

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Rieder 18T-201**

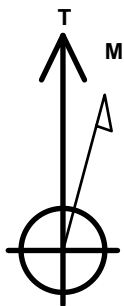
Surface Location: Rieder 4N67W18Q Pad Sec.18-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 15.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1355267.44	3158799.76	40.307210	-104.930600	
RKB - 15' WELL @ 4826.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 372'FSL & 2092'FEL	1.0	0.0	0.0	Point
BHL 500'FNL & 1385'FEL	6943.0	4382.6	521.5	Point



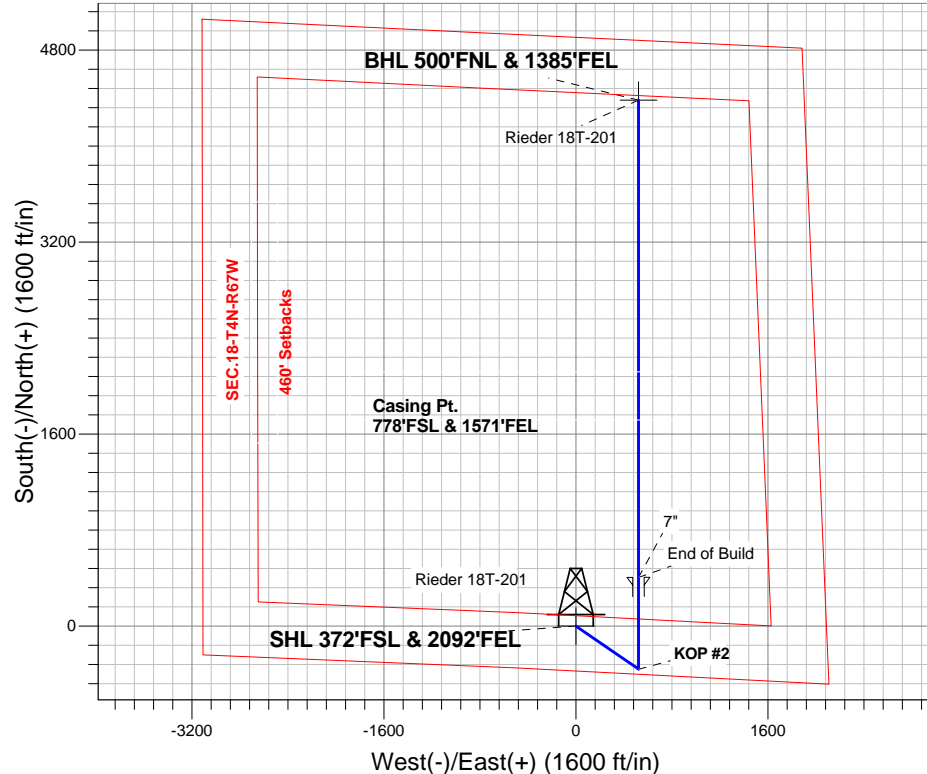
Azimuths to True North
Magnetic North: 8.52°

Magnetic Field
Strength: 52736.3snT
Dip Angle: 66.84°
Date: 7/30/2014
Model: IGRF2010

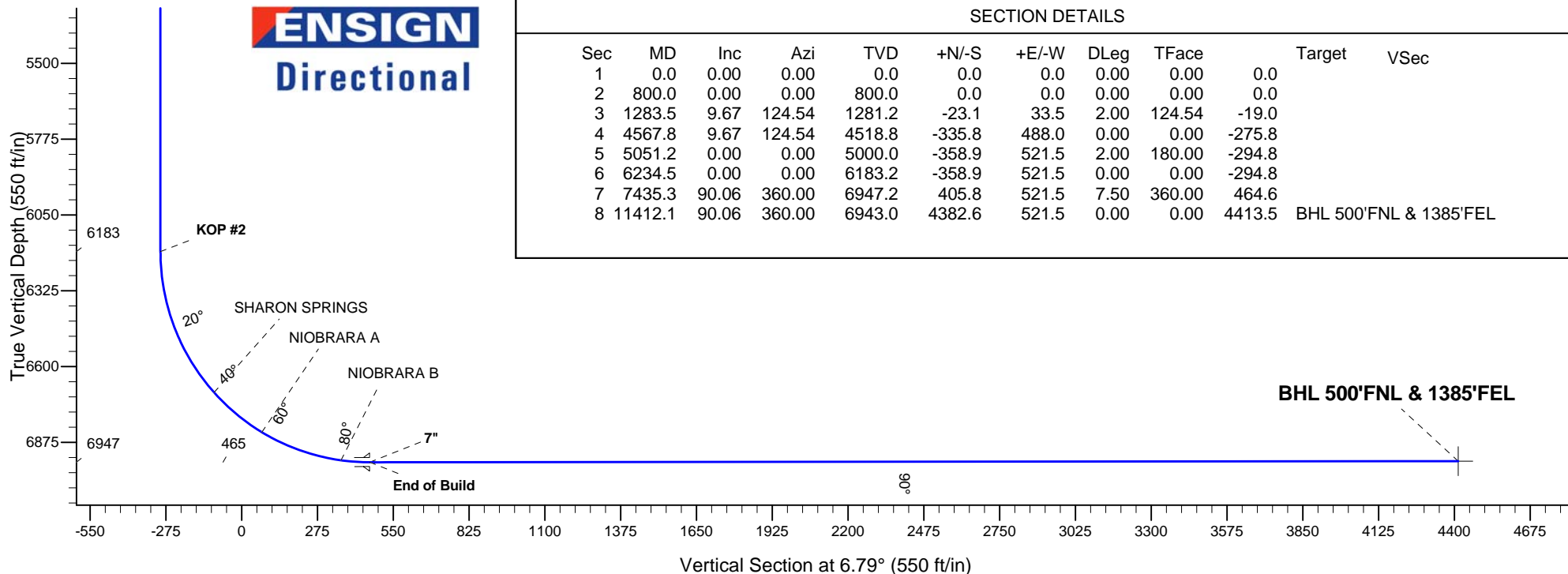
ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP #1
6183.3	6234.5	KOP #2
6947.2	7435.3	End of Build

Rieder 4N67W18Q Pad Sec.18-T4N-R67
Rieder 18T-201
Plan #1 (7-30-14)
10:03, August 05 2014



ENSIGN
Directional



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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1283.5	9.67	124.54	1281.2	-23.1	33.5	2.00	124.54	-19.0	
4	4567.8	9.67	124.54	4518.8	-335.8	488.0	0.00	0.00	-275.8	
5	5051.2	0.00	0.00	5000.0	-358.9	521.5	2.00	180.00	-294.8	
6	6234.5	0.00	0.00	6183.2	-358.9	521.5	0.00	0.00	-294.8	
7	7435.3	90.06	360.00	6947.2	405.8	521.5	7.50	360.00	464.6	
8	11412.1	90.06	360.00	6943.0	4382.6	521.5	0.00	0.00	4413.5	BHL 500'FNL & 1385'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.18-T4N-R67W

Rieder 4N67W18Q Pad Sec.18-T4N-R67

Rieder 18T-201

Wellbore #1

Plan: Plan #1 (7-30-14)

Standard Planning Report

05 August, 2014

Database:	Landmark	Local Co-ordinate Reference:	Well Rieder 18T-201
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Project:	SEC.18-T4N-R67W	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	North Reference:	True
Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-30-14)		

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

Site	Rieder 4N67W18Q Pad Sec.18-T4N-R67		
Site Position:		Northing:	1,355,266.69 ft
From:	Lat/Long	Easting:	3,158,679.84 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.307210
		Longitude:	-104.931030
		Grid Convergence:	0.37 °

Well	Rieder 18T-201		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	119.9 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/30/2014	8.52	66.84	52,736

Design	Plan #1 (7-30-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	6.79

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,283.5	9.67	124.54	1,281.2	-23.1	33.5	2.00	2.00	0.00	124.54	
4,567.8	9.67	124.54	4,518.8	-335.8	488.0	0.00	0.00	0.00	0.00	
5,051.2	0.00	0.00	5,000.0	-358.9	521.5	2.00	-2.00	0.00	180.00	
6,234.5	0.00	0.00	6,183.2	-358.9	521.5	0.00	0.00	0.00	0.00	
7,435.3	90.06	360.00	6,947.2	405.8	521.5	7.50	7.50	0.00	360.00	
11,412.1	90.06	360.00	6,943.0	4,382.6	521.5	0.00	0.00	0.00	0.00	BHL 500'FNL & 13E

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Project:	SEC.18-T4N-R67W	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	North Reference:	True
Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-30-14)		

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
SHL 372'FSL & 2092'FEL									
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
KOP #1									
900.0	2.00	124.54	900.0	-1.0	1.4	-0.8	2.00	2.00	0.00
1,000.0	4.00	124.54	999.8	-4.0	5.7	-3.2	2.00	2.00	0.00
1,100.0	6.00	124.54	1,099.5	-8.9	12.9	-7.3	2.00	2.00	0.00
1,200.0	8.00	124.54	1,198.7	-15.8	23.0	-13.0	2.00	2.00	0.00
1,283.5	9.67	124.54	1,281.2	-23.1	33.5	-19.0	2.00	2.00	0.00
1,300.0	9.67	124.54	1,297.5	-24.6	35.8	-20.2	0.00	0.00	0.00
1,400.0	9.67	124.54	1,396.1	-34.2	49.7	-28.1	0.00	0.00	0.00
1,500.0	9.67	124.54	1,494.6	-43.7	63.5	-35.9	0.00	0.00	0.00
1,600.0	9.67	124.54	1,593.2	-53.2	77.3	-43.7	0.00	0.00	0.00
1,700.0	9.67	124.54	1,691.8	-62.7	91.2	-51.5	0.00	0.00	0.00
1,800.0	9.67	124.54	1,790.4	-72.3	105.0	-59.3	0.00	0.00	0.00
1,900.0	9.67	124.54	1,888.9	-81.8	118.8	-67.2	0.00	0.00	0.00
2,000.0	9.67	124.54	1,987.5	-91.3	132.7	-75.0	0.00	0.00	0.00
2,100.0	9.67	124.54	2,086.1	-100.8	146.5	-82.8	0.00	0.00	0.00
2,200.0	9.67	124.54	2,184.7	-110.4	160.3	-90.6	0.00	0.00	0.00
2,300.0	9.67	124.54	2,283.3	-119.9	174.2	-98.5	0.00	0.00	0.00
2,400.0	9.67	124.54	2,381.8	-129.4	188.0	-106.3	0.00	0.00	0.00
2,500.0	9.67	124.54	2,480.4	-138.9	201.9	-114.1	0.00	0.00	0.00
2,600.0	9.67	124.54	2,579.0	-148.4	215.7	-121.9	0.00	0.00	0.00
2,700.0	9.67	124.54	2,677.6	-158.0	229.5	-129.7	0.00	0.00	0.00
2,800.0	9.67	124.54	2,776.2	-167.5	243.4	-137.6	0.00	0.00	0.00
2,900.0	9.67	124.54	2,874.7	-177.0	257.2	-145.4	0.00	0.00	0.00
3,000.0	9.67	124.54	2,973.3	-186.5	271.0	-153.2	0.00	0.00	0.00
3,100.0	9.67	124.54	3,071.9	-196.1	284.9	-161.0	0.00	0.00	0.00
3,200.0	9.67	124.54	3,170.5	-205.6	298.7	-168.8	0.00	0.00	0.00
3,300.0	9.67	124.54	3,269.1	-215.1	312.6	-176.7	0.00	0.00	0.00
3,400.0	9.67	124.54	3,367.6	-224.6	326.4	-184.5	0.00	0.00	0.00
3,483.6	9.67	124.54	3,450.0	-232.6	337.9	-191.0	0.00	0.00	0.00
PARKMAN									
3,500.0	9.67	124.54	3,466.2	-234.1	340.2	-192.3	0.00	0.00	0.00
3,600.0	9.67	124.54	3,564.8	-243.7	354.1	-200.1	0.00	0.00	0.00
3,700.0	9.67	124.54	3,663.4	-253.2	367.9	-208.0	0.00	0.00	0.00
3,800.0	9.67	124.54	3,762.0	-262.7	381.7	-215.8	0.00	0.00	0.00
3,900.0	9.67	124.54	3,860.5	-272.2	395.6	-223.6	0.00	0.00	0.00
4,000.0	9.67	124.54	3,959.1	-281.8	409.4	-231.4	0.00	0.00	0.00
4,000.9	9.67	124.54	3,960.0	-281.8	409.5	-231.5	0.00	0.00	0.00
SUSSEX									
4,100.0	9.67	124.54	4,057.7	-291.3	423.2	-239.2	0.00	0.00	0.00
4,200.0	9.67	124.54	4,156.3	-300.8	437.1	-247.1	0.00	0.00	0.00
4,300.0	9.67	124.54	4,254.8	-310.3	450.9	-254.9	0.00	0.00	0.00
4,400.0	9.67	124.54	4,353.4	-319.8	464.8	-262.7	0.00	0.00	0.00

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Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	North Reference:	True
Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-30-14)		

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	9.67	124.54	4,452.0	-329.4	478.6	-270.5	0.00	0.00	0.00
4,567.8	9.67	124.54	4,518.8	-335.8	488.0	-275.8	0.00	0.00	0.00
4,569.0	9.65	124.54	4,520.0	-335.9	488.1	-275.9	2.00	-2.00	0.00
SHANNON									
4,600.0	9.02	124.54	4,550.6	-338.8	492.3	-278.3	2.00	-2.00	0.00
4,700.0	7.02	124.54	4,649.6	-346.7	503.8	-284.8	2.00	-2.00	0.00
4,800.0	5.02	124.54	4,749.1	-352.7	512.4	-289.6	2.00	-2.00	0.00
4,900.0	3.02	124.54	4,848.8	-356.6	518.2	-292.9	2.00	-2.00	0.00
5,000.0	1.02	124.54	4,948.8	-358.6	521.1	-294.6	2.00	-2.00	0.00
5,051.2	0.00	0.00	5,000.0	-358.9	521.5	-294.8	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,048.8	-358.9	521.5	-294.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,148.8	-358.9	521.5	-294.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,248.8	-358.9	521.5	-294.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,348.8	-358.9	521.5	-294.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,448.8	-358.9	521.5	-294.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,548.8	-358.9	521.5	-294.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,648.8	-358.9	521.5	-294.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,748.8	-358.9	521.5	-294.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,848.8	-358.9	521.5	-294.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,948.8	-358.9	521.5	-294.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,048.8	-358.9	521.5	-294.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,148.8	-358.9	521.5	-294.8	0.00	0.00	0.00
6,234.5	0.00	0.00	6,183.3	-358.9	521.5	-294.8	0.00	0.00	0.00
KOP #2									
6,300.0	4.92	360.00	6,248.7	-356.1	521.5	-292.0	7.50	7.50	0.00
6,400.0	12.41	360.00	6,347.5	-341.0	521.5	-277.0	7.50	7.50	0.00
6,500.0	19.91	360.00	6,443.4	-313.2	521.5	-249.4	7.50	7.50	0.00
6,600.0	27.41	360.00	6,535.0	-273.1	521.5	-209.6	7.50	7.50	0.00
6,700.0	34.91	360.00	6,620.5	-221.4	521.5	-158.2	7.50	7.50	0.00
6,793.9	41.96	360.00	6,694.0	-163.0	521.5	-100.3	7.50	7.50	0.00
SHARON SPRINGS									
6,800.0	42.41	360.00	6,698.5	-159.0	521.5	-96.2	7.50	7.50	0.00
6,900.0	49.91	360.00	6,767.7	-86.9	521.5	-24.7	7.50	7.50	0.00
7,000.0	57.41	360.00	6,826.9	-6.4	521.5	55.3	7.50	7.50	0.00
7,021.0	58.99	360.00	6,838.0	11.5	521.5	73.0	7.50	7.50	0.00
NIORARA A									
7,100.0	64.91	360.00	6,875.1	81.2	521.5	142.2	7.50	7.50	0.00
7,200.0	72.41	360.00	6,911.5	174.2	521.5	234.6	7.50	7.50	0.00
7,300.0	79.91	360.00	6,935.4	271.3	521.5	331.0	7.50	7.50	0.00
7,329.8	82.15	360.00	6,940.0	300.7	521.5	360.2	7.50	7.50	0.00
NIORARA B									
7,400.0	87.41	360.00	6,946.4	370.6	521.5	429.6	7.50	7.50	0.00
7,435.3	90.06	360.00	6,947.2	405.9	521.5	464.6	7.49	7.49	0.00
End of Build - 7"									
7,500.0	90.06	360.00	6,947.1	470.6	521.5	528.9	0.00	0.00	0.00
7,600.0	90.06	360.00	6,947.0	570.6	521.5	628.2	0.00	0.00	0.00
7,700.0	90.06	360.00	6,946.9	670.6	521.5	727.5	0.00	0.00	0.00
7,800.0	90.06	360.00	6,946.8	770.6	521.5	826.8	0.00	0.00	0.00
7,900.0	90.06	360.00	6,946.7	870.6	521.5	926.1	0.00	0.00	0.00
8,000.0	90.06	360.00	6,946.6	970.6	521.5	1,025.4	0.00	0.00	0.00
8,100.0	90.06	360.00	6,946.5	1,070.6	521.5	1,124.7	0.00	0.00	0.00
8,200.0	90.06	360.00	6,946.4	1,170.6	521.5	1,224.0	0.00	0.00	0.00

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Wellbore:	Wellbore #1		
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Planned Survey

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8,300.0	90.06	360.00	6,946.3	1,270.6	521.5	1,323.3	0.00	0.00	0.00
8,400.0	90.06	360.00	6,946.2	1,370.6	521.5	1,422.6	0.00	0.00	0.00
8,500.0	90.06	360.00	6,946.0	1,470.6	521.5	1,521.9	0.00	0.00	0.00
8,600.0	90.06	360.00	6,945.9	1,570.6	521.5	1,621.2	0.00	0.00	0.00
8,700.0	90.06	360.00	6,945.8	1,670.6	521.5	1,720.5	0.00	0.00	0.00
8,800.0	90.06	360.00	6,945.7	1,770.6	521.5	1,819.8	0.00	0.00	0.00
8,900.0	90.06	360.00	6,945.6	1,870.6	521.5	1,919.1	0.00	0.00	0.00
9,000.0	90.06	360.00	6,945.5	1,970.6	521.5	2,018.4	0.00	0.00	0.00
9,100.0	90.06	360.00	6,945.4	2,070.6	521.5	2,117.7	0.00	0.00	0.00
9,200.0	90.06	360.00	6,945.3	2,170.6	521.5	2,217.0	0.00	0.00	0.00
9,300.0	90.06	360.00	6,945.2	2,270.6	521.5	2,316.3	0.00	0.00	0.00
9,400.0	90.06	360.00	6,945.1	2,370.6	521.5	2,415.6	0.00	0.00	0.00
9,500.0	90.06	360.00	6,945.0	2,470.6	521.5	2,514.9	0.00	0.00	0.00
9,600.0	90.06	360.00	6,944.9	2,570.6	521.5	2,614.2	0.00	0.00	0.00
9,700.0	90.06	360.00	6,944.8	2,670.6	521.5	2,713.5	0.00	0.00	0.00
9,800.0	90.06	360.00	6,944.7	2,770.6	521.5	2,812.8	0.00	0.00	0.00
9,900.0	90.06	360.00	6,944.6	2,870.6	521.5	2,912.1	0.00	0.00	0.00
10,000.0	90.06	360.00	6,944.5	2,970.6	521.5	3,011.4	0.00	0.00	0.00
10,100.0	90.06	360.00	6,944.4	3,070.6	521.5	3,110.7	0.00	0.00	0.00
10,200.0	90.06	360.00	6,944.3	3,170.6	521.5	3,210.0	0.00	0.00	0.00
10,300.0	90.06	360.00	6,944.2	3,270.6	521.5	3,309.3	0.00	0.00	0.00
10,400.0	90.06	360.00	6,944.1	3,370.6	521.5	3,408.6	0.00	0.00	0.00
10,500.0	90.06	360.00	6,944.0	3,470.6	521.5	3,507.9	0.00	0.00	0.00
10,600.0	90.06	360.00	6,943.9	3,570.6	521.5	3,607.2	0.00	0.00	0.00
10,700.0	90.06	360.00	6,943.7	3,670.6	521.5	3,706.5	0.00	0.00	0.00
10,800.0	90.06	360.00	6,943.6	3,770.6	521.5	3,805.8	0.00	0.00	0.00
10,900.0	90.06	360.00	6,943.5	3,870.6	521.5	3,905.1	0.00	0.00	0.00
11,000.0	90.06	360.00	6,943.4	3,970.6	521.5	4,004.4	0.00	0.00	0.00
11,100.0	90.06	360.00	6,943.3	4,070.6	521.5	4,103.7	0.00	0.00	0.00
11,200.0	90.06	360.00	6,943.2	4,170.6	521.5	4,203.0	0.00	0.00	0.00
11,300.0	90.06	360.00	6,943.1	4,270.6	521.5	4,302.3	0.00	0.00	0.00
11,400.0	90.06	360.00	6,943.0	4,370.6	521.5	4,401.6	0.00	0.00	0.00
11,412.1	90.06	360.00	6,943.0	4,382.6	521.5	4,413.5	0.00	0.00	0.00
BHL 500'FNL & 1385'FEL									

