

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Rieder 18Y-301**

Surface Location: Rieder 4N67W18Y Pad Sec.18-T4N-R67W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4806.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1355510.21	3160290.29	40.307850	-104.925250	

RKB - 15' WELL @ 4821.0ft (RKB - 15')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 681'FSL & 592'FEL	1.0	0.0	0.0	Point
BHL 500'FNL & 75'FEL	7025.0	4087.5	345.8	Point



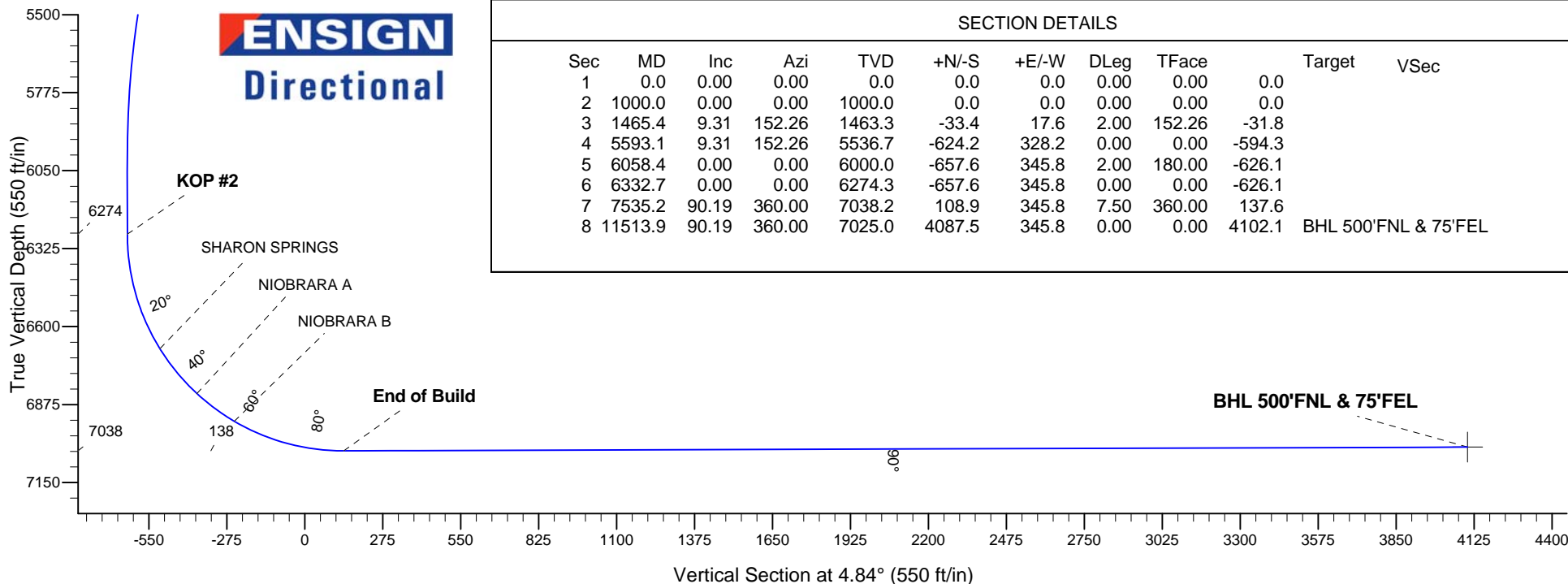
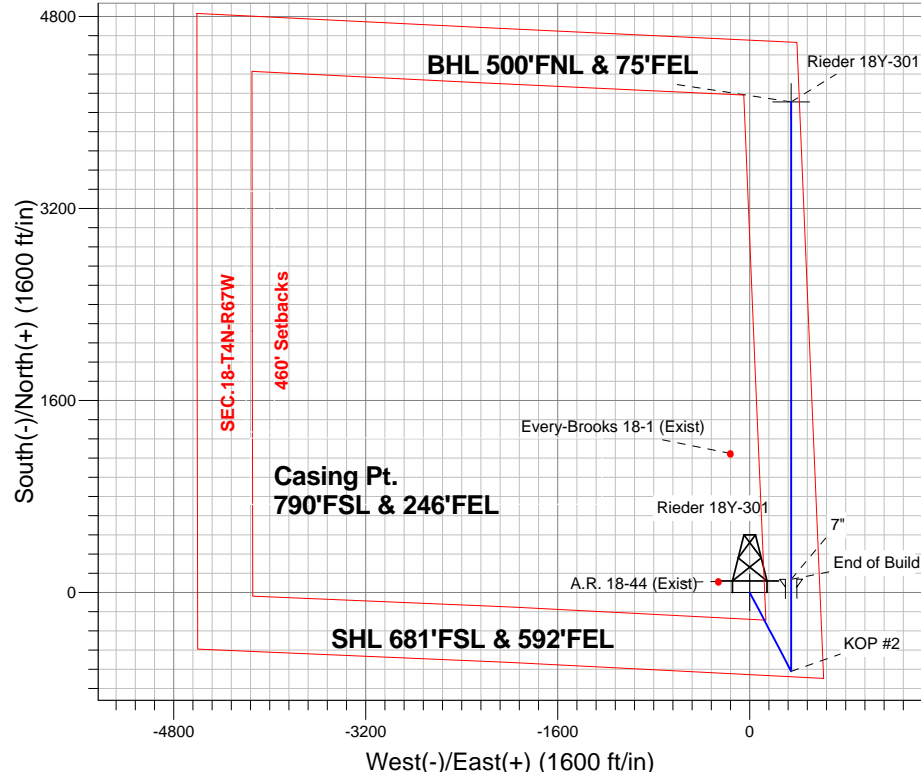
Azimuths to True North  
 Magnetic North: 8.52°

Magnetic Field  
 Strength: 52737.0snT  
 Dip Angle: 66.84°  
 Date: 7/31/2014  
 Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6274.3	6332.7	KOP #2
7038.2	7535.2	End of Build

Rieder 4N67W18Y Pad Sec.18-T4N-R67W  
 Rieder 18Y-301  
 Plan #1 (7-31-14)  
 11:19, August 05 2014



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1465.4	9.31	152.26	1463.3	-33.4	17.6	2.00	152.26	-31.8	
4	5593.1	9.31	152.26	5536.7	-624.2	328.2	0.00	0.00	-594.3	
5	6058.4	0.00	0.00	6000.0	-657.6	345.8	2.00	180.00	-626.1	
6	6332.7	0.00	0.00	6274.3	-657.6	345.8	0.00	0.00	-626.1	
7	7535.2	90.19	360.00	7038.2	108.9	345.8	7.50	360.00	137.6	
8	11513.9	90.19	360.00	7025.0	4087.5	345.8	0.00	0.00	4102.1	BHL 500'FNL & 75'FEL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.18-T4N-R67W**

**Rieder 4N67W18Y Pad Sec.18-T4N-R67W**

**Rieder 18Y-301**

**Wellbore #1**

**Plan: Plan #1 (7-31-14)**

## **Standard Planning Report**

**05 August, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

<b>Project</b>	SEC.18-T4N-R67W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Rieder 4N67W18Y Pad Sec.18-T4N-R67W											
Site Position:						Northing:			1,355,509.65ft			Latitude:			40.307850		
From:			Lat/Long			Easting:			3,160,201.05ft			Longitude:			-104.925570		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.37 °		

Well	Rieder 18Y-301					
Well Position	+N-S	0.0 ft	Northing:	1,355,510.21 ft	Latitude:	40.307850
	+E-W	89.2 ft	Easting:	3,160,290.29 ft	Longitude:	-104.925250
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,806.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/31/2014	8.52	66.84	52,737

<b>Design</b>	Plan #1 (7-31-14)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	4.84

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,465.4	9.31	152.26	1,463.3	-33.4	17.6	2.00	2.00	0.00	152.26	
5,593.1	9.31	152.26	5,536.7	-624.2	328.2	0.00	0.00	0.00	0.00	
6,058.4	0.00	0.00	6,000.0	-657.6	345.8	2.00	-2.00	0.00	180.00	
6,332.7	0.00	0.00	6,274.3	-657.6	345.8	0.00	0.00	0.00	0.00	
7,535.2	90.19	360.00	7,038.2	108.9	345.8	7.50	7.50	0.00	360.00	
11,513.9	90.19	360.00	7,025.0	4,087.5	345.8	0.00	0.00	0.00	0.00	BHL 500'FNL & 75'I

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<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

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
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>SHL 681'FSL &amp; 592'FEL</b>									
100.0	0.00	0.00	100.0	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
300.0	0.00	0.00	300.0	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
500.0	0.00	0.00	500.0	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
700.0	0.00	0.00	700.0	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
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
1,100.0	2.00	152.26	1,100.0	-1.5	0.8	-1.5	2.00	2.00	0.00
1,200.0	4.00	152.26	1,199.8	-6.2	3.2	-5.9	2.00	2.00	0.00
1,300.0	6.00	152.26	1,299.5	-13.9	7.3	-13.2	2.00	2.00	0.00
1,400.0	8.00	152.26	1,398.7	-24.7	13.0	-23.5	2.00	2.00	0.00
1,465.4	9.31	152.26	1,463.3	-33.4	17.6	-31.8	2.00	2.00	0.00
1,500.0	9.31	152.26	1,497.5	-38.3	20.2	-36.5	0.00	0.00	0.00
1,600.0	9.31	152.26	1,596.2	-52.7	27.7	-50.1	0.00	0.00	0.00
1,700.0	9.31	152.26	1,694.9	-67.0	35.2	-63.8	0.00	0.00	0.00
1,800.0	9.31	152.26	1,793.6	-81.3	42.7	-77.4	0.00	0.00	0.00
1,900.0	9.31	152.26	1,892.2	-95.6	50.3	-91.0	0.00	0.00	0.00
2,000.0	9.31	152.26	1,990.9	-109.9	57.8	-104.6	0.00	0.00	0.00
2,100.0	9.31	152.26	2,089.6	-124.2	65.3	-118.3	0.00	0.00	0.00
2,200.0	9.31	152.26	2,188.3	-138.5	72.8	-131.9	0.00	0.00	0.00
2,300.0	9.31	152.26	2,287.0	-152.9	80.4	-145.5	0.00	0.00	0.00
2,400.0	9.31	152.26	2,385.7	-167.2	87.9	-159.2	0.00	0.00	0.00
2,500.0	9.31	152.26	2,484.3	-181.5	95.4	-172.8	0.00	0.00	0.00
2,600.0	9.31	152.26	2,583.0	-195.8	103.0	-186.4	0.00	0.00	0.00
2,700.0	9.31	152.26	2,681.7	-210.1	110.5	-200.0	0.00	0.00	0.00
2,800.0	9.31	152.26	2,780.4	-224.4	118.0	-213.7	0.00	0.00	0.00
2,900.0	9.31	152.26	2,879.1	-238.7	125.5	-227.3	0.00	0.00	0.00
3,000.0	9.31	152.26	2,977.8	-253.0	133.1	-240.9	0.00	0.00	0.00
3,100.0	9.31	152.26	3,076.4	-267.4	140.6	-254.6	0.00	0.00	0.00
3,200.0	9.31	152.26	3,175.1	-281.7	148.1	-268.2	0.00	0.00	0.00
3,300.0	9.31	152.26	3,273.8	-296.0	155.6	-281.8	0.00	0.00	0.00
3,400.0	9.31	152.26	3,372.5	-310.3	163.2	-295.4	0.00	0.00	0.00
3,478.5	9.31	152.26	3,450.0	-321.5	169.1	-306.2	0.00	0.00	0.00
<b>PARKMAN</b>									
3,500.0	9.31	152.26	3,471.2	-324.6	170.7	-309.1	0.00	0.00	0.00
3,600.0	9.31	152.26	3,569.9	-338.9	178.2	-322.7	0.00	0.00	0.00
3,700.0	9.31	152.26	3,668.5	-353.2	185.8	-336.3	0.00	0.00	0.00
3,800.0	9.31	152.26	3,767.2	-367.6	193.3	-350.0	0.00	0.00	0.00
3,900.0	9.31	152.26	3,865.9	-381.9	200.8	-363.6	0.00	0.00	0.00
3,995.3	9.31	152.26	3,960.0	-395.5	208.0	-376.6	0.00	0.00	0.00
<b>SUSSEX</b>									
4,000.0	9.31	152.26	3,964.6	-396.2	208.3	-377.2	0.00	0.00	0.00
4,100.0	9.31	152.26	4,063.3	-410.5	215.9	-390.8	0.00	0.00	0.00
4,200.0	9.31	152.26	4,162.0	-424.8	223.4	-404.5	0.00	0.00	0.00
4,300.0	9.31	152.26	4,260.6	-439.1	230.9	-418.1	0.00	0.00	0.00
4,400.0	9.31	152.26	4,359.3	-453.4	238.4	-431.7	0.00	0.00	0.00

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<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

