PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Rieder 18T-341**

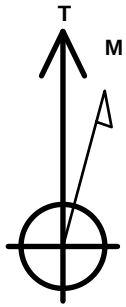
Surface Location: Rieder 4N67W18Q Pad Sec.18-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4812.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1355266.87	3158710.52	40.307210	-104.930920	

RKB - 15' WELL @ 4827.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 368'FSL & 2182'FEL	1.0	0.0	0.0	Point
BHL 500'FNL & 1850'FEL	7025.0	4404.5	145.0	Point



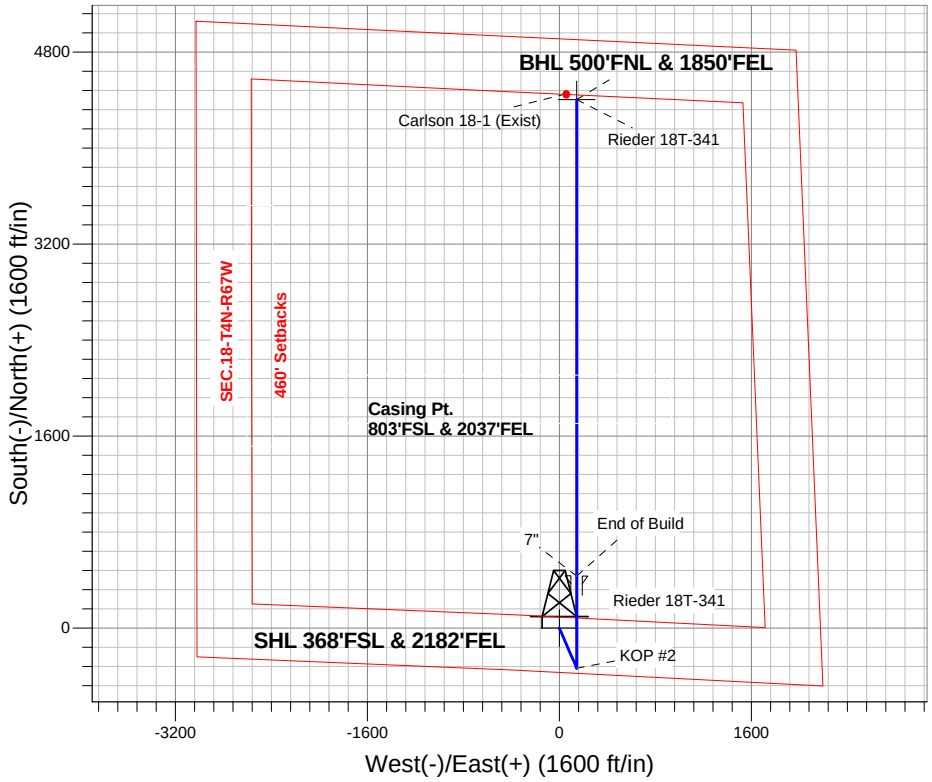
Azimuths to True North
Magnetic North: 8.52°

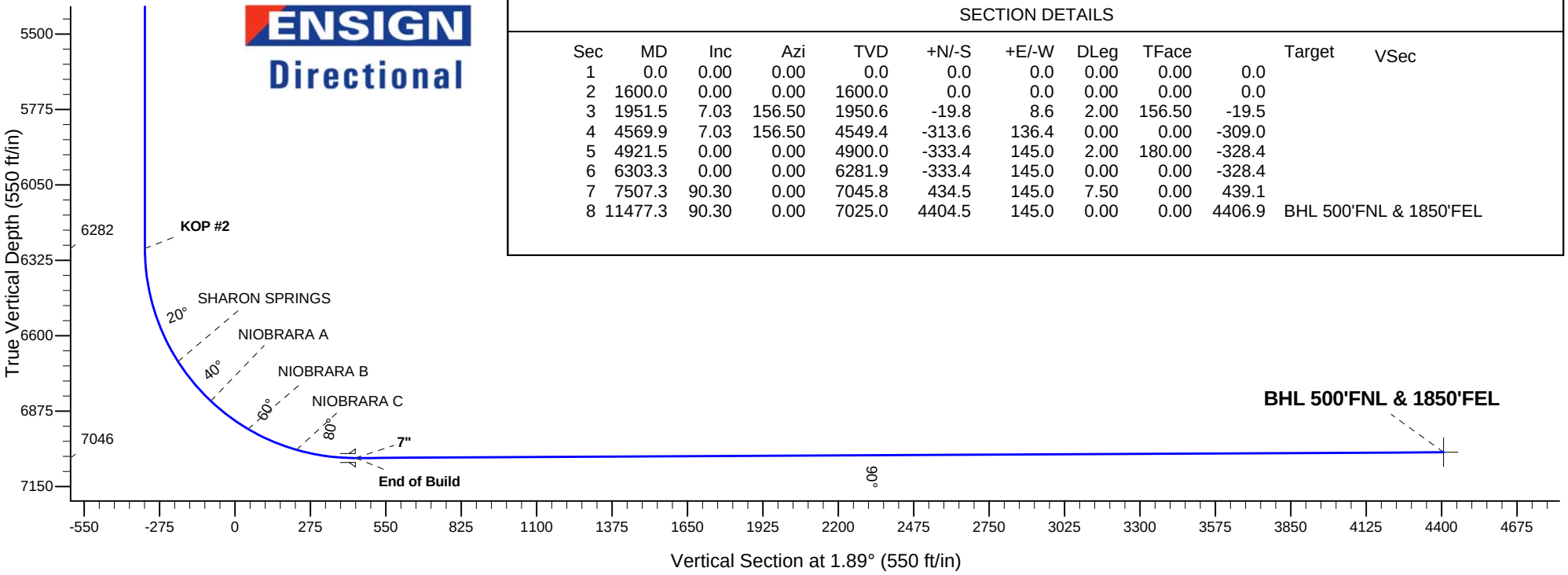
Magnetic Field
Strength: 52736.3snT
Dip Angle: 66.84°
Date: 7/30/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1600.0	1600.0	KOP #1
6281.8	6303.3	KOP #2
7045.8	7507.3	End of Build

