00	0.00	0.00
10,520.0	90.06	179.99	7,106.2	-3,806.5	-3.1	3,806.5	0.00	0.00	0.00
10,560.0	90.06	179.99	7,106.1	-3,846.5	-3.1	3,846.5	0.00	0.00	0.00
10,600.0	90.06	179.99	7,106.1	-3,886.5	-3.1	3,886.5	0.00	0.00	0.00
10,640.0	90.06	179.99	7,106.1	-3,926.5	-3.0	3,926.5	0.00	0.00	0.00
10,680.0	90.06	179.99	7,106.0	-3,966.5	-3.0	3,966.5	0.00	0.00	0.00
10,720.0	90.06	179.99	7,106.0	-4,006.5	-3.0	4,006.5	0.00	0.00	0.00
10,760.0	90.06	179.99	7,106.0	-4,046.5	-3.0	4,046.5	0.00	0.00	0.00
10,800.0	90.06	179.99	7,105.9	-4,086.5	-3.0	4,086.5	0.00	0.00	0.00
10,840.0	90.06	179.99	7,105.9	-4,126.5	-3.0	4,126.5	0.00	0.00	0.00
10,880.0	90.06	179.99	7,105.8	-4,166.5	-3.0	4,166.5	0.00	0.00	0.00
10,920.0	90.06	179.99	7,105.8	-4,206.5	-3.0	4,206.5	0.00	0.00	0.00
10,960.0	90.06	179.99	7,105.8	-4,246.5	-3.0	4,246.5	0.00	0.00	0.00
11,000.0	90.06	179.99	7,105.7	-4,286.5	-3.0	4,286.5	0.00	0.00	0.00
11,040.0	90.06	179.99	7,105.7	-4,326.5	-2.9	4,326.5	0.00	0.00	0.00
11,080.0	90.06	179.99	7,105.6	-4,366.5	-2.9	4,366.5	0.00	0.00	0.00
11,120.0	90.06	179.99	7,105.6	-4,406.5	-2.9	4,406.5	0.00	0.00	0.00
11,160.0	90.06	179.99	7,105.6	-4,446.5	-2.9	4,446.5	0.00	0.00	0.00
11,200.0	90.06	179.99	7,105.5	-4,486.5	-2.9	4,486.5	0.00	0.00	0.00
11,240.0	90.06	179.99	7,105.5	-4,526.5	-2.9	4,526.5	0.00	0.00	0.00
11,280.0	90.06	179.99	7,105.4	-4,566.5	-2.9	4,566.5	0.00	0.00	0.00
11,320.0	90.06	179.99	7,105.4	-4,606.5	-2.9	4,606.5	0.00	0.00	0.00
11,360.0	90.06	179.99	7,105.4	-4,646.5	-2.9	4,646.5	0.00	0.00	0.00
11,400.0	90.06	179.99	7,105.3	-4,686.5	-2.9	4,686.5	0.00	0.00	0.00
11,440.0	90.06	179.99	7,105.3	-4,726.5	-2.8	4,726.5	0.00	0.00	0.00
11,480.0	90.06	179.99	7,105.2	-4,766.5	-2.8	4,766.5	0.00	0.00	0.00
11,520.0	90.06	179.99	7,105.2	-4,806.5	-2.8	4,806.5	0.00	0.00	0.00
11,560.0	90.06	179.99	7,105.2	-4,846.5	-2.8	4,846.5	0.00	0.00	0.00
11,600.0	90.06	179.99	7,105.1	-4,886.5	-2.8	4,886.5	0.00	0.00	0.00
11,640.0	90.06	179.99	7,105.1	-4,926.5	-2.8	4,926.5	0.00	0.00	0.00
11,680.0	90.06	179.99	7,105.0	-4,966.5	-2.8	4,966.5	0.00	0.00	0.00
11,720.0	90.06	179.99	7,105.0	-5,006.5	-2.8	5,006.5	0.00	0.00	0.00
11,730.2	90.06	179.99	7,105.0	-5,016.7	-2.8	5,016.7	0.00	0.00	0.00
BHL 500'FSL & 1320'FEL									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 500'FSL & 1320'FEL - hit/miss target - Shape - Point	0.00	0.00	7,105.0	-5,016.7	-2.8	1,435,164.13	3,269,241.76	40.523890	-104.531490

Database:	Landmark	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-28-12)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,459.9	7,095.0	7"	7	7-1/2

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,799.6	5,799.6	0.0	0.0	KOP
7,655.2	7,109.0	-941.7	-3.8	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.27-T7N-R64W

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

Richter 34R-403

Wellbore #1

Plan #1 (9-28-12)

Anticollision Report

03 October, 2012



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	10/3/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,729.2	Plan #1 (9-28-12) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Richter 27T-HZ Pad Sec.27-T7N-R64W						
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	200.0	200.0	91.8	91.1	136.138	CC, ES
Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)	800.0	773.6	152.0	148.6	45.093	SF
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	61.3	57.0	14.344	CC, ES
Richter 34M-423 - Wellbore #1 - Plan #1 (9-28-12)	11,730.2	11,769.0	658.9	464.5	3.389	SF
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	1,200.0	1,200.0	30.6	25.4	5.914	CC, ES
Richter 34R-223 - Wellbore #1 - Plan #1 (9-27-12)	11,730.2	11,684.2	376.6	201.9	2.155	SF
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	1,000.0	1,000.0	58.4	54.1	13.668	CC, ES
Richter 34R-423 - Wellbore #1 - Plan #1 (9-28-12)	11,730.2	11,782.8	661.7	467.1	3.401	SF
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	200.0	200.0	88.9	88.3	131.908	CC, ES
Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)	800.0	774.1	149.3	145.9	44.253	SF
Richter 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	1,200.0	1,200.0	30.8	25.6	5.956	CC, ES
Richter 34R-243 - Wellbore #1 - Plan #1 (9-27-12)	11,730.2	11,678.4	374.2	199.8	2.146	SF

Offset Design	Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34M-203 - Wellbore #1 - Plan #1 (9-27-12)												Offset Site Error:	0.0 ft
Survey Program:	0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-92.28	-3.6	-91.7	91.8					
100.0	100.0	100.0	100.0	0.1	0.1	-92.28	-3.6	-91.7	91.8	91.6	0.22	408.413		
200.0	200.0	200.0	200.0	0.3	0.3	-92.28	-3.6	-91.7	91.8	91.1	0.67	136.138	CC, ES	
300.0	300.0	296.9	296.8	0.6	0.5	-92.22	-3.6	-93.4	93.5	92.4	1.11	84.356		
400.0	400.0	393.5	393.4	0.8	0.8	-92.06	-3.5	-98.3	98.5	97.0	1.55	63.620		
500.0	500.0	489.7	489.2	1.0	1.0	-91.83	-3.4	-106.4	107.0	105.0	2.00	53.544		
600.0	600.0	585.3	584.1	1.2	1.3	-91.57	-3.2	-117.6	118.7	116.2	2.45	48.424		
700.0	700.0	680.0	677.7	1.5	1.6	-91.30	-3.0	-131.8	133.7	130.8	2.91	45.969		
800.0	800.0	773.6	769.8	1.7	1.9	-91.04	-2.7	-149.0	152.0	148.6	3.37	45.093	SF	
900.0	900.0	866.0	860.1	1.9	2.3	-90.80	-2.4	-168.8	173.5	169.6	3.84	45.217		
1,000.0	1,000.0	960.6	951.8	2.1	2.8	-90.59	-2.0	-191.6	197.6	193.3	4.31	45.858		
1,100.0	1,100.0	1,057.6	1,045.9	2.4	3.3	-90.42	-1.6	-215.2	222.0	217.2	4.78	46.420		
1,200.0	1,200.0	1,154.5	1,139.9	2.6	3.8	-90.29	-1.2	-238.9	246.3	241.1	5.25	46.883		
1,300.0	1,300.0	1,251.5	1,233.9	2.8	4.3	-90.18	-0.8	-262.6	270.7	265.0	5.73	47.242		
1,400.0	1,400.0	1,348.5	1,328.0	3.0	4.8	-90.08	-0.4	-286.2	295.1	288.9	6.21	47.526		