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 500'FNL & 1385'	0.00	0.00	6,943.0	4,382.6	521.5	1,359,653.13	3,159,293.04	40.319240	-104.928730
- plan hits target center									
- Point									
SHL 372'FSL & 2092'	0.00	0.00	1.0	0.0	0.0	1,355,267.46	3,158,799.76	40.307210	-104.930600
- plan hits target center									
- Point									

Database:	Landmark	Local Co-ordinate Reference:	Well Rieder 18T-201
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Project:	SEC.18-T4N-R67W	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	North Reference:	True
Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-30-14)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,435.3	6,947.2	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,483.6	3,450.0	PARKMAN			
4,000.9	3,960.0	SUSSEX			
4,569.0	4,520.0	SHANNON			
6,793.9	6,694.0	SHARON SPRINGS			
7,021.0	6,838.0	NIOBRARA A			
7,329.8	6,940.0	NIOBRARA B			
	7,016.0	NIOBRARA C			
	7,142.0	FT HAYS			
	7,163.0	CODELL			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP #1
6,234.5	6,183.3	-358.9	521.5	KOP #2
7,435.3	6,947.2	405.9	521.5	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.18-T4N-R67W

Rieder 4N67W18Q Pad Sec.18-T4N-R67

Rieder 18T-201

Wellbore #1

Plan #1 (7-30-14)

Anticollision Report

05 August, 2014



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (7-30-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 8/5/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,412.1	Plan #1 (7-30-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rieder 4N67W18Q Pad Sec.18-T4N-R67						
Rieder 18Q-221 - Wellbore #1 - Plan #1 (7-30-14)	800.0	801.0	119.9	116.6	35.548	CC, ES
Rieder 18Q-221 - Wellbore #1 - Plan #1 (7-30-14)	11,412.1	11,347.2	619.1	445.0	3.557	SF
Rieder 18Q-321 - Wellbore #1 - Plan #1 (7-30-14)	800.0	801.0	147.8	144.4	43.815	CC, ES
Rieder 18Q-321 - Wellbore #1 - Plan #1 (7-30-14)	11,412.1	11,438.7	779.5	606.1	4.496	SF
Rieder 18Q-421 - Wellbore #1 - Plan #1 (7-30-14)	800.0	801.0	178.5	175.1	52.908	CC, ES
Rieder 18Q-421 - Wellbore #1 - Plan #1 (7-30-14)	11,412.1	11,538.6	956.3	786.0	5.614	SF
Rieder 18T-241 - Wellbore #1 - Plan #1 (7-30-14)	800.0	801.0	58.6	55.2	17.361	CC, ES
Rieder 18T-241 - Wellbore #1 - Plan #1 (7-30-14)	11,412.1	11,373.0	309.5	135.4	1.778	SF
Rieder 18T-301 - Wellbore #1 - Plan #1 (7-30-14)	800.0	800.0	27.9	24.5	8.272	CC
Rieder 18T-301 - Wellbore #1 - Plan #1 (7-30-14)	11,412.1	11,490.1	173.9	15.4	1.097	Level 2, ES, SF
Rieder 18T-341 - Wellbore #1 - Plan #1 (7-30-14)	800.0	801.0	89.2	85.9	26.454	CC, ES
Rieder 18T-341 - Wellbore #1 - Plan #1 (7-30-14)	11,412.1	11,455.9	472.7	300.6	2.746	SF
Rieder 4N67W18Y Pad Sec.18-T4N-R67W						
Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)	6,252.5	6,273.8	156.5	122.8	4.641	CC
Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)	6,300.0	6,321.1	156.6	122.7	4.620	ES
Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)	11,412.1	11,632.3	267.6	152.0	2.315	SF

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-221 - Wellbore #1 - Plan #1 (7-30-14)											
Survey Program: 0-MWD											
Reference											
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-119.9	119.9	119.9	0.00
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-119.9	119.9	119.7	0.23
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-119.9	119.9	119.3	0.68
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	0.0	-119.9	119.9	118.8	1.13
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	0.0	-119.9	119.9	118.4	1.58
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	0.0	-119.9	119.9	117.9	2.03
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	0.0	-119.9	119.9	117.5	2.47
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	0.0	-119.9	119.9	117.0	2.92
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	0.0	-119.9	119.9	116.6	3.37
900.0	900.0	901.0	901.0	1.9	1.9	145.91	0.0	-119.9	121.4	117.6	3.80
											N/A
											528.289
											177.266
											106.501
											76.116
											59.220
											48.462
											41.012
											35.548
											31.928