Rieder 4N67W18Q Pad Sec.18-T4N-R67
Rieder 18T-341
Plan #1 (7-30-14)
15:04, August 04 2014





SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace		Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0		
3	1951.5	7.03	156.50	1950.6	-19.8	8.6	2.00	156.50	-19.5		
4	4569.9	7.03	156.50	4549.4	-313.6	136.4	0.00	0.00	-309.0		
5	4921.5	0.00	0.00	4900.0	-333.4	145.0	2.00	180.00	-328.4		
6	6303.3	0.00	0.00	6281.9	-333.4	145.0	0.00	0.00	-328.4		
7	7507.3	90.30	0.00	7045.8	434.5	145.0	7.50	0.00	439.1		
8	11477.3	90.30	0.00	7025.0	4404.5	145.0	0.00	0.00	4406.9	BHL 500'FNL & 1850'FEL	

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.18-T4N-R67W
Rieder 4N67W18Q Pad Sec.18-T4N-R67
Rieder 18T-341

Wellbore #1

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

Standard Planning Report

04 August, 2014

Database:	Landmark	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Project:	SEC.18-T4N-R67W	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**North Reference:**	True
Well:	Rieder 18T-341	**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	**Latitude:**	40.307210
From:	Lat/Long	**Easting:**	3,158,679.84 ft	**Longitude:**	-104.931030
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.37 °

Well	Rieder 18T-341					
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,355,266.87 ft	**Latitude:**	40.307210
	+E/-W	30.7 ft	**Easting:**	3,158,710.52 ft	**Longitude:**	-104.930920
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,812.0 ft

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	1.89	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,951.5	7.03	156.50	1,950.6	-19.8	8.6	2.00	2.00	0.00	156.50	
4,569.9	7.03	156.50	4,549.4	-313.6	136.4	0.00	0.00	0.00	0.00	
4,921.5	0.00	0.00	4,900.0	-333.4	145.0	2.00	-2.00	0.00	180.00	
6,303.3	0.00	0.00	6,281.9	-333.4	145.0	0.00	0.00	0.00	0.00	
7,507.3	90.30	0.00	7,045.8	434.5	145.0	7.50	7.50	0.00	0.00	
11,477.3	90.30	0.00	7,025.0	4,404.5	145.0	0.00	0.00	0.00	0.00	BHL 500'FNL & 185