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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
1,500.0	1,500.0	1,445.5	1,422.0	3.3	5.3	-90.00		0.0	-309.9	319.5	312.8	6.69	47.755	
1,600.0	1,600.0	1,542.4	1,516.1	3.5	5.8	-89.94		0.4	-333.5	343.9	336.8	7.17	47.943	
1,700.0	1,700.0	1,639.4	1,610.1	3.7	6.3	-89.88		0.8	-357.2	368.3	360.7	7.66	48.100	
1,800.0	1,800.0	1,736.4	1,704.2	3.9	6.8	-89.83		1.2	-380.9	392.7	384.6	8.14	48.231	
1,900.0	1,900.0	1,833.4	1,798.2	4.2	7.3	-89.78		1.6	-404.5	417.1	408.5	8.63	48.343	
2,000.0	2,000.0	1,930.4	1,892.3	4.4	7.8	-89.74		1.9	-428.2	441.5	432.4	9.12	48.439	
2,100.0	2,100.0	2,027.3	1,986.3	4.6	8.3	-89.70		2.3	-451.8	465.9	456.3	9.60	48.522	
2,200.0	2,200.0	2,124.3	2,080.4	4.8	8.8	-89.67		2.7	-475.5	490.3	480.2	10.09	48.594	
2,300.0	2,300.0	2,221.3	2,174.4	5.1	9.4	-89.64		3.1	-499.2	514.7	504.1	10.58	48.658	
2,400.0	2,400.0	2,318.3	2,268.5	5.3	9.9	-89.61		3.5	-522.8	539.1	528.1	11.07	48.715	
2,500.0	2,500.0	2,415.2	2,362.5	5.5	10.4	-89.59		3.9	-546.5	563.5	552.0	11.56	48.765	
2,600.0	2,600.0	2,512.2	2,456.6	5.7	10.9	-89.57		4.3	-570.1	587.9	575.9	12.05	48.809	
2,700.0	2,700.0	2,609.2	2,550.6	6.0	11.4	-89.55		4.7	-593.8	612.3	599.8	12.53	48.850	
2,800.0	2,800.0	2,706.2	2,644.6	6.2	11.9	-89.53		5.1	-617.5	636.7	623.7	13.02	48.886	
2,900.0	2,900.0	2,803.2	2,738.7	6.4	12.4	-89.51		5.5	-641.1	661.1	647.6	13.51	48.919	
3,000.0	3,000.0	2,900.1	2,832.7	6.6	13.0	-89.49		5.9	-664.8	685.5	671.5	14.00	48.948	
3,100.0	3,100.0	2,997.1	2,926.8	6.9	13.5	-89.48		6.3	-688.4	709.9	695.4	14.50	48.976	
3,200.0	3,200.0	3,094.1	3,020.8	7.1	14.0	-89.46		6.7	-712.1	734.3	719.3	14.99	49.000	
3,300.0	3,300.0	3,191.1	3,114.9	7.3	14.5	-89.45		7.1	-735.8	758.7	743.2	15.48	49.023	
3,400.0	3,400.0	3,288.0	3,208.9	7.5	15.0	-89.44		7.4	-759.4	783.1	767.2	15.97	49.044	
3,500.0	3,500.0	3,385.0	3,303.0	7.8	15.5	-89.43		7.8	-783.1	807.5	791.1	16.46	49.063	
3,600.0	3,600.0	3,482.0	3,397.0	8.0	16.0	-89.42		8.2	-806.7	831.9	815.0	16.95	49.081	
3,700.0	3,700.0	3,579.0	3,491.1	8.2	16.6	-89.40		8.6	-830.4	856.3	838.9	17.44	49.097	
3,800.0	3,800.0	3,676.0	3,585.1	8.4	17.1	-89.39		9.0	-854.1	880.7	862.8	17.93	49.112	
3,900.0	3,900.0	3,772.9	3,679.2	8.7	17.6	-89.39		9.4	-877.7	905.1	886.7	18.42	49.126	
4,000.0	4,000.0	3,869.9	3,773.2	8.9	18.1	-89.38		9.8	-901.4	929.5	910.6	18.92	49.139	
4,100.0	4,100.0	3,966.9	3,867.2	9.1	18.6	-89.37		10.2	-925.0	953.9	934.5	19.41	49.151	
4,200.0	4,200.0	4,063.9	3,961.3	9.3	19.1	-89.36		10.6	-948.7	978.3	958.4	19.90	49.162	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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
0.0	0.0	0.0	0.0	0.0	0.0	-93.41	-93.41	-3.6	-61.1	61.3				
100.0	100.0	100.0	100.0	0.1	0.1	-93.41	-93.41	-3.6	-61.1	61.3	61.0	0.22	272.544	
200.0	200.0	200.0	200.0	0.3	0.3	-93.41	-93.41	-3.6	-61.1	61.3	60.6	0.67	90.848	
300.0	300.0	300.0	300.0	0.6	0.6	-93.41	-93.41	-3.6	-61.1	61.3	60.1	1.12	54.509	
400.0	400.0	400.0	400.0	0.8	0.8	-93.41	-93.41	-3.6	-61.1	61.3	59.7	1.57	38.935	
500.0	500.0	500.0	500.0	1.0	1.0	-93.41	-93.41	-3.6	-61.1	61.3	59.2	2.02	30.283	
600.0	600.0	600.0	600.0	1.2	1.2	-93.41	-93.41	-3.6	-61.1	61.3	58.8	2.47	24.777	
700.0	700.0	700.0	700.0	1.5	1.5	-93.41	-93.41	-3.6	-61.1	61.3	58.3	2.92	20.965	
800.0	800.0	800.0	800.0	1.7	1.7	-93.41	-93.41	-3.6	-61.1	61.3	57.9	3.37	18.170	
900.0	900.0	900.0	900.0	1.9	1.9	-93.41	-93.41	-3.6	-61.1	61.3	57.4	3.82	16.032	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-93.41	-93.41	-3.6	-61.1	61.3	57.0	4.27	14.344 CC, ES	
1,100.0	1,100.0	1,097.9	1,097.9	2.4	2.3	-93.49	-93.49	-3.8	-62.8	63.0	58.3	4.70	13.395	
1,200.0	1,200.0	1,195.5	1,195.4	2.6	2.5	-93.68	-93.68	-4.4	-67.8	68.1	63.0	5.12	13.292	
1,300.0	1,300.0	1,292.7	1,292.2	2.8	2.8	-93.96	-93.96	-5.3	-76.0	76.6	71.0	5.55	13.805	
1,400.0	1,400.0	1,389.2	1,388.0	3.0	3.0	-94.25	-94.25	-6.5	-87.4	88.5	82.5	5.98	14.796	
1,500.0	1,500.0	1,484.9	1,482.5	3.3	3.2	-94.52	-94.52	-8.1	-101.8	103.6	97.2	6.41	16.163	
1,600.0	1,600.0	1,583.3	1,579.6	3.5	3.5	-94.75	-94.75	-9.8	-118.4	120.6	113.7	6.85	17.596	
1,700.0	1,700.0	1,681.9	1,676.7	3.7	3.8	-94.93	-94.93	-11.6	-135.0	137.5	130.2	7.29	18.856	
1,800.0	1,800.0	1,780.4	1,773.8	3.9	4.2	-95.07	-95.07	-13.4	-151.7	154.5	146.7	7.74	19.963	
1,900.0	1,900.0	1,879.0	1,870.9	4.2	4.5	-95.18	-95.18	-15.2	-168.3	171.4	163.2	8.19	20.941	
2,000.0	2,000.0	1,977.5	1,968.1	4.4	4.8	-95.27	-95.27	-17.0	-184.9	188.4	179.7	8.64	21.811	
2,100.0	2,100.0	2,076.1	2,065.2	4.6	5.2	-95.34	-95.34	-18.8	-201.5	205.3	196.2	9.09	22.588	
2,200.0	2,200.0	2,174.6	2,162.3	4.8	5.6	-95.41	-95.41	-20.6	-218.1	222.3	212.7	9.55	23.287	
2,300.0	2,300.0	2,273.2	2,259.4	5.1	5.9	-95.46	-95.46	-22.4	-234.7	239.2	229.2	10.00	23.918	
2,400.0	2,400.0	2,371.7	2,356.6	5.3	6.3	-95.51	-95.51	-24.2	-251.3	256.2	245.7	10.46	24.491	
2,500.0	2,500.0	2,470.3	2,453.7	5.5	6.7	-95.55	-95.55	-26.0	-267.9	273.1	262.2	10.92	25.012	
2,600.0	2,600.0	2,568.8	2,550.8	5.7	7.0	-95.59	-95.59	-27.8	-284.5	290.1	278.7	11.38	25.489	
2,700.0	2,700.0	2,667.4	2,648.0	6.0	7.4	-95.62	-95.62	-29.6	-301.1	307.0	295.2	11.84	25.927	
2,800.0	2,800.0	2,765.9	2,745.1	6.2	7.8	-95.65	-95.65	-31.4	-317.8	324.0	311.7	12.31	26.330	
2,900.0	2,900.0	2,864.5	2,842.2	6.4	8.1	-95.67	-95.67	-33.2	-334.4	340.9	328.2	12.77	26.702	
3,000.0	3,000.0	2,963.0	2,939.3	6.6	8.5	-95.70	-95.70	-35.0	-351.0	357.9	344.7	13.23	27.046	
3,100.0	3,100.0	3,061.6	3,036.5	6.9	8.9	-95.72	-95.72	-36.8	-367.6	374.8	361.2	13.70	27.366	
3,200.0	3,200.0	3,160.1	3,133.6	7.1	9.3	-95.74	-95.74	-38.6	-384.2	391.8	377.6	14.16	27.663	
3,300.0	3,300.0	3,258.7	3,230.7	7.3	9.7	-95.76	-95.76	-40.4	-400.8	408.8	394.1	14.63	27.941	
3,400.0	3,400.0	3,357.2	3,327.8	7.5	10.1	-95.78	-95.78	-42.2	-417.4	425.7	410.6	15.10	28.201	
3,500.0	3,500.0	3,455.8	3,425.0	7.8	10.4	-95.79	-95.79	-44.0	-434.0	442.7	427.1	15.56	28.444	
3,600.0	3,600.0	3,554.4	3,522.1	8.0	10.8	-95.80	-95.80	-45.8	-450.6	459.6	443.6	16.03	28.673	
3,700.0	3,700.0	3,652.9	3,619.2	8.2	11.2	-95.82	-95.82	-47.6	-467.2	476.6	460.1	16.50	28.888	
3,800.0	3,800.0	3,751.5	3,716.3	8.4	11.6	-95.83	-95.83	-49.4	-483.9	493.5	476.5	16.97	29.090	
3,900.0	3,900.0	3,850.0	3,813.5	8.7	12.0	-95.84	-95.84	-51.2	-500.5	510.5	493.0	17.43	29.281	
4,000.0	4,000.0	3,948.6	3,910.6	8.9	12.4	-95.85	-95.85	-53.0	-517.1	527.4	509.5	17.90	29.462	
4,100.0	4,100.0	4,047.1	4,007.7	9.1	12.8	-95.86	-95.86	-54.8	-533.7	544.4	526.0	18.37	29.633	
4,200.0	4,200.0	4,145.7	4,104.8	9.3	13.1	-95.87	-95.87	-56.6	-550.3	561.3	542.5	18.84	29.795	
4,300.0	4,300.0	4,244.2	4,202.0	9.6	13.5	-95.88	-95.88	-58.4	-566.9	578.3	559.0	19.31	29.949	
4,400.0	4,400.0	4,342.8	4,299.1	9.8	13.9	-95.89	-95.89	-60.2	-583.5	595.2	575.4	19.78	30.095	
4,500.0	4,500.0	4,441.3	4,396.2	10.0	14.3	-95.90	-95.90	-62.0	-600.1	612.2	591.9	20.25	30.234	
4,600.0	4,600.0	4,539.9	4,493.3	10.2	14.7	-95.91	-95.91	-63.8	-616.7	629.1	608.4	20.72	30.366	
4,700.0	4,700.0	4,660.9	4,612.9	10.5	15.1	-95.91	-95.91	-65.8	-635.4	644.7	623.5	21.21	30.404	
4,800.0	4,800.0	4,789.4	4,740.6	10.7	15.4	-95.92	-95.92	-67.4	-649.8	656.0	634.3	21.68	30.258	
4,900.0	4,900.0	4,919.0	4,869.9	10.9	15.6	-95.92	-95.92	-68.3	-658.6	662.8	640.7	22.15	29.929	
5,000.0	5,000.0	5,049.2	5,000.0	11.1	15.8	-95.92	-95.92	-68.6	-661.5	665.1	642.5	22.60	29.424	

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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
5,100.0	5,100.0	5,149.2	5,100.0	11.4	15.9	-95.92	-95.92	-68.6	-661.5	665.1	642.1	23.02	28.894	
5,200.0	5,200.0	5,249.2	5,200.0	11.6	16.1	-95.92	-95.92	-68.6	-661.5	665.1	641.7	23.44	28.380	
5,300.0	5,300.0	5,349.2	5,300.0	11.8	16.2	-95.92	-95.92	-68.6	-661.5	665.1	641.2	23.85	27.882	
5,400.0	5,400.0	5,449.2	5,400.0	12.0	16.4	-95.92	-95.92	-68.6	-661.5	665.1	640.8	24.27	27.400	
5,500.0	5,500.0	5,549.2	5,500.0	12.2	16.5	-95.92	-95.92	-68.6	-661.5	665.1	640.4	24.69	26.933	
5,600.0	5,600.0	5,649.2	5,600.0	12.5	16.7	-95.92	-95.92	-68.6	-661.5	665.1	640.0	25.12	26.481	
5,700.0	5,700.0	5,749.2	5,700.0	12.7	16.9	-95.92	-95.92	-68.6	-661.5	665.1	639.6	25.54	26.043	
5,799.6	5,799.6	5,848.8	5,799.6	12.9	17.0	-95.92	-95.92	-68.6	-661.5	665.1	639.1	25.96	25.620	
5,900.0	5,900.0	5,949.2	5,900.0	13.1	17.2	84.20	84.20	-68.6	-661.5	664.9	638.6	26.36	25.225	
6,000.0	5,999.8	6,049.0	5,999.8	13.3	17.3	84.66	84.66	-68.6	-661.5	664.4	637.7	26.73	24.857	
6,100.0	6,099.4	6,148.6	6,099.4	13.5	17.5	85.42	85.42	-68.6	-661.5	663.7	636.6	27.10	24.488	
6,200.0	6,198.7	6,247.9	6,198.7	13.6	17.7	86.48	86.48	-68.6	-661.5	662.8	635.3	27.48	24.119	
6,300.0	6,297.5	6,346.7	6,297.5	13.8	17.8	87.83	87.83	-68.6	-661.5	662.0	634.1	27.87	23.755	
6,314.6	6,311.8	6,361.0	6,311.8	13.8	17.8	88.06	88.06	-68.6	-661.5	661.9	634.0	27.93	23.702	
6,400.0	6,395.9	6,444.4	6,395.1	14.0	18.0	89.14	89.14	-71.0	-661.5	661.6	633.3	28.26	23.412	
6,477.2	6,471.8	6,520.7	6,470.8	14.1	18.1	89.48	89.48	-80.8	-661.5	661.5	633.0	28.56	23.159	
6,500.0	6,494.2	6,543.4	6,493.0	14.2	18.1	89.45	89.45	-85.1	-661.5	661.5	632.9	28.66	23.084	
6,550.0	6,542.7	6,593.0	6,541.2	14.3	18.2	89.40	89.40	-96.9	-661.5	661.5	632.6	28.87	22.911	
6,600.0	6,590.4	6,642.6	6,588.6	14.4	18.3	89.38	89.38	-111.9	-661.5	661.5	632.4	29.11	22.727	
6,650.0	6,636.9	6,692.3	6,634.8	14.5	18.4	89.37	89.37	-129.9	-661.5	661.4	632.0	29.36	22.527	
6,700.0	6,682.2	6,742.0	6,679.9	14.7	18.5	89.37	89.37	-150.8	-661.5	661.3	631.7	29.65	22.308	
6,750.0	6,725.9	6,791.6	6,723.4	14.8	18.7	89.38	89.38	-174.6	-661.5	661.2	631.3	29.97	22.066	
6,800.0	6,768.0	6,841.3	6,765.4	15.0	18.8	89.40	89.40	-201.3	-661.5	661.1	630.8	30.33	21.796	
6,850.0	6,808.3	6,891.0	6,805.5	15.2	19.0	89.42	89.42	-230.6	-661.5	661.0	630.3	30.75	21.497	
6,900.0	6,846.5	6,940.7	6,843.7	15.4	19.1	89.44	89.44	-262.4	-661.5	660.9	629.6	31.22	21.166	
6,950.0	6,882.5	6,990.5	6,879.7	15.7	19.3	89.47	89.47	-296.7	-661.5	660.7	629.0	31.76	20.801	
7,000.0	6,916.2	7,040.2	6,913.4	16.0	19.5	89.51	89.51	-333.3	-661.5	660.5	628.2	32.37	20.404	
7,050.0	6,947.4	7,090.0	6,944.7	16.4	19.8	89.54	89.54	-372.0	-661.5	660.4	627.3	33.06	19.976	
7,100.0	6,976.0	7,139.8	6,973.4	16.7	20.1	89.58	89.58	-412.6	-661.5	660.2	626.3	33.82	19.520	
7,150.0	7,001.8	7,189.6	6,999.4	17.2	20.4	89.62	89.62	-455.1	-661.5	660.0	625.3	34.66	19.040	
7,200.0	7,024.8	7,239.4	7,022.6	17.6	20.7	89.66	89.66	-499.2	-661.5	659.7	624.2	35.58	18.541	
7,250.0	7,044.8	7,289.2	7,042.8	18.1	21.1	89.71	89.71	-544.7	-661.5	659.5	622.9	36.58	18.029	
7,300.0	7,061.8	7,339.1	7,060.1	18.7	21.5	89.75	89.75	-591.5	-661.5	659.3	621.6	37.65	17.510	
7,350.0	7,075.7	7,389.0	7,074.3	19.2	22.0	89.80	89.80	-639.3	-661.5	659.0	620.2	38.79	16.989	
7,400.0	7,086.4	7,438.9	7,085.3	19.8	22.5	89.85	89.85	-688.0	-661.5	658.8	618.8	40.00	16.471	
7,450.0	7,093.9	7,488.9	7,093.2	20.5	23.1	89.90	89.90	-737.3	-661.5	658.5	617.3	41.26	15.962	
7,459.9	7,095.0	7,498.7	7,094.4	20.6	23.2	89.91	89.91	-747.1	-661.5	658.5	617.0	41.51	15.863	
7,500.0	7,099.2	7,538.8	7,098.6	21.1	23.6	89.92	89.92	-787.0	-661.5	658.3	615.7	42.57	15.463	
7,533.9	7,102.7	7,572.7	7,102.1	21.6	24.0	89.92	89.92	-820.7	-661.5	658.1	614.6	43.48	15.136	
7,600.0	7,107.7	7,638.8	7,107.4	22.5	24.8	89.97	89.97	-886.5	-661.6	657.8	612.5	45.30	14.522	
7,649.3	7,109.0	7,688.1	7,108.9	23.2	25.5	90.00	90.00	-935.8	-661.6	657.8	611.1	46.69	14.089	
7,655.2	7,109.0	7,693.9	7,109.0	23.3	25.6	90.00	90.00	-941.7	-661.6	657.8	610.9	46.85	14.039	
7,700.0	7,109.0	7,738.8	7,108.9	24.0	26.2	90.00	90.00	-986.5	-661.6	657.8	609.6	48.17	13.656	
7,800.0	7,108.9	7,838.8	7,108.8	25.5	27.5	90.00	90.00	-1,086.5	-661.6	657.8	606.6	51.18	12.853	
7,900.0	7,108.8	7,938.8	7,108.7	27.0	29.0	90.00	90.00	-1,186.5	-661.6	657.9	603.6	54.30	12.115	
8,000.0	7,108.7	8,038.8	7,108.6	28.6	30.5	90.00	90.00	-1,286.5	-661.6	657.9	600.4	57.51	11.440	
8,100.0	7,108.6	8,138.8	7,108.6	30.3	32.0	90.00	90.00	-1,386.5	-661.6	657.9	597.1	60.79	10.823	
8,200.0	7,108.5	8,238.8	7,108.5	32.0	33.6	90.00	90.00	-1,486.5	-661.6	657.9	593.8	64.13	10.259	
8,300.0	7,108.4	8,338.8	7,108.4	33.7	35.3	90.00	90.00	-1,586.5	-661.6	658.0	590.4	67.53	9.743	
8,400.0	7,108.3	8,438.8	7,108.3	35.4	36.9	90.00	90.00	-1,686.5	-661.6	658.0	587.0	70.97	9.271	
8,500.0	7,108.2	8,538.8	7,108.2	37.1	38.6	90.00	90.00	-1,786.5	-661.6	658.0	583.6	74.46	8.838	