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-221 - Wellbore #1 - Plan #1 (7-30-14)												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
1,000.0	999.8	1,000.8	1,000.8	2.1	2.1	147.20		0.0	-119.9	125.7	121.5	4.21	29.844	
1,100.0	1,099.5	1,100.5	1,100.5	2.3	2.4	149.15		0.0	-119.9	133.2	128.5	4.63	28.746	
1,200.0	1,198.7	1,199.7	1,199.7	2.5	2.6	151.54		0.0	-119.9	143.8	138.7	5.06	28.429	
1,283.5	1,281.2	1,282.2	1,282.2	2.8	2.8	153.69		0.0	-119.9	155.2	149.8	5.42	28.656	
1,300.0	1,297.5	1,298.5	1,298.5	2.8	2.8	154.13		0.0	-119.9	157.7	152.2	5.49	28.729	
1,400.0	1,396.1	1,397.1	1,397.1	3.1	3.0	156.56		0.0	-119.9	173.0	167.1	5.93	29.147	
1,500.0	1,494.6	1,495.6	1,495.6	3.4	3.2	158.58		0.0	-119.9	188.5	182.2	6.39	29.526	
1,600.0	1,593.2	1,594.2	1,594.2	3.8	3.5	160.30		0.0	-119.9	204.3	197.5	6.84	29.870	
1,700.0	1,691.8	1,692.8	1,692.8	4.1	3.7	161.77		0.0	-119.9	220.2	212.9	7.30	30.183	
1,800.0	1,790.4	1,791.4	1,791.4	4.5	3.9	163.05		0.0	-119.9	236.2	228.5	7.75	30.468	
1,900.0	1,888.9	1,889.9	1,889.9	4.8	4.1	164.16		0.0	-119.9	252.4	244.2	8.21	30.729	
2,000.0	1,987.5	1,988.5	1,988.5	5.2	4.4	165.13		0.0	-119.9	268.6	259.9	8.67	30.966	
2,100.0	2,086.1	2,090.8	2,090.8	5.6	4.6	165.76		-1.4	-119.8	284.3	275.2	9.12	31.179	
2,200.0	2,184.7	2,194.2	2,194.0	6.0	4.7	165.68		-6.6	-119.5	298.6	289.0	9.55	31.278	
2,300.0	2,283.3	2,297.8	2,297.2	6.3	4.9	164.98		-15.4	-118.9	311.4	301.4	9.99	31.173	
2,400.0	2,381.8	2,399.2	2,398.0	6.7	5.1	163.81		-27.3	-118.1	323.0	312.6	10.45	30.901	
2,500.0	2,480.4	2,498.4	2,496.4	7.1	5.3	162.68		-39.4	-117.2	334.6	323.6	10.93	30.604	
2,600.0	2,579.0	2,597.5	2,594.7	7.5	5.5	161.61		-51.6	-116.4	346.3	334.8	11.43	30.300	
2,700.0	2,677.6	2,696.6	2,693.1	7.9	5.8	160.62		-63.7	-115.6	358.0	346.1	11.94	29.996	
2,800.0	2,776.2	2,795.7	2,791.5	8.3	6.0	159.69		-75.8	-114.7	369.9	357.5	12.46	29.694	
2,900.0	2,874.7	2,894.8	2,889.8	8.6	6.2	158.82		-87.9	-113.9	381.9	368.9	12.99	29.397	
3,000.0	2,973.3	2,993.9	2,988.2	9.0	6.5	158.00		-100.0	-113.1	394.0	380.5	13.54	29.106	
3,100.0	3,071.9	3,093.0	3,086.6	9.4	6.7	157.23		-112.1	-112.3	406.1	392.0	14.09	28.824	
3,200.0	3,170.5	3,192.2	3,185.0	9.8	7.0	156.50		-124.3	-111.4	418.3	403.7	14.65	28.551	
3,300.0	3,269.1	3,291.3	3,283.3	10.2	7.3	155.82		-136.4	-110.6	430.6	415.4	15.22	28.288	
3,400.0	3,367.6	3,390.4	3,381.7	10.6	7.5	155.17		-148.5	-109.8	442.9	427.1	15.80	28.035	
3,500.0	3,466.2	3,489.5	3,480.1	11.0	7.8	154.56		-160.6	-108.9	455.3	438.9	16.38	27.793	
3,600.0	3,564.8	3,588.6	3,578.4	11.4	8.1	153.98		-172.7	-108.1	467.8	450.8	16.97	27.560	
3,700.0	3,663.4	3,687.7	3,676.8	11.8	8.4	153.44		-184.8	-107.3	480.2	462.7	17.57	27.338	
3,800.0	3,762.0	3,786.9	3,775.2	12.2	8.6	152.91		-196.9	-106.5	492.8	474.6	18.17	27.125	
3,900.0	3,860.5	3,886.0	3,873.5	12.6	8.9	152.42		-209.1	-105.6	505.3	486.5	18.77	26.922	
4,000.0	3,959.1	3,985.1	3,971.9	12.9	9.2	151.95		-221.2	-104.8	517.9	498.5	19.38	26.728	
4,100.0	4,057.7	4,084.2	4,070.3	13.3	9.5	151.50		-233.3	-104.0	530.5	510.5	19.99	26.543	
4,200.0	4,156.3	4,183.3	4,168.6	13.7	9.8	151.07		-245.4	-103.1	543.2	522.6	20.60	26.366	
4,300.0	4,254.8	4,282.4	4,267.0	14.1	10.1	150.66		-257.5	-102.3	555.9	534.6	21.22	26.197	
4,400.0	4,353.4	4,381.6	4,365.4	14.5	10.4	150.27		-269.6	-101.5	568.6	546.7	21.84	26.035	
4,500.0	4,452.0	4,480.7	4,463.8	14.9	10.7	149.90		-281.8	-100.7	581.3	558.8	22.46	25.880	
4,567.8	4,518.8	4,547.8	4,530.4	15.2	10.9	149.65		-290.0	-100.1	589.9	567.1	22.88	25.779	
4,600.0	4,550.6	4,579.8	4,562.1	15.3	11.0	149.57		-293.9	-99.8	593.9	570.8	23.08	25.727	
4,700.0	4,649.6	4,678.8	4,660.4	15.6	11.3	149.20		-306.0	-99.0	604.2	580.6	23.66	25.540	
4,800.0	4,749.1	4,775.7	4,756.8	15.8	11.5	148.85		-315.8	-98.3	611.9	587.8	24.14	25.348	
4,900.0	4,848.8	4,872.9	4,853.7	16.0	11.8	148.62		-322.4	-97.9	617.1	592.5	24.56	25.129	
5,000.0	4,948.8	4,970.3	4,951.0	16.1	12.0	148.51		-325.7	-97.6	619.6	594.7	24.91	24.879	
5,051.2	5,000.0	5,020.2	5,001.0	16.2	12.0	-86.97		-326.1	-97.6	620.0	594.9	25.07	24.729	
5,100.0	5,048.8	5,069.0	5,049.8	16.3	12.1	-86.97		-326.1	-97.6	620.0	594.7	25.24	24.564	
5,200.0	5,148.8	5,169.0	5,149.8	16.4	12.3	-86.97		-326.1	-97.6	620.0	594.4	25.58	24.239	
5,300.0	5,248.8	5,269.0	5,249.8	16.5	12.5	-86.97		-326.1	-97.6	620.0	594.1	25.92	23.922	
5,400.0	5,348.8	5,369.0	5,349.8	16.7	12.7	-86.97		-326.1	-97.6	620.0	593.7	26.26	23.610	
5,500.0	5,448.8	5,469.0	5,449.8	16.8	12.9	-86.97		-326.1	-97.6	620.0	593.4	26.61	23.303	
5,600.0	5,548.8	5,569.0	5,549.8	17.0	13.0	-86.97		-326.1	-97.6	620.0	593.0	26.95	23.001	
5,700.0	5,648.8	5,669.0	5,649.8	17.1	13.2	-86.97		-326.1	-97.6	620.0	592.7	27.31	22.704	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-221 - Wellbore #1 - Plan #1 (7-30-14)												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	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
5,800.0	5,748.8	5,769.0	5,749.8	17.2	13.4	-86.97	-326.1	-97.6	620.0	592.3	27.66	22.413	
5,900.0	5,848.8	5,869.0	5,849.8	17.4	13.6	-86.97	-326.1	-97.6	620.0	592.0	28.02	22.127	
6,000.0	5,948.8	5,969.0	5,949.8	17.5	13.8	-86.97	-326.1	-97.6	620.0	591.6	28.38	21.847	
6,100.0	6,048.8	6,069.0	6,049.8	17.7	14.0	-86.97	-326.1	-97.6	620.0	591.2	28.74	21.571	
6,200.0	6,148.8	6,169.0	6,149.8	17.8	14.2	-86.97	-326.1	-97.6	620.0	590.9	29.11	21.301	
6,222.6	6,171.4	6,191.6	6,172.4	17.9	14.2	-86.97	-326.1	-97.6	620.0	590.8	29.19	21.240	
6,234.5	6,183.2	6,202.4	6,183.2	17.9	14.2	-86.97	-326.1	-97.6	620.0	590.8	29.23	21.210	
6,244.3	6,193.1	6,212.9	6,193.7	17.9	14.2	-86.97	-326.0	-97.6	620.0	590.7	29.26	21.185	
6,250.0	6,198.8	6,218.3	6,199.1	17.9	14.2	-86.97	-325.9	-97.6	620.0	590.7	29.28	21.172	
6,300.0	6,248.7	6,266.2	6,246.9	18.0	14.3	-86.97	-323.4	-97.6	620.0	590.6	29.43	21.068	
6,350.0	6,298.3	6,314.2	6,294.6	18.0	14.4	-86.99	-317.9	-97.6	620.0	590.4	29.54	20.990	
6,400.0	6,347.5	6,362.1	6,341.8	18.0	14.4	-87.02	-309.5	-97.6	620.0	590.3	29.61	20.936	
6,450.0	6,395.9	6,410.1	6,388.4	18.1	14.4	-87.06	-298.0	-97.6	619.9	590.3	29.66	20.902	
6,500.0	6,443.4	6,458.1	6,434.2	18.1	14.5	-87.11	-283.7	-97.6	619.9	590.2	29.68	20.887	
6,550.0	6,489.9	6,506.2	6,479.0	18.0	14.5	-87.18	-266.5	-97.6	619.9	590.2	29.68	20.884	
6,600.0	6,535.0	6,554.3	6,522.8	18.0	14.5	-87.25	-246.5	-97.6	619.8	590.2	29.67	20.889	
6,650.0	6,578.6	6,602.4	6,565.2	18.0	14.5	-87.34	-223.8	-97.6	619.8	590.1	29.66	20.896	
6,700.0	6,620.5	6,650.0	6,605.6	18.0	14.5	-87.44	-198.7	-97.6	619.7	590.1	29.65	20.900	
6,704.8	6,624.4	6,655.2	6,610.0	17.9	14.5	-87.45	-195.8	-97.6	619.7	590.1	29.65	20.899	
6,750.0	6,660.5	6,698.9	6,645.5	17.9	14.5	-87.55	-170.4	-97.6	619.7	590.0	29.66	20.892	
6,800.0	6,698.5	6,747.3	6,683.0	17.9	14.5	-87.67	-139.9	-97.6	619.6	589.9	29.70	20.866	
6,850.0	6,734.3	6,795.7	6,718.6	17.8	14.5	-87.80	-107.1	-97.6	619.6	589.8	29.77	20.814	
6,900.0	6,767.7	6,844.2	6,752.1	17.8	14.6	-87.94	-72.0	-97.6	619.5	589.6	29.89	20.729	
6,950.0	6,798.6	6,892.8	6,783.4	17.7	14.7	-88.09	-34.8	-97.6	619.5	589.4	30.06	20.605	
7,000.0	6,826.9	6,941.5	6,812.3	17.7	14.8	-88.25	4.4	-97.6	619.4	589.1	30.31	20.437	
7,050.0	6,852.4	6,990.3	6,838.7	17.6	15.0	-88.41	45.4	-97.6	619.4	588.7	30.63	20.223	
7,100.0	6,875.1	7,039.3	6,862.5	17.6	15.2	-88.58	88.2	-97.6	619.3	588.3	31.03	19.960	
7,150.0	6,894.8	7,088.3	6,883.5	17.6	15.4	-88.76	132.5	-97.6	619.3	587.7	31.51	19.651	
7,200.0	6,911.5	7,137.5	6,901.7	17.6	15.7	-88.94	178.1	-97.6	619.2	587.1	32.09	19.297	
7,250.0	6,925.0	7,186.7	6,916.9	17.7	16.0	-89.13	225.0	-97.6	619.2	586.4	32.75	18.904	
7,300.0	6,935.4	7,236.2	6,929.1	17.9	16.4	-89.32	272.9	-97.6	619.2	585.7	33.51	18.478	
7,350.0	6,942.5	7,285.7	6,938.3	18.2	16.8	-89.51	321.6	-97.6	619.1	584.8	34.34	18.027	
7,400.0	6,946.4	7,335.4	6,944.2	18.6	17.3	-89.71	370.9	-97.6	619.1	583.9	35.26	17.559	
7,435.3	6,947.2	7,370.5	6,946.5	19.0	17.6	-89.85	405.9	-97.6	619.1	583.2	35.95	17.221	
7,500.0	6,947.1	7,435.2	6,947.1	19.6	18.3	-89.91	470.6	-97.6	619.1	581.8	37.31	16.594	
7,600.0	6,947.0	7,535.2	6,947.0	20.8	19.5	-89.91	570.6	-97.6	619.1	579.5	39.61	15.631	
7,700.0	6,946.9	7,635.2	6,946.9	22.0	20.8	-89.91	670.6	-97.6	619.1	577.0	42.13	14.695	
7,800.0	6,946.8	7,735.2	6,946.8	23.4	22.2	-89.91	770.6	-97.6	619.1	574.3	44.84	13.807	
7,900.0	6,946.7	7,835.2	6,946.7	24.8	23.6	-89.91	870.6	-97.6	619.1	571.4	47.70	12.978	
8,000.0	6,946.6	7,935.2	6,946.6	26.3	25.1	-89.91	970.6	-97.6	619.1	568.4	50.70	12.212	
8,100.0	6,946.5	8,035.2	6,946.5	27.8	26.7	-89.91	1,070.6	-97.6	619.1	565.3	53.80	11.508	
8,200.0	6,946.4	8,135.2	6,946.4	29.3	28.3	-89.91	1,170.6	-97.6	619.1	562.1	56.99	10.863	
8,300.0	6,946.3	8,235.2	6,946.3	30.9	29.9	-89.91	1,270.6	-97.6	619.1	558.8	60.26	10.274	
8,400.0	6,946.2	8,335.2	6,946.2	32.6	31.6	-89.91	1,370.6	-97.6	619.1	555.5	63.59	9.736	
8,500.0	6,946.0	8,435.2	6,946.1	34.2	33.3	-89.91	1,470.6	-97.6	619.1	552.1	66.98	9.244	
8,600.0	6,945.9	8,535.2	6,946.0	35.9	35.0	-89.91	1,570.6	-97.6	619.1	548.7	70.41	8.793	
8,700.0	6,945.8	8,635.2	6,945.9	37.6	36.8	-89.91	1,670.6	-97.6	619.1	545.2	73.88	8.380	
8,800.0	6,945.7	8,735.2	6,945.8	39.4	38.6	-89.91	1,770.6	-97.6	619.1	541.7	77.39	8.000	
8,900.0	6,945.6	8,835.2	6,945.7	41.1	40.3	-89.91	1,870.6	-97.6	619.1	538.2	80.93	7.650	
9,000.0	6,945.5	8,935.2	6,945.6	42.9	42.1	-89.91	1,970.6	-97.6	619.1	534.6	84.49	7.328	
9,100.0	6,945.4	9,035.2	6,945.5	44.7	43.9	-89.91	2,070.6	-97.6	619.1	531.0	88.08	7.029	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-221 - Wellbore #1 - Plan #1 (7-30-14)													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,200.0	6,945.3	9,135.2	6,945.3	46.4	45.7	-89.91	-89.91	2,170.6	-97.6	619.1	527.4	91.68	6.753	
9,300.0	6,945.2	9,235.2	6,945.2	48.2	47.5	-89.91	-89.91	2,270.6	-97.6	619.1	523.8	95.31	6.496	
9,400.0	6,945.1	9,335.2	6,945.1	50.0	49.4	-89.91	-89.91	2,370.6	-97.6	619.1	520.1	98.95	6.257	
9,500.0	6,945.0	9,435.2	6,945.0	51.8	51.2	-89.91	-89.91	2,470.6	-97.6	619.1	516.5	102.61	6.034	
9,600.0	6,944.9	9,535.2	6,944.9	53.7	53.0	-89.91	-89.91	2,570.6	-97.6	619.1	512.8	106.28	5.825	
9,700.0	6,944.8	9,635.2	6,944.8	55.5	54.9	-89.91	-89.91	2,670.6	-97.6	619.1	509.1	109.96	5.630	
9,800.0	6,944.7	9,735.2	6,944.7	57.3	56.7	-89.91	-89.91	2,770.6	-97.6	619.1	505.4	113.65	5.447	
9,900.0	6,944.6	9,835.2	6,944.6	59.2	58.6	-89.91	-89.91	2,870.6	-97.6	619.1	501.7	117.35	5.276	
10,000.0	6,944.5	9,935.2	6,944.5	61.0	60.4	-89.91	-89.91	2,970.6	-97.6	619.1	498.0	121.06	5.114	
10,100.0	6,944.4	10,035.2	6,944.4	62.8	62.3	-89.91	-89.91	3,070.6	-97.6	619.1	494.3	124.78	4.962	
10,200.0	6,944.3	10,135.2	6,944.3	64.7	64.2	-89.91	-89.91	3,170.6	-97.6	619.1	490.6	128.50	4.818	
10,300.0	6,944.2	10,235.2	6,944.2	66.6	66.0	-89.91	-89.91	3,270.6	-97.6	619.1	486.9	132.23	4.682	
10,400.0	6,944.1	10,335.2	6,944.1	68.4	67.9	-89.91	-89.91	3,370.6	-97.6	619.1	483.1	135.97	4.553	
10,500.0	6,944.0	10,435.2	6,944.0	70.3	69.8	-89.91	-89.91	3,470.6	-97.6	619.1	479.4	139.71	4.431	
10,600.0	6,943.9	10,535.2	6,943.9	72.1	71.7	-89.91	-89.91	3,570.6	-97.6	619.1	475.6	143.46	4.315	
10,700.0	6,943.7	10,635.2	6,943.8	74.0	73.5	-89.91	-89.91	3,670.6	-97.6	619.1	471.9	147.21	4.205	
10,800.0	6,943.6	10,735.2	6,943.7	75.9	75.4	-89.91	-89.91	3,770.6	-97.6	619.1	468.1	150.97	4.101	
10,900.0	6,943.5	10,835.2	6,943.6	77.7	77.3	-89.91	-89.91	3,870.6	-97.6	619.1	464.4	154.73	4.001	
11,000.0	6,943.4	10,935.2	6,943.5	79.6	79.2	-89.91	-89.91	3,970.6	-97.6	619.1	460.6	158.49	3.906	
11,100.0	6,943.3	11,035.2	6,943.4	81.5	81.1	-89.91	-89.91	4,070.6	-97.6	619.1	456.8	162.26	3.815	
11,200.0	6,943.2	11,135.2	6,943.3	83.4	83.0	-89.91	-89.91	4,170.6	-97.6	619.1	453.0	166.03	3.729	
11,300.0	6,943.1	11,235.2	6,943.1	85.3	84.8	-89.91	-89.91	4,270.6	-97.6	619.1	449.3	169.81	3.646	
11,400.0	6,943.0	11,335.2	6,943.0	87.1	86.7	-89.91	-89.91	4,370.6	-97.6	619.1	445.5	173.58	3.566	
11,412.1	6,943.0	11,347.2	6,943.0	87.4	87.0	-89.91	-89.91	4,382.6	-97.6	619.1	445.0	174.04	3.557 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-321 - Wellbore #1 - Plan #1 (7-30-14)													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-147.8	147.8					
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-147.8	147.8	147.6	0.23	651.146		
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-147.8	147.8	147.1	0.68	218.491		
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	0.0	-147.8	147.8	146.7	1.13	131.269		
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	0.0	-147.8	147.8	146.2	1.58	93.817		
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	0.0	-147.8	147.8	145.8	2.03	72.992		
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	0.0	-147.8	147.8	145.3	2.47	59.733		
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	0.0	-147.8	147.8	144.9	2.92	50.550		
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	0.0	-147.8	147.8	144.4	3.37	43.815 CC, ES		
900.0	900.0	901.0	901.0	1.9	1.9	145.83	0.0	-147.8	149.3	145.5	3.80	39.265		
1,000.0	999.8	1,000.8	1,000.8	2.1	2.1	146.87	0.0	-147.8	153.6	149.4	4.21	36.461		
1,100.0	1,099.5	1,100.5	1,100.5	2.3	2.4	148.49	0.0	-147.8	161.0	156.4	4.63	34.754		
1,200.0	1,198.7	1,199.7	1,199.7	2.5	2.6	150.51	0.0	-147.8	171.5	166.5	5.06	33.909		
1,283.5	1,281.2	1,282.2	1,282.2	2.8	2.8	152.38	0.0	-147.8	182.8	177.4	5.42	33.742		
1,300.0	1,297.5	1,298.5	1,298.5	2.8	2.8	152.78	0.0	-147.8	185.3	179.8	5.49	33.740		
1,400.0	1,396.1	1,397.1	1,397.1	3.1	3.0	154.97	0.0	-147.8	200.4	194.5	5.94	33.738		
1,500.0	1,494.6	1,495.6	1,495.6	3.4	3.2	156.85	0.0	-147.8	215.8	209.4	6.39	33.750		
1,600.0	1,593.2	1,594.2	1,594.2	3.8	3.5	158.48	0.0	-147.8	231.3	224.5	6.85	33.773		
1,700.0	1,691.8	1,692.2	1,692.2	4.1	3.7	159.55	-1.4	-148.3	247.2	239.9	7.28	33.935		
1,800.0	1,790.4	1,790.3	1,790.2	4.5	3.8	159.76	-6.0	-149.8	263.3	255.6	7.70	34.176		
1,900.0	1,888.9	1,888.3	1,887.8	4.8	4.0	159.25	-13.8	-152.4	279.6	271.5	8.14	34.350		
2,000.0	1,987.5	1,986.4	1,985.3	5.2	4.2	158.23	-24.3	-155.9	296.3	287.7	8.60	34.438		
2,100.0	2,086.1	2,084.9	2,083.1	5.6	4.4	157.24	-35.1	-159.5	313.0	303.9	9.08	34.453		
2,200.0	2,184.7	2,183.3	2,180.9	6.0	4.6	156.36	-46.0	-163.1	329.8	320.2	9.58	34.419		
2,300.0	2,283.3	2,281.8	2,278.7	6.3	4.9	155.56	-56.9	-166.7	346.7	336.6	10.09	34.348		
2,400.0	2,381.8	2,380.2	2,376.4	6.7	5.1	154.83	-67.8	-170.3	363.7	353.1	10.62	34.250		
2,500.0	2,480.4	2,478.7	2,474.2	7.1	5.3	154.18	-78.7	-174.0	380.7	369.5	11.15	34.135		
2,600.0	2,579.0	2,577.1	2,572.0	7.5	5.6	153.57	-89.5	-177.6	397.7	386.0	11.70	34.008		
2,700.0	2,677.6	2,675.6	2,669.8	7.9	5.9	153.02	-100.4	-181.2	414.8	402.6	12.25	33.874		
2,800.0	2,776.2	2,774.1	2,767.6	8.3	6.1	152.51	-111.3	-184.8	432.0	419.2	12.80	33.735		
2,900.0	2,874.7	2,872.5	2,865.4	8.6	6.4	152.04	-122.2	-188.4	449.1	435.7	13.37	33.596		
3,000.0	2,973.3	2,971.0	2,963.1	9.0	6.7	151.60	-133.1	-192.0	466.3	452.4	13.94	33.457		
3,100.0	3,071.9	3,069.4	3,060.9	9.4	6.9	151.19	-143.9	-195.7	483.5	469.0	14.51	33.320		
3,200.0	3,170.5	3,167.9	3,158.7	9.8	7.2	150.82	-154.8	-199.3	500.7	485.6	15.09	33.186		
3,300.0	3,269.1	3,266.3	3,256.5	10.2	7.5	150.46	-165.7	-202.9	518.0	502.3	15.67	33.055		
3,400.0	3,367.6	3,364.8	3,354.3	10.6	7.8	150.13	-176.6	-206.5	535.3	519.0	16.26	32.928		
3,500.0	3,466.2	3,463.2	3,452.1	11.0	8.1	149.83	-187.4	-210.1	552.5	535.7	16.84	32.805		
3,600.0	3,564.8	3,561.7	3,549.8	11.4	8.4	149.54	-198.3	-213.7	569.8	552.4	17.43	32.686		
3,700.0	3,663.4	3,660.1	3,647.6	11.8	8.7	149.26	-209.2	-217.4	587.1	569.1	18.03	32.571		
3,800.0	3,762.0	3,758.6	3,745.4	12.2	8.9	149.00	-220.1	-221.0	604.5	585.8	18.62	32.461		
3,900.0	3,860.5	3,857.0	3,843.2	12.6	9.2	148.76	-231.0	-224.6	621.8	602.6	19.22	32.355		
4,000.0	3,959.1	3,955.5	3,941.0	12.9	9.5	148.53	-241.8	-228.2	639.1	619.3	19.82	32.252		
4,100.0	4,057.7	4,053.9	4,038.8	13.3	9.8	148.31	-252.7	-231.8	656.5	636.1	20.42	32.154		
4,200.0	4,156.3	4,152.4	4,136.5	13.7	10.1	148.11	-263.6	-235.4	673.9	652.8	21.02	32.060		
4,300.0	4,254.8	4,250.8	4,234.3	14.1	10.4	147.91	-274.5	-239.1	691.2	669.6	21.62	31.969		
4,400.0	4,353.4	4,349.3	4,332.1	14.5	10.7	147.72	-285.4	-242.7	708.6	686.4	22.23	31.881		
4,500.0	4,452.0	4,447.7	4,429.9	14.9	11.0	147.55	-296.2	-246.3	726.0	703.2	22.83	31.797		
4,567.8	4,518.8	4,516.7	4,498.4	15.2	11.2	147.44	-303.7	-248.8	737.7	714.5	23.23	31.755		
4,600.0	4,550.6	4,551.0	4,532.5	15.3	11.3	147.48	-306.9	-249.8	743.1	719.6	23.41	31.742		
4,700.0	4,649.6	4,657.7	4,638.9	15.6	11.5	147.65	-314.5	-252.4	756.9	733.0	23.88	31.692		
4,800.0	4,749.1	4,765.0	4,746.1	15.8	11.7	147.92	-318.3	-253.6	766.8	742.5	24.30	31.561		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-321 - Wellbore #1 - Plan #1 (7-30-14)													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
4,900.0	4,848.8	4,868.7	4,849.8	16.0	11.9	148.23	-318.8	-253.8	772.9	748.3	24.65	31.352		
5,000.0	4,948.8	4,968.6	4,949.8	16.1	12.1	148.40	-318.8	-253.8	775.9	751.0	24.97	31.073		
5,051.2	5,000.0	5,019.9	5,001.0	16.2	12.2	-87.04	-318.8	-253.8	776.3	751.2	25.13	30.891		
5,100.0	5,048.8	5,068.6	5,049.8	16.3	12.3	-87.04	-318.8	-253.8	776.3	751.0	25.30	30.690		
5,200.0	5,148.8	5,168.6	5,149.8	16.4	12.4	-87.04	-318.8	-253.8	776.3	750.7	25.63	30.290		