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Project:	SEC.18-T4N-R67W	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**North Reference:**	True
Well:	Rieder 18T-341	**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 368'FSL & 2182'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
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,700.0	2.00	156.50	1,700.0	-1.6	0.7	-1.6	2.00	2.00	0.00
1,800.0	4.00	156.50	1,799.8	-6.4	2.8	-6.3	2.00	2.00	0.00
1,900.0	6.00	156.50	1,899.5	-14.4	6.3	-14.2	2.00	2.00	0.00
1,951.5	7.03	156.50	1,950.6	-19.8	8.6	-19.5	2.00	2.00	0.00
2,000.0	7.03	156.50	1,998.8	-25.2	11.0	-24.8	0.00	0.00	0.00
2,100.0	7.03	156.50	2,098.0	-36.4	15.8	-35.9	0.00	0.00	0.00
2,200.0	7.03	156.50	2,197.3	-47.6	20.7	-46.9	0.00	0.00	0.00
2,300.0	7.03	156.50	2,296.5	-58.9	25.6	-58.0	0.00	0.00	0.00
2,400.0	7.03	156.50	2,395.7	-70.1	30.5	-69.0	0.00	0.00	0.00
2,500.0	7.03	156.50	2,495.0	-81.3	35.4	-80.1	0.00	0.00	0.00
2,600.0	7.03	156.50	2,594.2	-92.5	40.2	-91.2	0.00	0.00	0.00
2,700.0	7.03	156.50	2,693.5	-103.8	45.1	-102.2	0.00	0.00	0.00
2,800.0	7.03	156.50	2,792.7	-115.0	50.0	-113.3	0.00	0.00	0.00
2,900.0	7.03	156.50	2,892.0	-126.2	54.9	-124.3	0.00	0.00	0.00
3,000.0	7.03	156.50	2,991.2	-137.4	59.8	-135.4	0.00	0.00	0.00
3,100.0	7.03	156.50	3,090.5	-148.7	64.7	-146.5	0.00	0.00	0.00
3,200.0	7.03	156.50	3,189.7	-159.9	69.5	-157.5	0.00	0.00	0.00
3,300.0	7.03	156.50	3,289.0	-171.1	74.4	-168.6	0.00	0.00	0.00
3,400.0	7.03	156.50	3,388.2	-182.3	79.3	-179.6	0.00	0.00	0.00
3,462.2	7.03	156.50	3,450.0	-189.3	82.3	-186.5	0.00	0.00	0.00
PARKMAN									
3,500.0	7.03	156.50	3,487.5	-193.6	84.2	-190.7	0.00	0.00	0.00
3,600.0	7.03	156.50	3,586.7	-204.8	89.1	-201.7	0.00	0.00	0.00
3,700.0	7.03	156.50	3,686.0	-216.0	93.9	-212.8	0.00	0.00	0.00
3,800.0	7.03	156.50	3,785.2	-227.2	98.8	-223.9	0.00	0.00	0.00
3,900.0	7.03	156.50	3,884.5	-238.5	103.7	-234.9	0.00	0.00	0.00
3,976.1	7.03	156.50	3,960.0	-247.0	107.4	-243.3	0.00	0.00	0.00
SUSSEX									
4,000.0	7.03	156.50	3,983.7	-249.7	108.6	-246.0	0.00	0.00	0.00
4,100.0	7.03	156.50	4,083.0	-260.9	113.5	-257.0	0.00	0.00	0.00
4,200.0	7.03	156.50	4,182.2	-272.1	118.4	-268.1	0.00	0.00	0.00
4,300.0	7.03	156.50	4,281.5	-283.4	123.2	-279.1	0.00	0.00	0.00
4,400.0	7.03	156.50	4,380.7	-294.6	128.1	-290.2	0.00	0.00	0.00