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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-423 - Wellbore #1 - Plan #1 (9-28-12)												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
8,600.0	7,108.1	8,638.8	7,108.1	38.9	40.3	90.00	-1,886.5	-661.6	658.0	580.1	77.97	8.439	
8,700.0	7,108.0	8,738.8	7,108.0	40.7	42.0	90.00	-1,986.5	-661.6	658.1	576.5	81.52	8.072	
8,800.0	7,107.9	8,838.8	7,107.9	42.5	43.7	90.00	-2,086.5	-661.6	658.1	573.0	85.10	7.734	
8,900.0	7,107.8	8,938.8	7,107.8	44.3	45.5	90.00	-2,186.5	-661.6	658.1	569.4	88.69	7.420	
9,000.0	7,107.7	9,038.8	7,107.7	46.1	47.3	90.00	-2,286.5	-661.6	658.1	565.8	92.31	7.130	
9,100.0	7,107.6	9,138.8	7,107.6	47.9	49.0	90.00	-2,386.5	-661.6	658.2	562.2	95.94	6.860	
9,200.0	7,107.5	9,238.8	7,107.5	49.7	50.8	90.00	-2,486.5	-661.6	658.2	558.6	99.60	6.609	
9,300.0	7,107.4	9,338.8	7,107.4	51.6	52.6	90.00	-2,586.5	-661.6	658.2	555.0	103.26	6.374	
9,400.0	7,107.3	9,438.8	7,107.3	53.4	54.4	90.00	-2,686.5	-661.6	658.3	551.3	106.94	6.155	
9,500.0	7,107.2	9,538.8	7,107.2	55.3	56.2	90.00	-2,786.5	-661.6	658.3	547.7	110.63	5.950	
9,600.0	7,107.1	9,638.8	7,107.1	57.1	58.1	90.00	-2,886.5	-661.6	658.3	544.0	114.33	5.758	
9,700.0	7,107.0	9,738.8	7,107.0	59.0	59.9	90.00	-2,986.5	-661.6	658.3	540.3	118.04	5.577	
9,800.0	7,106.9	9,838.8	7,106.9	60.8	61.7	90.00	-3,086.5	-661.6	658.4	536.6	121.76	5.407	
9,900.0	7,106.8	9,938.8	7,106.8	62.7	63.6	90.00	-3,186.5	-661.6	658.4	532.9	125.49	5.247	
10,000.0	7,106.7	10,038.8	7,106.7	64.6	65.4	90.00	-3,286.5	-661.6	658.4	529.2	129.22	5.095	
10,100.0	7,106.6	10,138.8	7,106.6	66.4	67.3	90.00	-3,386.5	-661.6	658.4	525.5	132.96	4.952	
10,200.0	7,106.5	10,238.8	7,106.5	68.3	69.1	90.00	-3,486.5	-661.6	658.5	521.8	136.70	4.817	
10,300.0	7,106.4	10,338.8	7,106.4	70.2	71.0	90.00	-3,586.5	-661.6	658.5	518.0	140.46	4.688	
10,400.0	7,106.3	10,438.8	7,106.3	72.1	72.8	90.00	-3,686.5	-661.6	658.5	514.3	144.21	4.566	
10,500.0	7,106.2	10,538.8	7,106.2	73.9	74.7	90.00	-3,786.5	-661.6	658.5	510.6	147.97	4.450	
10,600.0	7,106.1	10,638.8	7,106.1	75.8	76.6	90.00	-3,886.5	-661.6	658.6	506.8	151.74	4.340	
10,700.0	7,106.0	10,738.8	7,106.0	77.7	78.4	90.00	-3,986.5	-661.6	658.6	503.1	155.51	4.235	
10,800.0	7,105.9	10,838.8	7,105.9	79.6	80.3	90.00	-4,086.5	-661.6	658.6	499.3	159.28	4.135	
10,900.0	7,105.8	10,938.8	7,105.8	81.5	82.2	90.00	-4,186.5	-661.6	658.7	495.6	163.06	4.039	
11,000.0	7,105.7	11,038.8	7,105.7	83.4	84.0	90.00	-4,286.5	-661.6	658.7	491.8	166.84	3.948	
11,100.0	7,105.6	11,138.8	7,105.6	85.3	85.9	90.00	-4,386.5	-661.6	658.7	488.1	170.62	3.861	
11,200.0	7,105.5	11,238.8	7,105.5	87.2	87.8	90.00	-4,486.5	-661.6	658.7	484.3	174.41	3.777	
11,300.0	7,105.4	11,338.8	7,105.4	89.1	89.7	90.00	-4,586.5	-661.6	658.8	480.6	178.20	3.697	
11,400.0	7,105.3	11,438.8	7,105.3	91.0	91.6	90.00	-4,686.5	-661.6	658.8	476.8	181.99	3.620	
11,500.0	7,105.2	11,538.8	7,105.2	92.9	93.5	90.00	-4,786.5	-661.6	658.8	473.0	185.78	3.546	
11,600.0	7,105.1	11,638.8	7,105.1	94.8	95.3	90.00	-4,886.5	-661.6	658.8	469.3	189.58	3.475	
11,700.0	7,105.0	11,738.8	7,105.0	96.6	97.2	90.00	-4,986.5	-661.7	658.9	465.5	193.38	3.407	
11,730.2	7,105.0	11,769.0	7,105.0	97.1	97.8	90.00	-5,016.7	-661.7	658.9	464.5	194.42	3.389 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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		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)	Offset Wellbore Centre +E/-W (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	30.6	30.6				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	30.6	30.6	30.4	0.22	136.030	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	30.6	30.6	29.9	0.67	45.343	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	30.6	30.6	29.5	1.12	27.206	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	30.6	30.6	29.0	1.57	19.433	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	30.6	30.6	28.6	2.02	15.114	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	30.6	30.6	28.1	2.47	12.366	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	30.6	30.6	27.7	2.92	10.464	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	30.6	30.6	27.2	3.37	9.069	
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	30.6	30.6	26.8	3.82	8.002	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	30.6	30.6	26.3	4.27	7.159	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.00	0.0	30.6	30.6	25.9	4.72	6.478	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.00	0.0	30.6	30.6	25.4	5.17	5.914 CC, ES	
1,300.0	1,300.0	1,298.9	1,298.9	2.8	2.8	89.75	0.1	32.3	32.3	26.7	5.60	5.763	
1,400.0	1,400.0	1,397.6	1,397.4	3.0	3.0	89.15	0.6	37.4	37.5	31.4	6.03	6.211	
1,500.0	1,500.0	1,495.8	1,495.3	3.3	3.2	88.45	1.2	45.8	46.0	39.6	6.46	7.127	
1,600.0	1,600.0	1,593.3	1,592.1	3.5	3.4	87.82	2.2	57.4	58.0	51.1	6.89	8.417	
1,700.0	1,700.0	1,692.2	1,690.0	3.7	3.7	87.34	3.3	71.2	72.0	64.6	7.33	9.815	
1,800.0	1,800.0	1,791.2	1,788.0	3.9	4.0	87.02	4.4	84.9	85.9	78.1	7.77	11.057	
1,900.0	1,900.0	1,890.2	1,886.1	4.2	4.2	86.78	5.6	98.7	99.8	91.6	8.21	12.163	
2,000.0	2,000.0	1,989.2	1,984.1	4.4	4.5	86.61	6.7	112.5	113.8	105.1	8.65	13.151	
2,100.0	2,100.0	2,088.3	2,082.2	4.6	4.8	86.47	7.8	126.2	127.7	118.6	9.10	14.040	
2,200.0	2,200.0	2,187.3	2,180.2	4.8	5.1	86.36	8.9	140.0	141.7	132.1	9.54	14.843	
2,300.0	2,300.0	2,286.3	2,278.3	5.1	5.4	86.27	10.0	153.8	155.6	145.6	9.99	15.571	
2,400.0	2,400.0	2,385.3	2,376.4	5.3	5.7	86.19	11.2	167.5	169.6	159.1	10.44	16.235	
2,500.0	2,500.0	2,484.3	2,474.4	5.5	6.1	86.13	12.3	181.3	183.5	172.6	10.90	16.841	
2,600.0	2,600.0	2,583.4	2,572.5	5.7	6.4	86.07	13.4	195.1	197.5	186.1	11.35	17.397	
2,700.0	2,700.0	2,682.4	2,670.5	6.0	6.7	86.02	14.5	208.8	211.4	199.6	11.80	17.909	
2,800.0	2,800.0	2,781.4	2,768.6	6.2	7.0	85.98	15.6	222.6	225.3	213.1	12.26	18.382	
2,900.0	2,900.0	2,880.4	2,866.6	6.4	7.3	85.94	16.8	236.4	239.3	226.6	12.72	18.820	
3,000.0	3,000.0	2,979.5	2,964.7	6.6	7.7	85.91	17.9	250.1	253.2	240.1	13.17	19.226	
3,100.0	3,100.0	3,078.5	3,062.7	6.9	8.0	85.88	19.0	263.9	267.2	253.6	13.63	19.604	
3,200.0	3,200.0	3,177.5	3,160.8	7.1	8.3	85.85	20.1	277.7	281.1	267.1	14.09	19.957	
3,300.0	3,300.0	3,276.5	3,258.8	7.3	8.7	85.83	21.3	291.4	295.1	280.5	14.55	20.287	
3,400.0	3,400.0	3,382.4	3,363.8	7.5	9.0	85.81	22.4	305.4	308.4	293.4	15.01	20.551	
3,500.0	3,500.0	3,494.2	3,475.0	7.8	9.2	85.79	23.3	316.4	318.2	302.7	15.45	20.596	
3,600.0	3,600.0	3,606.6	3,587.2	8.0	9.5	85.78	23.8	323.0	324.1	308.2	15.89	20.402	
3,700.0	3,700.0	3,719.4	3,700.0	8.2	9.7	85.78	24.0	325.2	326.1	309.7	16.32	19.982	
3,800.0	3,800.0	3,819.4	3,800.0	8.4	9.8	85.78	24.0	325.2	326.1	309.3	16.74	19.476	
3,900.0	3,900.0	3,919.4	3,900.0	8.7	10.0	85.78	24.0	325.2	326.1	308.9	17.17	18.985	
4,000.0	4,000.0	4,019.4	4,000.0	8.9	10.2	85.78	24.0	325.2	326.1	308.5	17.61	18.518	
4,100.0	4,100.0	4,119.4	4,100.0	9.1	10.4	85.78	24.0	325.2	326.1	308.0	18.04	18.072	
4,200.0	4,200.0	4,219.4	4,200.0	9.3	10.6	85.78	24.0	325.2	326.1	307.6	18.48	17.646	
4,300.0	4,300.0	4,319.4	4,300.0	9.6	10.7	85.78	24.0	325.2	326.1	307.1	18.91	17.240	
4,400.0	4,400.0	4,419.4	4,400.0	9.8	10.9	85.78	24.0	325.2	326.1	306.7	19.35	16.851	
4,500.0	4,500.0	4,519.4	4,500.0	10.0	11.1	85.78	24.0	325.2	326.1	306.3	19.79	16.478	
4,600.0	4,600.0	4,619.4	4,600.0	10.2	11.3	85.78	24.0	325.2	326.1	305.8	20.22	16.122	
4,700.0	4,700.0	4,719.4	4,700.0	10.5	11.5	85.78	24.0	325.2	326.1	305.4	20.66	15.780	
4,800.0	4,800.0	4,819.4	4,800.0	10.7	11.7	85.78	24.0	325.2	326.1	305.0	21.10	15.452	
4,900.0	4,900.0	4,919.4	4,900.0	10.9	11.9	85.78	24.0	325.2	326.1	304.5	21.54	15.137	
5,000.0	5,000.0	5,019.4	5,000.0	11.1	12.1	85.78	24.0	325.2	326.1	304.1	21.98	14.835	