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)
4,500.0	9.31	152.26	4,458.0	-467.8	246.0	-445.4	0.00	0.00	0.00
4,562.8	9.31	152.26	4,520.0	-476.8	250.7	-453.9	0.00	0.00	0.00
<b>SHANNON</b>									
4,600.0	9.31	152.26	4,556.7	-482.1	253.5	-459.0	0.00	0.00	0.00
4,700.0	9.31	152.26	4,655.4	-496.4	261.0	-472.6	0.00	0.00	0.00
4,800.0	9.31	152.26	4,754.1	-510.7	268.6	-486.2	0.00	0.00	0.00
4,900.0	9.31	152.26	4,852.7	-525.0	276.1	-499.9	0.00	0.00	0.00
5,000.0	9.31	152.26	4,951.4	-539.3	283.6	-513.5	0.00	0.00	0.00
5,100.0	9.31	152.26	5,050.1	-553.6	291.1	-527.1	0.00	0.00	0.00
5,200.0	9.31	152.26	5,148.8	-568.0	298.7	-540.8	0.00	0.00	0.00
5,300.0	9.31	152.26	5,247.5	-582.3	306.2	-554.4	0.00	0.00	0.00
5,400.0	9.31	152.26	5,346.2	-596.6	313.7	-568.0	0.00	0.00	0.00
5,500.0	9.31	152.26	5,444.8	-610.9	321.2	-581.6	0.00	0.00	0.00
5,593.1	9.31	152.26	5,536.7	-624.2	328.2	-594.3	0.00	0.00	0.00
5,600.0	9.17	152.26	5,543.5	-625.2	328.8	-595.3	2.00	-2.00	0.00
5,700.0	7.17	152.26	5,642.5	-637.8	335.4	-607.2	2.00	-2.00	0.00
5,800.0	5.17	152.26	5,741.9	-647.3	340.4	-616.3	2.00	-2.00	0.00
5,900.0	3.17	152.26	5,841.7	-653.7	343.8	-622.4	2.00	-2.00	0.00
6,000.0	1.17	152.26	5,941.6	-657.1	345.5	-625.6	2.00	-2.00	0.00
6,058.4	0.00	0.00	6,000.0	-657.6	345.8	-626.1	2.00	-2.00	0.00
6,100.0	0.00	0.00	6,041.6	-657.6	345.8	-626.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,141.6	-657.6	345.8	-626.1	0.00	0.00	0.00
6,300.0	0.00	0.00	6,241.6	-657.6	345.8	-626.1	0.00	0.00	0.00
6,332.7	0.00	0.00	6,274.3	-657.6	345.8	-626.1	0.00	0.00	0.00
<b>KOP #2</b>									
6,400.0	5.05	360.00	6,341.5	-654.6	345.8	-623.2	7.50	7.50	0.00
6,500.0	12.55	360.00	6,440.2	-639.3	345.8	-607.9	7.50	7.50	0.00
6,600.0	20.05	360.00	6,536.2	-611.3	345.8	-580.0	7.50	7.50	0.00
6,700.0	27.55	360.00	6,627.6	-571.0	345.8	-539.8	7.50	7.50	0.00
6,758.1	31.90	360.00	6,678.0	-542.2	345.8	-511.1	7.50	7.50	0.00
<b>SHARON SPRINGS</b>									
6,800.0	35.05	360.00	6,713.0	-519.1	345.8	-488.1	7.50	7.50	0.00
6,900.0	42.55	360.00	6,790.8	-456.5	345.8	-425.7	7.50	7.50	0.00
6,963.8	47.33	360.00	6,836.0	-411.4	345.8	-380.8	7.50	7.50	0.00
<b>NIOBRARA A</b>									
7,000.0	50.05	360.00	6,859.9	-384.2	345.8	-353.7	7.50	7.50	0.00
7,100.0	57.55	360.00	6,918.9	-303.6	345.8	-273.3	7.50	7.50	0.00
7,129.0	59.72	360.00	6,934.0	-278.8	345.8	-248.7	7.50	7.50	0.00
<b>NIOBRARA B</b>									
7,200.0	65.05	360.00	6,966.9	-215.9	345.8	-186.0	7.50	7.50	0.00
7,300.0	72.55	360.00	7,003.0	-122.8	345.8	-93.2	7.50	7.50	0.00
7,317.2	73.84	360.00	7,008.0	-106.3	345.8	-76.8	7.50	7.50	0.00
<b>NIOBRARA C</b>									
7,400.0	80.05	360.00	7,026.7	-25.7	345.8	3.6	7.50	7.50	0.00
7,500.0	87.55	360.00	7,037.5	73.7	345.8	102.6	7.50	7.50	0.00
7,535.2	90.19	360.00	7,038.2	108.9	345.8	137.6	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,600.0	90.19	360.00	7,038.0	173.7	345.8	202.2	0.00	0.00	0.00
7,700.0	90.19	360.00	7,037.6	273.7	345.8	301.8	0.00	0.00	0.00
7,800.0	90.19	360.00	7,037.3	373.7	345.8	401.5	0.00	0.00	0.00
7,900.0	90.19	360.00	7,037.0	473.7	345.8	501.1	0.00	0.00	0.00
8,000.0	90.19	360.00	7,036.7	573.7	345.8	600.8	0.00	0.00	0.00

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<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

## 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)
8,100.0	90.19	360.00	7,036.3	673.7	345.8	700.4	0.00	0.00	0.00
8,200.0	90.19	360.00	7,036.0	773.7	345.8	800.1	0.00	0.00	0.00
8,300.0	90.19	360.00	7,035.7	873.7	345.8	899.7	0.00	0.00	0.00
8,400.0	90.19	360.00	7,035.3	973.7	345.8	999.3	0.00	0.00	0.00
8,500.0	90.19	360.00	7,035.0	1,073.7	345.8	1,099.0	0.00	0.00	0.00
8,600.0	90.19	360.00	7,034.7	1,173.7	345.8	1,198.6	0.00	0.00	0.00
8,700.0	90.19	360.00	7,034.3	1,273.7	345.8	1,298.3	0.00	0.00	0.00
8,800.0	90.19	360.00	7,034.0	1,373.7	345.8	1,397.9	0.00	0.00	0.00
8,900.0	90.19	360.00	7,033.7	1,473.7	345.8	1,497.6	0.00	0.00	0.00
9,000.0	90.19	360.00	7,033.3	1,573.7	345.8	1,597.2	0.00	0.00	0.00
9,100.0	90.19	360.00	7,033.0	1,673.7	345.8	1,696.8	0.00	0.00	0.00
9,200.0	90.19	360.00	7,032.7	1,773.7	345.8	1,796.5	0.00	0.00	0.00
9,300.0	90.19	360.00	7,032.3	1,873.7	345.8	1,896.1	0.00	0.00	0.00
9,400.0	90.19	360.00	7,032.0	1,973.7	345.8	1,995.8	0.00	0.00	0.00
9,500.0	90.19	360.00	7,031.7	2,073.7	345.8	2,095.4	0.00	0.00	0.00
9,600.0	90.19	360.00	7,031.3	2,173.7	345.8	2,195.1	0.00	0.00	0.00
9,700.0	90.19	360.00	7,031.0	2,273.7	345.8	2,294.7	0.00	0.00	0.00
9,800.0	90.19	360.00	7,030.7	2,373.7	345.8	2,394.4	0.00	0.00	0.00
9,900.0	90.19	360.00	7,030.4	2,473.7	345.8	2,494.0	0.00	0.00	0.00
10,000.0	90.19	360.00	7,030.0	2,573.7	345.8	2,593.6	0.00	0.00	0.00
10,100.0	90.19	360.00	7,029.7	2,673.7	345.8	2,693.3	0.00	0.00	0.00
10,200.0	90.19	360.00	7,029.4	2,773.7	345.8	2,792.9	0.00	0.00	0.00
10,300.0	90.19	360.00	7,029.0	2,873.7	345.8	2,892.6	0.00	0.00	0.00
10,400.0	90.19	360.00	7,028.7	2,973.6	345.8	2,992.2	0.00	0.00	0.00
10,500.0	90.19	360.00	7,028.4	3,073.6	345.8	3,091.9	0.00	0.00	0.00
10,600.0	90.19	360.00	7,028.0	3,173.6	345.8	3,191.5	0.00	0.00	0.00
10,700.0	90.19	360.00	7,027.7	3,273.6	345.8	3,291.1	0.00	0.00	0.00
10,800.0	90.19	360.00	7,027.4	3,373.6	345.8	3,390.8	0.00	0.00	0.00
10,900.0	90.19	360.00	7,027.0	3,473.6	345.8	3,490.4	0.00	0.00	0.00
11,000.0	90.19	360.00	7,026.7	3,573.6	345.8	3,590.1	0.00	0.00	0.00
11,100.0	90.19	360.00	7,026.4	3,673.6	345.8	3,689.7	0.00	0.00	0.00
11,200.0	90.19	360.00	7,026.0	3,773.6	345.8	3,789.4	0.00	0.00	0.00
11,300.0	90.19	360.00	7,025.7	3,873.6	345.8	3,889.0	0.00	0.00	0.00
11,400.0	90.19	360.00	7,025.4	3,973.6	345.8	3,988.6	0.00	0.00	0.00
11,500.0	90.19	360.00	7,025.0	4,073.6	345.8	4,088.3	0.00	0.00	0.00
11,513.9	90.19	360.00	7,025.0	4,087.5	345.8	4,102.1	0.00	0.00	0.00

BHL 500'FNL & 75'FEL

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,535.2	7,038.2	7"	7	7-1/2

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,478.5	3,450.0	PARKMAN				
3,995.3	3,960.0	SUSSEX				
4,562.8	4,520.0	SHANNON				
6,758.1	6,678.0	SHARON SPRINGS				
6,963.8	6,836.0	NIOBRARA A				
7,129.0	6,934.0	NIOBRARA B				
7,317.2	7,008.0	NIOBRARA C				
	7,132.0	FT HAYS				
	7,154.0	CODELL				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
6,332.7	6,274.3	-657.6	345.8	KOP #2
7,535.2	7,038.2	108.9	345.8	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.18-T4N-R67W**

**Rieder 4N67W18Y Pad Sec.18-T4N-R67W**

**Rieder 18Y-301**

**Wellbore #1**

**Plan #1 (7-31-14)**

## **Anticollision Report**

**19 August, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (7-31-14)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 8/19/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,513.9	Plan #1 (7-31-14) (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						
Existing Wells Sec.18-T4N-R67W						
A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1	1,000.0	984.0	277.5	255.7	12.722	CC
A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1	1,100.0	1,084.0	278.8	254.8	11.615	ES
A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1	7,517.4	7,022.2	608.0	449.3	3.832	SF
Carlson 18-3 (Exist) - Wellbore #1 - Wellbore #1	11,247.9	7,016.9	605.1	386.0	2.761	CC, ES
Carlson 18-3 (Exist) - Wellbore #1 - Wellbore #1	11,300.0	7,016.7	607.4	387.2	2.759	SF
Every-Brooks 18-1 (Exist) - Wellbore #1 - Wellbore #1	8,584.8	7,015.7	507.5	336.1	2.961	CC
Every-Brooks 18-1 (Exist) - Wellbore #1 - Wellbore #1	8,600.0	7,015.7	507.8	336.1	2.958	ES, SF
Rieder 4N67W18Y Pad Sec.18-T4N-R67W						
Rieder 18T-221 - Wellbore #1 - Plan #1 (7-31-14)	1,000.0	1,000.0	89.2	85.0	20.899	CC, ES
Rieder 18T-221 - Wellbore #1 - Plan #1 (7-31-14)	11,513.9	11,379.2	851.6	685.3	5.121	SF
Rieder 18T-321 - Wellbore #1 - Plan #1 (7-31-14)	1,000.0	1,000.0	119.9	115.7	28.082	CC, ES
Rieder 18T-321 - Wellbore #1 - Plan #1 (7-31-14)	1,300.0	1,290.9	137.4	132.0	25.433	SF
Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)	800.0	799.0	150.6	147.2	44.700	CC, ES
Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)	5,200.0	5,087.9	999.4	968.6	32.399	SF
Rieder 18Y-241 - Wellbore #1 - Plan #1 (7-31-14)	1,000.0	1,000.0	61.4	57.1	14.368	CC, ES
Rieder 18Y-241 - Wellbore #1 - Plan #1 (7-31-14)	11,513.9	11,393.5	322.7	159.9	1.983	SF
Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)	1,000.0	1,000.0	30.7	26.4	7.184	CC, ES
Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)	11,513.9	11,601.2	213.1	79.9	1.600	SF

<b>Offset Design</b> Existing Wells Sec.18-T4N-R67W - A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1											
Survey Program: 7290-UNKNOWN											
Reference Offset Semi Major Axis Distance											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)
0.0	0.0	0.0	0.0	0.0	0.0	-70.84	91.1	-262.2	278.0		
100.0	100.0	84.0	84.0	0.1	1.7	-70.84	91.1	-262.2	277.5	275.7	1.79
200.0	200.0	184.0	184.0	0.3	3.7	-70.84	91.1	-262.2	277.5	273.5	4.02
300.0	300.0	284.0	284.0	0.6	5.7	-70.84	91.1	-262.2	277.5	271.3	6.24
400.0	400.0	384.0	384.0	0.8	7.7	-70.84	91.1	-262.2	277.5	269.1	8.47
500.0	500.0	484.0	484.0	1.0	9.7	-70.84	91.1	-262.2	277.5	266.8	10.69
600.0	600.0	584.0	584.0	1.2	11.7	-70.84	91.1	-262.2	277.5	264.6	12.92
700.0	700.0	684.0	684.0	1.5	13.7	-70.84	91.1	-262.2	277.5	262.4	15.14
											18.330