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Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**North Reference:**	True
Well:	Rieder 18T-341	**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	7.03	156.50	4,480.0	-305.8	133.0	-301.3	0.00	0.00	0.00
4,540.3	7.03	156.50	4,520.0	-310.3	135.0	-305.7	0.00	0.00	0.00
SHANNON									
4,569.9	7.03	156.50	4,549.4	-313.6	136.4	-309.0	0.00	0.00	0.00
4,600.0	6.43	156.50	4,579.2	-316.9	137.8	-312.2	2.00	-2.00	0.00
4,700.0	4.43	156.50	4,678.8	-325.6	141.6	-320.7	2.00	-2.00	0.00
4,800.0	2.43	156.50	4,778.6	-331.0	144.0	-326.1	2.00	-2.00	0.00
4,900.0	0.43	156.50	4,878.5	-333.3	145.0	-328.4	2.00	-2.00	0.00
4,921.5	0.00	0.00	4,900.0	-333.4	145.0	-328.4	2.00	-2.00	0.00
5,000.0	0.00	0.00	4,978.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,100.0	0.00	0.00	5,078.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,200.0	0.00	0.00	5,178.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,300.0	0.00	0.00	5,278.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,400.0	0.00	0.00	5,378.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,500.0	0.00	0.00	5,478.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,600.0	0.00	0.00	5,578.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,700.0	0.00	0.00	5,678.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,800.0	0.00	0.00	5,778.5	-333.4	145.0	-328.4	0.00	0.00	0.00
5,900.0	0.00	0.00	5,878.5	-333.4	145.0	-328.4	0.00	0.00	0.00
6,000.0	0.00	0.00	5,978.5	-333.4	145.0	-328.4	0.00	0.00	0.00
6,100.0	0.00	0.00	6,078.5	-333.4	145.0	-328.4	0.00	0.00	0.00
6,200.0	0.00	0.00	6,178.5	-333.4	145.0	-328.4	0.00	0.00	0.00
6,300.0	0.00	0.00	6,278.5	-333.4	145.0	-328.4	0.00	0.00	0.00
6,303.3	0.00	0.00	6,281.8	-333.4	145.0	-328.4	0.00	0.00	0.00
KOP #2									
6,400.0	7.25	0.00	6,378.3	-327.3	145.0	-322.3	7.50	7.50	0.00
6,500.0	14.75	0.00	6,476.4	-308.2	145.0	-303.3	7.50	7.50	0.00
6,600.0	22.25	0.00	6,571.1	-276.5	145.0	-271.6	7.50	7.50	0.00
6,700.0	29.75	0.00	6,661.0	-232.7	145.0	-227.8	7.50	7.50	0.00
6,738.6	32.65	0.00	6,694.0	-212.7	145.0	-207.8	7.50	7.50	0.00
SHARON SPRINGS									
6,800.0	37.25	0.00	6,744.3	-177.5	145.0	-172.7	7.50	7.50	0.00
6,900.0	44.75	0.00	6,819.7	-112.0	145.0	-107.1	7.50	7.50	0.00
6,926.2	46.72	0.00	6,838.0	-93.2	145.0	-88.4	7.50	7.50	0.00
NIOBRARA A									
7,000.0	52.25	0.00	6,885.9	-37.1	145.0	-32.3	7.50	7.50	0.00
7,096.5	59.49	0.00	6,940.0	42.7	145.0	47.4	7.50	7.50	0.00
NIOBRARA B									
7,100.0	59.75	0.00	6,941.8	45.7	145.0	50.5	7.50	7.50	0.00
7,200.0	67.25	0.00	6,986.4	135.1	145.0	139.8	7.50	7.50	0.00
7,289.2	73.94	0.00	7,016.0	219.3	145.0	223.9	7.50	7.50	0.00
NIOBRARA C									
7,300.0	74.75	0.00	7,018.9	229.6	145.0	234.3	7.50	7.50	0.00
7,400.0	82.25	0.00	7,038.8	327.6	145.0	332.1	7.50	7.50	0.00
7,500.0	89.75	0.00	7,045.8	427.2	145.0	431.8	7.50	7.50	0.00
7,507.3	90.30	0.00	7,045.8	434.5	145.0	439.1	7.50	7.50	0.00
End of Build - 7"									
7,600.0	90.30	0.00	7,045.3	527.2	145.0	531.7	0.00	0.00	0.00
7,700.0	90.30	0.00	7,044.8	627.2	145.0	631.7	0.00	0.00	0.00
7,800.0	90.30	0.00	7,044.3	727.2	145.0	731.6	0.00	0.00	0.00
7,900.0	90.30	0.00	7,043.7	827.2	145.0	831.6	0.00	0.00	0.00
8,000.0	90.30	0.00	7,043.2	927.2	145.0	931.5	0.00	0.00	0.00

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Well:	Rieder 18T-341	**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)
8,100.0	90.30	0.00	7,042.7	1,027.2	145.0	1,031.4	0.00	0.00	0.00
8,200.0	90.30	0.00	7,042.2	1,127.2	145.0	1,131.4	0.00	0.00	0.00
8,300.0	90.30	0.00	7,041.6	1,227.2	145.0	1,231.3	0.00	0.00	0.00
8,400.0	90.30	0.00	7,041.1	1,327.2	145.0	1,331.3	0.00	0.00	0.00
8,500.0	90.30	0.00	7,040.6	1,427.2	145.0	1,431.2	0.00	0.00	0.00
8,600.0	90.30	0.00	7,040.1	1,527.2	145.0	1,531.2	0.00	0.00	0.00
8,700.0	90.30	0.00	7,039.5	1,627.2	145.0	1,631.1	0.00	0.00	0.00
8,800.0	90.30	0.00	7,039.0	1,727.2	145.0	1,731.1	0.00	0.00	0.00
8,900.0	90.30	0.00	7,038.5	1,827.2	145.0	1,831.0	0.00	0.00	0.00
9,000.0	90.30	0.00	7,038.0	1,927.2	145.0	1,930.9	0.00	0.00	0.00
9,100.0	90.30	0.00	7,037.4	2,027.2	145.0	2,030.9	0.00	0.00	0.00
9,200.0	90.30	0.00	7,036.9	2,127.2	145.0	2,130.8	0.00	0.00	0.00
9,300.0	90.30	0.00	7,036.4	2,227.2	145.0	2,230.8	0.00	0.00	0.00
9,400.0	90.30	0.00	7,035.9	2,327.2	145.0	2,330.7	0.00	0.00	0.00
9,500.0	90.30	0.00	7,035.4	2,427.2	145.0	2,430.7	0.00	0.00	0.00
9,600.0	90.30	0.00	7,034.8	2,527.2	145.0	2,530.6	0.00	0.00	0.00
9,700.0	90.30	0.00	7,034.3	2,627.2	145.0	2,630.6	0.00	0.00	0.00
9,800.0	90.30	0.00	7,033.8	2,727.2	145.0	2,730.5	0.00	0.00	0.00
9,900.0	90.30	0.00	7,033.3	2,827.2	145.0	2,830.4	0.00	0.00	0.00
10,000.0	90.30	0.00	7,032.7	2,927.2	145.0	2,930.4	0.00	0.00	0.00
10,100.0	90.30	0.00	7,032.2	3,027.2	145.0	3,030.3	0.00	0.00	0.00
10,200.0	90.30	0.00	7,031.7	3,127.2	145.0	3,130.3	0.00	0.00	0.00
10,300.0	90.30	0.00	7,031.2	3,227.2	145.0	3,230.2	0.00	0.00	0.00
10,400.0	90.30	0.00	7,030.6	3,327.2	145.0	3,330.2	0.00	0.00	0.00
10,500.0	90.30	0.00	7,030.1	3,427.2	145.0	3,430.1	0.00	0.00	0.00
10,600.0	90.30	0.00	7,029.6	3,527.2	145.0	3,530.1	0.00	0.00	0.00
10,700.0	90.30	0.00	7,029.1	3,627.2	145.0	3,630.0	0.00	0.00	0.00
10,800.0	90.30	0.00	7,028.5	3,727.2	145.0	3,729.9	0.00	0.00	0.00
10,900.0	90.30	0.00	7,028.0	3,827.2	145.0	3,829.9	0.00	0.00	0.00
11,000.0	90.30	0.00	7,027.5	3,927.2	145.0	3,929.8	0.00	0.00	0.00
11,100.0	90.30	0.00	7,027.0	4,027.2	145.0	4,029.8	0.00	0.00	0.00
11,200.0	90.30	0.00	7,026.5	4,127.2	145.0	4,129.7	0.00	0.00	0.00
11,300.0	90.30	0.00	7,025.9	4,227.2	145.0	4,229.7	0.00	0.00	0.00
11,400.0	90.30	0.00	7,025.4	4,327.2	145.0	4,329.6	0.00	0.00	0.00
11,477.3	90.30	0.00	7,025.0	4,404.5	145.0	4,406.9	0.00	0.00	0.00
BHL 500'FNL & 1850'FEL									