5,300.0	5,248.8	5,268.6	5,249.8	16.5	12.6	-87.04	-318.8	-253.8	776.3	750.4	25.97	29.897		
5,400.0	5,348.8	5,368.6	5,349.8	16.7	12.8	-87.04	-318.8	-253.8	776.3	750.0	26.31	29.510		
5,500.0	5,448.8	5,468.6	5,449.8	16.8	13.0	-87.04	-318.8	-253.8	776.3	749.7	26.65	29.129		
5,600.0	5,548.8	5,568.6	5,549.8	17.0	13.2	-87.04	-318.8	-253.8	776.3	749.3	27.00	28.755		
5,700.0	5,648.8	5,668.6	5,649.8	17.1	13.3	-87.04	-318.8	-253.8	776.3	749.0	27.35	28.387		
5,800.0	5,748.8	5,768.6	5,749.8	17.2	13.5	-87.04	-318.8	-253.8	776.3	748.6	27.70	28.026		
5,900.0	5,848.8	5,868.6	5,849.8	17.4	13.7	-87.04	-318.8	-253.8	776.3	748.3	28.06	27.671		
6,000.0	5,948.8	5,968.6	5,949.8	17.5	13.9	-87.04	-318.8	-253.8	776.3	747.9	28.41	27.322		
6,100.0	6,048.8	6,068.6	6,049.8	17.7	14.1	-87.04	-318.8	-253.8	776.3	747.5	28.77	26.980		
6,200.0	6,148.8	6,168.6	6,149.8	17.8	14.3	-87.04	-318.8	-253.8	776.3	747.2	29.14	26.643		
6,234.5	6,183.2	6,203.1	6,184.2	17.9	14.3	-87.04	-318.8	-253.8	776.3	747.1	29.26	26.529		
6,250.0	6,198.8	6,218.6	6,199.8	17.9	14.3	-87.05	-318.8	-253.8	776.3	747.0	29.32	26.478		
6,300.0	6,248.7	6,268.5	6,249.7	18.0	14.4	-87.26	-318.8	-253.8	776.2	746.7	29.49	26.316		
6,350.0	6,298.3	6,317.5	6,298.6	18.0	14.5	-87.69	-318.6	-253.8	775.9	746.3	29.66	26.162		
6,400.0	6,347.5	6,365.3	6,346.3	18.0	14.6	-88.17	-316.1	-253.8	775.7	745.9	29.79	26.036		
6,450.0	6,395.9	6,413.5	6,394.2	18.1	14.7	-88.65	-310.5	-253.8	775.5	745.6	29.89	25.942		
6,500.0	6,443.4	6,462.1	6,442.0	18.1	14.7	-89.15	-301.8	-253.8	775.4	745.4	29.96	25.877		
6,550.0	6,489.9	6,511.1	6,489.6	18.0	14.7	-89.65	-290.0	-253.8	775.3	745.3	30.01	25.837		
6,585.1	6,521.7	6,545.7	6,522.7	18.0	14.8	-90.00	-279.9	-253.8	775.3	745.3	30.02	25.823		
6,600.0	6,535.0	6,560.5	6,536.7	18.0	14.8	-90.15	-275.1	-253.8	775.3	745.3	30.03	25.819		
6,650.0	6,578.6	6,610.4	6,583.1	18.0	14.8	-90.66	-256.9	-253.8	775.3	745.3	30.03	25.815		
6,700.0	6,620.5	6,660.7	6,628.7	18.0	14.8	-91.16	-235.5	-253.8	775.4	745.4	30.03	25.819		
6,750.0	6,660.5	6,711.5	6,673.2	17.9	14.8	-91.66	-211.0	-253.8	775.6	745.6	30.04	25.823		
6,800.0	6,698.5	6,762.8	6,716.3	17.9	14.8	-92.16	-183.3	-253.8	775.8	745.8	30.05	25.818		
6,850.0	6,734.3	6,814.6	6,757.9	17.8	14.8	-92.65	-152.4	-253.8	776.1	746.0	30.09	25.794		
6,900.0	6,767.7	6,866.9	6,797.6	17.8	14.8	-93.13	-118.5	-253.8	776.5	746.3	30.17	25.740		
6,950.0	6,798.6	6,919.6	6,835.3	17.7	14.8	-93.60	-81.5	-253.8	776.8	746.5	30.29	25.646		
7,000.0	6,826.9	6,972.9	6,870.6	17.7	14.9	-94.06	-41.7	-253.8	777.3	746.8	30.48	25.502		
7,050.0	6,852.4	7,026.7	6,903.4	17.6	15.0	-94.50	0.9	-253.8	777.7	747.0	30.74	25.299		
7,100.0	6,875.1	7,080.9	6,933.3	17.6	15.1	-94.92	46.1	-253.8	778.2	747.1	31.09	25.033		
7,150.0	6,894.8	7,135.6	6,960.2	17.6	15.3	-95.31	93.7	-253.8	778.7	747.1	31.53	24.699		
7,200.0	6,911.5	7,190.8	6,983.8	17.6	15.6	-95.69	143.6	-253.8	779.2	747.1	32.07	24.299		
7,250.0	6,925.0	7,246.4	7,003.9	17.7	16.0	-96.04	195.4	-253.8	779.6	746.9	32.71	23.836		
7,300.0	6,935.4	7,302.4	7,020.2	17.9	16.4	-96.36	249.0	-253.8	780.1	746.7	33.46	23.315		
7,350.0	6,942.5	7,358.8	7,032.7	18.2	16.8	-96.66	304.0	-253.8	780.6	746.3	34.31	22.747		
7,400.0	6,946.4	7,415.5	7,041.1	18.6	17.3	-96.92	360.1	-253.8	781.0	745.7	35.27	22.145		
7,435.3	6,947.2	7,455.7	7,044.5	19.0	17.7	-97.08	400.2	-253.8	781.3	745.3	35.99	21.707		
7,500.0	6,947.1	7,526.7	7,045.7	19.6	18.5	-97.17	471.1	-253.8	781.4	744.0	37.39	20.896		
7,600.0	6,947.0	7,626.7	7,045.2	20.8	19.6	-97.14	571.1	-253.8	781.3	741.7	39.67	19.695		
7,700.0	6,946.9	7,726.7	7,044.6	22.0	20.9	-97.11	671.1	-253.8	781.3	739.1	42.17	18.527		
7,800.0	6,946.8	7,826.7	7,044.1	23.4	22.3	-97.08	771.1	-253.8	781.2	736.4	44.86	17.417		
7,900.0	6,946.7	7,926.7	7,043.6	24.8	23.7	-97.05	871.1	-253.8	781.2	733.5	47.69	16.379		
8,000.0	6,946.6	8,026.7	7,043.1	26.3	25.2	-97.02	971.1	-253.8	781.1	730.5	50.66	15.418		
8,100.0	6,946.5	8,126.7	7,042.5	27.8	26.8	-96.99	1,071.1	-253.8	781.1	727.3	53.74	14.535		
8,200.0	6,946.4	8,226.7	7,042.0	29.3	28.4	-96.96	1,171.1	-253.8	781.0	724.1	56.91	13.725		
8,300.0	6,946.3	8,326.7	7,041.5	30.9	30.0	-96.93	1,271.1	-253.8	781.0	720.8	60.15	12.984		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-321 - Wellbore #1 - Plan #1 (7-30-14)												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)		
8,400.0	6,946.2	8,426.7	7,041.0	32.6	31.7	-96.90	1,371.1	-253.8	780.9	717.5	63.45	12.307	
8,500.0	6,946.0	8,526.7	7,040.5	34.2	33.4	-96.87	1,471.1	-253.8	780.9	714.1	66.82	11.687	
8,600.0	6,945.9	8,626.7	7,039.9	35.9	35.1	-96.84	1,571.1	-253.8	780.8	710.6	70.22	11.119	
8,700.0	6,945.8	8,726.7	7,039.4	37.6	36.8	-96.81	1,671.1	-253.8	780.8	707.1	73.67	10.598	
8,800.0	6,945.7	8,826.7	7,038.9	39.4	38.6	-96.78	1,771.1	-253.8	780.7	703.6	77.16	10.118	
8,900.0	6,945.6	8,926.7	7,038.4	41.1	40.4	-96.75	1,871.1	-253.8	780.7	700.0	80.67	9.677	
9,000.0	6,945.5	9,026.7	7,037.8	42.9	42.2	-96.72	1,971.1	-253.8	780.6	696.4	84.22	9.269	
9,100.0	6,945.4	9,126.7	7,037.3	44.7	44.0	-96.69	2,071.1	-253.8	780.6	692.8	87.78	8.892	
9,200.0	6,945.3	9,226.7	7,036.8	46.4	45.8	-96.66	2,171.0	-253.8	780.5	689.2	91.37	8.543	
9,300.0	6,945.2	9,326.7	7,036.3	48.2	47.6	-96.63	2,271.0	-253.8	780.5	685.5	94.97	8.218	
9,400.0	6,945.1	9,426.7	7,035.7	50.0	49.4	-96.60	2,371.0	-253.8	780.4	681.8	98.60	7.915	
9,500.0	6,945.0	9,526.7	7,035.2	51.8	51.2	-96.56	2,471.0	-253.8	780.4	678.1	102.23	7.633	
9,600.0	6,944.9	9,626.7	7,034.7	53.7	53.1	-96.53	2,571.0	-253.8	780.3	674.4	105.88	7.370	
9,700.0	6,944.8	9,726.7	7,034.2	55.5	54.9	-96.50	2,671.0	-253.8	780.3	670.7	109.55	7.123	
9,800.0	6,944.7	9,826.7	7,033.6	57.3	56.8	-96.47	2,771.0	-253.8	780.2	667.0	113.22	6.891	
9,900.0	6,944.6	9,926.7	7,033.1	59.2	58.6	-96.44	2,871.0	-253.8	780.2	663.3	116.90	6.674	
10,000.0	6,944.5	10,026.7	7,032.6	61.0	60.5	-96.41	2,971.0	-253.8	780.1	659.5	120.60	6.469	
10,100.0	6,944.4	10,126.7	7,032.1	62.8	62.3	-96.38	3,071.0	-253.8	780.1	655.8	124.30	6.276	
10,200.0	6,944.3	10,226.7	7,031.6	64.7	64.2	-96.35	3,171.0	-253.8	780.0	652.0	128.01	6.094	
10,300.0	6,944.2	10,326.7	7,031.0	66.6	66.0	-96.32	3,271.0	-253.8	780.0	648.3	131.72	5.922	
10,400.0	6,944.1	10,426.7	7,030.5	68.4	67.9	-96.29	3,371.0	-253.8	779.9	644.5	135.44	5.758	
10,500.0	6,944.0	10,526.7	7,030.0	70.3	69.8	-96.26	3,471.0	-253.8	779.9	640.7	139.17	5.604	
10,600.0	6,943.9	10,626.7	7,029.5	72.1	71.7	-96.23	3,571.0	-253.8	779.9	636.9	142.91	5.457	
10,700.0	6,943.7	10,726.7	7,028.9	74.0	73.5	-96.20	3,671.0	-253.8	779.8	633.2	146.64	5.318	
10,800.0	6,943.6	10,826.7	7,028.4	75.9	75.4	-96.17	3,771.0	-253.8	779.8	629.4	150.39	5.185	
10,900.0	6,943.5	10,926.7	7,027.9	77.7	77.3	-96.14	3,871.0	-253.8	779.7	625.6	154.14	5.059	
11,000.0	6,943.4	11,026.7	7,027.4	79.6	79.2	-96.11	3,971.0	-253.8	779.7	621.8	157.89	4.938	
11,100.0	6,943.3	11,126.7	7,026.8	81.5	81.1	-96.08	4,071.0	-253.8	779.6	618.0	161.64	4.823	
11,200.0	6,943.2	11,226.7	7,026.3	83.4	83.0	-96.04	4,171.0	-253.8	779.6	614.2	165.40	4.713	
11,300.0	6,943.1	11,326.7	7,025.8	85.3	84.8	-96.01	4,271.0	-253.8	779.5	610.4	169.17	4.608	
11,400.0	6,943.0	11,426.7	7,025.3	87.1	86.7	-95.98	4,371.0	-253.8	779.5	606.6	172.93	4.507	
11,412.1	6,943.0	11,438.7	7,025.2	87.4	87.0	-95.98	4,383.1	-253.8	779.5	606.1	173.39	4.496 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-421 - Wellbore #1 - Plan #1 (7-30-14)												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	1.0	1.0	0.0	0.0	-90.00	-90.00	0.0	-178.5	178.5				
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	-90.00	0.0	-178.5	178.5	178.3	0.23	786.290	
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	-90.00	0.0	-178.5	178.5	177.8	0.68	263.838	
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	-90.00	0.0	-178.5	178.5	177.4	1.13	158.514	
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	-90.00	0.0	-178.5	178.5	176.9	1.58	113.289	
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	-90.00	0.0	-178.5	178.5	176.5	2.03	88.141	
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	-90.00	0.0	-178.5	178.5	176.0	2.47	72.130	
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	-90.00	0.0	-178.5	178.5	175.6	2.92	61.042	
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	-90.00	0.0	-178.5	178.5	175.1	3.37	52.908 CC, ES	
900.0	900.0	901.0	901.0	1.9	1.9	145.76	145.76	0.0	-178.5	179.9	176.1	3.80	47.335	
1,000.0	999.8	1,000.8	1,000.8	2.1	2.1	146.63	146.63	0.0	-178.5	184.3	180.1	4.21	43.741	
1,100.0	1,099.5	1,100.5	1,100.5	2.3	2.4	147.98	147.98	0.0	-178.5	191.6	187.0	4.63	41.367	
1,200.0	1,198.7	1,199.7	1,199.7	2.5	2.6	149.70	149.70	0.0	-178.5	202.1	197.0	5.06	39.946	
1,283.5	1,281.2	1,282.2	1,282.2	2.8	2.8	151.33	151.33	0.0	-178.5	213.3	207.9	5.42	39.350	
1,300.0	1,297.5	1,298.5	1,298.5	2.8	2.8	151.68	151.68	0.0	-178.5	215.7	210.2	5.49	39.267	
1,400.0	1,396.1	1,397.1	1,397.1	3.1	3.0	153.66	153.66	0.0	-178.5	230.7	224.7	5.94	38.808	
1,500.0	1,494.6	1,492.1	1,492.1	3.4	3.2	155.02	155.02	-1.2	-179.4	246.6	240.2	6.37	38.699	
1,600.0	1,593.2	1,586.8	1,586.8	3.8	3.4	155.59	155.59	-4.9	-182.1	264.0	257.2	6.79	38.888	
1,700.0	1,691.8	1,681.0	1,680.6	4.1	3.6	155.52	155.52	-11.1	-186.7	282.9	275.7	7.22	39.177	
1,800.0	1,790.4	1,775.1	1,774.0	4.5	3.8	154.92	154.92	-19.7	-193.1	303.2	295.5	7.67	39.509	
1,900.0	1,888.9	1,872.8	1,871.0	4.8	4.0	154.17	154.17	-29.6	-200.5	324.1	316.0	8.15	39.749	
2,000.0	1,987.5	1,970.5	1,967.9	5.2	4.2	153.52	153.52	-39.6	-207.9	345.1	336.4	8.65	39.901	
2,100.0	2,086.1	2,068.2	2,064.8	5.6	4.5	152.94	152.94	-49.5	-215.3	366.1	356.9	9.16	39.980	
2,200.0	2,184.7	2,165.9	2,161.7	6.0	4.7	152.42	152.42	-59.5	-222.7	387.1	377.4	9.68	40.004	
2,300.0	2,283.3	2,263.6	2,258.6	6.3	5.0	151.95	151.95	-69.4	-230.1	408.2	398.0	10.21	39.992	
2,400.0	2,381.8	2,361.3	2,355.5	6.7	5.2	151.53	151.53	-79.4	-237.4	429.3	418.5	10.74	39.951	
2,500.0	2,480.4	2,459.1	2,452.5	7.1	5.5	151.15	151.15	-89.3	-244.8	450.4	439.1	11.29	39.890	
2,600.0	2,579.0	2,556.8	2,549.4	7.5	5.8	150.81	150.81	-99.3	-252.2	471.5	459.6	11.84	39.815	
2,700.0	2,677.6	2,654.5	2,646.3	7.9	6.1	150.49	150.49	-109.2	-259.6	492.6	480.2	12.40	39.731	
2,800.0	2,776.2	2,752.2	2,743.2	8.3	6.4	150.20	150.20	-119.2	-267.0	513.8	500.8	12.96	39.641	
2,900.0	2,874.7	2,849.9	2,840.1	8.6	6.7	149.93	149.93	-129.1	-274.4	534.9	521.4	13.53	39.547	
3,000.0	2,973.3	2,947.6	2,937.0	9.0	7.0	149.69	149.69	-139.1	-281.8	556.1	542.0	14.10	39.451	
3,100.0	3,071.9	3,045.3	3,034.0	9.4	7.3	149.46	149.46	-149.0	-289.2	577.3	562.6	14.67	39.355	
3,200.0	3,170.5	3,143.0	3,130.9	9.8	7.6	149.25	149.25	-159.0	-296.6	598.5	583.2	15.24	39.259	
3,300.0	3,269.1	3,240.7	3,227.8	10.2	7.9	149.05	149.05	-168.9	-303.9	619.7	603.8	15.82	39.165	
3,400.0	3,367.6	3,338.4	3,324.7	10.6	8.2	148.86	148.86	-178.9	-311.3	640.9	624.5	16.40	39.072	
3,500.0	3,466.2	3,436.1	3,421.6	11.0	8.5	148.69	148.69	-188.8	-318.7	662.1	645.1	16.98	38.982	
3,600.0	3,564.8	3,533.8	3,518.5	11.4	8.8	148.53	148.53	-198.8	-326.1	683.3	665.7	17.57	38.893	
3,700.0	3,663.4	3,631.5	3,615.5	11.8	9.1	148.37	148.37	-208.7	-333.5	704.5	686.4	18.15	38.807	
3,800.0	3,762.0	3,729.2	3,712.4	12.2	9.4	148.23	148.23	-218.7	-340.9	725.7	707.0	18.74	38.724	
3,900.0	3,860.5	3,826.9	3,809.3	12.6	9.7	148.09	148.09	-228.6	-348.3	747.0	727.6	19.33	38.643	
4,000.0	3,959.1	3,924.6	3,906.2	12.9	10.0	147.97	147.97	-238.6	-355.7	768.2	748.3	19.92	38.565	
4,100.0	4,057.7	4,022.4	4,003.1	13.3	10.3	147.85	147.85	-248.5	-363.1	789.4	768.9	20.51	38.489	
4,200.0	4,156.3	4,120.1	4,100.0	13.7	10.7	147.73	147.73	-258.5	-370.4	810.7	789.6	21.10	38.416	
4,300.0	4,254.8	4,217.8	4,197.0	14.1	11.0	147.62	147.62	-268.4	-377.8	831.9	810.2	21.69	38.346	
4,400.0	4,353.4	4,315.5	4,293.9	14.5	11.3	147.52	147.52	-278.4	-385.2	853.1	830.9	22.29	38.277	
4,500.0	4,452.0	4,413.2	4,390.8	14.9	11.6	147.42	147.42	-288.3	-392.6	874.4	851.5	22.88	38.211	
4,567.8	4,518.8	4,483.6	4,460.7	15.2	11.8	147.36	147.36	-295.4	-397.9	888.7	865.4	23.29	38.160	
4,600.0	4,550.6	4,521.9	4,498.7	15.3	11.9	147.42	147.42	-298.9	-400.4	895.2	871.7	23.48	38.124	
4,700.0	4,649.6	4,614.8	4,618.1	15.6	12.2	147.63	147.63	-307.0	-406.5	911.7	887.7	23.99	38.008	
4,800.0	4,749.1	4,762.8	4,739.1	15.8	12.4	147.91	147.91	-311.1	-409.5	922.9	898.5	24.43	37.777	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-421 - Wellbore #1 - Plan #1 (7-30-14)													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
4,900.0	4,848.8	4,873.6	4,849.8	16.0	12.6	148.21	-311.6	-409.9	929.2	904.4	24.81	37.451		
5,000.0	4,948.8	4,973.5	4,949.8	16.1	12.8	148.35	-311.6	-409.9	932.2	907.1	25.14	37.083		
5,051.2	5,000.0	5,024.7	5,001.0	16.2	12.8	-87.09	-311.6	-409.9	932.6	907.3	25.30	36.860		
5,100.0	5,048.8	5,073.5	5,049.8	16.3	12.9	-87.09	-311.6	-409.9	932.6	907.1	25.47	36.622		
5,200.0	5,148.8	5,173.5	5,149.8	16.4	13.1	-87.09	-311.6	-409.9	932.6	906.8	25.80	36.151		
5,300.0	5,248.8	5,273.5	5,249.8	16.5	13.3	-87.09	-311.6	-409.9	932.6	906.5	26.13	35.688		
5,400.0	5,348.8	5,373.5	5,349.8	16.7	13.4	-87.09	-311.6	-409.9	932.6	906.1	26.47	35.231		
5,500.0	5,448.8	5,473.5	5,449.8	16.8	13.6	-87.09	-311.6	-409.9	932.6	905.8	26.81	34.782		
5,600.0	5,548.8	5,573.5	5,549.8	17.0	13.8	-87.09	-311.6	-409.9	932.6	905.4	27.16	34.340		
5,700.0	5,648.8	5,673.5	5,649.8	17.1	13.9	-87.09	-311.6	-409.9	932.6	905.1	27.51	33.905		
5,800.0	5,748.8	5,773.5	5,749.8	17.2	14.1	-87.09	-311.6	-409.9	932.6	904.7	27.86	33.478		
5,900.0	5,848.8	5,873.5	5,849.8	17.4	14.3	-87.09	-311.6	-409.9	932.6	904.4	28.21	33.059		
6,000.0	5,948.8	5,973.5	5,949.8	17.5	14.5	-87.09	-311.6	-409.9	932.6	904.0	28.57	32.646		
6,100.0	6,048.8	6,073.5	6,049.8	17.7	14.6	-87.09	-311.6	-409.9	932.6	903.7	28.93	32.241		
6,200.0	6,148.8	6,173.5	6,149.8	17.8	14.8	-87.09	-311.6	-409.9	932.6	903.3	29.29	31.843		
6,234.5	6,183.2	6,208.0	6,184.2	17.9	14.9	-87.09	-311.6	-409.9	932.6	903.2	29.41	31.708		
6,250.0	6,198.8	6,223.5	6,199.8	17.9	14.9	-87.10	-311.6	-409.9	932.6	903.1	29.47	31.648		
6,300.0	6,248.7	6,273.4	6,249.7	18.0	15.0	-87.28	-311.6	-409.9	932.5	902.8	29.64	31.461		
6,350.0	6,298.3	6,323.0	6,299.3	18.0	15.1	-87.66	-311.6	-409.9	932.2	902.4	29.80	31.284		
6,400.0	6,347.5	6,372.2	6,348.5	18.0	15.2	-88.23	-311.6	-409.9	931.9	901.9	29.95	31.118		
6,450.0	6,395.9	6,420.4	6,396.6	18.1	15.3	-88.98	-311.5	-409.9	931.6	901.5	30.08	30.969		
6,500.0	6,443.4	6,467.9	6,444.1	18.1	15.4	-89.77	-309.3	-409.9	931.4	901.2	30.19	30.855		
6,514.6	6,457.1	6,481.9	6,458.1	18.1	15.4	-90.00	-308.1	-409.9	931.4	901.2	30.21	30.830		
6,550.0	6,489.9	6,516.3	6,492.2	18.0	15.4	-90.56	-304.1	-409.9	931.4	901.2	30.26	30.777		
6,600.0	6,535.0	6,565.5	6,540.6	18.0	15.5	-91.36	-295.6	-409.9	931.7	901.4	30.32	30.733		
6,650.0	6,578.6	6,615.6	6,589.3	18.0	15.5	-92.16	-283.8	-409.9	932.1	901.8	30.34	30.719		
6,700.0	6,620.5	6,666.6	6,638.0	18.0	15.5	-92.96	-268.6	-409.9	932.7	902.4	30.35	30.729		
6,750.0	6,660.5	6,718.6	6,686.5	17.9	15.5	-93.75	-249.7	-409.9	933.6	903.2	30.36	30.754		
6,800.0	6,698.5	6,771.7	6,734.5	17.9	15.5	-94.54	-227.1	-409.9	934.5	904.2	30.36	30.786		
6,850.0	6,734.3	6,825.9	6,781.8	17.8	15.5	-95.31	-200.6	-409.9	935.7	905.3	30.37	30.814		
6,900.0	6,767.7	6,881.2	6,828.0	17.8	15.5	-96.07	-170.2	-409.9	937.0	906.6	30.40	30.825		
6,950.0	6,798.6	6,937.7	6,872.8	17.7	15.5	-96.81	-135.8	-409.9	938.4	908.0	30.46	30.805		
7,000.0	6,826.9	6,995.4	6,915.7	17.7	15.5	-97.52	-97.4	-409.9	939.9	909.4	30.58	30.739		
7,050.0	6,852.4	7,054.3	6,956.5	17.6	15.5	-98.21	-54.9	-409.9	941.5	910.8	30.76	30.610		
7,100.0	6,875.1	7,114.4	6,994.6	17.6	15.5	-98.87	-8.4	-409.9	943.2	912.1	31.02	30.402		
7,150.0	6,894.8	7,175.7	7,029.6	17.6	15.5	-99.48	41.9	-409.9	944.8	913.4	31.38	30.106		
7,200.0	6,911.5	7,238.2	7,060.9	17.6	15.6	-100.06	95.9	-409.9	946.4	914.6	31.85	29.717		
7,250.0	6,925.0	7,301.8	7,088.3	17.7	15.9	-100.58	153.3	-409.9	947.9	915.5	32.43	29.231		
7,300.0	6,935.4	7,366.5	7,111.0	17.9	16.3	-101.06	213.9	-409.9	949.4	916.2	33.14	28.643		
7,350.0	6,942.5	7,432.1	7,128.8	18.2	16.8	-101.47	277.1	-409.9	950.7	916.7	33.98	27.973		
7,400.0	6,946.4	7,498.6	7,141.2	18.6	17.4	-101.82	342.4	-409.9	951.8	916.8	34.95	27.236		
7,435.3	6,947.2	7,546.0	7,146.6	19.0	17.8	-102.03	389.4	-409.9	952.4	916.7	35.70	26.680		
7,500.0	6,947.1	7,626.6	7,149.3	19.6	18.7	-102.19	470.0	-409.9	952.9	915.7	37.15	25.652		
7,600.0	6,947.0	7,726.6	7,149.5	20.8	19.8	-102.21	570.0	-409.9	953.0	913.6	39.37	24.207		
7,700.0	6,946.9	7,826.6	7,149.8	22.0	21.1	-102.23	670.0	-409.9	953.0	911.2	41.81	22.796		
7,800.0	6,946.8	7,926.6	7,150.1	23.4	22.4	-102.26	770.0	-409.9	953.1	908.7	44.43	21.451		
7,900.0	6,946.7	8,026.6	7,150.4	24.8	23.9	-102.28	870.0	-409.9	953.2	906.0	47.21	20.190		
8,000.0	6,946.6	8,126.6	7,150.7	26.3	25.3	-102.30	970.0	-409.9	953.3	903.2	50.12	19.021		
8,100.0	6,946.5	8,226.6	7,151.0	27.8	26.9	-102.33	1,070.0	-409.9	953.4	900.3	53.13	17.943		
8,200.0	6,946.4	8,326.6	7,151.3	29.3	28.5	-102.35	1,170.0	-409.9	953.5	897.2	56.24	16.954		
8,300.0	6,946.3	8,426.6	7,151.6	30.9	30.1	-102.38	1,270.0	-409.9	953.6	894.1	59.42	16.049		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18Q-421 - Wellbore #1 - Plan #1 (7-30-14)												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	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