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.18-T4N-R67W - A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7290-UNKNOWN													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
800.0	800.0	784.0	784.0	1.7	15.7	-70.84		91.1	-262.2	277.5	260.2	17.37	15.982	
900.0	900.0	884.0	884.0	1.9	17.7	-70.84		91.1	-262.2	277.5	257.9	19.59	14.167	
1,000.0	1,000.0	984.0	984.0	2.1	19.7	-70.84		91.1	-262.2	277.5	255.7	21.82	12.722 CC	
1,100.0	1,100.0	1,084.0	1,084.0	2.3	21.7	137.12		91.1	-262.2	278.8	254.8	24.01	11.615 ES	
1,200.0	1,199.8	1,183.8	1,183.8	2.5	23.7	137.79		91.1	-262.2	282.7	256.5	26.15	10.808	
1,300.0	1,299.5	1,283.5	1,283.5	2.7	25.7	138.87		91.1	-262.2	289.2	260.9	28.28	10.225	
1,400.0	1,398.7	1,382.7	1,382.7	2.9	27.7	140.28		91.1	-262.2	298.5	268.1	30.39	9.823	
1,500.0	1,497.5	1,481.5	1,481.5	3.2	29.6	142.00		91.1	-262.2	310.6	278.1	32.49	9.558	
1,600.0	1,596.2	1,580.2	1,580.2	3.5	31.6	143.75		91.1	-262.2	323.5	288.9	34.67	9.332	
1,700.0	1,694.9	1,678.9	1,678.9	3.8	33.6	145.37		91.1	-262.2	336.8	299.9	36.85	9.138	
1,800.0	1,793.6	1,777.6	1,777.6	4.1	35.6	146.87		91.1	-262.2	350.3	311.2	39.04	8.971	
1,900.0	1,892.2	1,876.2	1,876.2	4.4	37.5	148.26		91.1	-262.2	364.0	322.7	41.23	8.827	
2,000.0	1,990.9	1,974.9	1,974.9	4.7	39.5	149.54		91.1	-262.2	377.9	334.4	43.43	8.701	
2,100.0	2,089.6	2,073.6	2,073.6	5.1	41.5	150.74		91.1	-262.2	391.9	346.3	45.62	8.591	
2,200.0	2,188.3	2,172.3	2,172.3	5.4	43.4	151.85		91.1	-262.2	406.2	358.3	47.81	8.494	
2,300.0	2,287.0	2,271.0	2,271.0	5.8	45.4	152.89		91.1	-262.2	420.5	370.5	50.01	8.409	
2,400.0	2,385.7	2,369.7	2,369.7	6.1	47.4	153.85		91.1	-262.2	435.0	382.8	52.20	8.333	
2,500.0	2,484.3	2,468.3	2,468.3	6.5	49.4	154.76		91.1	-262.2	449.6	395.2	54.40	8.265	
2,600.0	2,583.0	2,567.0	2,567.0	6.9	51.3	155.61		91.1	-262.2	464.3	407.7	56.59	8.205	
2,700.0	2,681.7	2,665.7	2,665.7	7.2	53.3	156.41		91.1	-262.2	479.1	420.4	58.79	8.150	
2,800.0	2,780.4	2,764.4	2,764.4	7.6	55.3	157.16		91.1	-262.2	494.0	433.1	60.98	8.101	
2,900.0	2,879.1	2,863.1	2,863.1	8.0	57.3	157.86		91.1	-262.2	509.0	445.8	63.18	8.057	
3,000.0	2,977.8	2,961.8	2,961.8	8.3	59.2	158.53		91.1	-262.2	524.1	458.7	65.37	8.016	
3,100.0	3,076.4	3,060.4	3,060.4	8.7	61.2	159.15		91.1	-262.2	539.2	471.6	67.57	7.980	
3,200.0	3,175.1	3,159.1	3,159.1	9.1	63.2	159.75		91.1	-262.2	554.3	484.6	69.76	7.946	
3,300.0	3,273.8	3,257.8	3,257.8	9.5	65.2	160.31		91.1	-262.2	569.6	497.6	71.96	7.915	
3,400.0	3,372.5	3,356.5	3,356.5	9.8	67.1	160.84		91.1	-262.2	584.8	510.7	74.15	7.887	
3,500.0	3,471.2	3,455.2	3,455.2	10.2	69.1	161.35		91.1	-262.2	600.2	523.8	76.35	7.861	
3,600.0	3,569.9	3,553.9	3,553.9	10.6	71.1	161.83		91.1	-262.2	615.5	537.0	78.54	7.837	
3,700.0	3,668.5	3,652.5	3,652.5	11.0	73.1	162.29		91.1	-262.2	630.9	550.2	80.73	7.815	
3,800.0	3,767.2	3,751.2	3,751.2	11.4	75.0	162.72		91.1	-262.2	646.4	563.4	82.93	7.794	
3,900.0	3,865.9	3,849.9	3,849.9	11.7	77.0	163.14		91.1	-262.2	661.8	576.7	85.12	7.775	
4,000.0	3,964.6	3,948.6	3,948.6	12.1	79.0	163.54		91.1	-262.2	677.4	590.0	87.32	7.757	
4,100.0	4,063.3	4,047.3	4,047.3	12.5	80.9	163.91		91.1	-262.2	692.9	603.4	89.51	7.741	
4,200.0	4,162.0	4,146.0	4,146.0	12.9	82.9	164.28		91.1	-262.2	708.5	616.8	91.71	7.725	
4,300.0	4,260.6	4,244.6	4,244.6	13.3	84.9	164.62		91.1	-262.2	724.1	630.2	93.90	7.711	
4,400.0	4,359.3	4,343.3	4,343.3	13.6	86.9	164.95		91.1	-262.2	739.7	643.6	96.10	7.697	
4,500.0	4,458.0	4,442.0	4,442.0	14.0	88.8	165.27		91.1	-262.2	755.3	657.0	98.29	7.685	
4,600.0	4,556.7	4,540.7	4,540.7	14.4	90.8	165.58		91.1	-262.2	771.0	670.5	100.48	7.673	
4,700.0	4,655.4	4,639.4	4,639.4	14.8	92.8	165.87		91.1	-262.2	786.7	684.0	102.68	7.661	
4,800.0	4,754.1	4,738.1	4,738.1	15.2	94.8	166.15		91.1	-262.2	802.4	697.5	104.87	7.651	
4,900.0	4,852.7	4,836.7	4,836.7	15.6	96.7	166.42		91.1	-262.2	818.1	711.0	107.07	7.641	
5,000.0	4,951.4	4,935.4	4,935.4	15.9	98.7	166.68		91.1	-262.2	833.8	724.6	109.26	7.631	
5,100.0	5,050.1	5,034.1	5,034.1	16.3	100.7	166.94		91.1	-262.2	849.6	738.1	111.46	7.622	
5,200.0	5,148.8	5,132.8	5,132.8	16.7	102.7	167.18		91.1	-262.2	865.4	751.7	113.65	7.614	
5,300.0	5,247.5	5,231.5	5,231.5	17.1	104.6	167.41		91.1	-262.2	881.2	765.3	115.85	7.606	
5,400.0	5,346.2	5,330.2	5,330.2	17.5	106.6	167.64		91.1	-262.2	897.0	778.9	118.05	7.598	
5,500.0	5,444.8	5,428.8	5,428.8	17.9	108.6	167.85		91.1	-262.2	912.8	792.5	120.24	7.591	
5,600.0	5,543.5	5,527.5	5,527.5	18.2	110.6	168.07		91.1	-262.2	928.6	806.1	122.48	7.582	
5,700.0	5,642.5	5,626.5	5,626.5	18.5	112.5	168.30		91.1	-262.2	942.5	817.3	125.17	7.530	
5,800.0	5,741.9	5,725.9	5,725.9	18.7	114.5	168.48		91.1	-262.2	953.0	825.3	127.73	7.461	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.18-T4N-R67W - A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7290-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,900.0	5,841.7	5,825.7	5,825.7	18.9	116.5	168.59	91.1	-262.2	960.1	830.0	130.16	7.376		
6,000.0	5,941.6	5,925.6	5,925.6	19.1	118.5	168.65	91.1	-262.2	963.9	831.4	132.45	7.277		
6,100.0	6,041.6	6,025.6	6,025.6	19.2	120.5	-39.08	91.1	-262.2	964.4	829.8	134.63	7.164		
6,200.0	6,141.6	6,125.6	6,125.6	19.3	122.5	-39.08	91.1	-262.2	964.4	827.6	136.80	7.050		
6,300.0	6,241.6	6,225.6	6,225.6	19.5	124.5	-39.08	91.1	-262.2	964.4	825.5	138.98	6.940		
6,400.0	6,341.5	6,325.5	6,325.5	19.6	126.5	-39.30	91.1	-262.2	962.1	821.4	140.73	6.837		
6,500.0	6,440.2	6,424.2	6,424.2	19.6	128.5	-40.45	91.1	-262.2	950.3	809.2	141.15	6.733		
6,600.0	6,536.2	6,520.2	6,520.2	19.5	130.4	-42.66	91.1	-262.2	929.0	788.5	140.51	6.611		
6,700.0	6,627.6	6,611.6	6,611.6	19.3	132.2	-46.01	91.1	-262.2	898.9	759.4	139.48	6.444		
6,800.0	6,713.0	6,697.0	6,697.0	19.0	133.9	-50.59	91.1	-262.2	861.3	722.3	139.08	6.193		
6,900.0	6,790.8	6,774.8	6,774.8	18.7	135.5	-56.44	91.1	-262.2	818.2	677.8	140.38	5.828		
7,000.0	6,859.9	6,843.9	6,843.9	18.5	136.9	-63.34	91.1	-262.2	771.7	627.9	143.83	5.365		
7,100.0	6,918.9	6,902.9	6,902.9	18.2	138.1	-70.80	91.1	-262.2	724.8	576.2	148.63	4.877		
7,200.0	6,966.9	6,950.9	6,950.9	18.0	139.0	-77.97	91.1	-262.2	681.1	527.9	153.16	4.447		
7,300.0	7,003.0	6,987.0	6,987.0	17.9	139.7	-83.98	91.1	-262.2	644.5	488.3	156.19	4.126		
7,400.0	7,026.7	7,010.7	7,010.7	17.9	140.2	-88.10	91.1	-262.2	619.1	461.3	157.74	3.925		
7,500.0	7,037.5	7,021.5	7,021.5	18.2	140.4	-89.93	91.1	-262.2	608.2	449.7	158.53	3.837		
7,517.4	7,038.2	7,022.2	7,022.2	18.3	140.4	-90.00	91.1	-262.2	608.0	449.3	158.65	3.832 SF		
7,600.0	7,038.0	7,022.0	7,022.0	18.7	140.4	-89.97	91.1	-262.2	613.5	454.4	159.15	3.855		
7,700.0	7,037.6	7,021.6	7,021.6	19.5	140.4	-89.94	91.1	-262.2	634.8	474.9	159.93	3.969		
7,800.0	7,037.3	7,021.3	7,021.3	20.5	140.4	-89.91	91.1	-262.2	670.4	509.6	160.86	4.168		
7,900.0	7,037.0	7,021.0	7,021.0	21.6	140.4	-89.88	91.1	-262.2	718.3	556.4	161.91	4.436		
8,000.0	7,036.7	7,020.7	7,020.7	22.8	140.4	-89.85	91.1	-262.2	776.2	613.1	163.08	4.760		
8,100.0	7,036.3	7,020.3	7,020.3	24.1	140.4	-89.82	91.1	-262.2	842.0	677.7	164.35	5.123		
8,200.0	7,036.0	7,020.0	7,020.0	25.4	140.4	-89.79	91.1	-262.2	914.1	748.4	165.70	5.516		
8,300.0	7,035.7	7,019.7	7,019.7	26.9	140.4	-89.76	91.1	-262.2	991.0	823.9	167.12	5.930		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.18-T4N-R67W - Carlson 18-3 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error: 0.0 ft	
Survey Program: 7288-UNKNOWN												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
10,500.0	7,028.4	7,019.4	7,019.4	65.0	140.4	-90.23	3,821.6	-259.3	962.1	756.8	205.28	4.687	
10,600.0	7,028.0	7,019.0	7,019.0	66.9	140.4	-90.20	3,821.6	-259.3	886.6	679.4	207.13	4.280	
10,700.0	7,027.7	7,018.7	7,018.7	68.7	140.4	-90.17	3,821.6	-259.3	816.3	607.4	208.98	3.906	
10,800.0	7,027.4	7,018.4	7,018.4	70.6	140.4	-90.14	3,821.6	-259.3	752.9	542.0	210.83	3.571	
10,900.0	7,027.0	7,018.0	7,018.0	72.4	140.4	-90.11	3,821.6	-259.3	698.0	485.3	212.68	3.282	
11,000.0	7,026.7	7,017.7	7,017.7	74.3	140.4	-90.08	3,821.6	-259.3	653.9	439.4	214.54	3.048	
11,100.0	7,026.4	7,017.4	7,017.4	76.2	140.3	-90.05	3,821.6	-259.3	622.9	406.5	216.40	2.879	
11,200.0	7,026.0	7,017.0	7,017.0	78.0	140.3	-90.02	3,821.6	-259.3	607.0	388.8	218.26	2.781	
11,247.9	7,025.9	7,016.9	7,016.9	78.9	140.3	-90.00	3,821.6	-259.3	605.1	386.0	219.16	2.761 CC, ES	
11,300.0	7,025.7	7,016.7	7,016.7	79.9	140.3	-89.98	3,821.6	-259.3	607.4	387.2	220.13	2.759 SF	
11,400.0	7,025.4	7,016.4	7,016.4	81.8	140.3	-89.95	3,821.6	-259.3	623.9	401.9	221.99	2.811	
11,500.0	7,025.0	7,016.0	7,016.0	83.6	140.3	-89.92	3,821.6	-259.3	655.5	431.7	223.86	2.928	
11,513.9	7,025.0	7,016.0	7,016.0	83.9	140.3	-89.92	3,821.6	-259.3	661.0	436.9	224.12	2.949	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design										Existing Wells Sec.18-T4N-R67W - Every-Brooks 18-1 (Exist) - Wellbore #1 - Wellbore #1				Offset Site Error:		0.0 ft
Survey Program: 7263-UNKNOWN														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)					
7,800.0	7,037.3	7,018.3	7,018.3	20.5	140.4	-90.29	1,158.5	-161.8	934.7	773.8	160.80	5.812				
7,900.0	7,037.0	7,018.0	7,018.0	21.6	140.4	-90.26	1,158.5	-161.8	852.4	690.6	161.86	5.266				
8,000.0	7,036.7	7,017.7	7,017.7	22.8	140.4	-90.22	1,158.5	-161.8	774.4	611.3	163.03	4.750				
8,100.0	7,036.3	7,017.3	7,017.3	24.1	140.3	-90.18	1,158.5	-161.8	701.9	537.6	164.30	4.272				
8,200.0	7,036.0	7,017.0	7,017.0	25.4	140.3	-90.14	1,158.5	-161.8	637.0	471.3	165.65	3.845				
8,300.0	7,035.7	7,016.7	7,016.7	26.9	140.3	-90.11	1,158.5	-161.8	582.0	414.9	167.07	3.484				
8,400.0	7,035.3	7,016.3	7,016.3	28.4	140.3	-90.07	1,158.5	-161.8	540.2	371.6	168.54	3.205				
8,500.0	7,035.0	7,016.0	7,016.0	29.9	140.3	-90.03	1,158.5	-161.8	514.6	344.5	170.07	3.026				
8,584.8	7,034.7	7,015.7	7,015.7	31.2	140.3	-90.00	1,158.5	-161.8	507.5	336.1	171.40	2.961 CC				
8,600.0	7,034.7	7,015.7	7,015.7	31.5	140.3	-89.99	1,158.5	-161.8	507.8	336.1	171.64	2.958 ES, SF				
8,700.0	7,034.3	7,015.3	7,015.3	33.1	140.3	-89.96	1,158.5	-161.8	520.4	347.2	173.24	3.004				
8,800.0	7,034.0	7,015.0	7,015.0	34.7	140.3	-89.92	1,158.5	-161.8	551.3	376.4	174.88	3.152				
8,900.0	7,033.7	7,014.7	7,014.7	36.4	140.3	-89.88	1,158.5	-161.8	597.4	420.9	176.54	3.384				
9,000.0	7,033.3	7,014.3	7,014.3	38.1	140.3	-89.84	1,158.5	-161.8	655.7	477.5	178.23	3.679				
9,100.0	7,033.0	7,014.0	7,014.0	39.8	140.3	-89.81	1,158.5	-161.8	723.2	543.2	179.94	4.019				
9,200.0	7,032.7	7,013.7	7,013.7	41.6	140.3	-89.77	1,158.5	-161.8	797.5	615.8	181.66	4.390				
9,300.0	7,032.3	7,013.3	7,013.3	43.3	140.3	-89.73	1,158.5	-161.8	877.0	693.6	183.40	4.782				
9,400.0	7,032.0	7,013.0	7,013.0	45.1	140.3	-89.69	1,158.5	-161.8	960.3	775.1	185.16	5.186				