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 500'FNL & 1850' - plan hits target center - Point	0.00	0.00	7,025.0	4,404.5	145.0	1,359,672.00	3,158,827.25	40.319300	-104.930400
SHL 368'FSL & 2182' - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,355,266.88	3,158,710.52	40.307210	-104.930920

Database:	Landmark	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Project:	SEC.18-T4N-R67W	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**North Reference:**	True
Well:	Rieder 18T-341	**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 (")
7,507.3	7,045.8	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,462.2	3,450.0	PARKMAN			
3,976.1	3,960.0	SUSSEX			
4,540.3	4,520.0	SHANNON			
6,738.6	6,694.0	SHARON SPRINGS			
6,926.2	6,838.0	NIOBRARA A			
7,096.5	6,940.0	NIOBRARA B			
7,289.2	7,016.0	NIOBRARA C			
	7,142.0	FT HAYS			
	7,163.0	CODELL			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,600.0	1,600.0	0.0	0.0	KOP #1
6,303.3	6,281.8	-333.4	145.0	KOP #2
7,507.3	7,045.8	434.5	145.0	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.18-T4N-R67W
Rieder 4N67W18Q Pad Sec.18-T4N-R67
Rieder 18T-341

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

Anticollision Report

04 August, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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** 8/4/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,476.6	Plan #1 (7-30-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Existing Wells Sec.18-T4N-R67W						
Carlson 18-1 (Exist) - Wellbore #1 - Wellbore #1	11,477.3	7,039.0	98.6	-129.4	0.432	Level 1, CC, ES, SF
Rieder 4N67W18Q Pad Sec.18-T4N-R67						
Rieder 18Q-221 - Wellbore #1 - Plan #1 (7-30-14)	1,600.0	1,600.0	30.7	23.7	4.403	CC
Rieder 18Q-221 - Wellbore #1 - Plan #1 (7-30-14)	11,477.3	11,369.0	173.9	16.9	1.108	Level 2, ES, SF
Rieder 18Q-321 - Wellbore #1 - Plan #1 (7-30-14)	1,600.0	1,600.0	58.6	51.6	8.406	CC, ES
Rieder 18Q-321 - Wellbore #1 - Plan #1 (7-30-14)	11,477.3	11,460.1	309.5	135.0	1.774	SF
Rieder 18Q-421 - Wellbore #1 - Plan #1 (7-30-14)	1,400.0	1,400.0	89.2	83.2	14.707	CC, ES
Rieder 18Q-421 - Wellbore #1 - Plan #1 (7-30-14)	11,477.3	11,560.7	485.1	316.6	2.879	SF
Rieder 18T-201 - Wellbore #1 - Plan #1 (7-30-14)	800.0	799.0	89.2	85.9	26.489	CC, ES
Rieder 18T-201 - Wellbore #1 - Plan #1 (7-30-14)	11,477.3	11,412.1	473.2	300.7	2.744	SF
Rieder 18T-241 - Wellbore #1 - Plan #1 (7-30-14)	1,200.0	1,200.0	30.7	25.5	5.935	CC
Rieder 18T-241 - Wellbore #1 - Plan #1 (7-30-14)	11,477.3	11,387.6	176.5	18.1	1.114	Level 2, ES, SF
Rieder 18T-301 - Wellbore #1 - Plan #1 (7-30-14)	1,000.0	999.0	61.4	57.1	14.375	CC, ES
Rieder 18T-301 - Wellbore #1 - Plan #1 (7-30-14)	11,477.3	11,497.6	312.6	138.2	1.792	SF