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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
5,100.0	5,100.0	5,119.4	5,100.0	11.4	12.3	85.78		24.0	325.2	326.1	303.6	22.42	14.544	
5,200.0	5,200.0	5,219.4	5,200.0	11.6	12.5	85.78		24.0	325.2	326.1	303.2	22.86	14.263	
5,300.0	5,300.0	5,319.4	5,300.0	11.8	12.7	85.78		24.0	325.2	326.1	302.8	23.30	13.994	
5,400.0	5,400.0	5,419.4	5,400.0	12.0	12.9	85.78		24.0	325.2	326.1	302.3	23.74	13.734	
5,500.0	5,500.0	5,519.4	5,500.0	12.2	13.1	85.78		24.0	325.2	326.1	301.9	24.18	13.483	
5,600.0	5,600.0	5,619.4	5,600.0	12.5	13.3	85.78		24.0	325.2	326.1	301.4	24.62	13.241	
5,700.0	5,700.0	5,719.4	5,700.0	12.7	13.5	85.78		24.0	325.2	326.1	301.0	25.07	13.008	
5,799.6	5,799.6	5,819.0	5,799.6	12.9	13.7	85.78		24.0	325.2	326.1	300.6	25.51	12.784	
5,900.0	5,900.0	5,919.4	5,900.0	13.1	13.9	-94.56		24.0	325.2	326.2	300.3	25.92	12.585	
6,000.0	5,999.8	6,019.2	5,999.8	13.3	14.1	-95.46		24.0	325.2	326.7	300.4	26.30	12.421	
6,100.0	6,099.4	6,118.9	6,099.4	13.5	14.3	-96.96		24.0	325.2	327.6	300.9	26.68	12.278	
6,200.0	6,198.7	6,218.7	6,199.3	13.6	14.5	-99.02		24.0	325.2	329.3	302.2	27.07	12.167	
6,300.0	6,297.5	6,326.3	6,306.4	13.8	14.7	-100.39		15.2	325.2	330.6	303.2	27.44	12.048	
6,314.6	6,311.8	6,342.1	6,322.1	13.8	14.7	-100.43		12.7	325.2	330.6	303.1	27.49	12.026	
6,400.0	6,395.9	6,434.4	6,411.7	14.0	14.9	-99.59		-8.6	325.2	329.9	302.0	27.83	11.854	
6,477.2	6,471.8	6,515.7	6,488.2	14.1	15.0	-97.27		-36.2	325.2	328.0	299.9	28.14	11.657	
6,500.0	6,494.2	6,539.2	6,509.7	14.2	15.1	-96.46		-45.7	325.2	327.4	299.2	28.23	11.598	
6,550.0	6,542.7	6,590.0	6,555.2	14.3	15.2	-94.64		-68.5	325.2	326.4	297.9	28.44	11.476	
6,600.0	6,590.4	6,640.2	6,598.4	14.4	15.3	-92.78		-93.8	325.2	325.7	297.0	28.67	11.359	
6,650.0	6,636.9	6,689.6	6,639.3	14.5	15.4	-90.91		-121.5	325.3	325.4	296.5	28.93	11.248	
6,658.1	6,644.3	6,697.5	6,645.8	14.5	15.4	-90.61		-126.2	325.3	325.4	296.5	28.98	11.230	
6,700.0	6,682.2	6,738.3	6,677.8	14.7	15.5	-89.04		-151.3	325.3	325.6	296.4	29.23	11.140	
6,750.0	6,725.9	6,786.3	6,713.9	14.8	15.7	-87.19		-183.1	325.3	326.1	296.5	29.55	11.035	
6,800.0	6,768.0	6,833.7	6,747.4	15.0	15.9	-85.36		-216.6	325.3	327.0	297.1	29.91	10.932	
6,850.0	6,808.3	6,880.5	6,778.4	15.2	16.1	-83.56		-251.7	325.3	328.2	297.9	30.31	10.829	
6,900.0	6,846.5	6,926.8	6,806.9	15.4	16.3	-81.81		-288.1	325.4	329.7	299.0	30.74	10.726	
6,950.0	6,882.5	6,972.6	6,832.8	15.7	16.6	-80.12		-325.8	325.4	331.5	300.3	31.22	10.621	
7,000.0	6,916.2	7,017.8	6,856.2	16.0	16.9	-78.48		-364.5	325.4	333.6	301.9	31.73	10.513	
7,050.0	6,947.4	7,062.6	6,877.0	16.4	17.2	-76.91		-404.1	325.4	335.9	303.6	32.29	10.402	
7,100.0	6,976.0	7,106.9	6,895.4	16.7	17.6	-75.42		-444.5	325.4	338.3	305.4	32.89	10.286	
7,150.0	7,001.8	7,150.0	6,910.9	17.2	18.0	-74.02		-484.7	325.5	340.9	307.3	33.53	10.166	
7,200.0	7,024.8	7,194.5	6,924.5	17.6	18.4	-72.66		-527.0	325.5	343.5	309.3	34.24	10.034	
7,250.0	7,044.8	7,237.7	6,935.4	18.1	18.9	-71.40		-568.9	325.5	346.2	311.3	34.98	9.897	
7,300.0	7,061.8	7,280.7	6,943.8	18.7	19.4	-70.23		-610.9	325.5	349.0	313.2	35.78	9.753	
7,350.0	7,075.7	7,323.3	6,949.9	19.2	19.9	-69.14		-653.1	325.6	351.7	315.0	36.63	9.601	
7,400.0	7,086.4	7,365.7	6,953.5	19.8	20.4	-68.14		-695.4	325.6	354.3	316.8	37.52	9.442	
7,450.0	7,093.9	7,407.8	6,954.8	20.5	20.9	-67.23		-737.5	325.6	356.8	318.4	38.47	9.276	
7,459.9	7,095.0	7,416.2	6,954.8	20.6	21.0	-67.06		-745.8	325.6	357.3	318.7	38.66	9.242	
7,500.0	7,099.2	7,456.1	6,954.5	21.1	21.6	-66.42		-785.7	325.6	359.3	319.8	39.51	9.094	
7,533.9	7,102.7	7,489.7	6,954.3	21.6	22.0	-65.89		-819.4	325.7	361.0	320.8	40.23	8.975	
7,600.0	7,107.7	7,555.6	6,953.8	22.5	22.9	-64.99		-885.3	325.7	363.6	321.8	41.78	8.703	
7,655.2	7,109.0	7,610.7	6,953.4	23.3	23.7	-64.73		-940.4	325.7	364.4	321.1	43.22	8.431	
7,700.0	7,109.0	7,655.6	6,953.1	24.0	24.4	-64.69		-985.2	325.8	364.5	320.1	44.43	8.204	
7,800.0	7,108.9	7,755.6	6,952.4	25.5	25.9	-64.61		-1,085.2	325.8	364.8	317.6	47.19	7.731	
7,900.0	7,108.8	7,855.6	6,951.7	27.0	27.4	-64.52		-1,185.2	325.9	365.1	315.0	50.04	7.296	
8,000.0	7,108.7	7,955.6	6,951.0	28.6	29.0	-64.44		-1,285.2	325.9	365.4	312.4	52.97	6.898	
8,100.0	7,108.6	8,055.6	6,950.3	30.3	30.7	-64.36		-1,385.2	326.0	365.6	309.7	55.96	6.534	
8,200.0	7,108.5	8,155.6	6,949.6	32.0	32.3	-64.27		-1,485.2	326.0	365.9	306.9	59.00	6.202	
8,300.0	7,108.4	8,255.6	6,948.9	33.7	34.0	-64.19		-1,585.2	326.1	366.2	304.1	62.09	5.899	
8,400.0	7,108.3	8,355.6	6,948.2	35.4	35.8	-64.11		-1,685.2	326.1	366.5	301.3	65.21	5.620	
8,500.0	7,108.2	8,455.6	6,947.5	37.1	37.5	-64.03		-1,785.2	326.2	366.8	298.4	68.37	5.365	