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-221 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-89.2	89.2				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-89.2	89.2	89.0	0.22	397.073	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-89.2	89.2	88.6	0.67	132.358	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-89.2	89.2	88.1	1.12	79.415	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-89.2	89.2	87.7	1.57	56.725	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-89.2	89.2	87.2	2.02	44.119	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-89.2	89.2	86.8	2.47	36.098	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-89.2	89.2	86.3	2.92	30.544	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-89.2	89.2	85.9	3.37	26.472	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	-90.00	0.0	-89.2	89.2	85.4	3.82	23.357	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	-90.00	0.0	-89.2	89.2	85.0	4.27	20.899 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	118.71	118.71	0.0	-89.2	90.1	85.4	4.69	19.195	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	121.50	121.50	0.0	-89.2	92.7	87.6	5.09	18.198	
1,300.0	1,299.5	1,298.0	1,297.9	2.7	2.8	124.82	124.82	-1.4	-90.2	98.3	92.8	5.48	17.946	
1,400.0	1,398.7	1,395.9	1,395.7	2.9	3.0	127.52	127.52	-5.6	-93.0	107.7	101.9	5.86	18.390	
1,500.0	1,497.5	1,493.5	1,493.0	3.2	3.1	129.48	129.48	-12.5	-97.6	120.7	114.4	6.27	19.252	
1,600.0	1,596.2	1,590.8	1,589.6	3.5	3.4	130.07	130.07	-22.1	-104.1	135.4	128.7	6.72	20.153	
1,700.0	1,694.9	1,687.7	1,685.4	3.8	3.6	129.37	129.37	-34.4	-112.4	151.4	144.2	7.22	20.985	
1,800.0	1,793.6	1,785.7	1,781.8	4.1	3.9	128.02	128.02	-48.8	-122.0	168.4	160.6	7.76	21.708	
1,900.0	1,892.2	1,884.2	1,878.7	4.4	4.1	126.88	126.88	-63.3	-131.8	185.4	177.1	8.33	22.272	
2,000.0	1,990.9	1,982.6	1,975.6	4.7	4.5	125.93	125.93	-77.9	-141.6	202.5	193.6	8.92	22.709	
2,100.0	2,089.6	2,081.1	2,072.5	5.1	4.8	125.12	125.12	-92.4	-151.4	219.7	210.2	9.53	23.049	
2,200.0	2,188.3	2,179.6	2,169.4	5.4	5.1	124.44	124.44	-107.0	-161.2	236.9	226.7	10.16	23.317	
2,300.0	2,287.0	2,278.1	2,266.3	5.8	5.5	123.85	123.85	-121.6	-171.0	254.1	243.3	10.80	23.528	
2,400.0	2,385.7	2,376.5	2,363.2	6.1	5.8	123.33	123.33	-136.1	-180.8	271.4	259.9	11.45	23.695	
2,500.0	2,484.3	2,475.0	2,460.1	6.5	6.2	122.87	122.87	-150.7	-190.5	288.7	276.5	12.11	23.828	
2,600.0	2,583.0	2,573.5	2,557.0	6.9	6.5	122.47	122.47	-165.2	-200.3	305.9	293.2	12.78	23.935	
2,700.0	2,681.7	2,671.9	2,653.9	7.2	6.9	122.11	122.11	-179.8	-210.1	323.2	309.8	13.46	24.021	
2,800.0	2,780.4	2,770.4	2,750.8	7.6	7.3	121.79	121.79	-194.4	-219.9	340.6	326.4	14.14	24.091	
2,900.0	2,879.1	2,868.9	2,847.7	8.0	7.7	121.49	121.49	-208.9	-229.7	357.9	343.0	14.82	24.147	
3,000.0	2,977.8	2,967.4	2,944.6	8.3	8.0	121.23	121.23	-223.5	-239.5	375.2	359.7	15.51	24.193	
3,100.0	3,076.4	3,065.8	3,041.5	8.7	8.4	120.98	120.98	-238.0	-249.3	392.5	376.3	16.20	24.230	
3,200.0	3,175.1	3,164.3	3,138.4	9.1	8.8	120.76	120.76	-252.6	-259.1	409.9	393.0	16.90	24.260	
3,300.0	3,273.8	3,262.8	3,235.3	9.5	9.2	120.56	120.56	-267.2	-268.9	427.2	409.6	17.59	24.284	
3,400.0	3,372.5	3,361.3	3,332.2	9.8	9.6	120.37	120.37	-281.7	-278.6	444.6	426.3	18.29	24.304	
3,500.0	3,471.2	3,459.7	3,429.0	10.2	10.0	120.20	120.20	-296.3	-288.4	461.9	442.9	18.99	24.320	
3,600.0	3,569.9	3,558.2	3,525.9	10.6	10.4	120.04	120.04	-310.8	-298.2	479.3	459.6	19.70	24.332	
3,700.0	3,668.5	3,656.7	3,622.8	11.0	10.8	119.89	119.89	-325.4	-308.0	496.7	476.3	20.40	24.342	
3,800.0	3,767.2	3,755.2	3,719.7	11.4	11.1	119.75	119.75	-340.0	-317.8	514.0	492.9	21.11	24.349	
3,900.0	3,865.9	3,853.6	3,816.6	11.7	11.5	119.62	119.62	-354.5	-327.6	531.4	509.6	21.82	24.355	
4,000.0	3,964.6	3,952.1	3,913.5	12.1	11.9	119.49	119.49	-369.1	-337.4	548.8	526.2	22.53	24.359	
4,100.0	4,063.3	4,050.6	4,010.4	12.5	12.3	119.38	119.38	-383.6	-347.2	566.1	542.9	23.24	24.362	
4,200.0	4,162.0	4,149.0	4,107.3	12.9	12.7	119.27	119.27	-398.2	-356.9	583.5	559.6	23.95	24.364	
4,300.0	4,260.6	4,247.5	4,204.2	13.3	13.1	119.17	119.17	-412.8	-366.7	600.9	576.2	24.66	24.365	
4,400.0	4,359.3	4,346.0	4,301.1	13.6	13.5	119.07	119.07	-427.3	-376.5	618.3	592.9	25.38	24.365	
4,500.0	4,458.0	4,444.5	4,398.0	14.0	13.9	118.98	118.98	-441.9	-386.3	635.7	609.6	26.09	24.364	
4,600.0	4,556.7	4,542.9	4,494.9	14.4	14.3	118.90	118.90	-456.4	-396.1	653.0	626.2	26.80	24.363	
4,700.0	4,655.4	4,641.4	4,591.8	14.8	14.7	118.81	118.81	-471.0	-405.9	670.4	642.9	27.52	24.361	
4,800.0	4,754.1	4,739.9	4,688.7	15.2	15.1	118.74	118.74	-485.6	-415.7	687.8	659.6	28.24	24.359	
4,900.0	4,852.7	4,838.4	4,785.6	15.6	15.5	118.66	118.66	-500.1	-425.5	705.2	676.2	28.95	24.356	
5,000.0	4,951.4	4,936.8	4,882.5	15.9	15.9	118.59	118.59	-514.7	-435.3	722.6	692.9	29.67	24.354	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-221 - Wellbore #1 - Plan #1 (7-31-14)												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)			
5,100.0	5,050.1	5,035.3	4,979.4	16.3	16.3	118.53	-529.2	-445.0	740.0	709.6	30.39	24.351		
5,200.0	5,148.8	5,133.8	5,076.3	16.7	16.7	118.46	-543.8	-454.8	757.4	726.2	31.11	24.348		
5,300.0	5,247.5	5,232.2	5,173.2	17.1	17.1	118.40	-558.4	-464.6	774.7	742.9	31.82	24.344		
5,400.0	5,346.2	5,330.7	5,270.1	17.5	17.5	118.34	-572.9	-474.4	792.1	759.6	32.54	24.341		
5,500.0	5,444.8	5,443.3	5,381.1	17.9	17.9	118.37	-588.3	-484.8	808.8	775.6	33.24	24.337		
5,600.0	5,543.5	5,560.0	5,496.9	18.2	18.2	118.69	-600.6	-493.0	823.4	789.6	33.87	24.314		
5,700.0	5,642.5	5,677.3	5,613.8	18.5	18.4	119.32	-608.9	-498.6	834.9	800.6	34.39	24.279		
5,800.0	5,741.9	5,795.0	5,731.3	18.7	18.6	119.90	-613.2	-501.5	842.6	807.8	34.84	24.187		
5,900.0	5,841.7	5,905.3	5,841.7	18.9	18.8	120.40	-613.9	-501.9	846.6	811.4	35.21	24.044		
6,000.0	5,941.6	6,005.3	5,941.6	19.1	18.9	120.65	-613.9	-501.9	848.6	813.1	35.52	23.892		
6,100.0	6,041.6	6,105.3	6,041.6	19.2	19.0	-87.05	-613.9	-501.9	848.9	813.1	35.80	23.709		
6,200.0	6,141.6	6,205.3	6,141.6	19.3	19.1	-87.05	-613.9	-501.9	848.9	812.8	36.07	23.531		
6,212.3	6,153.9	6,217.6	6,153.9	19.4	19.2	-87.05	-613.9	-501.9	848.9	812.8	36.11	23.509		
6,300.0	6,241.6	6,301.7	6,237.9	19.5	19.3	-86.89	-611.5	-501.9	849.0	812.7	36.32	23.375		
6,400.0	6,341.5	6,394.8	6,330.1	19.6	19.3	-86.16	-598.6	-501.9	849.7	813.2	36.44	23.319		
6,500.0	6,440.2	6,486.7	6,418.8	19.6	19.2	-85.45	-574.9	-501.9	850.5	814.1	36.34	23.400		
6,600.0	6,536.2	6,577.6	6,503.2	19.5	19.1	-84.80	-541.2	-501.9	851.3	815.2	36.07	23.603		
6,700.0	6,627.6	6,667.6	6,582.2	19.3	18.9	-84.24	-498.2	-501.9	852.1	816.4	35.64	23.905		
6,800.0	6,713.0	6,756.9	6,655.0	19.0	18.6	-83.77	-446.6	-501.9	852.8	817.7	35.13	24.273		
6,900.0	6,790.8	6,845.6	6,721.0	18.7	18.4	-83.39	-387.3	-501.9	853.4	818.8	34.60	24.662		
7,000.0	6,859.9	6,933.9	6,779.3	18.5	18.1	-83.12	-321.1	-501.9	853.9	819.8	34.14	25.015		
7,100.0	6,918.9	7,022.0	6,829.5	18.2	17.8	-82.95	-248.8	-501.9	854.2	820.4	33.81	25.266		
7,200.0	6,966.9	7,109.8	6,871.0	18.0	17.6	-82.89	-171.4	-501.9	854.3	820.6	33.70	25.352		
7,300.0	7,003.0	7,200.0	6,904.0	17.9	17.4	-82.94	-87.6	-501.9	854.2	820.4	33.87	25.219		
7,400.0	7,026.7	7,285.7	6,926.1	17.9	17.3	-83.09	-4.8	-501.9	854.0	819.6	34.37	24.844		
7,500.0	7,037.5	7,373.9	6,938.9	18.2	17.4	-83.35	82.4	-501.9	853.5	818.3	35.21	24.241		
7,600.0	7,038.0	7,465.3	6,941.9	18.7	17.8	-83.54	173.7	-501.9	853.2	816.8	36.38	23.454		
7,700.0	7,037.6	7,565.3	6,942.0	19.5	18.6	-83.56	273.7	-501.9	853.1	815.2	37.93	22.491		
7,800.0	7,037.3	7,665.3	6,942.0	20.5	19.6	-83.59	373.7	-501.9	853.1	813.3	39.78	21.445		
7,900.0	7,037.0	7,765.3	6,942.1	21.6	20.7	-83.61	473.7	-501.9	853.0	811.1	41.90	20.360		
8,000.0	7,036.7	7,865.3	6,942.1	22.8	21.9	-83.64	573.7	-501.9	853.0	808.8	44.24	19.279		
8,100.0	7,036.3	7,965.3	6,942.2	24.1	23.3	-83.66	673.7	-501.9	853.0	806.2	46.79	18.231		
8,200.0	7,036.0	8,065.3	6,942.2	25.4	24.6	-83.69	773.7	-501.9	852.9	803.4	49.49	17.233		
8,300.0	7,035.7	8,165.3	6,942.3	26.9	26.1	-83.72	873.7	-502.0	852.9	800.5	52.34	16.295		
8,400.0	7,035.3	8,265.3	6,942.3	28.4	27.6	-83.74	973.7	-502.0	852.8	797.5	55.30	15.421		
8,500.0	7,035.0	8,365.3	6,942.4	29.9	29.1	-83.77	1,073.7	-502.0	852.8	794.4	58.37	14.611		
8,600.0	7,034.7	8,465.3	6,942.5	31.5	30.7	-83.79	1,173.7	-502.0	852.7	791.2	61.52	13.862		
8,700.0	7,034.3	8,565.3	6,942.5	33.1	32.4	-83.82	1,273.7	-502.0	852.7	788.0	64.74	13.172		
8,800.0	7,034.0	8,665.3	6,942.6	34.7	34.0	-83.84	1,373.7	-502.0	852.7	784.6	68.02	12.535		
8,900.0	7,033.7	8,765.3	6,942.6	36.4	35.7	-83.87	1,473.7	-502.0	852.6	781.3	71.36	11.948		
9,000.0	7,033.3	8,865.3	6,942.7	38.1	37.4	-83.89	1,573.7	-502.0	852.6	777.8	74.74	11.407		
9,100.0	7,033.0	8,965.3	6,942.7	39.8	39.1	-83.92	1,673.7	-502.0	852.5	774.4	78.17	10.906		
9,200.0	7,032.7	9,065.3	6,942.8	41.6	40.8	-83.95	1,773.7	-502.0	852.5	770.9	81.63	10.443		
9,300.0	7,032.3	9,165.3	6,942.8	43.3	42.6	-83.97	1,873.7	-502.0	852.5	767.3	85.12	10.014		
9,400.0	7,032.0	9,265.3	6,942.9	45.1	44.4	-84.00	1,973.7	-502.0	852.4	763.8	88.64	9.616		
9,500.0	7,031.7	9,365.3	6,942.9	46.8	46.1	-84.02	2,073.7	-502.0	852.4	760.2	92.19	9.246		
9,600.0	7,031.3	9,465.3	6,943.0	48.6	47.9	-84.05	2,173.7	-502.0	852.3	756.6	95.76	8.901		
9,700.0	7,031.0	9,565.3	6,943.0	50.4	49.7	-84.07	2,273.7	-502.0	852.3	753.0	99.34	8.579		
9,800.0	7,030.7	9,665.3	6,943.1	52.2	51.5	-84.10	2,373.7	-502.0	852.3	749.3	102.95	8.279		
9,900.0	7,030.4	9,765.3	6,943.1	54.0	53.3	-84.13	2,473.7	-502.0	852.2	745.6	106.56	7.997		
10,000.0	7,030.0	9,865.3	6,943.2	55.8	55.2	-84.15	2,573.7	-502.0	852.2	742.0	110.20	7.733		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-221 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	7,029.7	9,965.3	6,943.2	57.7	57.0	-84.18	2,673.7	-502.0	852.1	738.3	113.84	7.485		
10,200.0	7,029.4	10,065.3	6,943.3	59.5	58.8	-84.20	2,773.7	-502.0	852.1	734.6	117.50	7.252		
10,300.0	7,029.0	10,165.3	6,943.3	61.3	60.7	-84.23	2,873.7	-502.0	852.1	730.9	121.17	7.032		
10,400.0	7,028.7	10,265.3	6,943.4	63.2	62.5	-84.25	2,973.7	-502.0	852.0	727.2	124.85	6.824		
10,500.0	7,028.4	10,365.3	6,943.4	65.0	64.4	-84.28	3,073.7	-502.0	852.0	723.4	128.54	6.628		
10,600.0	7,028.0	10,465.3	6,943.5	66.9	66.2	-84.31	3,173.7	-502.0	851.9	719.7	132.23	6.443		
10,700.0	7,027.7	10,565.3	6,943.6	68.7	68.1	-84.33	3,273.7	-502.0	851.9	716.0	135.94	6.267		