Offset Design Existing Wells Sec.18-T4N-R67W - Carlson 18-1 (Exist) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7291-UNKNOWN **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,600.0	7,029.6	7,043.6	7,043.6	71.0	140.9	-93.21	4,451.8	58.6	928.7	717.1	211.53	4.390	
10,700.0	7,029.1	7,043.1	7,043.1	72.8	140.9	-92.86	4,451.8	58.6	829.2	615.7	213.45	3.885	
10,800.0	7,028.5	7,042.5	7,042.5	74.7	140.9	-92.51	4,451.8	58.6	729.8	514.4	215.37	3.388	
10,900.0	7,028.0	7,042.0	7,042.0	76.6	140.8	-92.17	4,451.8	58.6	630.6	413.3	217.29	2.902	
11,000.0	7,027.5	7,041.5	7,041.5	78.5	140.8	-91.82	4,451.8	58.6	531.7	312.5	219.20	2.426	
11,100.0	7,027.0	7,041.0	7,041.0	80.4	140.8	-91.47	4,451.8	58.6	433.3	212.2	221.10	1.960	
11,200.0	7,026.5	7,040.5	7,040.5	82.2	140.8	-91.13	4,451.8	58.6	336.0	113.0	223.00	1.507	
11,300.0	7,025.9	7,039.9	7,039.9	84.1	140.8	-90.78	4,451.8	58.6	240.7	15.8	224.90	1.070	Level 2
11,400.0	7,025.4	7,039.4	7,039.4	86.0	140.8	-90.43	4,451.8	58.6	151.7	-75.1	226.78	0.669	Level 1
11,477.3	7,025.0	7,039.0	7,039.0	87.2	140.8	-90.16	4,451.8	58.6	98.6	-129.4	227.96	0.432	Level 1, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.02	0.0	-30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	-90.02	0.0	-30.7	30.7	30.5	0.22	136.495	
200.0	200.0	200.0	200.0	0.3	0.3	-90.02	0.0	-30.7	30.7	30.0	0.67	45.498	
300.0	300.0	300.0	300.0	0.6	0.6	-90.02	0.0	-30.7	30.7	29.6	1.12	27.299	
400.0	400.0	400.0	400.0	0.8	0.8	-90.02	0.0	-30.7	30.7	29.1	1.57	19.499	
500.0	500.0	500.0	500.0	1.0	1.0	-90.02	0.0	-30.7	30.7	28.7	2.02	15.166	
600.0	600.0	600.0	600.0	1.2	1.2	-90.02	0.0	-30.7	30.7	28.2	2.47	12.409	
700.0	700.0	700.0	700.0	1.5	1.5	-90.02	0.0	-30.7	30.7	27.8	2.92	10.500	
800.0	800.0	800.0	800.0	1.7	1.7	-90.02	0.0	-30.7	30.7	27.3	3.37	9.100	
900.0	900.0	900.0	900.0	1.9	1.9	-90.02	0.0	-30.7	30.7	26.9	3.82	8.029	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.02	0.0	-30.7	30.7	26.4	4.27	7.184	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.02	0.0	-30.7	30.7	26.0	4.72	6.500	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.02	0.0	-30.7	30.7	25.5	5.17	5.935	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.02	0.0	-30.7	30.7	25.1	5.62	5.460	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.02	0.0	-30.7	30.7	24.6	6.07	5.055	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-90.02	0.0	-30.7	30.7	24.2	6.52	4.707	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-90.02	0.0	-30.7	30.7	23.7	6.97	4.403	CC
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	116.40	0.0	-30.7	31.4	24.0	7.39	4.252	
1,800.0	1,799.8	1,799.8	1,799.8	3.9	3.9	124.25	0.0	-30.7	34.1	26.3	7.78	4.378	
1,900.0	1,899.5	1,899.5	1,899.5	4.0	4.2	134.62	0.0	-30.7	39.6	31.5	8.17	4.849	