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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
Reference		Offset		Semi Major Axis			Distance									
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation	Warning			
Depth (ft)	Depth (ft)	Depth (ft)	Depth (ft)		(ft)	Toolface (°)	+N/-S (ft)	+E/-W (ft)	Centres (ft)	Ellipses (ft)	Separation (ft)	Factor				
8,600.0	7,108.1	8,555.6	6,946.8	38.9	39.3	-63.95	-1,885.2	326.3	367.1	295.5	71.55	5.130				
8,700.0	7,108.0	8,655.6	6,946.1	40.7	41.0	-63.86	-1,985.2	326.3	367.4	292.6	74.76	4.914				
8,800.0	7,107.9	8,755.6	6,945.4	42.5	42.8	-63.78	-2,085.2	326.4	367.7	289.7	77.99	4.715				
8,900.0	7,107.8	8,855.6	6,944.7	44.3	44.6	-63.70	-2,185.2	326.4	368.0	286.8	81.23	4.530				
9,000.0	7,107.7	8,955.6	6,944.0	46.1	46.4	-63.62	-2,285.2	326.5	368.3	283.8	84.49	4.359				
9,100.0	7,107.6	9,055.6	6,943.3	47.9	48.2	-63.54	-2,385.2	326.5	368.6	280.8	87.75	4.200				
9,200.0	7,107.5	9,155.5	6,942.6	49.7	50.1	-63.46	-2,485.2	326.6	368.9	277.8	91.03	4.052				
9,300.0	7,107.4	9,255.5	6,941.9	51.6	51.9	-63.38	-2,585.2	326.7	369.2	274.9	94.32	3.914				
9,400.0	7,107.3	9,355.5	6,941.3	53.4	53.7	-63.30	-2,685.2	326.7	369.5	271.9	97.62	3.785				
9,500.0	7,107.2	9,455.5	6,940.6	55.3	55.6	-63.21	-2,785.2	326.8	369.8	268.9	100.92	3.664				
9,600.0	7,107.1	9,555.5	6,939.9	57.1	57.4	-63.13	-2,885.2	326.8	370.1	265.8	104.22	3.551				
9,700.0	7,107.0	9,655.5	6,939.2	59.0	59.3	-63.05	-2,985.2	326.9	370.4	262.8	107.54	3.444				
9,800.0	7,106.9	9,755.5	6,938.5	60.8	61.1	-62.97	-3,085.2	326.9	370.7	259.8	110.85	3.344				
9,900.0	7,106.8	9,855.5	6,937.8	62.7	63.0	-62.89	-3,185.1	327.0	371.0	256.8	114.17	3.249				
10,000.0	7,106.7	9,955.5	6,937.1	64.6	64.9	-62.81	-3,285.1	327.1	371.3	253.8	117.49	3.160				
10,100.0	7,106.6	10,055.5	6,936.4	66.4	66.7	-62.73	-3,385.1	327.1	371.6	250.8	120.81	3.076				
10,200.0	7,106.5	10,155.5	6,935.7	68.3	68.6	-62.65	-3,485.1	327.2	371.9	247.8	124.13	2.996				
10,300.0	7,106.4	10,255.5	6,935.0	70.2	70.5	-62.57	-3,585.1	327.2	372.2	244.7	127.46	2.920				
10,400.0	7,106.3	10,355.5	6,934.3	72.1	72.4	-62.49	-3,685.1	327.3	372.5	241.7	130.78	2.848				
10,500.0	7,106.2	10,455.5	6,933.6	73.9	74.2	-62.41	-3,785.1	327.3	372.8	238.7	134.11	2.780				
10,600.0	7,106.1	10,555.5	6,932.9	75.8	76.1	-62.34	-3,885.1	327.4	373.1	235.7	137.43	2.715				
10,700.0	7,106.0	10,655.5	6,932.2	77.7	78.0	-62.26	-3,985.1	327.5	373.4	232.7	140.75	2.653				
10,800.0	7,105.9	10,755.5	6,931.5	79.6	79.9	-62.18	-4,085.1	327.5	373.7	229.7	144.08	2.594				
10,900.0	7,105.8	10,855.5	6,930.8	81.5	81.8	-62.10	-4,185.1	327.6	374.0	226.6	147.40	2.538				
11,000.0	7,105.7	10,955.5	6,930.1	83.4	83.7	-62.02	-4,285.1	327.6	374.3	223.6	150.72	2.484				
11,100.0	7,105.6	11,055.5	6,929.4	85.3	85.6	-61.94	-4,385.1	327.7	374.7	220.6	154.04	2.432				
11,200.0	7,105.5	11,155.5	6,928.7	87.2	87.5	-61.86	-4,485.1	327.7	375.0	217.6	157.36	2.383				
11,300.0	7,105.4	11,255.5	6,928.0	89.1	89.4	-61.78	-4,585.1	327.8	375.3	214.6	160.67	2.336				
11,400.0	7,105.3	11,355.5	6,927.3	91.0	91.2	-61.71	-4,685.1	327.9	375.6	211.6	163.98	2.290				
11,500.0	7,105.2	11,455.5	6,926.6	92.9	93.1	-61.63	-4,785.1	327.9	375.9	208.6	167.30	2.247				
11,600.0	7,105.1	11,555.5	6,925.9	94.8	95.0	-61.55	-4,885.1	328.0	376.2	205.6	170.60	2.205				
11,700.0	7,105.0	11,655.5	6,925.2	96.6	96.9	-61.47	-4,985.1	328.0	376.5	202.6	173.91	2.165				
11,730.2	7,105.0	11,684.2	6,925.0	97.1	97.5	-61.45	-5,013.8	328.0	376.6	201.9	174.78	2.155 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	90.00	0.0	58.4	58.4				
100.0	100.0	100.0	100.0	0.1	0.1	90.00	90.00	0.0	58.4	58.4	58.1	0.22	259.694	
200.0	200.0	200.0	200.0	0.3	0.3	90.00	90.00	0.0	58.4	58.4	57.7	0.67	86.565	
300.0	300.0	300.0	300.0	0.6	0.6	90.00	90.00	0.0	58.4	58.4	57.2	1.12	51.939	
400.0	400.0	400.0	400.0	0.8	0.8	90.00	90.00	0.0	58.4	58.4	56.8	1.57	37.099	
500.0	500.0	500.0	500.0	1.0	1.0	90.00	90.00	0.0	58.4	58.4	56.3	2.02	28.855	
600.0	600.0	600.0	600.0	1.2	1.2	90.00	90.00	0.0	58.4	58.4	55.9	2.47	23.609	
700.0	700.0	700.0	700.0	1.5	1.5	90.00	90.00	0.0	58.4	58.4	55.4	2.92	19.976	
800.0	800.0	800.0	800.0	1.7	1.7	90.00	90.00	0.0	58.4	58.4	55.0	3.37	17.313	
900.0	900.0	900.0	900.0	1.9	1.9	90.00	90.00	0.0	58.4	58.4	54.5	3.82	15.276	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	90.00	0.0	58.4	58.4	54.1	4.27	13.668 CC, ES	
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.3	90.13	90.13	-0.1	60.0	60.1	55.4	4.70	12.779	
1,200.0	1,200.0	1,195.7	1,195.6	2.6	2.5	90.49	90.49	-0.6	65.0	65.2	60.1	5.12	12.723	
1,300.0	1,300.0	1,293.0	1,292.5	2.8	2.8	90.98	90.98	-1.3	73.3	73.7	68.1	5.55	13.276	
1,400.0	1,400.0	1,389.6	1,388.4	3.0	3.0	91.50	91.50	-2.2	84.7	85.5	79.6	5.98	14.303	
1,500.0	1,500.0	1,485.5	1,483.2	3.3	3.2	91.98	91.98	-3.4	99.3	100.7	94.3	6.42	15.698	
1,600.0	1,600.0	1,584.1	1,580.4	3.5	3.5	92.39	92.39	-4.8	115.7	117.5	110.6	6.86	17.128	
1,700.0	1,700.0	1,682.7	1,677.6	3.7	3.8	92.69	92.69	-6.2	132.1	134.2	126.9	7.30	18.384	
1,800.0	1,800.0	1,781.3	1,774.8	3.9	4.2	92.92	92.92	-7.6	148.6	150.9	143.1	7.74	19.487	
1,900.0	1,900.0	1,879.8	1,872.0	4.2	4.5	93.11	93.11	-9.0	165.0	167.6	159.4	8.19	20.462	
2,000.0	2,000.0	1,978.4	1,969.2	4.4	4.8	93.26	93.26	-10.3	181.4	184.3	175.7	8.64	21.330	
2,100.0	2,100.0	2,077.0	2,066.4	4.6	5.2	93.39	93.39	-11.7	197.9	201.1	192.0	9.10	22.106	
2,200.0	2,200.0	2,175.6	2,163.6	4.8	5.5	93.50	93.50	-13.1	214.3	217.8	208.2	9.55	22.804	
2,300.0	2,300.0	2,274.2	2,260.8	5.1	5.9	93.59	93.59	-14.5	230.8	234.5	224.5	10.01	23.435	
2,400.0	2,400.0	2,372.8	2,358.0	5.3	6.2	93.67	93.67	-15.9	247.2	251.2	240.8	10.47	24.007	
2,500.0	2,500.0	2,471.4	2,455.2	5.5	6.6	93.74	93.74	-17.3	263.6	268.0	257.1	10.92	24.529	
2,600.0	2,600.0	2,570.0	2,552.4	5.7	7.0	93.81	93.81	-18.6	280.1	284.7	273.3	11.39	25.006	
2,700.0	2,700.0	2,668.6	2,649.6	6.0	7.3	93.86	93.86	-20.0	296.5	301.4	289.6	11.85	25.444	
2,800.0	2,800.0	2,767.2	2,746.8	6.2	7.7	93.91	93.91	-21.4	312.9	318.2	305.9	12.31	25.847	
2,900.0	2,900.0	2,865.8	2,844.0	6.4	8.1	93.96	93.96	-22.8	329.4	334.9	322.1	12.77	26.220	
3,000.0	3,000.0	2,964.3	2,941.2	6.6	8.5	94.00	94.00	-24.2	345.8	351.6	338.4	13.24	26.565	
3,100.0	3,100.0	3,062.9	3,038.4	6.9	8.8	94.03	94.03	-25.5	362.3	368.4	354.7	13.70	26.885	
3,200.0	3,200.0	3,161.5	3,135.6	7.1	9.2	94.07	94.07	-26.9	378.7	385.1	370.9	14.17	27.184	
3,300.0	3,300.0	3,260.1	3,232.8	7.3	9.6	94.10	94.10	-28.3	395.1	401.8	387.2	14.63	27.462	
3,400.0	3,400.0	3,358.7	3,330.0	7.5	10.0	94.13	94.13	-29.7	411.6	418.5	403.4	15.10	27.722	
3,500.0	3,500.0	3,457.3	3,427.2	7.8	10.3	94.15	94.15	-31.1	428.0	435.3	419.7	15.56	27.967	
3,600.0	3,600.0	3,555.9	3,524.4	8.0	10.7	94.18	94.18	-32.5	444.4	452.0	436.0	16.03	28.196	
3,700.0	3,700.0	3,654.5	3,621.6	8.2	11.1	94.20	94.20	-33.8	460.9	468.7	452.2	16.50	28.411	
3,800.0	3,800.0	3,753.1	3,718.8	8.4	11.5	94.22	94.22	-35.2	477.3	485.5	468.5	16.97	28.615	
3,900.0	3,900.0	3,851.7	3,816.0	8.7	11.8	94.24	94.24	-36.6	493.8	502.2	484.8	17.43	28.806	
4,000.0	4,000.0	3,950.2	3,913.2	8.9	12.2	94.26	94.26	-38.0	510.2	518.9	501.0	17.90	28.988	
4,100.0	4,100.0	4,048.8	4,010.4	9.1	12.6	94.27	94.27	-39.4	526.6	535.7	517.3	18.37	29.159	
4,200.0	4,200.0	4,147.4	4,107.6	9.3	13.0	94.29	94.29	-40.7	543.1	552.4	533.5	18.84	29.322	
4,300.0	4,300.0	4,246.0	4,204.8	9.6	13.4	94.31	94.31	-42.1	559.5	569.1	549.8	19.31	29.477	
4,400.0	4,400.0	4,344.6	4,302.0	9.8	13.7	94.32	94.32	-43.5	575.9	585.8	566.1	19.78	29.624	
4,500.0	4,500.0	4,443.2	4,399.2	10.0	14.1	94.33	94.33	-44.9	592.4	602.6	582.3	20.25	29.763	
4,600.0	4,600.0	4,541.8	4,496.4	10.2	14.5	94.35	94.35	-46.3	608.8	619.3	598.6	20.71	29.897	
4,700.0	4,700.0	4,661.4	4,614.6	10.5	14.9	94.36	94.36	-47.8	627.2	634.8	613.6	21.20	29.945	
4,800.0	4,800.0	4,789.4	4,741.8	10.7	15.2	94.37	94.37	-49.0	641.5	646.0	624.4	21.67	29.808	
4,900.0	4,900.0	4,918.5	4,870.5	10.9	15.4	94.38	94.38	-49.8	650.3	652.8	630.7	22.14	29.490	
5,000.0	5,000.0	5,048.0	5,000.0	11.1	15.6	94.38	94.38	-50.0	653.2	655.1	632.5	22.59	28.995	