10,800.0	7,027.4	10,665.3	6,943.6	70.6	69.9	-84.36	3,373.7	-502.0	851.9	712.2	139.65	6.100		
10,900.0	7,027.0	10,765.3	6,943.7	72.4	71.8	-84.38	3,473.7	-502.0	851.8	708.5	143.36	5.942		
11,000.0	7,026.7	10,865.3	6,943.7	74.3	73.7	-84.41	3,573.7	-502.0	851.8	704.7	147.09	5.791		
11,100.0	7,026.4	10,965.3	6,943.8	76.2	75.5	-84.43	3,673.7	-502.0	851.8	700.9	150.81	5.648		
11,200.0	7,026.0	11,065.3	6,943.8	78.0	77.4	-84.46	3,773.7	-502.0	851.7	697.2	154.55	5.511		
11,300.0	7,025.7	11,165.3	6,943.9	79.9	79.3	-84.49	3,873.7	-502.0	851.7	693.4	158.29	5.381		
11,400.0	7,025.4	11,265.3	6,943.9	81.8	81.1	-84.51	3,973.7	-502.0	851.6	689.6	162.03	5.256		
11,500.0	7,025.0	11,365.3	6,944.0	83.6	83.0	-84.54	4,073.7	-502.0	851.6	685.8	165.78	5.137		
11,513.9	7,025.0	11,379.2	6,944.0	83.9	83.3	-84.54	4,087.6	-502.0	851.6	685.3	166.30	5.121 SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-321 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-119.9	119.9				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-119.9	119.9	119.7	0.22	533.566	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-119.9	119.9	119.3	0.67	177.855	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-119.9	119.9	118.8	1.12	106.713	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-119.9	119.9	118.4	1.57	76.224	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-119.9	119.9	117.9	2.02	59.285	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-119.9	119.9	117.5	2.47	48.506	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-119.9	119.9	117.0	2.92	41.044	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-119.9	119.9	116.6	3.37	35.571	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	-90.00	0.0	-119.9	119.9	116.1	3.82	31.386	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	-90.00	0.0	-119.9	119.9	115.7	4.27	28.082 CC, ES	
1,100.0	1,100.0	1,097.3	1,097.2	2.3	2.3	117.83	117.83	-1.2	-121.0	121.9	117.2	4.66	26.138	
1,200.0	1,199.8	1,194.3	1,194.2	2.5	2.5	118.08	118.08	-4.9	-124.3	127.7	122.7	5.02	25.437	
1,300.0	1,299.5	1,290.9	1,290.4	2.7	2.7	118.45	118.45	-11.0	-129.7	137.4	132.0	5.40	25.433 SF	
1,400.0	1,398.7	1,386.9	1,385.7	2.9	2.9	118.86	118.86	-19.5	-137.2	150.9	145.0	5.82	25.941	
1,500.0	1,497.5	1,482.0	1,479.7	3.2	3.2	119.32	119.32	-30.3	-146.8	168.1	161.8	6.28	26.781	
1,600.0	1,596.2	1,579.0	1,575.2	3.5	3.4	119.45	119.45	-43.0	-158.1	187.2	180.5	6.78	27.596	
1,700.0	1,694.9	1,677.1	1,671.8	3.8	3.7	119.53	119.53	-56.1	-169.7	206.5	199.2	7.33	28.188	
1,800.0	1,793.6	1,775.2	1,768.3	4.1	4.1	119.59	119.59	-69.2	-181.3	225.8	217.9	7.89	28.603	
1,900.0	1,892.2	1,873.4	1,864.9	4.4	4.4	119.65	119.65	-82.2	-192.9	245.0	236.6	8.48	28.886	
2,000.0	1,990.9	1,971.5	1,961.4	4.7	4.7	119.69	119.69	-95.3	-204.5	264.3	255.2	9.09	29.080	
2,100.0	2,089.6	2,069.6	2,058.0	5.1	5.1	119.73	119.73	-108.3	-216.0	283.6	273.9	9.71	29.206	
2,200.0	2,188.3	2,167.7	2,154.6	5.4	5.5	119.77	119.77	-121.4	-227.6	302.8	292.5	10.34	29.284	
2,300.0	2,287.0	2,265.9	2,251.1	5.8	5.8	119.80	119.80	-134.4	-239.2	322.1	311.1	10.98	29.328	
2,400.0	2,385.7	2,364.0	2,347.7	6.1	6.2	119.82	119.82	-147.5	-250.8	341.4	329.8	11.63	29.347	
2,500.0	2,484.3	2,462.1	2,444.2	6.5	6.6	119.85	119.85	-160.5	-262.4	360.7	348.4	12.29	29.347	
2,600.0	2,583.0	2,560.2	2,540.8	6.9	7.0	119.87	119.87	-173.6	-274.0	379.9	367.0	12.95	29.335	
2,700.0	2,681.7	2,658.4	2,637.4	7.2	7.3	119.89	119.89	-186.7	-285.5	399.2	385.6	13.62	29.313	
2,800.0	2,780.4	2,756.5	2,733.9	7.6	7.7	119.91	119.91	-199.7	-297.1	418.5	404.2	14.29	29.285	
2,900.0	2,879.1	2,854.6	2,830.5	8.0	8.1	119.92	119.92	-212.8	-308.7	437.7	422.8	14.96	29.252	
3,000.0	2,977.8	2,952.7	2,927.0	8.3	8.5	119.94	119.94	-225.8	-320.3	457.0	441.4	15.64	29.216	
3,100.0	3,076.4	3,050.9	3,023.6	8.7	8.9	119.95	119.95	-238.9	-331.9	476.3	459.9	16.32	29.178	
3,200.0	3,175.1	3,149.0	3,120.2	9.1	9.3	119.96	119.96	-251.9	-343.5	495.5	478.5	17.01	29.139	
3,300.0	3,273.8	3,247.1	3,216.7	9.5	9.7	119.98	119.98	-265.0	-355.0	514.8	497.1	17.69	29.100	
3,400.0	3,372.5	3,345.2	3,313.3	9.8	10.1	119.99	119.99	-278.1	-366.6	534.1	515.7	18.38	29.060	
3,500.0	3,471.2	3,443.4	3,409.9	10.2	10.5	120.00	120.00	-291.1	-378.2	553.3	534.3	19.07	29.020	
3,600.0	3,569.9	3,541.5	3,506.4	10.6	10.9	120.01	120.01	-304.2	-389.8	572.6	552.9	19.76	28.982	
3,700.0	3,668.5	3,639.6	3,603.0	11.0	11.3	120.02	120.02	-317.2	-401.4	591.9	571.4	20.45	28.943	
3,800.0	3,767.2	3,737.8	3,699.5	11.4	11.7	120.02	120.02	-330.3	-413.0	611.2	590.0	21.14	28.906	
3,900.0	3,865.9	3,835.9	3,796.1	11.7	12.1	120.03	120.03	-343.3	-424.5	630.4	608.6	21.84	28.869	
4,000.0	3,964.6	3,934.0	3,892.7	12.1	12.4	120.04	120.04	-356.4	-436.1	649.7	627.2	22.53	28.833	
4,100.0	4,063.3	4,032.1	3,989.2	12.5	12.8	120.05	120.05	-369.4	-447.7	669.0	645.7	23.23	28.799	
4,200.0	4,162.0	4,130.3	4,085.8	12.9	13.2	120.05	120.05	-382.5	-459.3	688.2	664.3	23.93	28.765	
4,300.0	4,260.6	4,228.4	4,182.3	13.3	13.6	120.06	120.06	-395.6	-470.9	707.5	682.9	24.62	28.732	
4,400.0	4,359.3	4,326.5	4,278.9	13.6	14.0	120.06	120.06	-408.6	-482.5	726.8	701.4	25.32	28.700	
4,500.0	4,458.0	4,424.6	4,375.5	14.0	14.4	120.07	120.07	-421.7	-494.1	746.0	720.0	26.02	28.670	
4,600.0	4,556.7	4,522.8	4,472.0	14.4	14.8	120.07	120.07	-434.7	-505.6	765.3	738.6	26.72	28.640	
4,700.0	4,655.4	4,620.9	4,568.6	14.8	15.2	120.08	120.08	-447.8	-517.2	784.6	757.2	27.42	28.611	
4,800.0	4,754.1	4,719.0	4,665.1	15.2	15.6	120.08	120.08	-460.8	-528.8	803.8	775.7	28.12	28.583	
4,900.0	4,852.7	4,817.1	4,761.7	15.6	16.0	120.09	120.09	-473.9	-540.4	823.1	794.3	28.83	28.556	
5,000.0	4,951.4	4,915.3	4,858.3	15.9	16.4	120.09	120.09	-487.0	-552.0	842.4	812.9	29.53	28.529	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		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)			
5,100.0	5,050.1	5,013.4	4,954.8	16.3	16.8	120.10	-500.0	-563.6	861.7	831.4	30.23	28.504		
5,200.0	5,148.8	5,111.5	5,051.4	16.7	17.2	120.10	-513.1	-575.1	880.9	850.0	30.93	28.479		
5,300.0	5,247.5	5,209.6	5,148.0	17.1	17.7	120.10	-526.1	-586.7	900.2	868.6	31.64	28.455		
5,400.0	5,346.2	5,307.8	5,244.5	17.5	18.1	120.11	-539.2	-598.3	919.5	887.1	32.34	28.432		
5,500.0	5,444.8	5,405.9	5,341.1	17.9	18.5	120.11	-552.2	-609.9	938.7	905.7	33.04	28.409		
5,600.0	5,543.5	5,504.0	5,437.6	18.2	18.9	120.14	-565.3	-621.5	958.0	924.2	33.75	28.387		
5,700.0	5,642.5	5,614.3	5,546.3	18.5	19.3	120.36	-579.6	-634.1	976.0	941.6	34.40	28.376		
5,800.0	5,741.9	5,740.3	5,671.0	18.7	19.6	120.50	-592.4	-645.6	990.0	955.1	34.94	28.333		
5,900.0	5,841.7	5,867.3	5,797.6	18.9	19.8	120.59	-601.2	-653.4	999.5	964.1	35.41	28.226		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+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	-150.6	150.6				
100.0	100.0	99.0	99.0	0.1	0.1	-90.00	0.0	-150.6	150.6	150.4	0.22	673.421	
200.0	200.0	199.0	199.0	0.3	0.3	-90.00	0.0	-150.6	150.6	149.9	0.67	224.100	
300.0	300.0	299.0	299.0	0.6	0.6	-90.00	0.0	-150.6	150.6	149.5	1.12	134.281	
400.0	400.0	399.0	399.0	0.8	0.8	-90.00	0.0	-150.6	150.6	149.0	1.57	95.860	
500.0	500.0	499.0	499.0	1.0	1.0	-90.00	0.0	-150.6	150.6	148.6	2.02	74.534	
600.0	600.0	599.0	599.0	1.2	1.2	-90.00	0.0	-150.6	150.6	148.1	2.47	60.970	
700.0	700.0	699.0	699.0	1.5	1.5	-90.00	0.0	-150.6	150.6	147.7	2.92	51.583	
800.0	800.0	799.0	799.0	1.7	1.7	-90.00	0.0	-150.6	150.6	147.2	3.37	44.700	CC, ES
900.0	900.0	895.2	895.2	1.9	1.9	-90.40	-1.1	-151.8	151.8	148.0	3.79	40.082	
1,000.0	1,000.0	991.2	991.1	2.1	2.1	-91.58	-4.3	-155.3	155.6	151.4	4.19	37.102	
1,100.0	1,100.0	1,086.8	1,086.4	2.3	2.3	114.73	-9.6	-161.3	162.8	158.2	4.58	35.503	
1,200.0	1,199.8	1,181.8	1,180.7	2.5	2.5	113.71	-17.0	-169.5	174.0	169.0	4.97	35.018	
1,300.0	1,299.5	1,275.9	1,273.7	2.7	2.7	113.06	-26.4	-179.9	189.2	183.8	5.38	35.156	
1,400.0	1,398.7	1,371.8	1,368.1	2.9	3.0	112.82	-37.8	-192.5	208.0	202.1	5.84	35.627	
1,500.0	1,497.5	1,469.7	1,464.4	3.2	3.3	113.37	-49.6	-205.6	228.3	221.9	6.33	36.039	
1,600.0	1,596.2	1,567.5	1,560.6	3.5	3.7	114.21	-61.4	-218.6	248.9	242.0	6.87	36.243	
1,700.0	1,694.9	1,665.3	1,656.8	3.8	4.0	114.92	-73.3	-231.7	269.6	262.2	7.43	36.292	
1,800.0	1,793.6	1,763.1	1,753.0	4.1	4.4	115.52	-85.1	-244.8	290.3	282.3	8.01	36.231	
1,900.0	1,892.2	1,860.9	1,849.2	4.4	4.8	116.05	-96.9	-257.9	311.0	302.4	8.61	36.114	
2,000.0	1,990.9	1,958.7	1,945.3	4.7	5.1	116.51	-108.7	-271.0	331.8	322.6	9.23	35.960	
2,100.0	2,089.6	2,056.4	2,041.5	5.1	5.5	116.91	-120.5	-284.1	352.6	342.7	9.85	35.786	
2,200.0	2,188.3	2,154.2	2,137.7	5.4	5.9	117.27	-132.3	-297.2	373.4	362.9	10.49	35.603	
2,300.0	2,287.0	2,252.0	2,233.9	5.8	6.3	117.59	-144.2	-310.2	394.2	383.0	11.13	35.417	
2,400.0	2,385.7	2,349.8	2,330.1	6.1	6.7	117.88	-156.0	-323.3	415.0	403.2	11.78	35.233	
2,500.0	2,484.3	2,447.6	2,426.3	6.5	7.1	118.15	-167.8	-336.4	435.8	423.4	12.43	35.054	
2,600.0	2,583.0	2,545.4	2,522.5	6.9	7.5	118.38	-179.6	-349.5	456.6	443.5	13.09	34.881	
2,700.0	2,681.7	2,643.2	2,618.7	7.2	7.9	118.60	-191.4	-362.6	477.5	463.7	13.75	34.715	
2,800.0	2,780.4	2,741.0	2,714.8	7.6	8.3	118.80	-203.2	-375.7	498.3	483.9	14.42	34.556	
2,900.0	2,879.1	2,838.8	2,811.0	8.0	8.6	118.98	-215.1	-388.7	519.2	504.1	15.09	34.406	
3,000.0	2,977.8	2,936.5	2,907.2	8.3	9.0	119.15	-226.9	-401.8	540.0	524.3	15.76	34.263	
3,100.0	3,076.4	3,034.3	3,003.4	8.7	9.4	119.31	-238.7	-414.9	560.9	544.4	16.44	34.127	
3,200.0	3,175.1	3,132.1	3,099.6	9.1	9.8	119.46	-250.5	-428.0	581.7	564.6	17.11	33.998	
3,300.0	3,273.8	3,229.9	3,195.8	9.5	10.2	119.59	-262.3	-441.1	602.6	584.8	17.79	33.875	
3,400.0	3,372.5	3,327.7	3,292.0	9.8	10.6	119.72	-274.1	-454.2	623.5	605.0	18.47	33.759	
3,500.0	3,471.2	3,425.5	3,388.1	10.2	11.1	119.84	-286.0	-467.2	644.4	625.2	19.15	33.649	
3,600.0	3,569.9	3,523.3	3,484.3	10.6	11.5	119.95	-297.8	-480.3	665.2	645.4	19.83	33.545	
3,700.0	3,668.5	3,621.1	3,580.5	11.0	11.9	120.05	-309.6	-493.4	686.1	665.6	20.51	33.445	
3,800.0	3,767.2	3,718.9	3,676.7	11.4	12.3	120.15	-321.4	-506.5	707.0	685.8	21.20	33.351	
3,900.0	3,865.9	3,816.7	3,772.9	11.7	12.7	120.24	-333.2	-519.6	727.9	706.0	21.88	33.261	
4,000.0	3,964.6	3,914.4	3,869.1	12.1	13.1	120.33	-345.0	-532.7	748.7	726.2	22.57	33.175	
4,100.0	4,063.3	4,012.2	3,965.3	12.5	13.5	120.41	-356.9	-545.7	769.6	746.4	23.26	33.093	
4,200.0	4,162.0	4,110.0	4,061.5	12.9	13.9	120.49	-368.7	-558.8	790.5	766.6	23.94	33.016	
4,300.0	4,260.6	4,207.8	4,157.6	13.3	14.3	120.56	-380.5	-571.9	811.4	786.8	24.63	32.941	