1,951.5	1,950.6	1,950.6	1,950.6	4.1	4.3	139.98	0.0	-30.7	44.0	35.6	8.38	5.248	
2,000.0	1,998.8	1,998.8	1,998.8	4.2	4.4	144.47	0.0	-30.7	48.7	40.1	8.57	5.677	
2,100.0	2,098.0	2,099.3	2,099.3	4.5	4.6	150.18	-1.7	-30.6	58.0	49.0	8.96	6.471	
2,200.0	2,197.3	2,200.5	2,200.3	4.7	4.8	152.07	-7.0	-30.2	65.2	55.9	9.32	6.995	
2,300.0	2,296.5	2,302.0	2,301.4	4.9	4.9	151.48	-15.9	-29.6	70.1	60.4	9.71	7.223	
2,400.0	2,395.7	2,402.7	2,401.5	5.2	5.1	149.14	-27.8	-28.8	73.1	62.9	10.12	7.221	
2,500.0	2,495.0	2,502.6	2,500.6	5.4	5.3	146.74	-40.0	-27.9	75.8	65.3	10.54	7.191	
2,600.0	2,594.2	2,602.6	2,599.8	5.7	5.5	144.52	-52.2	-27.1	78.7	67.7	10.99	7.162	
2,700.0	2,693.5	2,702.5	2,698.9	6.0	5.8	142.45	-64.4	-26.3	81.7	70.3	11.46	7.133	
2,800.0	2,792.7	2,802.4	2,798.1	6.3	6.0	140.54	-76.6	-25.4	84.8	72.9	11.94	7.105	
2,900.0	2,892.0	2,902.3	2,897.3	6.5	6.2	138.76	-88.8	-24.6	88.0	75.6	12.43	7.078	
3,000.0	2,991.2	3,002.2	2,996.4	6.8	6.5	137.11	-101.0	-23.8	91.3	78.3	12.95	7.050	
3,100.0	3,090.5	3,102.1	3,095.6	7.1	6.8	135.57	-113.2	-22.9	94.6	81.1	13.47	7.023	
3,200.0	3,189.7	3,202.0	3,194.7	7.4	7.0	134.14	-125.5	-22.1	98.0	84.0	14.01	6.997	
3,300.0	3,289.0	3,301.9	3,293.9	7.7	7.3	132.80	-137.7	-21.3	101.5	86.9	14.56	6.972	
3,400.0	3,388.2	3,401.9	3,393.1	8.0	7.6	131.56	-149.9	-20.4	105.0	89.9	15.11	6.947	
3,500.0	3,487.5	3,501.8	3,492.2	8.3	7.8	130.39	-162.1	-19.6	108.5	92.9	15.68	6.923	
3,600.0	3,586.7	3,601.7	3,591.4	8.6	8.1	129.30	-174.3	-18.8	112.1	95.9	16.25	6.901	
3,700.0	3,686.0	3,701.6	3,690.5	8.9	8.4	128.28	-186.5	-17.9	115.8	98.9	16.83	6.879	
3,800.0	3,785.2	3,801.5	3,789.7	9.2	8.7	127.32	-198.7	-17.1	119.4	102.0	17.42	6.858	
3,900.0	3,884.5	3,901.4	3,888.9	9.5	9.0	126.41	-211.0	-16.2	123.1	105.1	18.01	6.838	
4,000.0	3,983.7	4,001.3	3,988.0	9.8	9.3	125.56	-223.2	-15.4	126.9	108.3	18.60	6.820	
4,100.0	4,083.0	4,101.3	4,087.2	10.1	9.6	124.76	-235.4	-14.6	130.6	111.4	19.21	6.802	
4,200.0	4,182.2	4,201.2	4,186.3	10.5	9.9	124.01	-247.6	-13.7	134.4	114.6	19.81	6.785	
4,300.0	4,281.5	4,301.1	4,285.5	10.8	10.2	123.29	-259.8	-12.9	138.2	117.8	20.42	6.769	
4,400.0	4,380.7	4,401.0	4,384.7	11.1	10.5	122.61	-272.0	-12.1	142.0	121.0	21.03	6.754	
4,500.0	4,480.0	4,500.9	4,483.8	11.4	10.8	121.97	-284.2	-11.2	145.9	124.2	21.65	6.739	
4,569.9	4,549.4	4,570.8	4,553.2	11.6	11.0	121.55	-292.8	-10.7	148.6	126.5	22.08	6.730	
4,600.0	4,579.2	4,600.8	4,583.0	11.7	11.1	121.33	-296.4	-10.4	149.7	127.4	22.26	6.724	
4,700.0	4,678.8	4,700.0	4,681.4	11.9	11.4	119.98	-308.4	-9.6	152.2	129.3	22.83	6.666	
4,800.0	4,778.6	4,799.4	4,780.4	12.1	11.6	118.49	-317.7	-8.9	153.5	130.2	23.32	6.583	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,878.5	4,898.6	4,879.4	12.3	11.8	117.14	-323.6	-8.5	153.8	130.1	23.76	6.475	