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,100.0	5,148.0	5,100.0	11.4	15.8	94.38		-50.0	653.2	655.1	632.1	23.01	28.472	
5,200.0	5,200.0	5,248.0	5,200.0	11.6	15.9	94.38		-50.0	653.2	655.1	631.7	23.43	27.964	
5,300.0	5,300.0	5,348.0	5,300.0	11.8	16.1	94.38		-50.0	653.2	655.1	631.2	23.85	27.472	
5,400.0	5,400.0	5,448.0	5,400.0	12.0	16.2	94.38		-50.0	653.2	655.1	630.8	24.27	26.997	
5,500.0	5,500.0	5,548.0	5,500.0	12.2	16.4	94.38		-50.0	653.2	655.1	630.4	24.69	26.536	
5,600.0	5,600.0	5,648.0	5,600.0	12.5	16.5	94.38		-50.0	653.2	655.1	630.0	25.11	26.090	
5,700.0	5,700.0	5,748.0	5,700.0	12.7	16.7	94.38		-50.0	653.2	655.1	629.6	25.53	25.658	
5,799.6	5,799.6	5,847.6	5,799.6	12.9	16.9	94.38		-50.0	653.2	655.1	629.1	25.95	25.241	
5,900.0	5,900.0	5,948.0	5,900.0	13.1	17.0	-85.81		-50.0	653.2	655.0	628.6	26.35	24.853	
6,000.0	5,999.8	6,047.9	5,999.8	13.3	17.2	-86.27		-50.0	653.2	654.6	627.9	26.72	24.496	
6,100.0	6,099.4	6,147.5	6,099.4	13.5	17.3	-87.04		-50.0	653.2	654.1	627.0	27.09	24.141	
6,200.0	6,198.7	6,246.7	6,198.7	13.6	17.5	-88.11		-50.0	653.2	653.6	626.1	27.47	23.789	
6,300.0	6,297.5	6,345.5	6,297.5	13.8	17.7	-89.48		-50.0	653.2	653.2	625.4	27.86	23.445	
6,314.6	6,311.8	6,359.8	6,311.8	13.8	17.7	-89.70		-50.0	653.2	653.2	625.3	27.92	23.396	
6,334.1	6,331.1	6,379.1	6,331.1	13.9	17.7	-90.00		-50.0	653.2	653.2	625.2	28.00	23.330	
6,400.0	6,395.9	6,444.6	6,395.9	14.0	17.8	-90.81		-52.5	653.2	653.3	625.0	28.26	23.119	
6,477.2	6,471.8	6,522.8	6,474.0	14.1	18.0	-91.14		-62.7	653.2	653.3	624.8	28.57	22.870	
6,500.0	6,494.2	6,546.0	6,496.7	14.2	18.0	-91.18		-67.3	653.2	653.4	624.7	28.66	22.796	
6,550.0	6,542.7	6,596.7	6,546.0	14.3	18.1	-91.21		-79.6	653.2	653.4	624.5	28.88	22.628	
6,600.0	6,590.4	6,647.5	6,594.3	14.4	18.2	-91.22		-95.3	653.2	653.4	624.3	29.11	22.449	
6,650.0	6,636.9	6,698.3	6,641.4	14.5	18.3	-91.21		-114.0	653.2	653.5	624.1	29.36	22.255	
6,700.0	6,682.2	6,749.0	6,687.2	14.7	18.4	-91.19		-135.9	653.3	653.6	623.9	29.65	22.044	
6,750.0	6,725.9	6,799.7	6,731.4	14.8	18.5	-91.16		-160.7	653.3	653.7	623.7	29.97	21.810	
6,800.0	6,768.0	6,850.4	6,773.8	15.0	18.7	-91.12		-188.4	653.3	653.8	623.5	30.34	21.550	
6,850.0	6,808.3	6,901.0	6,814.3	15.2	18.9	-91.08		-218.9	653.3	654.0	623.2	30.76	21.262	
6,900.0	6,846.5	6,951.7	6,852.6	15.4	19.0	-91.02		-251.9	653.4	654.1	622.9	31.24	20.942	
6,950.0	6,882.5	7,002.2	6,888.7	15.7	19.2	-90.96		-287.4	653.4	654.3	622.5	31.78	20.589	
7,000.0	6,916.2	7,052.8	6,922.3	16.0	19.5	-90.90		-325.1	653.5	654.5	622.1	32.39	20.205	
7,050.0	6,947.4	7,103.3	6,953.3	16.4	19.7	-90.83		-364.9	653.5	654.7	621.7	33.08	19.791	
7,100.0	6,976.0	7,153.7	6,981.6	16.7	20.0	-90.76		-406.7	653.5	655.0	621.1	33.85	19.350	
7,150.0	7,001.8	7,204.1	7,007.0	17.2	20.4	-90.68		-450.2	653.6	655.2	620.5	34.69	18.886	
7,200.0	7,024.8	7,254.5	7,029.5	17.6	20.8	-90.60		-495.3	653.6	655.5	619.9	35.62	18.403	
7,250.0	7,044.8	7,304.8	7,049.0	18.1	21.2	-90.52		-541.6	653.7	655.7	619.1	36.62	17.907	
7,300.0	7,061.8	7,355.1	7,065.3	18.7	21.6	-90.43		-589.1	653.7	656.0	618.3	37.69	17.404	
7,350.0	7,075.7	7,405.3	7,078.5	19.2	22.1	-90.34		-637.6	653.8	656.3	617.5	38.84	16.899	
7,400.0	7,086.4	7,455.4	7,088.5	19.8	22.6	-90.25		-686.7	653.8	656.6	616.6	40.04	16.398	
7,450.0	7,093.9	7,505.5	7,095.2	20.5	23.2	-90.16		-736.4	653.9	656.9	615.6	41.30	15.904	
7,459.9	7,095.0	7,515.4	7,096.2	20.6	23.3	-90.15		-746.2	653.9	657.0	615.4	41.56	15.807	
7,500.0	7,099.2	7,555.5	7,100.4	21.1	23.8	-90.15		-786.1	653.9	657.2	614.6	42.62	15.421	
7,533.9	7,102.7	7,589.4	7,103.9	21.6	24.2	-90.14		-819.8	654.0	657.4	613.9	43.53	15.103	
7,600.0	7,107.7	7,655.5	7,108.2	22.5	25.0	-90.05		-885.8	654.0	657.8	612.4	45.40	14.489	
7,655.2	7,109.0	7,710.7	7,109.0	23.3	25.7	-90.00		-940.9	654.1	657.9	610.9	46.99	14.001	
7,700.0	7,109.0	7,755.5	7,108.9	24.0	26.3	-90.00		-985.7	654.2	657.9	609.6	48.31	13.619	
7,800.0	7,108.9	7,855.5	7,108.8	25.5	27.7	-90.00		-1,085.7	654.3	658.0	606.7	51.32	12.821	
7,900.0	7,108.8	7,955.5	7,108.7	27.0	29.2	-90.00		-1,185.7	654.4	658.1	603.7	54.44	12.088	
8,000.0	7,108.7	8,055.5	7,108.6	28.6	30.7	-90.00		-1,285.7	654.5	658.2	600.5	57.65	11.417	
8,100.0	7,108.6	8,155.5	7,108.5	30.3	32.2	-90.00		-1,385.7	654.6	658.3	597.4	60.93	10.804	
8,200.0	7,108.5	8,255.5	7,108.4	32.0	33.8	-90.00		-1,485.7	654.7	658.4	594.1	64.28	10.243	
8,300.0	7,108.4	8,355.5	7,108.3	33.7	35.4	-90.00		-1,585.7	654.9	658.5	590.8	67.68	9.730	
8,400.0	7,108.3	8,455.5	7,108.2	35.4	37.1	-90.00		-1,685.7	655.0	658.6	587.4	71.12	9.260	
8,500.0	7,108.2	8,555.5	7,108.1	37.1	38.8	-90.00		-1,785.7	655.1	658.7	584.1	74.61	8.829	

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	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									
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
8,600.0	7,108.1	8,655.5	7,108.1	38.9	40.5	-90.00	-1,885.7	655.2	658.8	580.6	78.12	8.432				
8,700.0	7,108.0	8,755.5	7,108.0	40.7	42.2	-90.00	-1,985.7	655.3	658.8	577.2	81.67	8.067				
8,800.0	7,107.9	8,855.5	7,107.9	42.5	43.9	-90.00	-2,085.7	655.5	658.9	573.7	85.25	7.730				
8,900.0	7,107.8	8,955.5	7,107.8	44.3	45.7	-90.00	-2,185.7	655.6	659.0	570.2	88.84	7.418				
9,000.0	7,107.7	9,055.5	7,107.7	46.1	47.4	-90.00	-2,285.7	655.7	659.1	566.7	92.46	7.129				
9,100.0	7,107.6	9,155.5	7,107.6	47.9	49.2	-90.00	-2,385.7	655.8	659.2	563.1	96.10	6.860				
9,200.0	7,107.5	9,255.5	7,107.5	49.7	51.0	-90.00	-2,485.7	655.9	659.3	559.6	99.75	6.610				
9,300.0	7,107.4	9,355.5	7,107.4	51.6	52.8	-90.00	-2,585.7	656.0	659.4	556.0	103.42	6.376				
9,400.0	7,107.3	9,455.5	7,107.3	53.4	54.6	-90.00	-2,685.7	656.2	659.5	552.4	107.09	6.158				
9,500.0	7,107.2	9,555.5	7,107.2	55.3	56.4	-90.00	-2,785.7	656.3	659.6	548.8	110.78	5.954				
9,600.0	7,107.1	9,655.5	7,107.1	57.1	58.3	-90.00	-2,885.7	656.4	659.7	545.2	114.49	5.762				
9,700.0	7,107.0	9,755.5	7,107.0	59.0	60.1	-90.00	-2,985.7	656.5	659.8	541.6	118.20	5.582				
9,800.0	7,106.9	9,855.5	7,106.9	60.8	61.9	-90.00	-3,085.7	656.6	659.9	538.0	121.91	5.413				
9,900.0	7,106.8	9,955.5	7,106.8	62.7	63.8	-90.00	-3,185.7	656.7	660.0	534.3	125.64	5.253				
10,000.0	7,106.7	10,055.5	7,106.7	64.6	65.6	-90.00	-3,285.7	656.9	660.1	530.7	129.37	5.102				
10,100.0	7,106.6	10,155.5	7,106.6	66.4	67.4	-90.00	-3,385.7	657.0	660.1	527.0	133.12	4.959				
10,200.0	7,106.5	10,255.5	7,106.5	68.3	69.3	-90.00	-3,485.7	657.1	660.2	523.4	136.86	4.824				
10,300.0	7,106.4	10,355.5	7,106.4	70.2	71.2	-90.00	-3,585.7	657.2	660.3	519.7	140.61	4.696				
10,400.0	7,106.3	10,455.5	7,106.3	72.1	73.0	-90.00	-3,685.7	657.3	660.4	516.1	144.37	4.574				
10,500.0	7,106.2	10,555.5	7,106.2	73.9	74.9	-90.00	-3,785.7	657.4	660.5	512.4	148.13	4.459				
10,600.0	7,106.1	10,655.5	7,106.1	75.8	76.7	-90.00	-3,885.7	657.6	660.6	508.7	151.90	4.349				
10,700.0	7,106.0	10,755.5	7,106.0	77.7	78.6	-90.00	-3,985.7	657.7	660.7	505.0	155.67	4.244				
10,800.0	7,105.9	10,855.5	7,105.9	79.6	80.5	-90.00	-4,085.7	657.8	660.8	501.4	159.44	4.144				
10,900.0	7,105.8	10,955.5	7,105.8	81.5	82.4	-90.00	-4,185.7	657.9	660.9	497.7	163.22	4.049				
11,000.0	7,105.7	11,055.5	7,105.7	83.4	84.2	-90.00	-4,285.7	658.0	661.0	494.0	167.00	3.958				
11,100.0	7,105.6	11,155.5	7,105.6	85.3	86.1	-90.00	-4,385.7	658.1	661.1	490.3	170.78	3.871				
11,200.0	7,105.5	11,255.5	7,105.5	87.2	88.0	-90.00	-4,485.7	658.3	661.2	486.6	174.57	3.787				
11,300.0	7,105.4	11,355.5	7,105.4	89.1	89.9	-90.00	-4,585.7	658.4	661.3	482.9	178.36	3.707				
11,400.0	7,105.3	11,455.5	7,105.3	91.0	91.8	-90.00	-4,685.7	658.5	661.4	479.2	182.15	3.631				
11,500.0	7,105.2	11,555.5	7,105.2	92.9	93.6	-90.00	-4,785.7	658.6	661.4	475.5	185.95	3.557				
11,600.0	7,105.1	11,655.5	7,105.1	94.8	95.5	-90.00	-4,885.7	658.7	661.5	471.8	189.74	3.487				
11,700.0	7,105.0	11,755.5	7,105.0	96.6	97.4	-90.00	-4,985.7	658.8	661.6	468.1	193.54	3.419				
11,730.2	7,105.0	11,782.8	7,105.0	97.1	97.9	-90.00	-5,013.0	658.9	661.7	467.1	194.52	3.401 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	Offset TVD Reference:	Offset Datum