4,400.0	4,359.3	4,305.6	4,253.8	13.6	14.7	120.63	-392.3	-585.0	832.3	807.0	25.32	32.870	
4,500.0	4,458.0	4,403.4	4,350.0	14.0	15.1	120.70	-404.1	-598.1	853.2	827.2	26.01	32.802	
4,600.0	4,556.7	4,501.2	4,446.2	14.4	15.5	120.76	-415.9	-611.2	874.1	847.4	26.70	32.737	
4,700.0	4,655.4	4,599.0	4,542.4	14.8	15.9	120.82	-427.7	-624.2	895.0	867.6	27.39	32.675	
4,800.0	4,754.1	4,696.8	4,638.6	15.2	16.3	120.88	-439.6	-637.3	915.9	887.8	28.08	32.615	
4,900.0	4,852.7	4,794.5	4,734.8	15.6	16.7	120.94	-451.4	-650.4	936.7	908.0	28.77	32.558	
5,000.0	4,951.4	4,892.3	4,830.9	15.9	17.1	120.99	-463.2	-663.5	957.6	928.2	29.46	32.503	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,050.1	4,990.1	4,927.1	16.3	17.5	121.04	-475.0	-676.6	978.5	948.4	30.16	32.450	
5,200.0	5,148.8	5,087.9	5,023.3	16.7	17.9	121.09	-486.8	-689.7	999.4	968.6	30.85	32.399 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-241 - Wellbore #1 - Plan #1 (7-31-14)													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	-61.4	61.4				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-61.4	61.4	61.1	0.22	272.987	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-61.4	61.4	60.7	0.67	90.996	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-61.4	61.4	60.2	1.12	54.597	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-61.4	61.4	59.8	1.57	38.998	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-61.4	61.4	59.3	2.02	30.332	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-61.4	61.4	58.9	2.47	24.817	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-61.4	61.4	58.4	2.92	20.999	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-61.4	61.4	58.0	3.37	18.199	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	-90.00	0.0	-61.4	61.4	57.5	3.82	16.058	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	-90.00	0.0	-61.4	61.4	57.1	4.27	14.368 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	119.14	119.14	0.0	-61.4	62.2	57.5	4.69	13.253	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	123.13	123.13	0.0	-61.4	64.9	59.8	5.09	12.741	
1,300.0	1,299.5	1,299.5	1,299.5	2.7	2.8	129.02	129.02	0.0	-61.4	70.1	64.5	5.50	12.727	
1,400.0	1,398.7	1,398.7	1,398.7	2.9	3.0	135.82	135.82	0.0	-61.4	78.3	72.4	5.92	13.226	
1,500.0	1,497.5	1,499.2	1,499.2	3.2	3.2	141.74	141.74	-1.7	-61.1	89.2	82.8	6.32	14.104	
1,600.0	1,596.2	1,600.4	1,600.3	3.5	3.4	145.05	145.05	-6.9	-60.3	99.3	92.6	6.72	14.781	
1,700.0	1,694.9	1,702.2	1,701.7	3.8	3.6	146.23	146.23	-15.8	-59.0	107.5	100.3	7.14	15.062	
1,800.0	1,793.6	1,804.4	1,803.1	4.1	3.8	145.80	145.80	-28.2	-57.2	113.6	106.0	7.59	14.968	
1,900.0	1,892.2	1,905.2	1,902.7	4.4	4.0	144.27	144.27	-43.3	-55.0	118.0	109.9	8.08	14.605	
2,000.0	1,990.9	2,005.1	2,001.4	4.7	4.3	142.76	142.76	-58.6	-52.7	122.3	113.7	8.60	14.227	
2,100.0	2,089.6	2,104.9	2,100.0	5.1	4.5	141.35	141.35	-73.9	-50.5	126.7	117.5	9.14	13.860	
2,200.0	2,188.3	2,204.8	2,198.7	5.4	4.8	140.03	140.03	-89.2	-48.2	131.2	121.5	9.71	13.510	
2,300.0	2,287.0	2,304.7	2,297.3	5.8	5.1	138.80	138.80	-104.4	-46.0	135.7	125.4	10.30	13.178	
2,400.0	2,385.7	2,404.5	2,396.0	6.1	5.4	137.66	137.66	-119.7	-43.7	140.3	129.4	10.90	12.867	
2,500.0	2,484.3	2,504.4	2,494.7	6.5	5.7	136.58	136.58	-135.0	-41.5	144.9	133.4	11.53	12.576	
2,600.0	2,583.0	2,604.2	2,593.3	6.9	6.1	135.57	135.57	-150.2	-39.2	149.6	137.5	12.16	12.304	
2,700.0	2,681.7	2,704.1	2,692.0	7.2	6.4	134.63	134.63	-165.5	-37.0	154.4	141.6	12.81	12.052	
2,800.0	2,780.4	2,803.9	2,790.6	7.6	6.7	133.74	133.74	-180.8	-34.7	159.2	145.7	13.47	11.817	
2,900.0	2,879.1	2,903.8	2,889.3	8.0	7.0	132.90	132.90	-196.1	-32.5	164.0	149.8	14.14	11.599	
3,000.0	2,977.8	3,003.7	2,987.9	8.3	7.4	132.11	132.11	-211.3	-30.2	168.8	154.0	14.81	11.397	
3,100.0	3,076.4	3,103.5	3,086.6	8.7	7.7	131.37	131.37	-226.6	-28.0	173.7	158.2	15.50	11.209	
3,200.0	3,175.1	3,203.4	3,185.2	9.1	8.1	130.66	130.66	-241.9	-25.7	178.6	162.4	16.19	11.034	
3,300.0	3,273.8	3,303.2	3,283.9	9.5	8.4	130.00	130.00	-257.1	-23.5	183.5	166.7	16.88	10.872	
3,400.0	3,372.5	3,403.1	3,382.6	9.8	8.8	129.36	129.36	-272.4	-21.2	188.5	170.9	17.58	10.720	
3,500.0	3,471.2	3,502.9	3,481.2	10.2	9.1	128.76	128.76	-287.7	-19.0	193.5	175.2	18.29	10.579	
3,600.0	3,569.9	3,602.8	3,579.9	10.6	9.5	128.20	128.20	-303.0	-16.7	198.5	179.5	19.00	10.447	
3,700.0	3,668.5	3,702.6	3,678.5	11.0	9.8	127.65	127.65	-318.2	-14.4	203.5	183.8	19.71	10.323	
3,800.0	3,767.2	3,802.5	3,777.2	11.4	10.2	127.14	127.14	-333.5	-12.2	208.5	188.1	20.43	10.208	
3,900.0	3,865.9	3,902.4	3,875.8	11.7	10.5	126.65	126.65	-348.8	-9.9	213.6	192.4	21.15	10.099	
4,000.0	3,964.6	4,002.2	3,974.5	12.1	10.9	126.18	126.18	-364.0	-7.7	218.6	196.8	21.87	9.998	
4,100.0	4,063.3	4,102.1	4,073.2	12.5	11.3	125.73	125.73	-379.3	-5.4	223.7	201.1	22.59	9.902	
4,200.0	4,162.0	4,201.9	4,171.8	12.9	11.6	125.31	125.31	-394.6	-3.2	228.8	205.5	23.32	9.812	
4,300.0	4,260.6	4,301.8	4,270.5	13.3	12.0	124.90	124.90	-409.9	-0.9	233.9	209.9	24.05	9.727	
4,400.0	4,359.3	4,401.6	4,369.1	13.6	12.3	124.51	124.51	-425.1	1.3	239.0	214.2	24.78	9.647	
4,500.0	4,458.0	4,501.5	4,467.8	14.0	12.7	124.13	124.13	-440.4	3.6	244.1	218.6	25.51	9.571	
4,600.0	4,556.7	4,601.4	4,566.4	14.4	13.1	123.77	123.77	-455.7	5.8	249.3	223.0	26.24	9.499	
4,700.0	4,655.4	4,701.2	4,665.1	14.8	13.4	123.43	123.43	-470.9	8.1	254.4	227.4	26.98	9.432	
4,800.0	4,754.1	4,801.1	4,763.7	15.2	13.8	123.10	123.10	-486.2	10.3	259.6	231.9	27.71	9.367	
4,900.0	4,852.7	4,900.9	4,862.4	15.6	14.2	122.78	122.78	-501.5	12.6	264.7	236.3	28.45	9.306	
5,000.0	4,951.4	5,000.8	4,961.1	15.9	14.5	122.47	122.47	-516.8	14.8	269.9	240.7	29.19	9.248	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-241 - Wellbore #1 - Plan #1 (7-31-14)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD													Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.0	5,050.1	5,100.6	5,059.7	16.3	14.9	122.18	-532.0	17.1	275.1	245.2	29.92	9.193			
5,200.0	5,148.8	5,200.5	5,158.4	16.7	15.3	121.90	-547.3	19.3	280.3	249.6	30.66	9.140			
5,300.0	5,247.5	5,300.3	5,257.0	17.1	15.6	121.62	-562.6	21.6	285.5	254.1	31.40	9.090			
5,400.0	5,346.2	5,400.2	5,355.7	17.5	16.0	121.36	-577.8	23.8	290.7	258.5	32.14	9.042			
5,500.0	5,444.8	5,500.1	5,454.3	17.9	16.4	121.10	-593.1	26.1	295.9	263.0	32.89	8.996			
5,600.0	5,543.5	5,599.9	5,553.0	18.2	16.7	120.86	-608.4	28.3	301.1	267.4	33.63	8.953			
5,700.0	5,642.5	5,697.8	5,649.9	18.5	17.0	120.68	-621.9	30.3	305.6	271.4	34.20	8.935			
5,800.0	5,741.9	5,795.7	5,747.2	18.7	17.2	120.54	-632.1	31.8	309.0	274.3	34.66	8.915			
5,900.0	5,841.7	5,893.6	5,844.9	18.9	17.4	120.45	-638.9	32.8	311.3	276.2	35.05	8.881			
6,000.0	5,941.6	5,991.5	5,942.8	19.1	17.6	120.40	-642.5	33.4	312.5	277.1	35.37	8.835			
6,100.0	6,041.6	6,090.3	6,041.6	19.2	17.8	-87.34	-643.1	33.4	312.7	277.0	35.67	8.767			
6,200.0	6,141.6	6,190.3	6,141.6	19.3	17.9	-87.34	-643.1	33.4	312.7	276.8	35.94	8.701			
6,218.9	6,160.5	6,209.3	6,160.5	19.4	17.9	-87.34	-643.1	33.4	312.7	276.7	35.99	8.689			
6,300.0	6,241.6	6,289.0	6,240.2	19.5	18.0	-86.88	-640.6	33.4	312.8	276.7	36.13	8.657			
6,400.0	6,341.5	6,385.5	6,335.6	19.6	18.0	-84.81	-626.7	33.4	313.7	277.6	36.03	8.705			
6,500.0	6,440.2	6,480.5	6,427.1	19.6	17.9	-82.71	-601.3	33.4	314.9	279.2	35.71	8.819			
6,600.0	6,536.2	6,574.3	6,513.7	19.5	17.8	-80.76	-565.4	33.4	316.5	281.3	35.22	8.987			
6,700.0	6,627.6	6,667.0	6,594.3	19.3	17.5	-78.97	-519.7	33.4	318.3	283.7	34.61	9.196			
6,800.0	6,713.0	6,758.7	6,668.0	19.0	17.3	-77.39	-465.3	33.4	320.1	286.2	33.95	9.429			
6,900.0	6,790.8	6,850.0	6,734.4	18.7	17.1	-76.01	-402.6	33.4	322.0	288.6	33.31	9.665			
7,000.0	6,859.9	6,939.7	6,791.9	18.5	16.9	-74.87	-333.8	33.4	323.6	290.8	32.77	9.875			
7,100.0	6,918.9	7,029.3	6,840.9	18.2	16.8	-73.95	-258.9	33.4	325.0	292.6	32.42	10.028			
7,200.0	6,966.9	7,118.5	6,880.6	18.0	16.8	-73.28	-179.1	33.4	326.2	293.8	32.31	10.094			
7,300.0	7,003.0	7,207.4	6,910.6	17.9	16.9	-72.86	-95.5	33.4	326.9	294.4	32.52	10.052			
7,400.0	7,026.7	7,296.1	6,930.8	17.9	17.2	-72.69	-9.1	33.4	327.2	294.1	33.07	9.893			
7,500.0	7,037.5	7,384.9	6,940.8	18.2	17.6	-72.77	79.0	33.4	327.0	293.1	33.98	9.624			
7,600.0	7,038.0	7,479.6	6,941.9	18.7	18.2	-72.91	173.7	33.4	326.8	291.6	35.20	9.284			
7,700.0	7,037.6	7,579.6	6,942.0	19.5	19.0	-72.97	273.7	33.4	326.7	289.9	36.74	8.891			
7,800.0	7,037.3	7,679.6	6,942.0	20.5	20.0	-73.04	373.7	33.4	326.6	288.0	38.58	8.465			
7,900.0	7,037.0	7,779.6	6,942.1	21.6	21.1	-73.10	473.7	33.4	326.4	285.8	40.67	8.027			
8,000.0	7,036.7	7,879.6	6,942.2	22.8	22.3	-73.17	573.7	33.4	326.3	283.4	42.98	7.593			
8,100.0	7,036.3	7,979.6	6,942.2	24.1	23.6	-73.23	673.7	33.4	326.2	280.7	45.47	7.174			
8,200.0	7,036.0	8,079.6	6,942.3	25.4	24.9	-73.30	773.7	33.4	326.1	278.0	48.13	6.776			
8,300.0	7,035.7	8,179.6	6,942.3	26.9	26.4	-73.36	873.7	33.4	326.0	275.1	50.92	6.403			
8,400.0	7,035.3	8,279.6	6,942.4	28.4	27.9	-73.43	973.7	33.4	325.9	272.1	53.82	6.056			
8,500.0	7,035.0	8,379.6	6,942.4	29.9	29.5	-73.49	1,073.7	33.4	325.8	269.0	56.81	5.734			
8,600.0	7,034.7	8,479.6	6,942.5	31.5	31.0	-73.55	1,173.7	33.4	325.7	265.8	59.89	5.437			
8,700.0	7,034.3	8,579.6	6,942.5	33.1	32.7	-73.62	1,273.7	33.4	325.6	262.5	63.05	5.164			
8,800.0	7,034.0	8,679.6	6,942.6	34.7	34.3	-73.68	1,373.7	33.4	325.5	259.2	66.26	4.912			
8,900.0	7,033.7	8,779.6	6,942.6	36.4	36.0	-73.75	1,473.7	33.4	325.3	255.8	69.52	4.680			
9,000.0	7,033.3	8,879.6	6,942.7	38.1	37.7	-73.81	1,573.7	33.4	325.2	252.4	72.83	4.466			
9,100.0	7,033.0	8,979.6	6,942.7	39.8	39.5	-73.88	1,673.7	33.4	325.1	248.9	76.18	4.268			
9,200.0	7,032.7	9,079.6	6,942.8	41.6	41.2	-73.94	1,773.7	33.4	325.0	245.5	79.57	4.085			
9,300.0	7,032.3	9,179.6	6,942.8	43.3	43.0	-74.01	1,873.7	33.4	324.9	241.9	82.99	3.915			
9,400.0	7,032.0	9,279.6	6,942.9	45.1	44.7	-74.07	1,973.7	33.4	324.8	238.4	86.43	3.758			
9,500.0	7,031.7	9,379.6	6,942.9	46.8	46.5	-74.14	2,073.7	33.4	324.7	234.8	89.90	3.612			
9,600.0	7,031.3	9,479.6	6,943.0	48.6	48.3	-74.20	2,173.7	33.4	324.6	231.2	93.39	3.476			
9,700.0	7,031.0	9,579.6	6,943.0	50.4	50.1	-74.27	2,273.7	33.4	324.5	227.6	96.91	3.349			
9,800.0	7,030.7	9,679.6	6,943.1	52.2	51.9	-74.34	2,373.7	33.4	324.4	224.0	100.44	3.230			
9,900.0	7,030.4	9,779.6	6,943.1	54.0	53.7	-74.40	2,473.7	33.4	324.3	220.3	103.98	3.119			
10,000.0	7,030.0	9,879.6	6,943.2	55.8	55.6	-74.47	2,573.7	33.4	324.2	216.6	107.55	3.014			