8,400.0	6,946.2	8,526.6	7,151.9	32.6	31.8	-102.40	1,370.0	-409.9	953.6	891.0	62.66	15.219	
8,500.0	6,946.0	8,626.6	7,152.2	34.2	33.4	-102.42	1,470.0	-409.9	953.7	887.8	65.96	14.460	
8,600.0	6,945.9	8,726.6	7,152.5	35.9	35.1	-102.45	1,570.0	-409.9	953.8	884.5	69.30	13.763	
8,700.0	6,945.8	8,826.6	7,152.8	37.6	36.9	-102.47	1,670.0	-409.9	953.9	881.2	72.69	13.123	
8,800.0	6,945.7	8,926.6	7,153.1	39.4	38.6	-102.49	1,770.0	-409.9	954.0	877.9	76.11	12.535	
8,900.0	6,945.6	9,026.6	7,153.4	41.1	40.4	-102.52	1,870.0	-409.9	954.1	874.5	79.56	11.992	
9,000.0	6,945.5	9,126.6	7,153.7	42.9	42.2	-102.54	1,970.0	-409.9	954.2	871.1	83.03	11.492	
9,100.0	6,945.4	9,226.6	7,154.0	44.7	44.0	-102.56	2,070.0	-409.9	954.3	867.7	86.53	11.028	
9,200.0	6,945.3	9,326.6	7,154.3	46.4	45.8	-102.59	2,169.9	-409.9	954.3	864.3	90.05	10.598	
9,300.0	6,945.2	9,426.6	7,154.6	48.2	47.6	-102.61	2,269.9	-409.9	954.4	860.8	93.59	10.198	
9,400.0	6,945.1	9,526.6	7,154.9	50.0	49.4	-102.63	2,369.9	-409.9	954.5	857.4	97.14	9.826	
9,500.0	6,945.0	9,626.6	7,155.2	51.8	51.2	-102.66	2,469.9	-409.9	954.6	853.9	100.70	9.479	
9,600.0	6,944.9	9,726.6	7,155.5	53.7	53.0	-102.68	2,569.9	-409.9	954.7	850.4	104.28	9.155	
9,700.0	6,944.8	9,826.6	7,155.8	55.5	54.9	-102.70	2,669.9	-409.9	954.8	846.9	107.87	8.851	
9,800.0	6,944.7	9,926.6	7,156.1	57.3	56.7	-102.73	2,769.9	-409.9	954.9	843.4	111.47	8.566	
9,900.0	6,944.6	10,026.6	7,156.4	59.2	58.6	-102.75	2,869.9	-409.9	955.0	839.9	115.08	8.298	
10,000.0	6,944.5	10,126.6	7,156.7	61.0	60.4	-102.78	2,969.9	-409.9	955.0	836.3	118.70	8.046	
10,100.0	6,944.4	10,226.6	7,157.0	62.8	62.3	-102.80	3,069.9	-409.9	955.1	832.8	122.33	7.808	
10,200.0	6,944.3	10,326.6	7,157.3	64.7	64.1	-102.82	3,169.9	-409.9	955.2	829.3	125.96	7.584	
10,300.0	6,944.2	10,426.6	7,157.6	66.6	66.0	-102.85	3,269.9	-409.9	955.3	825.7	129.60	7.371	
10,400.0	6,944.1	10,526.6	7,157.9	68.4	67.9	-102.87	3,369.9	-409.9	955.4	822.2	133.24	7.171	
10,500.0	6,944.0	10,626.6	7,158.2	70.3	69.7	-102.89	3,469.9	-409.9	955.5	818.6	136.89	6.980	
10,600.0	6,943.9	10,726.6	7,158.4	72.1	71.6	-102.92	3,569.9	-409.9	955.6	815.0	140.54	6.799	
10,700.0	6,943.7	10,826.6	7,158.7	74.0	73.5	-102.94	3,669.9	-409.9	955.7	811.5	144.20	6.627	
10,800.0	6,943.6	10,926.6	7,159.0	75.9	75.3	-102.96	3,769.9	-409.9	955.8	807.9	147.86	6.464	
10,900.0	6,943.5	11,026.6	7,159.3	77.7	77.2	-102.99	3,869.9	-409.9	955.9	804.3	151.53	6.308	
11,000.0	6,943.4	11,126.6	7,159.6	79.6	79.1	-103.01	3,969.9	-409.9	955.9	800.7	155.19	6.160	
11,100.0	6,943.3	11,226.6	7,159.9	81.5	81.0	-103.03	4,069.9	-409.9	956.0	797.2	158.86	6.018	
11,200.0	6,943.2	11,326.6	7,160.2	83.4	82.9	-103.06	4,169.9	-409.9	956.1	793.6	162.54	5.882	
11,300.0	6,943.1	11,426.6	7,160.5	85.3	84.8	-103.08	4,269.9	-409.9	956.2	790.0	166.21	5.753	
11,400.0	6,943.0	11,526.6	7,160.8	87.1	86.6	-103.10	4,369.9	-409.9	956.3	786.4	169.89	5.629	
11,412.1	6,943.0	11,538.6	7,160.9	87.4	86.9	-103.11	4,382.0	-409.9	956.3	786.0	170.34	5.614 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-241 - Wellbore #1 - Plan #1 (7-30-14)													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	1.0	1.0	0.0	0.0	-90.00	-90.00	0.0	-58.6	58.6	58.6	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	-90.00	0.0	-58.6	58.6	58.3	0.23	258.001	
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	-90.00	0.0	-58.6	58.6	57.9	0.68	86.572	
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	-90.00	0.0	-58.6	58.6	57.4	1.13	52.012	
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	-90.00	0.0	-58.6	58.6	57.0	1.58	37.173	
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	-90.00	0.0	-58.6	58.6	56.5	2.03	28.921	
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	-90.00	0.0	-58.6	58.6	56.1	2.47	23.668	
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	-90.00	0.0	-58.6	58.6	55.6	2.92	20.029	
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	-90.00	0.0	-58.6	58.6	55.2	3.37	17.361 CC, ES	
900.0	900.0	901.0	901.0	1.9	1.9	146.40	146.40	0.0	-58.6	60.0	56.2	3.80	15.788	
1,000.0	999.8	1,000.8	1,000.8	2.1	2.1	148.93	148.93	0.0	-58.6	64.4	60.2	4.21	15.295	
1,100.0	1,099.5	1,100.5	1,100.5	2.3	2.4	152.43	152.43	0.0	-58.6	72.0	67.4	4.63	15.559	
1,200.0	1,198.7	1,199.7	1,199.7	2.5	2.6	156.23	156.23	0.0	-58.6	83.1	78.0	5.05	16.439	
1,283.5	1,281.2	1,284.4	1,284.4	2.8	2.8	158.87	158.87	-1.0	-57.8	94.0	88.6	5.39	17.448	
1,300.0	1,297.5	1,301.2	1,301.2	2.8	2.8	159.28	159.28	-1.4	-57.5	96.2	90.7	5.46	17.629	
1,400.0	1,396.1	1,403.4	1,403.2	3.1	3.0	160.75	160.75	-5.7	-54.1	107.8	101.9	5.86	18.404	
1,500.0	1,494.6	1,506.2	1,505.7	3.4	3.2	160.88	160.88	-12.9	-48.5	116.6	110.3	6.28	18.558	
1,600.0	1,593.2	1,607.9	1,606.6	3.8	3.4	160.09	160.09	-22.5	-40.9	122.7	116.0	6.73	18.243	
1,700.0	1,691.8	1,707.7	1,705.6	4.1	3.6	159.24	159.24	-32.4	-33.1	128.5	121.3	7.19	17.863	
1,800.0	1,790.4	1,807.6	1,804.6	4.5	3.9	158.46	158.46	-42.4	-25.3	134.3	126.6	7.68	17.495	
1,900.0	1,888.9	1,907.4	1,903.6	4.8	4.1	157.75	157.75	-52.3	-17.5	140.2	132.0	8.18	17.142	
2,000.0	1,987.5	2,007.2	2,002.7	5.2	4.4	157.09	157.09	-62.2	-9.7	146.0	137.3	8.69	16.808	
2,100.0	2,086.1	2,107.0	2,101.7	5.6	4.7	156.48	156.48	-72.1	-1.9	151.9	142.7	9.21	16.493	
2,200.0	2,184.7	2,206.8	2,200.7	6.0	5.0	155.92	155.92	-82.0	5.9	157.7	148.0	9.74	16.198	
2,300.0	2,283.3	2,306.6	2,299.7	6.3	5.3	155.40	155.40	-92.0	13.7	163.6	153.4	10.28	15.921	
2,400.0	2,381.8	2,406.4	2,398.7	6.7	5.6	154.92	154.92	-101.9	21.5	169.5	158.7	10.83	15.662	
2,500.0	2,480.4	2,506.3	2,497.7	7.1	5.9	154.46	154.46	-111.8	29.3	175.5	164.1	11.38	15.420	
2,600.0	2,579.0	2,606.1	2,596.7	7.5	6.2	154.04	154.04	-121.7	37.1	181.4	169.5	11.94	15.194	
2,700.0	2,677.6	2,705.9	2,695.8	7.9	6.5	153.65	153.65	-131.6	44.9	187.3	174.8	12.50	14.982	
2,800.0	2,776.2	2,805.7	2,794.8	8.3	6.8	153.27	153.27	-141.6	52.7	193.3	180.2	13.07	14.784	
2,900.0	2,874.7	2,905.5	2,893.8	8.6	7.1	152.92	152.92	-151.5	60.4	199.2	185.6	13.65	14.599	
3,000.0	2,973.3	3,005.3	2,992.8	9.0	7.4	152.60	152.60	-161.4	68.2	205.2	191.0	14.22	14.425	
3,100.0	3,071.9	3,105.2	3,091.8	9.4	7.7	152.28	152.28	-171.3	76.0	211.2	196.3	14.81	14.262	
3,200.0	3,170.5	3,205.0	3,190.8	9.8	8.1	151.99	151.99	-181.2	83.8	217.1	201.7	15.39	14.108	
3,300.0	3,269.1	3,304.8	3,289.8	10.2	8.4	151.71	151.71	-191.2	91.6	223.1	207.1	15.98	13.964	
3,400.0	3,367.6	3,404.6	3,388.9	10.6	8.7	151.45	151.45	-201.1	99.4	229.1	212.5	16.57	13.828	
3,500.0	3,466.2	3,504.4	3,487.9	11.0	9.0	151.20	151.20	-211.0	107.2	235.1	217.9	17.16	13.700	
3,600.0	3,564.8	3,604.2	3,586.9	11.4	9.3	150.96	150.96	-220.9	115.0	241.1	223.3	17.75	13.579	
3,700.0	3,663.4	3,704.0	3,685.9	11.8	9.7	150.74	150.74	-230.8	122.8	247.1	228.7	18.35	13.465	
3,800.0	3,762.0	3,803.9	3,784.9	12.2	10.0	150.52	150.52	-240.8	130.6	253.1	234.1	18.95	13.356	
3,900.0	3,860.5	3,903.7	3,883.9	12.6	10.3	150.32	150.32	-250.7	138.4	259.1	239.5	19.55	13.254	
4,000.0	3,959.1	4,003.5	3,983.0	12.9	10.6	150.12	150.12	-260.6	146.2	265.1	244.9	20.15	13.156	
4,100.0	4,057.7	4,103.3	4,082.0	13.3	10.9	149.93	149.93	-270.5	154.0	271.1	250.3	20.75	13.064	
4,200.0	4,156.3	4,203.1	4,181.0	13.7	11.3	149.75	149.75	-280.4	161.8	277.1	255.7	21.35	12.976	
4,300.0	4,254.8	4,302.9	4,280.0	14.1	11.6	149.58	149.58	-290.4	169.6	283.1	261.1	21.96	12.892	
4,400.0	4,353.4	4,402.8	4,379.0	14.5	11.9	149.42	149.42	-300.3	177.4	289.1	266.5	22.57	12.812	
4,500.0	4,452.0	4,502.6	4,478.0	14.9	12.2	149.26	149.26	-310.2	185.2	295.1	272.0	23.17	12.736	
4,567.8	4,518.8	4,570.2	4,545.1	15.2	12.5	149.16	149.16	-316.9	190.4	299.2	275.6	23.59	12.686	
4,600.0	4,550.6	4,602.4	4,577.0	15.3	12.6	149.11	149.11	-320.1	192.9	301.0	277.2	23.78	12.659	
4,700.0	4,649.6	4,700.0	4,673.9	15.6	12.9	148.77	148.77	-329.7	200.4	304.7	280.4	24.32	12.528	
4,800.0	4,749.1	4,793.1	4,766.6	15.8	13.1	148.47	148.47	-336.8	206.0	307.2	282.5	24.76	12.410	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-241 - Wellbore #1 - Plan #1 (7-30-14)													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
4,900.0	4,848.8	4,886.5	4,859.7	16.0	13.3	148.27	-341.6	209.8	308.9	283.8	25.13	12.293		
5,000.0	4,948.8	4,979.9	4,953.1	16.1	13.4	148.18	-344.0	211.7	309.8	284.4	25.44	12.177		
5,051.2	5,000.0	5,027.8	5,001.0	16.2	13.5	-87.30	-344.3	211.9	309.9	284.3	25.59	12.112		
5,100.0	5,048.8	5,076.6	5,049.8	16.3	13.6	-87.30	-344.3	211.9	309.9	284.2	25.75	12.034		
5,200.0	5,148.8	5,176.6	5,149.8	16.4	13.8	-87.30	-344.3	211.9	309.9	283.8	26.08	11.883		
5,300.0	5,248.8	5,276.6	5,249.8	16.5	13.9	-87.30	-344.3	211.9	309.9	283.5	26.41	11.735		
5,400.0	5,348.8	5,376.6	5,349.8	16.7	14.1	-87.30	-344.3	211.9	309.9	283.2	26.74	11.590		
5,500.0	5,448.8	5,476.6	5,449.8	16.8	14.2	-87.30	-344.3	211.9	309.9	282.8	27.08	11.446		
5,600.0	5,548.8	5,576.6	5,549.8	17.0	14.4	-87.30	-344.3	211.9	309.9	282.5	27.41	11.305		
5,700.0	5,648.8	5,676.6	5,649.8	17.1	14.6	-87.30	-344.3	211.9	309.9	282.2	27.76	11.166		
5,800.0	5,748.8	5,776.6	5,749.8	17.2	14.7	-87.30	-344.3	211.9	309.9	281.8	28.10	11.029		
5,900.0	5,848.8	5,876.6	5,849.8	17.4	14.9	-87.30	-344.3	211.9	309.9	281.5	28.45	10.894		
6,000.0	5,948.8	5,976.6	5,949.8	17.5	15.1	-87.30	-344.3	211.9	309.9	281.1	28.80	10.762		
6,100.0	6,048.8	6,076.6	6,049.8	17.7	15.2	-87.30	-344.3	211.9	309.9	280.8	29.15	10.631		
6,200.0	6,148.8	6,176.6	6,149.8	17.8	15.4	-87.30	-344.3	211.9	309.9	280.4	29.51	10.503		
6,222.6	6,171.4	6,199.2	6,172.4	17.9	15.4	-87.30	-344.3	211.9	309.9	280.3	29.59	10.474		
6,234.5	6,183.2	6,211.0	6,184.2	17.9	15.5	-87.30	-344.3	211.9	309.9	280.3	29.63	10.459		
6,250.0	6,198.8	6,226.3	6,199.4	17.9	15.5	-87.30	-344.1	211.9	309.9	280.2	29.68	10.442		
6,300.0	6,248.7	6,275.3	6,248.4	18.0	15.6	-87.29	-341.5	211.9	309.9	280.1	29.82	10.393		
6,350.0	6,298.3	6,324.4	6,297.1	18.0	15.6	-87.30	-335.8	211.9	309.9	280.0	29.92	10.357		
6,400.0	6,347.5	6,373.4	6,345.4	18.0	15.6	-87.32	-326.9	211.9	309.9	279.9	29.99	10.333		
6,450.0	6,395.9	6,422.5	6,393.0	18.1	15.7	-87.35	-314.9	211.9	309.9	279.9	30.03	10.319		
6,500.0	6,443.4	6,471.6	6,439.7	18.1	15.7	-87.40	-300.0	211.9	309.9	279.8	30.05	10.313		
6,550.0	6,489.9	6,520.7	6,485.4	18.0	15.7	-87.45	-282.0	211.9	309.9	279.8	30.04	10.314		
6,600.0	6,535.0	6,569.8	6,529.9	18.0	15.6	-87.51	-261.1	211.9	309.9	279.8	30.03	10.318		
6,650.0	6,578.6	6,619.0	6,572.9	18.0	15.6	-87.59	-237.4	211.9	309.8	279.8	30.01	10.324		
6,700.0	6,620.5	6,668.1	6,614.4	18.0	15.6	-87.67	-211.0	211.9	309.8	279.8	30.00	10.327		
6,750.0	6,660.5	6,717.3	6,654.1	17.9	15.6	-87.77	-181.9	211.9	309.8	279.8	30.00	10.325		
6,800.0	6,698.5	6,766.6	6,691.8	17.9	15.5	-87.87	-150.4	211.9	309.8	279.7	30.04	10.314		
6,850.0	6,734.3	6,815.9	6,727.5	17.8	15.5	-87.98	-116.4	211.9	309.8	279.7	30.10	10.289		
6,900.0	6,767.7	6,865.2	6,761.0	17.8	15.5	-88.11	-80.2	211.9	309.7	279.5	30.22	10.249		
6,950.0	6,798.6	6,914.5	6,792.0	17.7	15.5	-88.23	-41.8	211.9	309.7	279.3	30.40	10.189		
7,000.0	6,826.9	6,963.9	6,820.6	17.7	15.5	-88.37	-1.5	211.9	309.7	279.1	30.64	10.108		
7,050.0	6,852.4	7,013.4	6,846.5	17.6	15.5	-88.52	40.6	211.9	309.7	278.7	30.96	10.003		
7,100.0	6,875.1	7,062.9	6,869.6	17.6	15.6	-88.67	84.3	211.9	309.7	278.3	31.36	9.875		
7,150.0	6,894.8	7,112.4	6,889.9	17.6	15.7	-88.82	129.5	211.9	309.6	277.8	31.84	9.724		
7,200.0	6,911.5	7,162.0	6,907.3	17.6	16.0	-88.98	176.0	211.9	309.6	277.2	32.42	9.551		
7,250.0	6,925.0	7,211.7	6,921.6	17.7	16.4	-89.15	223.5	211.9	309.6	276.5	33.08	9.359		
7,300.0	6,935.4	7,261.4	6,932.8	17.9	16.8	-89.32	272.0	211.9	309.6	275.8	33.83	9.151		
7,350.0	6,942.5	7,311.2	6,940.8	18.2	17.2	-89.49	321.1	211.9	309.6	274.9	34.67	8.930		
7,400.0	6,946.4	7,361.0	6,945.6	18.6	17.7	-89.67	370.7	211.9	309.6	274.0	35.58	8.701		
7,435.3	6,947.2	7,396.2	6,947.0	19.0	18.0	-89.79	405.9	211.9	309.6	273.3	36.26	8.537		
7,467.8	6,947.1	7,428.7	6,947.1	19.3	18.4	-89.82	438.4	211.9	309.6	272.6	36.94	8.381		
7,500.0	6,947.1	7,461.0	6,947.1	19.6	18.8	-89.82	470.6	211.9	309.6	272.0	37.61	8.230		
7,600.0	6,947.0	7,561.0	6,947.0	20.8	19.9	-89.82	570.6	211.9	309.6	269.7	39.90	7.759		
7,700.0	6,946.9	7,661.0	6,946.9	22.0	21.2	-89.82	670.6	211.9	309.6	267.2	42.41	7.300		
7,800.0	6,946.8	7,761.0	6,946.8	23.4	22.6	-89.82	770.6	211.9	309.6	264.5	45.10	6.864		
7,900.0	6,946.7	7,861.0	6,946.7	24.8	24.0	-89.82	870.6	211.9	309.6	261.6	47.95	6.455		
8,000.0	6,946.6	7,961.0	6,946.6	26.3	25.5	-89.82	970.6	211.9	309.6	258.6	50.94	6.077		
8,100.0	6,946.5	8,061.0	6,946.5	27.8	27.1	-89.82	1,070.6	211.9	309.6	255.5	54.03	5.730		
8,200.0	6,946.4	8,161.0	6,946.4	29.3	28.7	-89.82	1,170.6	211.9	309.6	252.4	57.21	5.411		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-241 - Wellbore #1 - Plan #1 (7-30-14)												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)		
8,300.0	6,946.3	8,261.0	6,946.3	30.9	30.3	-89.82	1,270.6	211.9	309.6	249.1	60.47	5.120	
8,400.0	6,946.2	8,361.0	6,946.2	32.6	32.0	-89.82	1,370.6	211.9	309.6	245.8	63.79	4.853	
8,500.0	6,946.0	8,461.0	6,946.1	34.2	33.7	-89.82	1,470.6	211.9	309.6	242.4	67.17	4.609	
8,600.0	6,945.9	8,561.0	6,946.0	35.9	35.4	-89.82	1,570.6	211.9	309.6	239.0	70.59	4.385	
8,700.0	6,945.8	8,661.0	6,945.9	37.6	37.1	-89.82	1,670.6	211.9	309.6	235.5	74.06	4.180	
8,800.0	6,945.7	8,761.0	6,945.8	39.4	38.9	-89.82	1,770.6	211.9	309.6	232.0	77.56	3.991	
8,900.0	6,945.6	8,861.0	6,945.6	41.1	40.6	-89.82	1,870.6	211.9	309.6	228.5	81.09	3.817	
9,000.0	6,945.5	8,961.0	6,945.5	42.9	42.4	-89.82	1,970.6	211.9	309.6	224.9	84.65	3.657	
9,100.0	6,945.4	9,061.0	6,945.4	44.7	44.2	-89.82	2,070.6	211.9	309.6	221.3	88.23	3.508	
9,200.0	6,945.3	9,161.0	6,945.3	46.4	46.0	-89.82	2,170.6	211.9	309.6	217.7	91.83	3.371	
9,300.0	6,945.2	9,261.0	6,945.2	48.2	47.8	-89.82	2,270.6	211.9	309.6	214.1	95.46	3.243	
9,400.0	6,945.1	9,361.0	6,945.1	50.0	49.6	-89.82	2,370.6	211.9	309.6	210.5	99.09	3.124	
9,500.0	6,945.0	9,461.0	6,945.0	51.8	51.5	-89.82	2,470.6	211.9	309.6	206.8	102.75	3.013	
9,600.0	6,944.9	9,561.0	6,944.9	53.7	53.3	-89.82	2,570.6	211.9	309.6	203.1	106.41	2.909	
9,700.0	6,944.8	9,661.0	6,944.8	55.5	55.1	-89.82	2,670.6	211.9	309.6	199.5	110.09	2.812	
9,800.0	6,944.7	9,761.0	6,944.7	57.3	57.0	-89.82	2,770.6	211.9	309.6	195.8	113.78	2.721	
9,900.0	6,944.6	9,861.0	6,944.6	59.2	58.8	-89.82	2,870.6	211.9	309.6	192.1	117.48	2.635	
10,000.0	6,944.5	9,961.0	6,944.5	61.0	60.7	-89.82	2,970.6	211.9	309.5	188.4	121.18	2.554	
10,100.0	6,944.4	10,061.0	6,944.4	62.8	62.5	-89.82	3,070.6	211.9	309.5	184.7	124.90	2.478	
10,200.0	6,944.3	10,161.0	6,944.3	64.7	64.4	-89.82	3,170.6	211.9	309.5	180.9	128.62	2.407	
10,300.0	6,944.2	10,261.0	6,944.2	66.6	66.2	-89.82	3,270.6	211.9	309.5	177.2	132.35	2.339	
10,400.0	6,944.1	10,361.0	6,944.1	68.4	68.1	-89.82	3,370.6	211.9	309.5	173.5	136.08	2.275	
10,500.0	6,944.0	10,461.0	6,944.0	70.3	70.0	-89.82	3,470.6	211.9	309.5	169.7	139.82	2.214	
10,600.0	6,943.9	10,561.0	6,943.9	72.1	71.9	-89.82	3,570.6	211.9	309.5	166.0	143.57	2.156	
10,700.0	6,943.7	10,661.0	6,943.8	74.0	73.7	-89.82	3,670.6	211.9	309.5	162.2	147.32	2.101	
10,800.0	6,943.6	10,761.0	6,943.7	75.9	75.6	-89.82	3,770.6	211.9	309.5	158.5	151.08	2.049	
10,900.0	6,943.5	10,861.0	6,943.6	77.7	77.5	-89.82	3,870.6	211.9	309.5	154.7	154.83	1.999	
11,000.0	6,943.4	10,961.0	6,943.4	79.6	79.4	-89.82	3,970.6	211.9	309.5	150.9	158.60	1.952	
11,100.0	6,943.3	11,061.0	6,943.3	81.5	81.3	-89.82	4,070.6	211.9	309.5	147.2	162.36	1.906	
11,200.0	6,943.2	11,161.0	6,943.2	83.4	83.1	-89.82	4,170.6	211.9	309.5	143.4	166.13	1.863	
11,300.0	6,943.1	11,261.0	6,943.1	85.3	85.0	-89.82	4,270.6	211.9	309.5	139.6	169.91	1.822	
11,400.0	6,943.0	11,361.0	6,943.0	87.1	86.9	-89.82	4,370.6	211.9	309.5	135.9	173.68	1.782	
11,412.1	6,943.0	11,373.0	6,943.0	87.4	87.1	-89.82	4,382.6	211.9	309.5	135.4	174.14	1.778 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-301 - Wellbore #1 - Plan #1 (7-30-14)													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)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-27.9	27.9					
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-27.9	27.9	27.7	0.22	124.086		
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-27.9	27.9	27.2	0.67	41.362		
300.0	300.0	300.0	300.0	0.6	0.6	-90.01	0.0	-27.9	27.9	26.8	1.12	24.817		
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-27.9	27.9	26.3	1.57	17.727		
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-27.9	27.9	25.9	2.02	13.787		
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-27.9	27.9	25.4	2.47	11.281		
700.0	700.0	700.0	700.0	1.5	1.5	-90.01	0.0	-27.9	27.9	25.0	2.92	9.545		
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	0.0	-27.9	27.9	24.5	3.37	8.272 CC		
900.0	900.0	900.0	900.0	1.9	1.9	147.37	0.0	-27.9	29.3	25.5	3.80	7.724		
1,000.0	999.8	999.8	999.8	2.1	2.1	152.11	0.0	-27.9	33.9	29.7	4.21	8.044		
1,100.0	1,099.5	1,100.7	1,100.7	2.3	2.3	156.48	-1.2	-26.6	40.3	35.7	4.60	8.746		
1,200.0	1,198.7	1,201.8	1,201.6	2.5	2.5	159.13	-4.7	-22.6	47.0	42.0	4.98	9.428		
1,283.5	1,281.2	1,286.4	1,285.9	2.8	2.7	160.48	-9.5	-17.2	52.7	47.4	5.31	9.930		