Offset Design Survey Program: 0-MWD												Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34U-203 - Wellbore #1 - Plan #1 (9-28-12)		Offset Site 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 (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	88.9	88.9						
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	88.9	88.9	88.7	0.22	395.724			
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	88.9	88.9	88.3	0.67	131.908	CC, ES		
300.0	300.0	297.0	296.9	0.6	0.5	89.98	0.0	90.6	90.6	89.5	1.11	81.765			
400.0	400.0	393.7	393.5	0.8	0.8	89.91	0.2	95.5	95.7	94.2	1.55	61.763			
500.0	500.0	490.0	489.5	1.0	1.0	89.80	0.4	103.6	104.1	102.1	2.00	52.107			
600.0	600.0	585.6	584.4	1.2	1.3	89.69	0.6	114.9	115.9	113.4	2.45	47.257			
700.0	700.0	680.4	678.1	1.5	1.6	89.57	1.0	129.1	131.0	128.0	2.91	44.991			
800.0	800.0	774.1	770.3	1.7	1.9	89.45	1.4	146.3	149.3	145.9	3.37	44.253	SF		
900.0	900.0	866.6	860.6	1.9	2.3	89.35	1.9	166.1	170.7	166.9	3.84	44.482			
1,000.0	1,000.0	961.4	952.6	2.1	2.8	89.26	2.4	188.9	194.8	190.5	4.31	45.193			
1,100.0	1,100.0	1,058.4	1,046.7	2.4	3.3	89.19	3.0	212.5	219.1	214.3	4.78	45.806			
1,200.0	1,200.0	1,155.4	1,140.8	2.6	3.7	89.13	3.6	236.1	243.4	238.2	5.26	46.309			
1,300.0	1,300.0	1,252.4	1,234.9	2.8	4.2	89.08	4.2	259.7	267.8	262.0	5.73	46.701			
1,400.0	1,400.0	1,349.4	1,329.0	3.0	4.7	89.04	4.7	283.3	292.1	285.9	6.21	47.014			
1,500.0	1,500.0	1,446.4	1,423.1	3.3	5.2	89.01	5.3	306.8	316.4	309.7	6.69	47.269			
1,600.0	1,600.0	1,543.4	1,517.2	3.5	5.7	88.98	5.9	330.4	340.7	333.5	7.18	47.478			
1,700.0	1,700.0	1,640.4	1,611.2	3.7	6.2	88.96	6.5	354.0	365.0	357.4	7.66	47.654			
1,800.0	1,800.0	1,737.4	1,705.3	3.9	6.7	88.93	7.0	377.6	389.3	381.2	8.14	47.802			
1,900.0	1,900.0	1,834.4	1,799.4	4.2	7.3	88.91	7.6	401.2	413.6	405.0	8.63	47.929			
2,000.0	2,000.0	1,931.4	1,893.5	4.4	7.8	88.90	8.2	424.7	438.0	428.8	9.12	48.039			
2,100.0	2,100.0	2,028.4	1,987.6	4.6	8.3	88.88	8.8	448.3	462.3	452.7	9.60	48.134			
2,200.0	2,200.0	2,125.4	2,081.7	4.8	8.8	88.87	9.3	471.9	486.6	476.5	10.09	48.218			
2,300.0	2,300.0	2,222.4	2,175.8	5.1	9.3	88.85	9.9	495.5	510.9	500.3	10.58	48.292			
2,400.0	2,400.0	2,319.4	2,269.9	5.3	9.8	88.84	10.5	519.1	535.2	524.2	11.07	48.357			
2,500.0	2,500.0	2,416.4	2,363.9	5.5	10.3	88.83	11.1	542.6	559.5	548.0	11.56	48.416			
2,600.0	2,600.0	2,513.4	2,458.0	5.7	10.8	88.82	11.6	566.2	583.9	571.8	12.05	48.469			
2,700.0	2,700.0	2,610.4	2,552.1	6.0	11.3	88.81	12.2	589.8	608.2	595.6	12.54	48.516			
2,800.0	2,800.0	2,707.4	2,646.2	6.2	11.8	88.81	12.8	613.4	632.5	619.5	13.03	48.559			
2,900.0	2,900.0	2,804.4	2,740.3	6.4	12.3	88.80	13.4	637.0	656.8	643.3	13.52	48.598			
3,000.0	3,000.0	2,901.4	2,834.4	6.6	12.8	88.79	13.9	660.5	681.1	667.1	14.01	48.634			
3,100.0	3,100.0	2,998.4	2,928.5	6.9	13.4	88.79	14.5	684.1	705.4	690.9	14.50	48.666			
3,200.0	3,200.0	3,095.4	3,022.6	7.1	13.9	88.78	15.1	707.7	729.8	714.8	14.99	48.696			
3,300.0	3,300.0	3,192.4	3,116.6	7.3	14.4	88.77	15.7	731.3	754.1	738.6	15.48	48.724			
3,400.0	3,400.0	3,289.4	3,210.7	7.5	14.9	88.77	16.2	754.9	778.4	762.4	15.97	48.749			
3,500.0	3,500.0	3,386.4	3,304.8	7.8	15.4	88.76	16.8	778.4	802.7	786.2	16.46	48.773			
3,600.0	3,600.0	3,483.4	3,398.9	8.0	15.9	88.76	17.4	802.0	827.0	810.1	16.95	48.794			
3,700.0	3,700.0	3,580.4	3,493.0	8.2	16.4	88.75	18.0	825.6	851.3	833.9	17.44	48.814			
3,800.0	3,800.0	3,677.4	3,587.1	8.4	16.9	88.75	18.5	849.2	875.7	857.7	17.93	48.833			
3,900.0	3,900.0	3,774.4	3,681.2	8.7	17.4	88.75	19.1	872.7	900.0	881.5	18.42	48.851			
4,000.0	4,000.0	3,871.4	3,775.2	8.9	17.9	88.74	19.7	896.3	924.3	905.4	18.91	48.867			
4,100.0	4,100.0	3,968.4	3,869.3	9.1	18.4	88.74	20.2	919.9	948.6	929.2	19.41	48.882			
4,200.0	4,200.0	4,065.4	3,963.4	9.3	19.0	88.74	20.8	943.5	972.9	953.0	19.90	48.896			
4,300.0	4,300.0	4,162.4	4,057.5	9.6	19.5	88.73	21.4	967.1	997.2	976.8	20.39	48.909			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	Offset TVD Reference:	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-243 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-96.80	-96.80	-3.6	-30.6	30.8				
100.0	100.0	100.0	100.0	0.1	0.1	-96.80	-96.80	-3.6	-30.6	30.8	30.6	0.22	136.992	
200.0	200.0	200.0	200.0	0.3	0.3	-96.80	-96.80	-3.6	-30.6	30.8	30.1	0.67	45.664	
300.0	300.0	300.0	300.0	0.6	0.6	-96.80	-96.80	-3.6	-30.6	30.8	29.7	1.12	27.398	
400.0	400.0	400.0	400.0	0.8	0.8	-96.80	-96.80	-3.6	-30.6	30.8	29.2	1.57	19.570	
500.0	500.0	500.0	500.0	1.0	1.0	-96.80	-96.80	-3.6	-30.6	30.8	28.8	2.02	15.221	
600.0	600.0	600.0	600.0	1.2	1.2	-96.80	-96.80	-3.6	-30.6	30.8	28.3	2.47	12.454	
700.0	700.0	700.0	700.0	1.5	1.5	-96.80	-96.80	-3.6	-30.6	30.8	27.9	2.92	10.538	
800.0	800.0	800.0	800.0	1.7	1.7	-96.80	-96.80	-3.6	-30.6	30.8	27.4	3.37	9.133	
900.0	900.0	900.0	900.0	1.9	1.9	-96.80	-96.80	-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	-96.80	-96.80	-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	-96.80	-96.80	-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	-96.80	-96.80	-3.6	-30.6	30.8	25.6	5.17	5.956 CC, ES	
1,300.0	1,300.0	1,298.9	1,298.9	2.8	2.8	-96.28	-96.28	-3.6	-32.3	32.5	26.9	5.60	5.799	
1,400.0	1,400.0	1,397.6	1,397.4	3.0	3.0	-95.03	-95.03	-3.3	-37.4	37.6	31.6	6.03	6.237	
1,500.0	1,500.0	1,495.8	1,495.3	3.3	3.2	-93.56	-93.56	-2.9	-45.8	46.1	39.7	6.46	7.144	
1,600.0	1,600.0	1,593.3	1,592.1	3.5	3.4	-92.23	-92.23	-2.2	-57.5	58.1	51.2	6.89	8.428	
1,700.0	1,700.0	1,690.3	1,687.9	3.7	3.7	-91.17	-91.17	-1.5	-72.3	73.4	66.0	7.33	10.009	
1,800.0	1,800.0	1,788.9	1,785.1	3.9	4.0	-90.40	-90.40	-0.6	-88.7	89.9	82.1	7.77	11.575	
1,900.0	1,900.0	1,887.5	1,882.4	4.2	4.3	-89.88	-89.88	0.2	-105.0	106.5	98.2	8.21	12.971	
2,000.0	2,000.0	1,986.1	1,979.6	4.4	4.6	-89.49	-89.49	1.1	-121.3	123.0	114.4	8.65	14.220	
2,100.0	2,100.0	2,084.7	2,076.9	4.6	4.9	-89.20	-89.20	1.9	-137.6	139.6	130.5	9.10	15.343	
2,200.0	2,200.0	2,183.3	2,174.1	4.8	5.3	-88.97	-88.97	2.8	-154.0	156.1	146.6	9.55	16.356	
2,300.0	2,300.0	2,282.0	2,271.4	5.1	5.6	-88.78	-88.78	3.6	-170.3	172.7	162.7	10.00	17.275	
2,400.0	2,400.0	2,380.6	2,368.6	5.3	5.9	-88.63	-88.63	4.5	-186.6	189.3	178.8	10.45	18.112	
2,500.0	2,500.0	2,479.2	2,465.9	5.5	6.3	-88.50	-88.50	5.3	-202.9	205.8	194.9	10.90	18.876	
2,600.0	2,600.0	2,577.8	2,563.1	5.7	6.6	-88.39	-88.39	6.2	-219.3	222.4	211.1	11.36	19.577	
2,700.0	2,700.0	2,676.4	2,660.4	6.0	7.0	-88.29	-88.29	7.0	-235.6	239.0	227.2	11.82	20.221	
2,800.0	2,800.0	2,775.0	2,757.6	6.2	7.4	-88.21	-88.21	7.9	-251.9	255.6	243.3	12.28	20.815	
2,900.0	2,900.0	2,873.7	2,854.9	6.4	7.7	-88.14	-88.14	8.7	-268.2	272.1	259.4	12.74	21.365	
3,000.0	3,000.0	2,972.3	2,952.2	6.6	8.1	-88.08	-88.08	9.6	-284.5	288.7	275.5	13.20	21.875	
3,100.0	3,100.0	3,073.8	3,052.3	6.9	8.4	-88.02	-88.02	10.4	-301.2	305.2	291.5	13.66	22.339	
3,200.0	3,200.0	3,185.0	3,162.4	7.1	8.7	-87.97	-87.97	11.2	-316.4	318.9	304.8	14.11	22.595	
3,300.0	3,300.0	3,297.2	3,274.1	7.3	9.0	-87.94	-87.94	11.8	-327.5	328.7	314.1	14.56	22.581	
3,400.0	3,400.0	3,410.1	3,386.8	7.5	9.2	-87.92	-87.92	12.1	-334.1	334.6	319.6	15.00	22.312	
3,500.0	3,500.0	3,523.3	3,500.0	7.8	9.4	-87.91	-87.91	12.3	-336.4	336.6	321.2	15.43	21.810	
3,600.0	3,600.0	3,623.3	3,600.0	8.0	9.6	-87.91	-87.91	12.3	-336.4	336.6	320.7	15.86	21.227	
3,700.0	3,700.0	3,723.3	3,700.0	8.2	9.8	-87.91	-87.91	12.3	-336.4	336.6	320.3	16.29	20.664	
3,800.0	3,800.0	3,823.3	3,800.0	8.4	9.9	-87.91	-87.91	12.3	-336.4	336.6	319.9	16.72	20.128	
3,900.0	3,900.0	3,923.3	3,900.0	8.7	10.1	-87.91	-87.91	12.3	-336.4	336.6	319.4	17.16	19.619	
4,000.0	4,000.0	4,023.3	4,000.0	8.9	10.3	-87.91	-87.91	12.3	-336.4	336.6	319.0	17.59	19.134	
4,100.0	4,100.0	4,123.3	4,100.0	9.1	10.5	-87.91	-87.91	12.3	-336.4	336.6	318.6	18.03	18.671	
4,200.0	4,200.0	4,223.3	4,200.0	9.3	10.7	-87.91	-87.91	12.3	-336.4	336.6	318.1	18.46	18.230	
4,300.0	4,300.0	4,323.3	4,300.0	9.6	10.9	-87.91	-87.91	12.3	-336.4	336.6	317.7	18.90	17.809	
4,400.0	4,400.0	4,423.3	4,400.0	9.8	11.0	-87.91	-87.91	12.3	-336.4	336.6	317.3	19.34	17.406	
4,500.0	4,500.0	4,523.3	4,500.0	10.0	11.2	-87.91	-87.91	12.3	-336.4	336.6	316.8	19.78	17.020	
4,600.0	4,600.0	4,623.3	4,600.0	10.2	11.4	-87.91	-87.91	12.3	-336.4	336.6	316.4	20.21	16.651	
4,700.0	4,700.0	4,723.3	4,700.0	10.5	11.6	-87.91	-87.91	12.3	-336.4	336.6	315.9	20.65	16.297	
4,800.0	4,800.0	4,823.3	4,800.0	10.7	11.8	-87.91	-87.91	12.3	-336.4	336.6	315.5	21.09	15.958	
4,900.0	4,900.0	4,923.3	4,900.0	10.9	12.0	-87.91	-87.91	12.3	-336.4	336.6	315.1	21.53	15.632	
5,000.0	5,000.0	5,023.3	5,000.0	11.1	12.2	-87.91	-87.91	12.3	-336.4	336.6	314.6	21.97	15.319	

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	Offset TVD Reference:	Offset Datum