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-241 - Wellbore #1 - Plan #1 (7-31-14)													<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				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)	Minimum Separation (ft)	Separation Factor		
10,100.0	7,029.7	9,979.6	6,943.3	57.7	57.4	-74.53	2,673.7	33.4	324.1	213.0	111.12	2.916		
10,200.0	7,029.4	10,079.6	6,943.3	59.5	59.2	-74.60	2,773.7	33.4	324.0	209.3	114.71	2.824		
10,300.0	7,029.0	10,179.6	6,943.4	61.3	61.1	-74.66	2,873.7	33.4	323.9	205.6	118.31	2.737		
10,400.0	7,028.7	10,279.6	6,943.4	63.2	62.9	-74.73	2,973.7	33.4	323.8	201.8	121.93	2.655		
10,500.0	7,028.4	10,379.6	6,943.5	65.0	64.8	-74.79	3,073.7	33.5	323.7	198.1	125.55	2.578		
10,600.0	7,028.0	10,479.6	6,943.5	66.9	66.6	-74.86	3,173.7	33.5	323.6	194.4	129.18	2.505		
10,700.0	7,027.7	10,579.6	6,943.6	68.7	68.5	-74.92	3,273.7	33.5	323.5	190.6	132.82	2.435		
10,800.0	7,027.4	10,679.6	6,943.6	70.6	70.4	-74.99	3,373.7	33.5	323.4	186.9	136.47	2.370		
10,900.0	7,027.0	10,779.6	6,943.7	72.4	72.2	-75.06	3,473.7	33.5	323.3	183.1	140.12	2.307		
11,000.0	7,026.7	10,879.6	6,943.7	74.3	74.1	-75.12	3,573.7	33.5	323.2	179.4	143.79	2.248		
11,100.0	7,026.4	10,979.6	6,943.8	76.2	76.0	-75.19	3,673.7	33.5	323.1	175.6	147.46	2.191		
11,200.0	7,026.0	11,079.6	6,943.8	78.0	77.8	-75.25	3,773.7	33.5	323.0	171.8	151.14	2.137		
11,300.0	7,025.7	11,179.6	6,943.9	79.9	79.7	-75.32	3,873.7	33.5	322.9	168.1	154.82	2.085		
11,400.0	7,025.4	11,279.6	6,943.9	81.8	81.6	-75.38	3,973.7	33.5	322.8	164.3	158.51	2.036		
11,500.0	7,025.0	11,379.6	6,944.0	83.6	83.5	-75.45	4,073.7	33.5	322.7	160.5	162.20	1.989		
11,513.9	7,025.0	11,393.5	6,944.0	83.9	83.7	-75.46	4,087.6	33.5	322.7	159.9	162.71	1.983 SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-30.7	30.7	30.5	0.22	136.494	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-30.7	30.7	30.0	0.67	45.498	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-30.7	30.7	29.6	1.12	27.299	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-30.7	30.7	29.1	1.57	19.499	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-30.7	30.7	28.7	2.02	15.166	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-30.7	30.7	28.2	2.47	12.409	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-30.7	30.7	27.8	2.92	10.500	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-30.7	30.7	27.3	3.37	9.100	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	-90.00	0.0	-30.7	30.7	26.9	3.82	8.029	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	-90.00	0.0	-30.7	30.7	26.4	4.27	7.184 CC, ES	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	120.53	120.53	0.0	-30.7	31.5	26.8	4.69	6.719	
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	127.99	127.99	0.0	-30.7	34.5	29.4	5.09	6.771	
1,300.0	1,299.5	1,300.3	1,300.3	2.7	2.8	135.76	135.76	-1.7	-30.1	39.4	33.9	5.47	7.194	
1,400.0	1,398.7	1,401.0	1,400.8	2.9	3.0	141.20	141.20	-6.7	-28.4	45.2	39.4	5.84	7.741	
1,500.0	1,497.5	1,501.9	1,501.4	3.2	3.2	144.76	144.76	-15.1	-25.6	51.5	45.2	6.23	8.268	
1,600.0	1,596.2	1,603.2	1,601.9	3.5	3.4	145.58	145.58	-26.8	-21.6	55.9	49.3	6.65	8.404	
1,700.0	1,694.9	1,703.8	1,701.3	3.8	3.6	144.26	144.26	-41.4	-16.7	58.2	51.1	7.12	8.175	
1,800.0	1,793.6	1,803.8	1,800.1	4.1	3.9	142.80	142.80	-56.1	-11.7	60.3	52.7	7.62	7.912	
1,900.0	1,892.2	1,903.8	1,898.8	4.4	4.2	141.45	141.45	-70.9	-6.7	62.4	54.3	8.15	7.660	
2,000.0	1,990.9	2,003.7	1,997.6	4.7	4.4	140.18	140.18	-85.6	-1.7	64.6	55.9	8.70	7.422	
2,100.0	2,089.6	2,103.7	2,096.3	5.1	4.8	139.00	139.00	-100.4	3.3	66.7	57.5	9.27	7.198	
2,200.0	2,188.3	2,203.7	2,195.0	5.4	5.1	137.89	137.89	-115.2	8.3	69.0	59.1	9.86	6.990	
2,300.0	2,287.0	2,303.6	2,293.8	5.8	5.4	136.85	136.85	-129.9	13.3	71.2	60.7	10.47	6.797	
2,400.0	2,385.7	2,403.6	2,392.5	6.1	5.7	135.87	135.87	-144.7	18.3	73.4	62.3	11.10	6.619	
2,500.0	2,484.3	2,503.6	2,491.3	6.5	6.1	134.95	134.95	-159.5	23.3	75.7	64.0	11.73	6.454	
2,600.0	2,583.0	2,603.5	2,590.0	6.9	6.4	134.09	134.09	-174.2	28.3	78.0	65.6	12.38	6.302	
2,700.0	2,681.7	2,703.5	2,688.8	7.2	6.7	133.28	133.28	-189.0	33.3	80.3	67.3	13.03	6.161	
2,800.0	2,780.4	2,803.5	2,787.5	7.6	7.1	132.51	132.51	-203.7	38.3	82.6	68.9	13.70	6.031	
2,900.0	2,879.1	2,903.4	2,886.3	8.0	7.4	131.78	131.78	-218.5	43.3	85.0	70.6	14.37	5.911	
3,000.0	2,977.8	3,003.4	2,985.0	8.3	7.8	131.09	131.09	-233.3	48.3	87.3	72.3	15.06	5.800	
3,100.0	3,076.4	3,103.4	3,083.7	8.7	8.2	130.44	130.44	-248.0	53.3	89.7	73.9	15.74	5.697	
3,200.0	3,175.1	3,203.3	3,182.5	9.1	8.5	129.82	129.82	-262.8	58.3	92.1	75.6	16.43	5.601	
3,300.0	3,273.8	3,303.3	3,281.2	9.5	8.9	129.23	129.23	-277.5	63.3	94.4	77.3	17.13	5.512	
3,400.0	3,372.5	3,403.3	3,380.0	9.8	9.2	128.68	128.68	-292.3	68.3	96.8	79.0	17.83	5.429	
3,500.0	3,471.2	3,503.2	3,478.7	10.2	9.6	128.15	128.15	-307.1	73.3	99.2	80.7	18.54	5.352	
3,600.0	3,569.9	3,603.2	3,577.5	10.6	10.0	127.64	127.64	-321.8	78.3	101.6	82.4	19.25	5.280	
3,700.0	3,668.5	3,703.2	3,676.2	11.0	10.3	127.16	127.16	-336.6	83.3	104.1	84.1	19.96	5.213	
3,800.0	3,767.2	3,803.1	3,775.0	11.4	10.7	126.70	126.70	-351.4	88.3	106.5	85.8	20.68	5.149	
3,900.0	3,865.9	3,903.1	3,873.7	11.7	11.1	126.26	126.26	-366.1	93.3	108.9	87.5	21.40	5.090	
4,000.0	3,964.6	4,003.1	3,972.4	12.1	11.4	125.84	125.84	-380.9	98.3	111.3	89.2	22.12	5.034	
4,100.0	4,063.3	4,103.0	4,071.2	12.5	11.8	125.43	125.43	-395.6	103.3	113.8	90.9	22.84	4.982	
4,200.0	4,162.0	4,203.0	4,169.9	12.9	12.2	125.05	125.05	-410.4	108.3	116.2	92.7	23.57	4.932	
4,300.0	4,260.6	4,303.0	4,268.7	13.3	12.5	124.68	124.68	-425.2	113.3	118.7	94.4	24.29	4.886	
4,400.0	4,359.3	4,402.9	4,367.4	13.6	12.9	124.32	124.32	-439.9	118.3	121.1	96.1	25.02	4.842	
4,500.0	4,458.0	4,502.9	4,466.2	14.0	13.3	123.98	123.98	-454.7	123.3	123.6	97.9	25.75	4.800	
4,600.0	4,556.7	4,602.9	4,564.9	14.4	13.6	123.65	123.65	-469.5	128.3	126.1	99.6	26.48	4.760	
4,700.0	4,655.4	4,702.8	4,663.7	14.8	14.0	123.34	123.34	-484.2	133.3	128.5	101.3	27.22	4.723	
4,800.0	4,754.1	4,802.8	4,762.4	15.2	14.4	123.04	123.04	-499.0	138.3	131.0	103.1	27.95	4.687	
4,900.0	4,852.7	4,902.8	4,861.2	15.6	14.7	122.74	122.74	-513.7	143.3	133.5	104.8	28.69	4.653	
5,000.0	4,951.4	5,002.7	4,959.9	15.9	15.1	122.46	122.46	-528.5	148.3	136.0	106.5	29.42	4.621	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)													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	5,050.1	5,102.7	5,058.6	16.3	15.5	122.19		-543.3	153.3	138.5	108.3	30.16	4.591	
5,200.0	5,148.8	5,202.7	5,157.4	16.7	15.9	121.93		-558.0	158.3	140.9	110.0	30.90	4.561	
5,300.0	5,247.5	5,302.6	5,256.1	17.1	16.2	121.68		-572.8	163.3	143.4	111.8	31.64	4.534	
5,400.0	5,346.2	5,402.6	5,354.9	17.5	16.6	121.43		-587.5	168.3	145.9	113.5	32.38	4.507	
5,500.0	5,444.8	5,502.6	5,453.6	17.9	17.0	121.20		-602.3	173.3	148.4	115.3	33.12	4.481	
5,600.0	5,543.5	5,602.5	5,552.4	18.2	17.3	120.97		-617.1	178.3	150.9	117.1	33.86	4.457	
5,700.0	5,642.5	5,700.0	5,648.9	18.5	17.6	120.74		-629.9	182.7	153.0	118.6	34.43	4.445	
5,800.0	5,741.9	5,798.6	5,746.9	18.7	17.9	120.56		-639.8	186.0	154.6	119.7	34.88	4.432	
5,900.0	5,841.7	5,896.7	5,844.7	18.9	18.1	120.45		-646.4	188.3	155.7	120.4	35.27	4.414	
6,000.0	5,941.6	5,994.7	5,942.7	19.1	18.2	120.39		-649.9	189.4	156.3	120.7	35.59	4.391	
6,100.0	6,041.6	6,093.6	6,041.6	19.2	18.4	-87.36		-650.4	189.6	156.3	120.5	35.88	4.358	
6,200.0	6,141.6	6,193.6	6,141.6	19.3	18.5	-87.36		-650.4	189.6	156.3	120.2	36.14	4.326	
6,300.0	6,241.6	6,293.6	6,241.6	19.5	18.6	-87.36		-650.4	189.6	156.3	119.9	36.41	4.294	
6,400.0	6,341.5	6,393.5	6,341.5	19.6	18.8	-88.45		-650.4	189.6	156.2	119.5	36.79	4.247	
6,437.7	6,378.9	6,431.0	6,378.9	19.6	18.8	-90.00		-650.4	189.6	156.2	119.2	37.01	4.220	
6,500.0	6,440.2	6,493.0	6,440.9	19.6	18.9	-93.02		-647.6	189.6	156.4	119.0	37.38	4.184	
6,600.0	6,536.2	6,594.1	6,540.8	19.5	18.9	-97.82		-632.4	189.6	157.7	120.0	37.64	4.189	
6,700.0	6,627.6	6,697.1	6,639.5	19.3	18.8	-102.43		-603.6	189.6	160.0	122.5	37.48	4.269	
6,800.0	6,713.0	6,801.9	6,735.2	19.0	18.6	-106.72		-560.8	189.6	163.2	126.3	36.91	4.420	
6,900.0	6,790.8	6,908.7	6,825.6	18.7	18.3	-110.59		-504.2	189.6	167.0	131.0	36.01	4.637	
7,000.0	6,859.9	7,017.3	6,908.6	18.5	18.0	-113.99		-434.3	189.6	171.1	136.2	34.91	4.901	
7,100.0	6,918.9	7,127.6	6,981.9	18.2	17.8	-116.86		-352.0	189.6	175.2	141.4	33.78	5.187	
7,200.0	6,966.9	7,239.5	7,043.4	18.0	17.6	-119.21		-258.6	189.6	179.0	146.2	32.83	5.453	
7,300.0	7,003.0	7,352.8	7,091.0	17.9	17.5	-121.00		-155.9	189.6	182.3	150.0	32.28	5.648	
7,400.0	7,026.7	7,467.1	7,123.2	17.9	17.7	-122.26		-46.3	189.6	184.7	152.5	32.28	5.723	
7,500.0	7,037.5	7,582.2	7,138.7	18.2	18.1	-122.99		67.6	189.6	186.2	153.3	32.92	5.656	
7,600.0	7,038.0	7,687.5	7,140.6	18.7	18.7	-123.30		172.9	189.6	186.9	152.8	34.06	5.487	
7,700.0	7,037.6	7,787.5	7,141.3	19.5	19.5	-123.58		272.9	189.6	187.5	152.0	35.43	5.290	
7,800.0	7,037.3	7,887.5	7,142.1	20.5	20.4	-123.85		372.9	189.6	188.1	151.0	37.04	5.077	
7,900.0	7,037.0	7,987.5	7,142.8	21.6	21.5	-124.12		472.9	189.6	188.7	149.8	38.85	4.856	
8,000.0	7,036.7	8,087.5	7,143.6	22.8	22.7	-124.39		572.9	189.6	189.3	148.4	40.83	4.636	
8,100.0	7,036.3	8,187.5	7,144.3	24.1	24.0	-124.66		672.9	189.6	189.9	146.9	42.95	4.421	
8,200.0	7,036.0	8,287.5	7,145.1	25.4	25.4	-124.93		772.8	189.6	190.5	145.3	45.19	4.216	
8,300.0	7,035.7	8,387.5	7,145.8	26.9	26.8	-125.20		872.8	189.6	191.1	143.6	47.52	4.022	
8,400.0	7,035.3	8,487.5	7,146.6	28.4	28.3	-125.46		972.8	189.6	191.7	141.8	49.94	3.839	
8,500.0	7,035.0	8,587.5	7,147.3	29.9	29.8	-125.72		1,072.8	189.6	192.4	139.9	52.42	3.670	
8,600.0	7,034.7	8,687.5	7,148.1	31.5	31.4	-125.98		1,172.8	189.6	193.0	138.0	54.96	3.511	
8,700.0	7,034.3	8,787.5	7,148.8	33.1	33.0	-126.24		1,272.8	189.6	193.6	136.1	57.55	3.365	
8,800.0	7,034.0	8,887.5	7,149.6	34.7	34.7	-126.50		1,372.8	189.6	194.3	134.1	60.17	3.229	
8,900.0	7,033.7	8,987.5	7,150.3	36.4	36.3	-126.76		1,472.8	189.6	194.9	132.1	62.82	3.103	
9,000.0	7,033.3	9,087.4	7,151.1	38.1	38.0	-127.01		1,572.8	189.6	195.6	130.1	65.50	2.986	
9,100.0	7,033.0	9,187.4	7,151.8	39.8	39.7	-127.26		1,672.8	189.6	196.2	128.0	68.19	2.878	
9,200.0	7,032.7	9,287.4	7,152.6	41.6	41.5	-127.51		1,772.8	189.6	196.9	126.0	70.90	2.777	
9,300.0	7,032.3	9,387.4	7,153.3	43.3	43.2	-127.76		1,872.7	189.6	197.6	123.9	73.62	2.683	
9,400.0	7,032.0	9,487.4	7,154.1	45.1	45.0	-128.01		1,972.7	189.6	198.2	121.9	76.34	2.596	
9,500.0	7,031.7	9,587.4	7,154.8	46.8	46.8	-128.26		2,072.7	189.6	198.9	119.8	79.08	2.515	
9,600.0	7,031.3	9,687.4	7,155.6	48.6	48.5	-128.50		2,172.7	189.6	199.6	117.7	81.81	2.439	
9,700.0	7,031.0	9,787.4	7,156.3	50.4	50.3	-128.74		2,272.7	189.6	200.2	115.7	84.55	2.368	
9,800.0	7,030.7	9,887.4	7,157.1	52.2	52.1	-128.98		2,372.7	189.6	200.9	113.6	87.28	2.302	
9,900.0	7,030.4	9,987.4	7,157.8	54.0	54.0	-129.22		2,472.7	189.6	201.6	111.6	90.02	2.239	
10,000.0	7,030.0	10,087.4	7,158.6	55.8	55.8	-129.46		2,572.7	189.6	202.3	109.5	92.75	2.181	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		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)			
10,100.0	7,029.7	10,187.4	7,159.3	57.7	57.6	-129.70	2,672.7	189.6	203.0	107.5	95.47	2.126		
10,200.0	7,029.4	10,287.4	7,160.1	59.5	59.4	-129.93	2,772.7	189.6	203.7	105.5	98.19	2.074		
10,300.0	7,029.0	10,387.4	7,160.8	61.3	61.3	-130.16	2,872.7	189.6	204.4	103.4	100.91	2.025		
10,400.0	7,028.7	10,487.4	7,161.6	63.2	63.1	-130.39	2,972.7	189.6	205.1	101.4	103.61	1.979		
10,500.0	7,028.4	10,587.4	7,162.3	65.0	65.0	-130.62	3,072.6	189.6	205.8	99.4	106.31	1.935		
10,600.0	7,028.0	10,687.4	7,163.1	66.9	66.8	-130.85	3,172.6	189.6	206.5	97.5	109.01	1.894		
10,700.0	7,027.7	10,787.3	7,163.8	68.7	68.7	-131.08	3,272.6	189.6	207.2	95.5	111.69	1.855		
10,800.0	7,027.4	10,887.3	7,164.6	70.6	70.5	-131.30	3,372.6	189.6	207.9	93.5	114.36	1.818		
10,900.0	7,027.0	10,987.3	7,165.3	72.4	72.4	-131.53	3,472.6	189.6	208.6	91.6	117.03	1.783		
11,000.0	7,026.7	11,087.3	7,166.1	74.3	74.3	-131.75	3,572.6	189.6	209.3	89.6	119.68	1.749		
11,100.0	7,026.4	11,187.3	7,166.8	76.2	76.1	-131.97	3,672.6	189.6	210.0	87.7	122.32	1.717		
11,200.0	7,026.0	11,287.3	7,167.6	78.0	78.0	-132.19	3,772.6	189.6	210.8	85.8	124.96	1.687		
11,300.0	7,025.7	11,387.3	7,168.3	79.9	79.9	-132.40	3,872.6	189.6	211.5	83.9	127.58	1.658		
11,400.0	7,025.4	11,487.3	7,169.1	81.8	81.7	-132.62	3,972.6	189.6	212.2	82.0	130.20	1.630		
11,500.0	7,025.0	11,587.3	7,169.8	83.6	83.6	-132.83	4,072.6	189.6	213.0	80.2	132.80	1.604		
11,513.9	7,025.0	11,601.2	7,169.9	83.9	83.9	-132.86	4,086.4	189.6	213.1	79.9	133.16	1.600 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4821.0ft (RKB - 15')