1,300.0	1,297.5	1,303.1	1,302.6	2.8	2.7	160.66	-10.6	-15.9	53.8	48.4	5.38	10.010		
1,400.0	1,396.1	1,404.8	1,403.5	3.1	3.0	160.76	-19.0	-6.5	58.7	52.9	5.81	10.102		
1,500.0	1,494.6	1,505.1	1,502.6	3.4	3.2	159.90	-28.7	4.4	61.5	55.2	6.27	9.814		
1,600.0	1,593.2	1,605.0	1,601.5	3.8	3.5	159.09	-38.4	15.3	64.3	57.5	6.74	9.534		
1,700.0	1,691.8	1,705.0	1,700.4	4.1	3.8	158.35	-48.1	26.3	67.1	59.8	7.23	9.272		
1,800.0	1,790.4	1,804.9	1,799.3	4.5	4.1	157.67	-57.8	37.2	69.9	62.1	7.74	9.028		
1,900.0	1,888.9	1,904.9	1,898.2	4.8	4.4	157.05	-67.5	48.2	72.7	64.4	8.26	8.802		
2,000.0	1,987.5	2,004.9	1,997.0	5.2	4.7	156.47	-77.3	59.1	75.5	66.7	8.78	8.594		
2,100.0	2,086.1	2,104.8	2,095.9	5.6	5.1	155.93	-87.0	70.1	78.3	69.0	9.32	8.401		
2,200.0	2,184.7	2,204.8	2,194.8	6.0	5.4	155.43	-96.7	81.0	81.1	71.3	9.87	8.224		
2,300.0	2,283.3	2,304.7	2,293.7	6.3	5.7	154.96	-106.4	91.9	84.0	73.6	10.42	8.059		
2,400.0	2,381.8	2,404.7	2,392.6	6.7	6.1	154.53	-116.1	102.9	86.8	75.8	10.98	7.908		
2,500.0	2,480.4	2,504.6	2,491.5	7.1	6.4	154.12	-125.8	113.8	89.7	78.1	11.54	7.767		
2,600.0	2,579.0	2,604.6	2,590.3	7.5	6.7	153.74	-135.6	124.8	92.5	80.4	12.11	7.637		
2,700.0	2,677.6	2,704.6	2,689.2	7.9	7.1	153.38	-145.3	135.7	95.4	82.7	12.69	7.517		
2,800.0	2,776.2	2,804.5	2,788.1	8.3	7.4	153.04	-155.0	146.7	98.2	85.0	13.27	7.404		
2,900.0	2,874.7	2,904.5	2,887.0	8.6	7.8	152.72	-164.7	157.6	101.1	87.3	13.85	7.300		
3,000.0	2,973.3	3,004.4	2,985.9	9.0	8.1	152.41	-174.4	168.5	104.0	89.5	14.44	7.202		
3,100.0	3,071.9	3,104.4	3,084.7	9.4	8.5	152.13	-184.1	179.5	106.8	91.8	15.03	7.111		
3,200.0	3,170.5	3,204.3	3,183.6	9.8	8.8	151.86	-193.8	190.4	109.7	94.1	15.62	7.025		
3,300.0	3,269.1	3,304.3	3,282.5	10.2	9.2	151.60	-203.6	201.4	112.6	96.4	16.21	6.945		
3,400.0	3,367.6	3,404.3	3,381.4	10.6	9.5	151.36	-213.3	212.3	115.5	98.7	16.81	6.869		
3,500.0	3,466.2	3,504.2	3,480.3	11.0	9.9	151.12	-223.0	223.3	118.3	100.9	17.41	6.799		
3,600.0	3,564.8	3,604.2	3,579.1	11.4	10.2	150.90	-232.7	234.2	121.2	103.2	18.01	6.732		
3,700.0	3,663.4	3,704.1	3,678.0	11.8	10.6	150.69	-242.4	245.1	124.1	105.5	18.61	6.669		
3,800.0	3,762.0	3,804.1	3,776.9	12.2	11.0	150.49	-252.1	256.1	127.0	107.8	19.21	6.609		
3,900.0	3,860.5	3,904.0	3,875.8	12.6	11.3	150.29	-261.9	267.0	129.9	110.0	19.82	6.553		
4,000.0	3,959.1	4,004.0	3,974.7	12.9	11.7	150.11	-271.6	278.0	132.7	112.3	20.42	6.499		
4,100.0	4,057.7	4,104.0	4,073.5	13.3	12.0	149.93	-281.3	288.9	135.6	114.6	21.03	6.449		
4,200.0	4,156.3	4,203.9	4,172.4	13.7	12.4	149.76	-291.0	299.9	138.5	116.9	21.64	6.400		
4,300.0	4,254.8	4,303.9	4,271.3	14.1	12.7	149.60	-300.7	310.8	141.4	119.2	22.25	6.355		
4,400.0	4,353.4	4,403.8	4,370.2	14.5	13.1	149.45	-310.4	321.7	144.3	121.4	22.86	6.311		
4,500.0	4,452.0	4,503.8	4,469.1	14.9	13.5	149.30	-320.2	332.7	147.2	123.7	23.48	6.270		
4,567.8	4,518.8	4,571.5	4,536.1	15.2	13.7	149.20	-326.7	340.1	149.2	125.3	23.89	6.242		
4,600.0	4,550.6	4,603.8	4,567.9	15.3	13.8	149.13	-329.9	343.6	149.9	125.8	24.09	6.224		
4,700.0	4,649.6	4,700.0	4,663.3	15.6	14.1	148.75	-338.4	353.3	151.4	126.8	24.61	6.150		
4,800.0	4,749.1	4,796.3	4,759.1	15.8	14.3	148.47	-344.9	360.5	152.4	127.4	25.04	6.088		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-301 - Wellbore #1 - Plan #1 (7-30-14)												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
4,900.0	4,848.8	4,892.3	4,854.9	16.0	14.5	148.29		-349.2	365.4	153.2	127.7	25.41	6.028	
5,000.0	4,948.8	4,988.3	4,950.8	16.1	14.7	148.20		-351.3	367.8	153.5	127.8	25.71	5.971	
5,051.2	5,000.0	5,037.5	5,000.0	16.2	14.7	-87.28		-351.6	368.1	153.6	127.7	25.85	5.940	
5,100.0	5,048.8	5,086.2	5,048.8	16.3	14.8	-87.28		-351.6	368.1	153.6	127.5	26.01	5.903	
5,200.0	5,148.8	5,186.2	5,148.8	16.4	15.0	-87.28		-351.6	368.1	153.6	127.2	26.34	5.831	
5,300.0	5,248.8	5,286.2	5,248.8	16.5	15.1	-87.28		-351.6	368.1	153.6	126.9	26.66	5.759	
5,400.0	5,348.8	5,386.2	5,348.8	16.7	15.3	-87.28		-351.6	368.1	153.6	126.6	26.99	5.689	
5,500.0	5,448.8	5,486.2	5,448.8	16.8	15.4	-87.28		-351.6	368.1	153.6	126.2	27.33	5.620	
5,600.0	5,548.8	5,586.2	5,548.8	17.0	15.6	-87.28		-351.6	368.1	153.6	125.9	27.66	5.552	
5,700.0	5,648.8	5,686.2	5,648.8	17.1	15.7	-87.28		-351.6	368.1	153.6	125.6	28.00	5.484	
5,800.0	5,748.8	5,786.2	5,748.8	17.2	15.9	-87.28		-351.6	368.1	153.6	125.2	28.34	5.418	
5,900.0	5,848.8	5,886.2	5,848.8	17.4	16.0	-87.28		-351.6	368.1	153.6	124.9	28.69	5.353	
6,000.0	5,948.8	5,986.2	5,948.8	17.5	16.2	-87.28		-351.6	368.1	153.6	124.5	29.04	5.289	
6,100.0	6,048.8	6,086.2	6,048.8	17.7	16.3	-87.28		-351.6	368.1	153.6	124.2	29.39	5.226	
6,200.0	6,148.8	6,186.2	6,148.8	17.8	16.5	-87.28		-351.6	368.1	153.6	123.8	29.74	5.164	
6,234.5	6,183.2	6,220.7	6,183.2	17.9	16.6	-87.28		-351.6	368.1	153.6	123.7	29.86	5.143	
6,250.0	6,198.8	6,236.2	6,198.8	17.9	16.6	-87.34		-351.6	368.1	153.6	123.6	29.92	5.132	
6,300.0	6,248.7	6,286.1	6,248.7	18.0	16.7	-88.33		-351.6	368.1	153.5	123.3	30.20	5.081	
6,340.4	6,288.8	6,326.2	6,288.8	18.0	16.7	-90.00		-351.6	368.1	153.4	122.9	30.52	5.026	
6,350.0	6,298.3	6,335.8	6,298.3	18.0	16.8	-90.46		-351.4	368.1	153.4	122.8	30.60	5.013	
6,400.0	6,347.5	6,385.7	6,348.1	18.0	16.8	-92.86		-348.7	368.1	153.6	122.6	31.00	4.955	
6,450.0	6,395.9	6,436.0	6,398.1	18.1	16.9	-95.24		-342.7	368.1	154.0	122.7	31.34	4.916	
6,500.0	6,443.4	6,486.7	6,447.9	18.1	16.9	-97.59		-333.3	368.1	154.8	123.2	31.61	4.896	
6,550.0	6,489.9	6,537.9	6,497.5	18.0	16.9	-99.90		-320.5	368.1	155.7	123.9	31.81	4.895	
6,600.0	6,535.0	6,589.5	6,546.5	18.0	16.9	-102.14		-304.3	368.1	157.0	125.0	31.94	4.915	
6,650.0	6,578.6	6,641.6	6,594.7	18.0	16.9	-104.31		-284.6	368.1	158.4	126.4	31.97	4.953	
6,700.0	6,620.5	6,694.2	6,641.9	18.0	16.9	-106.39		-261.5	368.1	160.0	128.0	31.94	5.009	
6,750.0	6,660.5	6,747.2	6,687.7	17.9	16.9	-108.36		-234.9	368.1	161.7	129.9	31.83	5.082	
6,800.0	6,698.5	6,800.7	6,732.0	17.9	16.8	-110.23		-204.9	368.1	163.6	131.9	31.66	5.167	
6,850.0	6,734.3	6,854.6	6,774.4	17.8	16.8	-111.97		-171.6	368.1	165.5	134.1	31.45	5.263	
6,900.0	6,767.7	6,908.9	6,814.7	17.8	16.7	-113.60		-135.1	368.1	167.5	136.3	31.22	5.365	
6,950.0	6,798.6	6,963.7	6,852.5	17.7	16.7	-115.09		-95.6	368.1	169.5	138.5	31.00	5.468	
7,000.0	6,826.9	7,018.9	6,887.7	17.7	16.6	-116.46		-53.1	368.1	171.5	140.7	30.81	5.566	
7,050.0	6,852.4	7,074.4	6,919.9	17.6	16.6	-117.69		-7.8	368.1	173.4	142.7	30.67	5.652	
7,100.0	6,875.1	7,130.4	6,948.9	17.6	16.6	-118.80		40.0	368.1	175.1	144.5	30.62	5.719	
7,150.0	6,894.8	7,186.6	6,974.5	17.6	16.5	-119.76		90.0	368.1	176.8	146.1	30.68	5.762	
7,200.0	6,911.5	7,243.1	6,996.4	17.6	16.5	-120.60		142.1	368.1	178.3	147.4	30.87	5.774	
7,250.0	6,925.0	7,299.9	7,014.5	17.7	16.6	-121.30		195.9	368.1	179.6	148.3	31.21	5.752	
7,300.0	6,935.4	7,356.9	7,028.6	17.9	17.1	-121.86		251.1	368.1	180.6	148.9	31.72	5.695	
7,350.0	6,942.5	7,414.1	7,038.6	18.2	17.6	-122.30		307.4	368.1	181.5	149.1	32.39	5.603	
7,400.0	6,946.4	7,471.4	7,044.3	18.6	18.1	-122.60		364.4	368.1	182.1	148.9	33.23	5.480	
7,435.3	6,947.2	7,511.9	7,045.8	19.0	18.5	-122.74		404.9	368.1	182.4	148.5	33.91	5.378	
7,500.0	6,947.1	7,578.1	7,045.5	19.6	19.2	-122.69		471.1	368.1	182.2	147.1	35.12	5.190	
7,600.0	6,947.0	7,678.1	7,045.0	20.8	20.4	-122.58		571.1	368.1	182.0	144.9	37.14	4.900	
7,700.0	6,946.9	7,778.1	7,044.5	22.0	21.7	-122.46		671.1	368.1	181.8	142.4	39.35	4.620	
7,800.0	6,946.8	7,878.1	7,043.9	23.4	23.0	-122.35		771.1	368.1	181.6	139.9	41.72	4.352	
7,900.0	6,946.7	7,978.1	7,043.4	24.8	24.5	-122.24		871.1	368.1	181.3	137.1	44.22	4.101	
8,000.0	6,946.6	8,078.1	7,042.9	26.3	25.9	-122.13		971.1	368.1	181.1	134.3	46.83	3.868	
8,100.0	6,946.5	8,178.1	7,042.4	27.8	27.5	-122.02		1,071.1	368.1	180.9	131.4	49.54	3.651	
8,200.0	6,946.4	8,278.1	7,041.9	29.3	29.1	-121.90		1,171.1	368.1	180.7	128.3	52.34	3.452	
8,300.0	6,946.3	8,378.1	7,041.3	30.9	30.7	-121.79		1,271.1	368.1	180.5	125.3	55.20	3.269	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-301 - Wellbore #1 - Plan #1 (7-30-14)												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)			
8,400.0	6,946.2	8,478.1	7,040.8	32.6	32.3	-121.68	1,371.1	368.1	180.2	122.1	58.13	3.101	
8,500.0	6,946.0	8,578.1	7,040.3	34.2	34.0	-121.57	1,471.1	368.1	180.0	118.9	61.11	2.946	
8,600.0	6,945.9	8,678.1	7,039.8	35.9	35.7	-121.45	1,571.1	368.1	179.8	115.7	64.14	2.803	
8,700.0	6,945.8	8,778.1	7,039.2	37.6	37.4	-121.34	1,671.1	368.1	179.6	112.4	67.21	2.672	
8,800.0	6,945.7	8,878.1	7,038.7	39.4	39.2	-121.22	1,771.1	368.1	179.4	109.0	70.32	2.551	
8,900.0	6,945.6	8,978.1	7,038.2	41.1	40.9	-121.11	1,871.1	368.1	179.1	105.7	73.46	2.439	
9,000.0	6,945.5	9,078.1	7,037.7	42.9	42.7	-120.99	1,971.1	368.1	178.9	102.3	76.64	2.335	
9,100.0	6,945.4	9,178.1	7,037.1	44.7	44.5	-120.88	2,071.1	368.1	178.7	98.9	79.84	2.238	
9,200.0	6,945.3	9,278.1	7,036.6	46.4	46.2	-120.76	2,171.1	368.1	178.5	95.4	83.07	2.149	
9,300.0	6,945.2	9,378.1	7,036.1	48.2	48.0	-120.65	2,271.1	368.1	178.3	92.0	86.32	2.065	
9,400.0	6,945.1	9,478.1	7,035.6	50.0	49.9	-120.53	2,371.0	368.1	178.1	88.5	89.59	1.988	
9,500.0	6,945.0	9,578.1	7,035.0	51.8	51.7	-120.42	2,471.0	368.1	177.9	85.0	92.88	1.915	
9,600.0	6,944.9	9,678.1	7,034.5	53.7	53.5	-120.30	2,571.0	368.1	177.6	81.5	96.19	1.847	
9,700.0	6,944.8	9,778.1	7,034.0	55.5	55.3	-120.18	2,671.0	368.1	177.4	77.9	99.52	1.783	
9,800.0	6,944.7	9,878.1	7,033.5	57.3	57.2	-120.07	2,771.0	368.1	177.2	74.4	102.86	1.723	
9,900.0	6,944.6	9,978.1	7,033.0	59.2	59.0	-119.95	2,871.0	368.1	177.0	70.8	106.22	1.666	
10,000.0	6,944.5	10,078.1	7,032.4	61.0	60.9	-119.83	2,971.0	368.1	176.8	67.2	109.60	1.613	
10,100.0	6,944.4	10,178.1	7,031.9	62.8	62.7	-119.71	3,071.0	368.1	176.6	63.6	112.99	1.563	
10,200.0	6,944.3	10,278.1	7,031.4	64.7	64.6	-119.59	3,171.0	368.1	176.4	60.0	116.39	1.516	
10,300.0	6,944.2	10,378.1	7,030.9	66.6	66.4	-119.48	3,271.0	368.1	176.2	56.4	119.80	1.471 Level 3	
10,400.0	6,944.1	10,478.1	7,030.3	68.4	68.3	-119.36	3,371.0	368.1	176.0	52.8	123.23	1.428 Level 3	
10,500.0	6,944.0	10,578.1	7,029.8	70.3	70.1	-119.24	3,471.0	368.1	175.8	49.1	126.66	1.388 Level 3	
10,600.0	6,943.9	10,678.1	7,029.3	72.1	72.0	-119.12	3,571.0	368.1	175.6	45.5	130.11	1.349 Level 3	
10,700.0	6,943.7	10,778.1	7,028.8	74.0	73.9	-119.00	3,671.0	368.1	175.4	41.8	133.57	1.313 Level 3	
10,800.0	6,943.6	10,878.1	7,028.2	75.9	75.8	-118.88	3,771.0	368.1	175.2	38.1	137.04	1.278 Level 3	
10,900.0	6,943.5	10,978.0	7,027.7	77.7	77.6	-118.76	3,871.0	368.1	175.0	34.4	140.53	1.245 Level 2	
11,000.0	6,943.4	11,078.0	7,027.2	79.6	79.5	-118.64	3,971.0	368.1	174.8	30.7	144.02	1.213 Level 2	
11,100.0	6,943.3	11,178.0	7,026.7	81.5	81.4	-118.52	4,071.0	368.1	174.6	27.0	147.52	1.183 Level 2	
11,200.0	6,943.2	11,278.0	7,026.1	83.4	83.3	-118.40	4,171.0	368.1	174.4	23.3	151.03	1.154 Level 2	
11,300.0	6,943.1	11,378.0	7,025.6	85.3	85.2	-118.28	4,271.0	368.1	174.2	19.6	154.54	1.127 Level 2	
11,400.0	6,943.0	11,478.0	7,025.1	87.1	87.0	-118.16	4,371.0	368.1	174.0	15.9	158.07	1.101 Level 2	
11,412.1	6,943.0	11,490.1	7,025.0	87.4	87.3	-118.14	4,383.1	368.1	173.9	15.4	158.50	1.097 Level 2, ES, SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-341 - Wellbore #1 - Plan #1 (7-30-14)													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	1.0	1.0	0.0	0.0	-90.00	-90.00	0.0	-89.2	89.2	89.2	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	-90.00	0.0	-89.2	89.2	89.0	0.23	393.145	
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	-90.00	0.0	-89.2	89.2	88.6	0.68	131.919	
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	-90.00	0.0	-89.2	89.2	88.1	1.13	79.257	
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	-90.00	0.0	-89.2	89.2	87.7	1.58	56.644	
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	-90.00	0.0	-89.2	89.2	87.2	2.03	44.071	
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	-90.00	0.0	-89.2	89.2	86.8	2.47	36.065	
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	-90.00	0.0	-89.2	89.2	86.3	2.92	30.521	
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	-90.00	0.0	-89.2	89.2	85.9	3.37	26.454 CC, ES	
900.0	900.0	901.0	901.0	1.9	1.9	146.07	146.07	0.0	-89.2	90.7	86.9	3.80	23.858	
1,000.0	999.8	1,000.8	1,000.8	2.1	2.1	147.79	147.79	0.0	-89.2	95.1	90.9	4.21	22.568	
1,100.0	1,099.5	1,100.5	1,100.5	2.3	2.4	150.31	150.31	0.0	-89.2	102.6	97.9	4.63	22.144	
1,200.0	1,198.7	1,199.7	1,199.7	2.5	2.6	153.26	153.26	0.0	-89.2	113.3	108.3	5.06	22.417	
1,283.5	1,281.2	1,282.2	1,282.2	2.8	2.8	155.80	155.80	0.0	-89.2	124.9	119.5	5.41	23.086	
1,300.0	1,297.5	1,298.5	1,298.5	2.8	2.8	156.31	156.31	0.0	-89.2	127.5	122.0	5.48	23.243	
1,400.0	1,396.1	1,397.1	1,397.1	3.1	3.0	159.01	159.01	0.0	-89.2	143.0	137.1	5.93	24.132	
1,500.0	1,494.6	1,495.6	1,495.6	3.4	3.2	161.18	161.18	0.0	-89.2	158.9	152.5	6.38	24.919	
1,600.0	1,593.2	1,594.2	1,594.2	3.8	3.5	162.95	162.95	0.0	-89.2	174.9	168.0	6.83	25.618	
1,700.0	1,691.8	1,697.1	1,697.1	4.1	3.7	164.12	164.12	-1.5	-88.6	189.9	182.7	7.26	26.157	
1,800.0	1,790.4	1,801.1	1,801.0	4.5	3.9	164.34	164.34	-6.5	-86.4	202.6	195.0	7.68	26.383	
1,900.0	1,888.9	1,905.7	1,905.1	4.8	4.1	163.78	163.78	-14.9	-82.8	212.9	204.8	8.12	26.221	
2,000.0	1,987.5	2,007.6	2,006.3	5.2	4.3	162.68	162.68	-26.0	-77.9	221.2	212.6	8.58	25.783	
2,100.0	2,086.1	2,107.2	2,105.1	5.6	4.5	161.62	161.62	-37.2	-73.1	229.3	220.3	9.05	25.329	
2,200.0	2,184.7	2,206.7	2,203.9	6.0	4.7	160.62	160.62	-48.4	-68.2	237.5	228.0	9.54	24.887	
2,300.0	2,283.3	2,306.3	2,302.8	6.3	4.9	159.70	159.70	-59.6	-63.3	245.8	235.7	10.05	24.460	
2,400.0	2,381.8	2,405.9	2,401.6	6.7	5.2	158.83	158.83	-70.8	-58.5	254.1	243.5	10.56	24.050	
2,500.0	2,480.4	2,505.5	2,500.4	7.1	5.5	158.02	158.02	-81.9	-53.6	262.4	251.3	11.09	23.658	
2,600.0	2,579.0	2,605.1	2,599.3	7.5	5.7	157.26	157.26	-93.1	-48.8	270.9	259.2	11.63	23.285	
2,700.0	2,677.6	2,704.6	2,698.1	7.9	6.0	156.54	156.54	-104.3	-43.9	279.3	267.1	12.18	22.931	
2,800.0	2,776.2	2,804.2	2,796.9	8.3	6.3	155.87	155.87	-115.5	-39.0	287.8	275.1	12.74	22.595	
2,900.0	2,874.7	2,903.8	2,895.8	8.6	6.5	155.24	155.24	-126.6	-34.2	296.4	283.1	13.30	22.278	
3,000.0	2,973.3	3,003.4	2,994.6	9.0	6.8	154.64	154.64	-137.8	-29.3	305.0	291.1	13.88	21.977	
3,100.0	3,071.9	3,103.0	3,093.4	9.4	7.1	154.07	154.07	-149.0	-24.4	313.6	299.1	14.45	21.693	
3,200.0	3,170.5	3,202.6	3,192.3	9.8	7.4	153.54	153.54	-160.2	-19.6	322.2	307.2	15.04	21.425	
3,300.0	3,269.1	3,302.1	3,291.1	10.2	7.7	153.03	153.03	-171.3	-14.7	330.9	315.2	15.63	21.172	
3,400.0	3,367.6	3,401.7	3,389.9	10.6	8.0	152.55	152.55	-182.5	-9.9	339.5	323.3	16.22	20.932	
3,500.0	3,466.2	3,501.3	3,488.8	11.0	8.3	152.09	152.09	-193.7	-5.0	348.3	331.4	16.82	20.705	
3,600.0	3,564.8	3,600.9	3,587.6	11.4	8.6	151.65	151.65	-204.9	-0.1	357.0	339.6	17.42	20.491	
3,700.0	3,663.4	3,700.5	3,686.4	11.8	8.9	151.24	151.24	-216.1	4.7	365.7	347.7	18.03	20.288	
3,800.0	3,762.0	3,800.1	3,785.3	12.2	9.2	150.84	150.84	-227.2	9.6	374.5	355.9	18.64	20.095	
3,900.0	3,860.5	3,899.6	3,884.1	12.6	9.5	150.47	150.47	-238.4	14.4	383.3	364.0	19.25	19.912	
4,000.0	3,959.1	3,999.2	3,982.9	12.9	9.8	150.11	150.11	-249.6	19.3	392.1	372.2	19.86	19.739	
4,100.0	4,057.7	4,098.8	4,081.8	13.3	10.1	149.76	149.76	-260.8	24.2	400.9	380.4	20.48	19.574	
4,200.0	4,156.3	4,198.4	4,180.6	13.7	10.5	149.43	149.43	-271.9	29.0	409.7	388.6	21.10	19.418	
4,300.0	4,254.8	4,298.0	4,279.4	14.1	10.8	149.12	149.12	-283.1	33.9	418.6	396.9	21.72	19.269	
4,400.0	4,353.4	4,397.5	4,378.3	14.5	11.1	148.81	148.81	-294.3	38.7	427.4	405.1	22.35	19.127	
4,500.0	4,452.0	4,497.1	4,477.1	14.9	11.4	148.52	148.52	-305.5	43.6	436.3	413.3	22.97	18.992	
4,567.8	4,518.8	4,564.6	4,544.1	15.2	11.6	148.33	148.33	-313.0	46.9	442.3	418.9	23.40	18.904	
4,600.0	4,550.6	4,595.0	4,574.2	15.3	11.7	148.28	148.28	-316.4	48.3	445.1	421.5	23.58	18.873	
4,700.0	4,649.6	4,688.2	4,667.0	15.6	11.9	148.19	148.19	-324.7	52.0	452.7	428.6	24.04	18.826	
4,800.0	4,749.1	4,781.4	4,760.0	15.8	12.1	148.22	148.22	-330.3	54.4	458.7	434.3	24.44	18.766	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-341 - Wellbore #1 - Plan #1 (7-30-14)													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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,848.8	4,874.6	4,853.2	16.0	12.3	148.36	-333.0	55.6	463.2	438.4	24.78	18.695		
5,000.0	4,948.8	4,971.2	4,949.8	16.1	12.4	148.56	-333.4	55.8	466.1	441.0	25.07	18.588		
5,051.2	5,000.0	5,022.5	5,001.0	16.2	12.5	-86.87	-333.4	55.8	466.4	441.2	25.22	18.492		
5,100.0	5,048.8	5,071.2	5,049.8	16.3	12.6	-86.87	-333.4	55.8	466.4	441.1	25.39	18.372		
5,200.0	5,148.8	5,171.2	5,149.8	16.4	12.8	-86.87	-333.4	55.8	466.4	440.7	25.72	18.135		
5,300.0	5,248.8	5,271.2	5,249.8	16.5	12.9	-86.87	-333.4	55.8	466.4	440.4	26.06	17.901		
5,400.0	5,348.8	5,371.2	5,349.8	16.7	13.1	-86.87	-333.4	55.8	466.4	440.1	26.40	17.672		
5,500.0	5,448.8	5,471.2	5,449.8	16.8	13.3	-86.87	-333.4	55.8	466.4	439.7	26.74	17.445		
5,600.0	5,548.8	5,571.2	5,549.8	17.0	13.5	-86.87	-333.4	55.8	466.4	439.4	27.08	17.223		
5,700.0	5,648.8	5,671.2	5,649.8	17.1	13.6	-86.87	-333.4	55.8	466.4	439.0	27.43	17.004		
5,800.0	5,748.8	5,771.2	5,749.8	17.2	13.8	-86.87	-333.4	55.8	466.4	438.7	27.78	16.789		