Offset Design Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-243 - Wellbore #1 - Plan #1 (9-27-12)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,100.0	5,123.3	5,100.0	11.4	12.4	-87.91	-87.91	12.3	-336.4	336.6	314.2	22.41	15.017	
5,200.0	5,200.0	5,223.3	5,200.0	11.6	12.6	-87.91	-87.91	12.3	-336.4	336.6	313.7	22.85	14.728	
5,300.0	5,300.0	5,323.3	5,300.0	11.8	12.8	-87.91	-87.91	12.3	-336.4	336.6	313.3	23.30	14.449	
5,400.0	5,400.0	5,423.3	5,400.0	12.0	13.0	-87.91	-87.91	12.3	-336.4	336.6	312.9	23.74	14.180	
5,500.0	5,500.0	5,523.3	5,500.0	12.2	13.2	-87.91	-87.91	12.3	-336.4	336.6	312.4	24.18	13.921	
5,600.0	5,600.0	5,623.3	5,600.0	12.5	13.4	-87.91	-87.91	12.3	-336.4	336.6	312.0	24.62	13.671	
5,700.0	5,700.0	5,723.3	5,700.0	12.7	13.6	-87.91	-87.91	12.3	-336.4	336.6	311.5	25.06	13.429	
5,799.6	5,799.6	5,822.9	5,799.6	12.9	13.8	-87.91	-87.91	12.3	-336.4	336.6	311.1	25.51	13.197	
5,900.0	5,900.0	5,923.3	5,900.0	13.1	14.0	92.35	92.35	12.3	-336.4	336.7	310.7	25.92	12.989	
6,000.0	5,999.8	6,023.2	5,999.8	13.3	14.2	93.24	93.24	12.3	-336.4	336.9	310.6	26.30	12.811	
6,100.0	6,099.4	6,122.8	6,099.4	13.5	14.4	94.70	94.70	12.3	-336.4	337.5	310.8	26.68	12.650	
6,200.0	6,198.7	6,222.5	6,199.1	13.6	14.6	96.72	96.72	12.2	-336.4	338.7	311.7	27.07	12.516	
6,300.0	6,297.5	6,328.4	6,304.6	13.8	14.8	98.07	98.07	3.7	-336.4	339.7	312.3	27.43	12.383	
6,314.6	6,311.8	6,344.0	6,320.0	13.8	14.8	98.11	98.11	1.3	-336.4	339.8	312.3	27.49	12.360	
6,400.0	6,395.9	6,434.9	6,408.5	14.0	15.0	97.36	97.36	-19.4	-336.3	339.2	311.3	27.82	12.193	
6,477.2	6,471.8	6,515.1	6,484.0	14.1	15.1	95.19	95.19	-46.2	-336.3	337.7	309.6	28.12	12.009	
6,500.0	6,494.2	6,538.2	6,505.3	14.2	15.1	94.35	94.35	-55.5	-336.3	337.3	309.1	28.21	11.955	
6,550.0	6,542.7	6,588.5	6,550.4	14.3	15.2	92.53	92.53	-77.6	-336.3	336.6	308.2	28.43	11.841	
6,600.0	6,590.4	6,638.1	6,593.3	14.4	15.4	90.73	90.73	-102.4	-336.2	336.2	307.5	28.66	11.730	
6,638.9	6,626.7	6,676.2	6,625.2	14.5	15.4	89.34	89.34	-123.2	-336.2	336.1	307.2	28.86	11.645	
6,650.0	6,636.9	6,687.0	6,634.0	14.5	15.5	88.94	88.94	-129.4	-336.2	336.1	307.2	28.92	11.622	
6,700.0	6,682.2	6,735.2	6,672.4	14.7	15.6	87.18	87.18	-158.6	-336.2	336.3	307.1	29.21	11.516	
6,750.0	6,725.9	6,782.8	6,708.4	14.8	15.7	85.45	85.45	-189.8	-336.2	336.8	307.3	29.52	11.409	
6,800.0	6,768.0	6,829.9	6,742.0	15.0	15.9	83.75	83.75	-222.7	-336.1	337.6	307.8	29.88	11.302	
6,850.0	6,808.3	6,876.4	6,773.2	15.2	16.1	82.10	82.10	-257.2	-336.1	338.7	308.4	30.26	11.192	
6,900.0	6,846.5	6,922.3	6,801.8	15.4	16.3	80.49	80.49	-293.1	-336.0	340.0	309.3	30.69	11.079	
6,950.0	6,882.5	6,967.8	6,828.0	15.7	16.6	78.94	78.94	-330.3	-336.0	341.5	310.3	31.16	10.961	
7,000.0	6,916.2	7,012.8	6,851.8	16.0	16.9	77.45	77.45	-368.6	-336.0	343.2	311.5	31.66	10.838	
7,050.0	6,947.4	7,057.4	6,873.0	16.4	17.2	76.03	76.03	-407.8	-335.9	345.0	312.8	32.22	10.708	
7,100.0	6,976.0	7,100.0	6,891.1	16.7	17.6	74.72	74.72	-446.3	-335.9	346.9	314.1	32.81	10.574	
7,150.0	7,001.8	7,145.5	6,908.0	17.2	18.0	73.39	73.39	-488.5	-335.8	348.9	315.4	33.47	10.424	
7,200.0	7,024.8	7,189.0	6,921.8	17.6	18.4	72.19	72.19	-529.7	-335.8	350.9	316.7	34.17	10.269	
7,250.0	7,044.8	7,232.2	6,933.2	18.1	18.8	71.06	71.06	-571.4	-335.7	352.9	318.0	34.93	10.105	
7,300.0	7,061.8	7,275.1	6,942.1	18.7	19.3	70.01	70.01	-613.3	-335.7	354.9	319.2	35.73	9.933	
7,350.0	7,075.7	7,317.7	6,948.7	19.2	19.8	69.04	69.04	-655.4	-335.6	356.9	320.3	36.60	9.752	
7,400.0	7,086.4	7,360.1	6,952.9	19.8	20.3	68.16	68.16	-697.6	-335.6	358.7	321.2	37.51	9.564	
7,450.0	7,093.9	7,402.2	6,954.7	20.5	20.9	67.35	67.35	-739.7	-335.5	360.5	322.0	38.47	9.370	
7,459.9	7,095.0	7,410.5	6,954.8	20.6	21.0	67.20	67.20	-748.0	-335.5	360.8	322.1	38.67	9.330	
7,500.0	7,099.2	7,448.8	6,954.6	21.1	21.5	66.57	66.57	-786.3	-335.5	362.3	322.8	39.50	9.172	
7,533.9	7,102.7	7,482.4	6,954.3	21.6	21.9	66.02	66.02	-819.9	-335.5	363.7	323.4	40.22	9.042	
7,600.0	7,107.7	7,548.3	6,953.9	22.5	22.8	65.14	65.14	-885.8	-335.4	365.6	323.9	41.74	8.759	
7,655.2	7,109.0	7,603.5	6,953.5	23.3	23.6	64.87	64.87	-941.0	-335.3	366.2	323.1	43.17	8.483	
7,700.0	7,109.0	7,648.3	6,953.2	24.0	24.3	64.83	64.83	-985.8	-335.3	366.3	321.9	44.38	8.254	
7,800.0	7,108.9	7,748.3	6,952.5	25.5	25.8	64.74	64.74	-1,085.8	-335.2	366.5	319.3	47.14	7.774	
7,900.0	7,108.8	7,848.3	6,951.8	27.0	27.3	64.65	64.65	-1,185.8	-335.1	366.7	316.7	49.99	7.335	
8,000.0	7,108.7	7,948.3	6,951.1	28.6	28.9	64.56	64.56	-1,285.8	-334.9	366.8	313.9	52.91	6.933	
8,100.0	7,108.6	8,048.3	6,950.4	30.3	30.6	64.47	64.47	-1,385.8	-334.8	367.0	311.1	55.90	6.565	
8,200.0	7,108.5	8,148.3	6,949.7	32.0	32.2	64.38	64.38	-1,485.8	-334.7	367.2	308.3	58.94	6.230	
8,300.0	7,108.4	8,248.3	6,949.0	33.7	33.9	64.29	64.29	-1,585.8	-334.6	367.4	305.4	62.03	5.923	
8,400.0	7,108.3	8,348.3	6,948.3	35.4	35.7	64.20	64.20	-1,685.8	-334.5	367.6	302.4	65.15	5.642	
8,500.0	7,108.2	8,448.3	6,947.6	37.1	37.4	64.11	64.11	-1,785.8	-334.4	367.8	299.4	68.30	5.384	

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 Richter 34R-403
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:	Richter 34R-403	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 (9-28-12)	Offset TVD Reference:	Offset Datum

Offset Design												Richter 27T-HZ Pad Sec.27-T7N-R64W - Richter 34R-243 - Wellbore #1 - Plan #1 (9-27-12)		Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft			
Reference		Offset		Semi Major Axis		Distance								Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
8,600.0	7,108.1	8,548.3	6,946.9	38.9	39.2	64.02	-1,885.8	-334.3	367.9	296.5	71.48	5.147			
8,700.0	7,108.0	8,648.3	6,946.2	40.7	40.9	63.93	-1,985.8	-334.2	368.1	293.4	74.68	4.929			
8,800.0	7,107.9	8,748.3	6,945.5	42.5	42.7	63.84	-2,085.7	-334.1	368.3	290.4	77.90	4.728			
8,900.0	7,107.8	8,848.3	6,944.8	44.3	44.5	63.75	-2,185.7	-334.0	368.5	287.4	81.14	4.541			
9,000.0	7,107.7	8,948.3	6,944.1	46.1	46.3	63.66	-2,285.7	-333.8	368.7	284.3	84.39	4.369			
9,100.0	7,107.6	9,048.3	6,943.4	47.9	48.1	63.57	-2,385.7	-333.7	368.9	281.2	87.66	4.208			
9,200.0	7,107.5	9,148.3	6,942.7	49.7	50.0	63.48	-2,485.7	-333.6	369.1	278.1	90.93	4.059			
9,300.0	7,107.4	9,248.3	6,942.0	51.6	51.8	63.39	-2,585.7	-333.5	369.3	275.0	94.21	3.920			
9,400.0	7,107.3	9,348.3	6,941.3	53.4	53.6	63.30	-2,685.7	-333.4	369.4	271.9	97.50	3.789			
9,500.0	7,107.2	9,448.3	6,940.6	55.3	55.5	63.21	-2,785.7	-333.3	369.6	268.8	100.79	3.667			
9,600.0	7,107.1	9,548.3	6,939.9	57.1	57.3	63.12	-2,885.7	-333.2	369.8	265.7	104.09	3.553			
9,700.0	7,107.0	9,648.3	6,939.2	59.0	59.2	63.04	-2,985.7	-333.1	370.0	262.6	107.39	3.446			
9,800.0	7,106.9	9,748.3	6,938.5	60.8	61.0	62.95	-3,085.7	-333.0	370.2	259.5	110.70	3.344			
9,900.0	7,106.8	9,848.3	6,937.8	62.7	62.9	62.86	-3,185.7	-332.8	370.4	256.4	114.01	3.249			
10,000.0	7,106.7	9,948.3	6,937.1	64.6	64.8	62.77	-3,285.7	-332.7	370.6	253.3	117.32	3.159			
10,100.0	7,106.6	10,048.3	6,936.4	66.4	66.6	62.68	-3,385.7	-332.6	370.8	250.2	120.63	3.074			
10,200.0	7,106.5	10,148.2	6,935.7	68.3	68.5	62.59	-3,485.7	-332.5	371.0	247.1	123.94	2.994			
10,300.0	7,106.4	10,248.2	6,935.0	70.2	70.4	62.50	-3,585.7	-332.4	371.2	244.0	127.25	2.917			
10,400.0	7,106.3	10,348.2	6,934.3	72.1	72.3	62.42	-3,685.7	-332.3	371.4	240.9	130.56	2.845			
10,500.0	7,106.2	10,448.2	6,933.6	73.9	74.1	62.33	-3,785.7	-332.2	371.6	237.7	133.87	2.776			
10,600.0	7,106.1	10,548.2	6,932.9	75.8	76.0	62.24	-3,885.7	-332.1	371.8	234.6	137.18	2.710			
10,700.0	7,106.0	10,648.2	6,932.2	77.7	77.9	62.15	-3,985.7	-332.0	372.0	231.5	140.49	2.648			
10,800.0	7,105.9	10,748.2	6,931.5	79.6	79.8	62.06	-4,085.7	-331.9	372.2	228.4	143.80	2.589			
10,900.0	7,105.8	10,848.2	6,930.8	81.5	81.7	61.98	-4,185.7	-331.7	372.4	225.3	147.11	2.532			
11,000.0	7,105.7	10,948.2	6,930.1	83.4	83.6	61.89	-4,285.7	-331.6	372.6	222.2	150.41	2.477			
11,100.0	7,105.6	11,048.2	6,929.4	85.3	85.5	61.80	-4,385.6	-331.5	372.8	219.1	153.71	2.426			
11,200.0	7,105.5	11,148.2	6,928.7	87.2	87.4	61.71	-4,485.6	-331.4	373.1	216.0	157.02	2.376			
11,300.0	7,105.4	11,248.2	6,928.0	89.1	89.3	61.63	-4,585.6	-331.3	373.3	213.0	160.31	2.328			
11,400.0	7,105.3	11,348.2	6,927.3	91.0	91.1	61.54	-4,685.6	-331.2	373.5	209.9	163.61	2.283			
11,500.0	7,105.2	11,448.2	6,926.6	92.9	93.0	61.45	-4,785.6	-331.1	373.7	206.8	166.90	2.239			
11,600.0	7,105.1	11,548.2	6,925.9	94.8	94.9	61.36	-4,885.6	-331.0	373.9	203.7	170.19	2.197			
11,700.0	7,105.0	11,648.2	6,925.2	96.6	96.8	61.28	-4,985.6	-330.9	374.1	200.6	173.48	2.157			
11,730.2	7,105.0	11,678.4	6,925.0	97.1	97.4	61.25	-5,015.8	-330.8	374.2	199.8	174.36	2.146 SF			

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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:	Richter 34R-403	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 (9-28-12)	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: Richter 34R-403
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.63°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Richter 34R-403
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:	Richter 34R-403	Survey Calculation Method:	Minimum Curvature
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