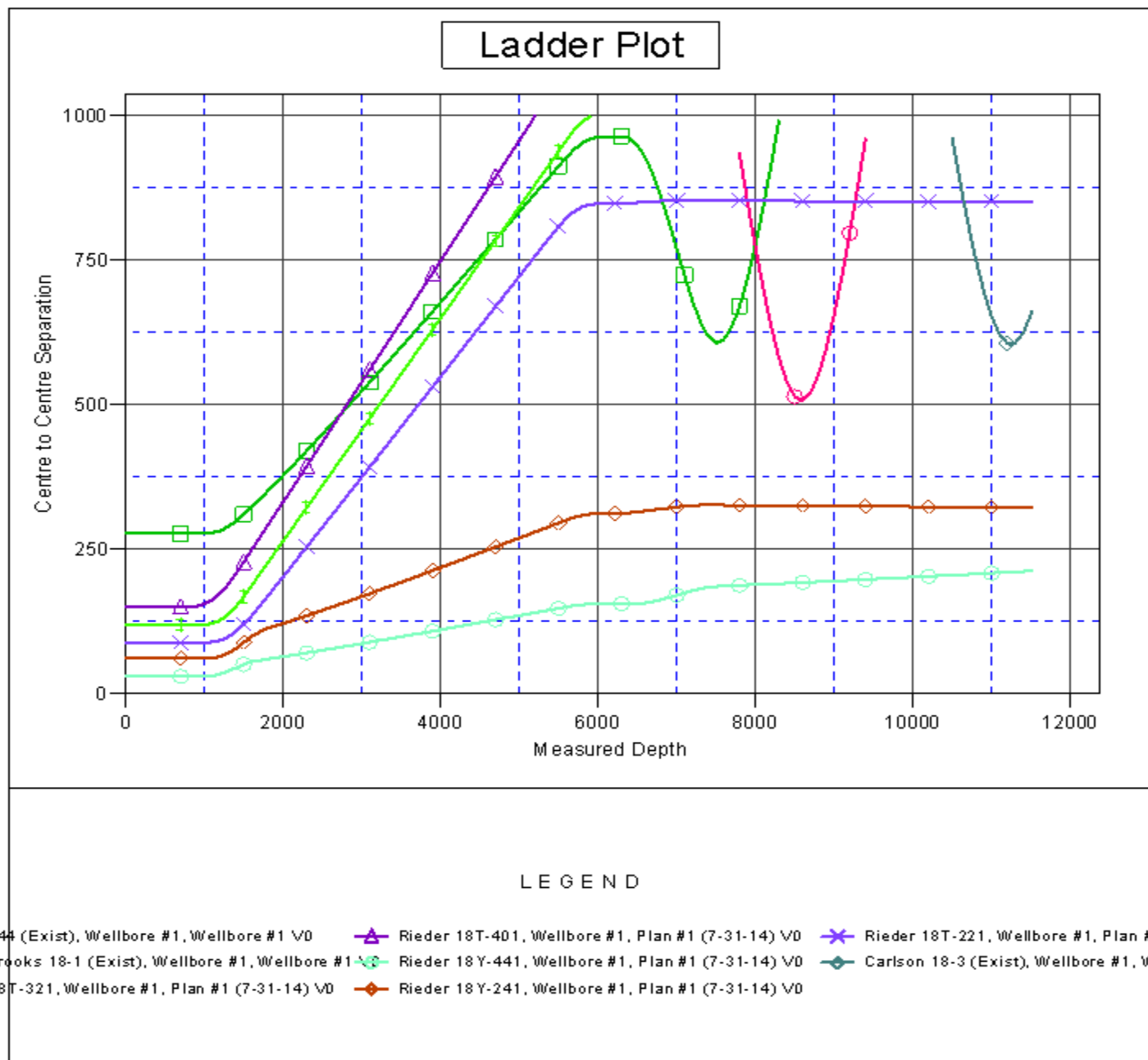
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Rieder 18Y-301

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.37°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-301
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-301	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4821.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Rieder 18Y-301

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.37°