5,900.0	5,848.8	5,871.2	5,849.8	17.4	14.0	-86.87	-333.4	55.8	466.4	438.3	28.14	16.578		
6,000.0	5,948.8	5,971.2	5,949.8	17.5	14.2	-86.87	-333.4	55.8	466.4	438.0	28.49	16.370		
6,100.0	6,048.8	6,071.2	6,049.8	17.7	14.4	-86.87	-333.4	55.8	466.4	437.6	28.85	16.166		
6,200.0	6,148.8	6,171.2	6,149.8	17.8	14.6	-86.87	-333.4	55.8	466.4	437.2	29.21	15.966		
6,234.5	6,183.2	6,205.7	6,184.2	17.9	14.6	-86.87	-333.4	55.8	466.4	437.1	29.34	15.898		
6,250.0	6,198.8	6,221.2	6,199.8	17.9	14.6	-86.89	-333.4	55.8	466.4	437.0	29.40	15.867		
6,300.0	6,248.7	6,271.1	6,249.7	18.0	14.7	-87.22	-333.4	55.8	466.3	436.7	29.59	15.760		
6,350.0	6,298.3	6,320.4	6,298.9	18.0	14.8	-87.93	-333.2	55.8	466.1	436.3	29.79	15.645		
6,400.0	6,347.5	6,369.1	6,347.6	18.0	14.9	-88.72	-330.6	55.8	465.9	435.9	29.97	15.546		
6,450.0	6,395.9	6,418.2	6,396.3	18.1	15.0	-89.52	-324.8	55.8	465.8	435.7	30.11	15.470		
6,480.2	6,424.7	6,448.1	6,425.8	18.1	15.0	-90.00	-319.7	55.8	465.7	435.6	30.18	15.434		
6,500.0	6,443.4	6,467.7	6,445.0	18.1	15.0	-90.32	-315.8	55.8	465.8	435.5	30.21	15.415		
6,550.0	6,489.9	6,517.7	6,493.4	18.0	15.0	-91.12	-303.5	55.8	465.8	435.6	30.29	15.380		
6,600.0	6,535.0	6,568.1	6,541.3	18.0	15.0	-91.93	-288.0	55.8	466.0	435.7	30.34	15.362		
6,650.0	6,578.6	6,618.9	6,588.5	18.0	15.0	-92.73	-269.1	55.8	466.3	435.9	30.36	15.357		
6,700.0	6,620.5	6,670.2	6,634.8	18.0	15.0	-93.51	-247.0	55.8	466.6	436.3	30.37	15.364		
6,750.0	6,660.5	6,722.0	6,679.9	17.9	15.0	-94.29	-221.5	55.8	467.1	436.7	30.38	15.375		
6,800.0	6,698.5	6,774.2	6,723.5	17.9	15.0	-95.05	-192.8	55.8	467.6	437.2	30.39	15.387		
6,850.0	6,734.3	6,826.9	6,765.4	17.8	15.0	-95.79	-160.9	55.8	468.2	437.8	30.42	15.392		
6,900.0	6,767.7	6,880.1	6,805.4	17.8	15.0	-96.51	-125.8	55.8	468.8	438.3	30.47	15.384		
6,950.0	6,798.6	6,933.7	6,843.1	17.7	15.0	-97.20	-87.7	55.8	469.5	438.9	30.57	15.356		
7,000.0	6,826.9	6,987.8	6,878.4	17.7	15.1	-97.85	-46.7	55.8	470.2	439.5	30.73	15.299		
7,050.0	6,852.4	7,042.3	6,910.9	17.6	15.2	-98.47	-3.0	55.8	470.9	440.0	30.96	15.209		
7,100.0	6,875.1	7,097.3	6,940.4	17.6	15.3	-99.06	43.4	55.8	471.7	440.4	31.28	15.079		
7,150.0	6,894.8	7,152.6	6,966.7	17.6	15.5	-99.60	92.1	55.8	472.4	440.7	31.69	14.906		
7,200.0	6,911.5	7,208.4	6,989.6	17.6	15.8	-100.10	142.9	55.8	473.1	440.9	32.21	14.688		
7,250.0	6,925.0	7,264.5	7,008.8	17.7	16.1	-100.55	195.6	55.8	473.8	441.0	32.84	14.428		
7,300.0	6,935.4	7,320.9	7,024.1	17.9	16.5	-100.96	249.9	55.8	474.4	440.8	33.58	14.129		
7,350.0	6,942.5	7,377.7	7,035.5	18.2	17.0	-101.31	305.5	55.8	475.0	440.6	34.43	13.798		
7,400.0	6,946.4	7,434.7	7,042.7	18.6	17.5	-101.60	362.0	55.8	475.5	440.1	35.38	13.441		
7,435.3	6,947.2	7,475.0	7,045.3	19.0	17.9	-101.78	402.2	55.8	475.8	439.7	36.11	13.177		
7,500.0	6,947.1	7,543.8	7,045.6	19.6	18.7	-101.82	471.1	55.8	475.8	438.4	37.48	12.697		
7,600.0	6,947.0	7,643.8	7,045.1	20.8	19.8	-101.77	571.1	55.8	475.8	436.0	39.73	11.973		
7,700.0	6,946.9	7,743.8	7,044.5	22.0	21.1	-101.72	671.1	55.8	475.7	433.5	42.21	11.270		
7,800.0	6,946.8	7,843.8	7,044.0	23.4	22.4	-101.68	771.1	55.8	475.6	430.7	44.86	10.601		
7,900.0	6,946.7	7,943.8	7,043.5	24.8	23.9	-101.63	871.1	55.8	475.5	427.8	47.67	9.975		
8,000.0	6,946.6	8,043.8	7,043.0	26.3	25.4	-101.58	971.1	55.8	475.4	424.8	50.60	9.395		
8,100.0	6,946.5	8,143.8	7,042.5	27.8	26.9	-101.53	1,071.1	55.8	475.3	421.7	53.64	8.861		
8,200.0	6,946.4	8,243.8	7,041.9	29.3	28.5	-101.48	1,171.1	55.8	475.2	418.5	56.77	8.371		
8,300.0	6,946.3	8,343.8	7,041.4	30.9	30.2	-101.43	1,271.1	55.8	475.2	415.2	59.98	7.922		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design Rieder 4N67W18Q Pad Sec.18-T4N-R67 - Rieder 18T-341 - Wellbore #1 - Plan #1 (7-30-14)												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)			
8,400.0	6,946.2	8,443.8	7,040.9	32.6	31.8	-101.38	1,371.1	55.8	475.1	411.8	63.25	7.511		
8,500.0	6,946.0	8,543.8	7,040.4	34.2	33.5	-101.33	1,471.1	55.8	475.0	408.4	66.58	7.134		
8,600.0	6,945.9	8,643.8	7,039.8	35.9	35.3	-101.28	1,571.1	55.8	474.9	405.0	69.95	6.789		
8,700.0	6,945.8	8,743.8	7,039.3	37.6	37.0	-101.23	1,671.1	55.8	474.8	401.5	73.36	6.472		
8,800.0	6,945.7	8,843.8	7,038.8	39.4	38.7	-101.18	1,771.1	55.8	474.7	397.9	76.81	6.180		
8,900.0	6,945.6	8,943.8	7,038.3	41.1	40.5	-101.13	1,871.1	55.8	474.7	394.4	80.29	5.911		
9,000.0	6,945.5	9,043.8	7,037.7	42.9	42.3	-101.08	1,971.1	55.8	474.6	390.8	83.80	5.663		
9,100.0	6,945.4	9,143.8	7,037.2	44.7	44.1	-101.03	2,071.1	55.8	474.5	387.2	87.34	5.433		
9,200.0	6,945.3	9,243.8	7,036.7	46.4	45.9	-100.98	2,171.0	55.8	474.4	383.5	90.89	5.220		
9,300.0	6,945.2	9,343.8	7,036.2	48.2	47.7	-100.93	2,271.0	55.8	474.3	379.9	94.46	5.021		
9,400.0	6,945.1	9,443.8	7,035.6	50.0	49.5	-100.88	2,371.0	55.8	474.3	376.2	98.05	4.837		
9,500.0	6,945.0	9,543.8	7,035.1	51.8	51.4	-100.83	2,471.0	55.8	474.2	372.5	101.66	4.664		
9,600.0	6,944.9	9,643.8	7,034.6	53.7	53.2	-100.78	2,571.0	55.8	474.1	368.8	105.28	4.503		
9,700.0	6,944.8	9,743.8	7,034.1	55.5	55.0	-100.73	2,671.0	55.8	474.0	365.1	108.92	4.352		
9,800.0	6,944.7	9,843.8	7,033.6	57.3	56.9	-100.68	2,771.0	55.8	473.9	361.4	112.56	4.211		
9,900.0	6,944.6	9,943.8	7,033.0	59.2	58.7	-100.63	2,871.0	55.8	473.9	357.6	116.22	4.077		
10,000.0	6,944.5	10,043.8	7,032.5	61.0	60.6	-100.58	2,971.0	55.8	473.8	353.9	119.88	3.952		
10,100.0	6,944.4	10,143.8	7,032.0	62.8	62.4	-100.53	3,071.0	55.8	473.7	350.1	123.55	3.834		
10,200.0	6,944.3	10,243.8	7,031.5	64.7	64.3	-100.49	3,171.0	55.8	473.6	346.4	127.24	3.722		
10,300.0	6,944.2	10,343.8	7,030.9	66.6	66.2	-100.44	3,271.0	55.8	473.5	342.6	130.93	3.617		
10,400.0	6,944.1	10,443.8	7,030.4	68.4	68.0	-100.39	3,371.0	55.8	473.5	338.8	134.62	3.517		
10,500.0	6,944.0	10,543.8	7,029.9	70.3	69.9	-100.34	3,471.0	55.8	473.4	335.1	138.33	3.422		
10,600.0	6,943.9	10,643.8	7,029.4	72.1	71.8	-100.29	3,571.0	55.8	473.3	331.3	142.04	3.332		
10,700.0	6,943.7	10,743.8	7,028.8	74.0	73.7	-100.24	3,671.0	55.8	473.2	327.5	145.75	3.247		
10,800.0	6,943.6	10,843.8	7,028.3	75.9	75.5	-100.19	3,771.0	55.8	473.2	323.7	149.47	3.166		
10,900.0	6,943.5	10,943.8	7,027.8	77.7	77.4	-100.14	3,871.0	55.8	473.1	319.9	153.20	3.088		
11,000.0	6,943.4	11,043.8	7,027.3	79.6	79.3	-100.09	3,971.0	55.8	473.0	316.1	156.93	3.014		
11,100.0	6,943.3	11,143.8	7,026.7	81.5	81.2	-100.04	4,071.0	55.8	472.9	312.3	160.67	2.944		
11,200.0	6,943.2	11,243.8	7,026.2	83.4	83.1	-99.99	4,171.0	55.8	472.9	308.5	164.41	2.876		
11,300.0	6,943.1	11,343.8	7,025.7	85.3	85.0	-99.94	4,271.0	55.8	472.8	304.6	168.15	2.812		
11,400.0	6,943.0	11,443.8	7,025.2	87.1	86.7	-99.89	4,371.0	55.8	472.7	301.0	171.74	2.753		
11,412.1	6,943.0	11,455.9	7,025.1	87.4	86.9	-99.88	4,383.1	55.8	472.7	300.6	172.14	2.746 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	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
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
2,400.0	2,381.8	2,551.0	2,528.0	6.7	7.5	-46.87		52.9	1,141.9	983.0	970.8	12.16	80.812	
2,500.0	2,480.4	2,647.3	2,622.7	7.1	7.9	-47.06		41.3	1,129.0	956.1	943.3	12.77	74.893	
2,600.0	2,579.0	2,743.5	2,717.4	7.5	8.3	-47.25		29.6	1,116.1	929.2	915.8	13.37	69.495	
2,700.0	2,677.6	2,839.8	2,812.0	7.9	8.7	-47.46		18.0	1,103.2	902.3	888.3	13.98	64.554	
2,800.0	2,776.2	2,936.1	2,906.7	8.3	9.0	-47.68		6.4	1,090.4	875.4	860.8	14.59	60.018	
2,900.0	2,874.7	3,032.3	3,001.4	8.6	9.4	-47.91		-5.3	1,077.5	848.5	833.3	15.20	55.839	
3,000.0	2,973.3	3,128.6	3,096.1	9.0	9.8	-48.16		-16.9	1,064.6	821.7	805.8	15.81	51.980	
3,100.0	3,071.9	3,224.9	3,190.8	9.4	10.2	-48.42		-28.5	1,051.7	794.8	778.4	16.42	48.405	
3,200.0	3,170.5	3,321.1	3,285.5	9.8	10.6	-48.71		-40.2	1,038.8	768.0	751.0	17.03	45.086	
3,300.0	3,269.1	3,417.4	3,380.2	10.2	11.0	-49.01		-51.8	1,026.0	741.2	723.5	17.65	41.996	
3,400.0	3,367.6	3,513.6	3,474.8	10.6	11.4	-49.33		-63.4	1,013.1	714.4	696.1	18.26	39.113	
3,500.0	3,466.2	3,609.9	3,569.5	11.0	11.8	-49.69		-75.0	1,000.2	687.6	668.8	18.88	36.419	
3,600.0	3,564.8	3,706.2	3,664.2	11.4	12.2	-50.07		-86.7	987.3	660.9	641.4	19.50	33.894	
3,700.0	3,663.4	3,802.4	3,758.9	11.8	12.6	-50.48		-98.3	974.4	634.2	614.1	20.12	31.526	
3,800.0	3,762.0	3,898.7	3,853.6	12.2	13.0	-50.93		-109.9	961.6	607.5	586.8	20.74	29.299	
3,900.0	3,860.5	3,995.0	3,948.3	12.6	13.4	-51.41		-121.6	948.7	580.9	559.5	21.35	27.202	
4,000.0	3,959.1	4,091.2	4,043.0	12.9	13.8	-51.95		-133.2	935.8	554.3	532.3	21.97	25.225	
4,100.0	4,057.7	4,187.5	4,137.7	13.3	14.2	-52.54		-144.8	922.9	527.7	505.2	22.59	23.358	
4,200.0	4,156.3	4,283.7	4,232.3	13.7	14.6	-53.19		-156.5	910.0	501.3	478.0	23.21	21.593	
4,300.0	4,254.8	4,380.0	4,327.0	14.1	15.0	-53.92		-168.1	897.2	474.8	451.0	23.84	19.922	
4,400.0	4,353.4	4,476.3	4,421.7	14.5	15.4	-54.72		-179.7	884.3	448.5	424.0	24.46	18.338	
4,500.0	4,452.0	4,572.5	4,516.4	14.9	15.8	-55.63		-191.4	871.4	422.3	397.2	25.08	16.836	
4,567.8	4,518.8	4,637.8	4,580.5	15.2	16.1	-56.32		-199.2	862.7	404.5	379.0	25.50	15.863	
4,600.0	4,550.6	4,668.8	4,611.1	15.3	16.2	-56.50		-203.0	858.5	396.2	370.5	25.70	15.415	
4,700.0	4,649.6	4,765.7	4,706.3	15.6	16.6	-56.86		-214.7	845.6	371.7	345.5	26.26	14.157	
4,800.0	4,749.1	4,863.0	4,802.1	15.8	17.0	-56.88		-226.5	832.5	349.1	322.3	26.78	13.037	
4,900.0	4,848.8	4,960.8	4,898.3	16.0	17.4	-56.45		-238.3	819.5	328.4	301.1	27.27	12.042	
5,000.0	4,948.8	5,059.0	4,994.9	16.1	17.8	-55.51		-250.1	806.3	309.6	281.8	27.73	11.162	
5,051.2	5,000.0	5,109.4	5,044.4	16.2	18.0	69.74		-256.2	799.6	300.7	272.7	27.97	10.751	
5,100.0	5,048.8	5,157.3	5,091.6	16.3	18.2	70.37		-262.0	793.2	292.5	264.3	28.19	10.379	
5,200.0	5,148.8	5,255.7	5,188.4	16.4	18.6	71.80		-273.9	780.0	275.9	247.3	28.64	9.635	
5,300.0	5,248.8	5,354.1	5,285.1	16.5	19.0	73.41		-285.8	766.8	259.5	230.4	29.11	8.915	
5,400.0	5,348.8	5,452.4	5,381.9	16.7	19.4	75.23		-297.7	753.7	243.3	213.7	29.60	8.220	
5,500.0	5,448.8	5,550.8	5,478.6	16.8	19.8	77.31		-309.6	740.5	227.4	197.2	30.11	7.550	
5,600.0	5,548.8	5,649.1	5,575.4	17.0	20.3	79.69		-321.5	727.4	211.8	181.1	30.66	6.907	
5,700.0	5,648.8	5,747.5	5,672.1	17.1	20.7	82.44		-333.3	714.2	196.6	165.4	31.24	6.292	
5,800.0	5,748.8	5,841.7	5,764.9	17.2	21.0	85.27		-343.9	702.5	182.9	151.2	31.78	5.756	
5,900.0	5,848.8	5,936.2	5,858.5	17.4	21.2	87.87		-352.5	693.0	172.3	140.0	32.28	5.338	
6,000.0	5,948.8	6,031.4	5,953.3	17.5	21.4	90.06		-359.1	685.7	164.6	131.8	32.75	5.024	
6,100.0	6,048.8	6,127.2	6,048.8	17.7	21.6	91.66		-363.5	680.8	159.5	126.3	33.18	4.807	
6,200.0	6,148.8	6,223.3	6,144.9	17.8	21.7	92.54		-365.8	678.2	156.9	123.3	33.55	4.676	
6,234.5	6,183.2	6,256.5	6,178.1	17.9	21.8	92.65		-366.1	677.9	156.5	122.9	33.66	4.650	
6,250.0	6,198.8	6,271.4	6,193.0	17.9	21.8	92.73		-366.2	677.8	156.5	122.8	33.72	4.642	
6,252.5	6,201.2	6,273.8	6,195.4	17.9	21.8	92.75		-366.2	677.8	156.5	122.8	33.72	4.641 CC	
6,300.0	6,248.7	6,321.1	6,242.7	18.0	21.9	93.69		-366.2	677.8	156.6	122.7	33.91	4.620 ES	
6,350.0	6,298.3	6,370.7	6,292.3	18.0	21.9	95.79		-366.2	677.8	157.1	123.0	34.13	4.604	
6,400.0	6,347.5	6,419.9	6,341.5	18.0	22.0	98.94		-366.2	677.8	158.3	123.9	34.38	4.605	
6,450.0	6,395.9	6,469.0	6,390.6	18.1	22.0	103.00		-366.1	677.8	160.7	126.1	34.63	4.642	
6,500.0	6,443.4	6,520.3	6,441.8	18.1	22.1	107.28		-363.4	677.8	164.2	129.4	34.79	4.720	
6,550.0	6,489.9	6,572.5	6,493.6	18.0	22.1	111.35		-357.1	677.8	168.6	133.8	34.83	4.841	
6,600.0	6,535.0	6,625.7	6,545.8	18.0	22.1	115.17		-347.1	677.8	173.8	139.0	34.73	5.004	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	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	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,650.0	6,578.6	6,679.9	6,598.3	18.0	22.0	118.72		-333.2	677.8	179.6	145.1	34.48	5.208	
6,700.0	6,620.5	6,735.3	6,650.6	18.0	22.0	121.98		-315.2	677.8	185.9	151.8	34.08	5.453	
6,750.0	6,660.5	6,791.7	6,702.5	17.9	21.9	124.95		-293.0	677.8	192.5	158.9	33.55	5.738	
6,800.0	6,698.5	6,849.3	6,753.6	17.9	21.8	127.64		-266.5	677.8	199.3	166.4	32.89	6.060	
6,850.0	6,734.3	6,908.1	6,803.5	17.8	21.7	130.06		-235.5	677.8	206.2	174.1	32.13	6.417	
6,900.0	6,767.7	6,968.0	6,851.8	17.8	21.5	132.21		-200.1	677.8	213.0	181.7	31.30	6.806	
6,950.0	6,798.6	7,029.0	6,898.0	17.7	21.3	134.12		-160.2	677.8	219.6	189.2	30.42	7.219	
7,000.0	6,826.9	7,091.1	6,941.6	17.7	21.2	135.79		-116.0	677.8	225.9	196.3	29.53	7.649	
7,050.0	6,852.4	7,154.3	6,982.1	17.6	21.0	137.24		-67.5	677.8	231.7	203.0	28.67	8.081	
7,100.0	6,875.1	7,218.5	7,019.0	17.6	20.8	138.47		-15.1	677.8	237.0	209.1	27.88	8.500	
7,150.0	6,894.8	7,283.5	7,051.7	17.6	20.6	139.51		41.1	677.8	241.6	214.4	27.20	8.883	
7,200.0	6,911.5	7,349.4	7,079.9	17.6	20.4	140.34		100.6	677.8	245.6	218.9	26.68	9.205	
7,250.0	6,925.0	7,415.9	7,103.1	17.7	20.2	140.99		162.9	677.8	248.7	222.4	26.35	9.439	
7,300.0	6,935.4	7,482.9	7,120.9	17.9	20.0	141.46		227.5	677.8	251.1	224.8	26.25	9.564	
7,350.0	6,942.5	7,550.3	7,133.0	18.2	19.9	141.75		293.7	677.8	252.5	226.1	26.40	9.567	
7,400.0	6,946.4	7,617.9	7,139.2	18.6	19.7	141.86		361.0	677.8	253.1	226.3	26.80	9.444	
7,431.8	6,947.2	7,658.5	7,140.1	18.9	19.7	141.84		401.6	677.8	253.0	225.9	27.17	9.311	
7,435.3	6,947.2	7,662.0	7,140.1	19.0	19.7	141.84		405.1	677.8	253.0	225.8	27.21	9.298	
7,500.0	6,947.1	7,726.7	7,140.4	19.6	19.8	141.89		469.9	677.8	253.3	225.2	28.03	9.034	
7,600.0	6,947.0	7,826.7	7,140.7	20.8	20.4	141.95		569.9	677.8	253.6	224.2	29.44	8.615	
7,700.0	6,946.9	7,926.7	7,141.1	22.0	21.4	142.01		669.9	677.8	254.0	223.0	31.00	8.193	
7,800.0	6,946.8	8,026.7	7,141.4	23.4	22.6	142.07		769.9	677.8	254.3	221.7	32.69	7.780	
7,900.0	6,946.7	8,126.7	7,141.8	24.8	23.8	142.14		869.9	677.8	254.7	220.2	34.50	7.383	
8,000.0	6,946.6	8,226.7	7,142.1	26.3	25.1	142.20		969.9	677.8	255.1	218.7	36.40	7.008	
8,100.0	6,946.5	8,326.7	7,142.5	27.8	26.5	142.26		1,069.9	677.8	255.4	217.1	38.37	6.656	
8,200.0	6,946.4	8,426.7	7,142.8	29.3	28.0	142.32		1,169.9	677.8	255.8	215.4	40.42	6.329	
8,300.0	6,946.3	8,526.7	7,143.2	30.9	29.5	142.38		1,269.9	677.8	256.1	213.6	42.51	6.025	
8,400.0	6,946.2	8,626.7	7,143.5	32.6	31.0	142.45		1,369.9	677.8	256.5	211.8	44.66	5.744	
8,500.0	6,946.0	8,726.7	7,143.9	34.2	32.6	142.51		1,469.9	677.8	256.9	210.0	46.84	5.483	
8,600.0	6,945.9	8,826.7	7,144.2	35.9	34.2	142.57		1,569.9	677.8	257.2	208.2	49.06	5.243	
8,700.0	6,945.8	8,926.7	7,144.6	37.6	35.8	142.63		1,669.9	677.8	257.6	206.3	51.31	5.020	
8,800.0	6,945.7	9,026.7	7,144.9	39.4	37.4	142.69		1,769.9	677.8	258.0	204.4	53.58	4.814	
8,900.0	6,945.6	9,126.7	7,145.3	41.1	39.1	142.75		1,869.9	677.8	258.3	202.4	55.88	4.623	
9,000.0	6,945.5	9,226.7	7,145.6	42.9	40.8	142.81		1,969.9	677.8	258.7	200.5	58.19	4.446	
9,100.0	6,945.4	9,326.7	7,146.0	44.7	42.5	142.87		2,069.9	677.8	259.0	198.5	60.51	4.281	
9,200.0	6,945.3	9,426.7	7,146.3	46.4	44.3	142.93		2,169.9	677.8	259.4	196.6	62.85	4.127	
9,300.0	6,945.2	9,526.7	7,146.7	48.2	46.0	142.99		2,269.9	677.8	259.8	194.6	65.20	3.984	
9,400.0	6,945.1	9,626.7	7,147.0	50.0	47.8	143.05		2,369.8	677.8	260.1	192.6	67.56	3.850	
9,500.0	6,945.0	9,726.7	7,147.3	51.8	49.6	143.11		2,469.8	677.8	260.5	190.6	69.93	3.725	
9,600.0	6,944.9	9,826.7	7,147.7	53.7	51.3	143.17		2,569.8	677.8	260.9	188.6	72.30	3.608	
9,700.0	6,944.8	9,926.7	7,148.0	55.5	53.1	143.23		2,669.8	677.8	261.2	186.5	74.68	3.498	
9,800.0	6,944.7	10,026.7	7,148.4	57.3	54.9	143.29		2,769.8	677.8	261.6	184.5	77.06	3.394	
9,900.0	6,944.6	10,126.7	7,148.7	59.2	56.7	143.35		2,869.8	677.8	261.9	182.5	79.45	3.297	
10,000.0	6,944.5	10,226.7	7,149.1	61.0	58.5	143.41		2,969.8	677.8	262.3	180.5	81.84	3.205	
10,100.0	6,944.4	10,326.7	7,149.4	62.8	60.4	143.47		3,069.8	677.8	262.7	178.4	84.23	3.118	
10,200.0	6,944.3	10,426.7	7,149.8	64.7	62.2	143.53		3,169.8	677.8	263.0	176.4	86.63	3.036	
10,300.0	6,944.2	10,526.7	7,150.1	66.6	64.0	143.58		3,269.8	677.8	263.4	174.4	89.02	2.959	
10,400.0	6,944.1	10,626.7	7,150.5	68.4	65.8	143.64		3,369.8	677.8	263.8	172.4	91.42	2.885	
10,500.0	6,944.0	10,726.7	7,150.8	70.3	67.7	143.70		3,469.8	677.8	264.1	170.3	93.82	2.815	
10,600.0	6,943.9	10,826.7	7,151.2	72.1	69.5	143.76		3,569.8	677.8	264.5	168.3	96.21	2.749	
10,700.0	6,943.7	10,926.7	7,151.5	74.0	71.4	143.82		3,669.8	677.8	264.9	166.3	98.61	2.686	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis		Distance						Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation		Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
10,800.0	6,943.6	11,026.7	7,151.9	75.9	73.2	143.87	3,769.8	677.8	265.2	164.2	101.01	2.626			
10,900.0	6,943.5	11,126.7	7,152.2	77.7	75.1	143.93	3,869.8	677.8	265.6	162.2	103.40	2.569			
11,000.0	6,943.4	11,226.7	7,152.6	79.6	76.9	143.99	3,969.8	677.8	266.0	160.2	105.80	2.514			
11,100.0	6,943.3	11,326.7	7,152.9	81.5	78.8	144.05	4,069.8	677.8	266.3	158.2	108.19	2.462			
11,200.0	6,943.2	11,426.7	7,153.3	83.4	80.7	144.10	4,169.8	677.8	266.7	156.1	110.58	2.412			
11,300.0	6,943.1	11,526.7	7,153.6	85.3	82.5	144.16	4,269.8	677.8	267.1	154.1	112.97	2.364			
11,400.0	6,943.0	11,626.7	7,154.0	87.1	84.4	144.22	4,369.8	677.8	267.5	152.1	115.36	2.318			
11,412.1	6,943.0	11,632.3	7,154.0	87.4	84.5	144.22	4,375.4	677.8	267.6	152.0	115.57	2.315 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4826.0ft (RKB - 15')

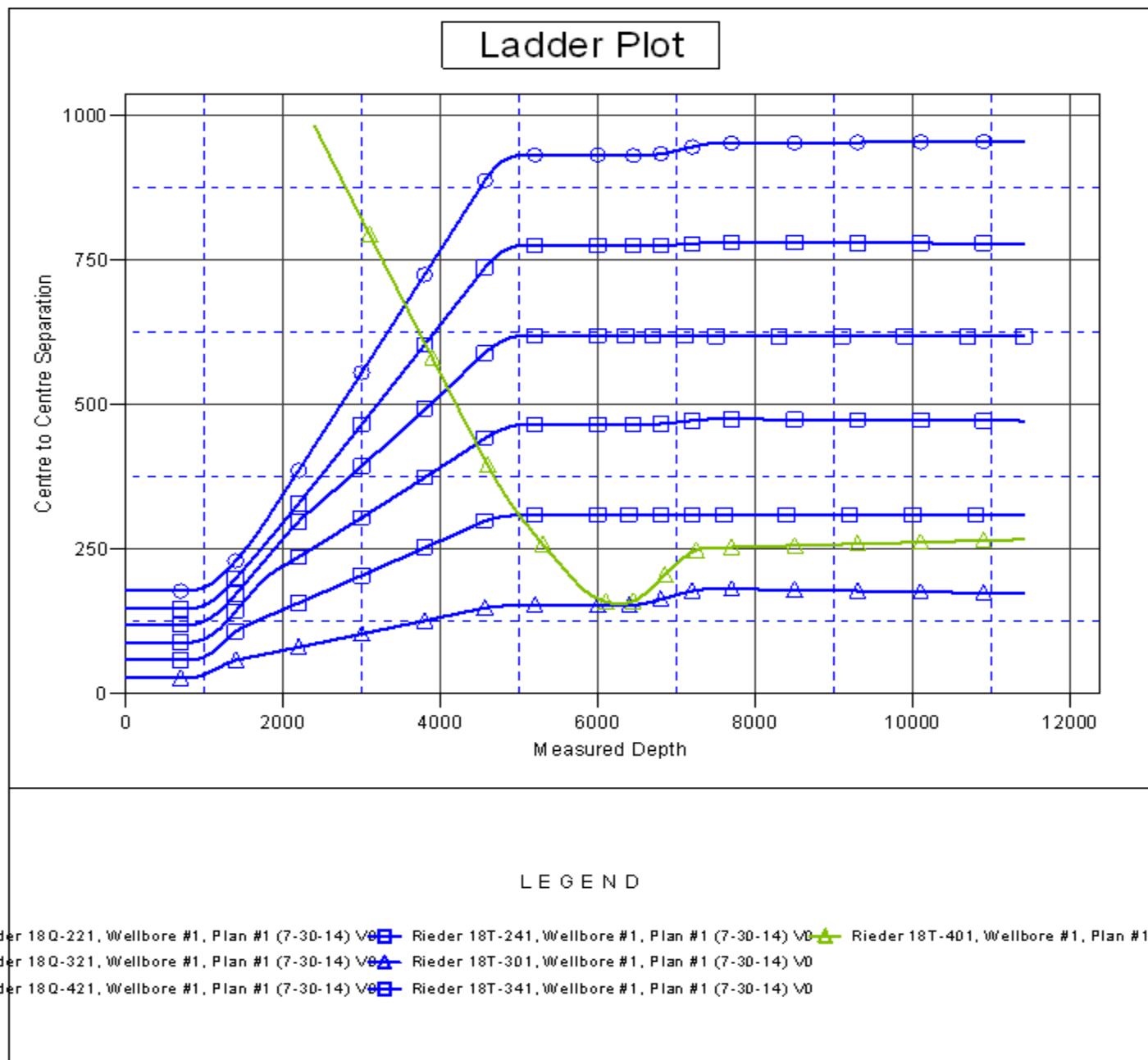
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Rieder 18T-201

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.37°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Rieder 18T-201
Project:	SEC.18-T4N-R67W	TVD Reference:	WELL @ 4826.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	MD Reference:	WELL @ 4826.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Rieder 18T-201	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-30-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4826.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Rieder 18T-201

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.37°