4,921.5	4,900.0	4,919.9	4,900.7	12.4	11.9	-86.64	-324.4	-8.5	153.8	129.9	23.84	6.449	
5,000.0	4,978.5	4,997.9	4,978.7	12.5	12.0	-87.25	-326.0	-8.4	153.6	129.4	24.15	6.358	
5,042.4	5,021.0	5,040.2	5,021.0	12.6	12.1	-87.28	-326.1	-8.4	153.5	129.2	24.30	6.319	
5,100.0	5,078.5	5,097.8	5,078.5	12.7	12.2	-87.28	-326.1	-8.4	153.5	129.0	24.50	6.266	
5,200.0	5,178.5	5,197.8	5,178.5	12.8	12.4	-87.28	-326.1	-8.4	153.5	128.7	24.85	6.178	
5,300.0	5,278.5	5,297.8	5,278.5	13.0	12.5	-87.28	-326.1	-8.4	153.5	128.3	25.20	6.092	
5,400.0	5,378.5	5,397.8	5,378.5	13.2	12.7	-87.28	-326.1	-8.4	153.5	128.0	25.56	6.007	
5,500.0	5,478.5	5,497.8	5,478.5	13.3	12.9	-87.28	-326.1	-8.4	153.5	127.6	25.92	5.924	
5,600.0	5,578.5	5,597.8	5,578.5	13.5	13.1	-87.28	-326.1	-8.4	153.5	127.3	26.28	5.842	
5,700.0	5,678.5	5,697.8	5,678.5	13.7	13.3	-87.28	-326.1	-8.4	153.5	126.9	26.64	5.763	
5,800.0	5,778.5	5,797.8	5,778.5	13.9	13.5	-87.28	-326.1	-8.4	153.5	126.5	27.01	5.684	
5,900.0	5,878.5	5,897.8	5,878.5	14.1	13.6	-87.28	-326.1	-8.4	153.5	126.2	27.38	5.608	
6,000.0	5,978.5	5,997.8	5,978.5	14.2	13.8	-87.28	-326.1	-8.4	153.5	125.8	27.75	5.533	
6,100.0	6,078.5	6,097.8	6,078.5	14.4	14.0	-87.28	-326.1	-8.4	153.5	125.4	28.13	5.459	
6,200.0	6,178.5	6,197.8	6,178.5	14.6	14.2	-87.28	-326.1	-8.4	153.5	125.0	28.50	5.387	
6,303.3	6,281.9	6,300.0	6,280.5	14.8	14.4	-84.96	-319.9	-8.4	154.0	125.2	28.79	5.348	
6,350.0	6,328.5	6,345.0	6,324.9	14.9	14.4	-82.83	-312.9	-8.4	154.6	125.7	28.85	5.358	
6,400.0	6,378.3	6,393.1	6,372.0	14.9	14.4	-80.57	-302.4	-8.4	155.5	126.6	28.88	5.385	
6,450.0	6,427.6	6,441.0	6,417.9	15.0	14.5	-78.39	-289.2	-8.4	156.6	127.8	28.86	5.426	
6,500.0	6,476.4	6,488.5	6,462.6	15.0	14.5	-76.30	-273.2	-8.4	157.9	129.1	28.82	5.480	
6,550.0	6,524.3	6,535.6	6,506.0	15.0	14.5	-74.30	-254.6	-8.4	159.4	130.7	28.74	5.546	
6,600.0	6,571.1	6,582.5	6,547.8	15.0	14.5	-72.40	-233.5	-8.4	161.0	132.4	28.63	5.622	
6,650.0	6,616.8	6,629.1	6,588.0	15.0	14.5	-70.61	-210.0	-8.4	162.7	134.2	28.51	5.707	
6,700.0	6,661.0	6,675.4	6,626.5	15.0	14.5	-68.93	-184.3	-8.4	164.5	136.1	28.37	5.797	
6,750.0	6,703.5	6,721.4	6,663.2	15.0	14.5	-67.37	-156.5	-8.4	166.3	138.1	28.22	5.892	
6,800.0	6,744.3	6,767.2	6,697.9	15.0	14.5	-65.92	-126.7	-8.4	168.1	140.0	28.07	5.989	
6,850.0	6,783.1	6,812.8	6,730.7	15.0	14.5	-64.59	-95.0	-8.4	169.9	142.0	27.93	6.084	
6,900.0	6,819.7	6,858.1	6,761.3	15.0	14.6	-63.37	-61.6	-8.4	171.7	143.9	27.80	6.175	
6,950.0	6,854.0	6,903.3	6,789.8	15.0	14.7	-62.27	-26.5	-8.4	173.4	145.7	27.70	6.258	
7,000.0	6,885.9	6,950.0	6,817.1	15.1	14.8	-61.25	11.4	-8.4	175.0	147.3	27.65	6.329	
7,050.0	6,915.2	6,993.2	6,840.2	15.2	15.0	-60.40	47.9	-8.4	176.5	148.8	27.65	6.383	
7,100.0	6,941.8	7,038.0	6,861.9	15.3	15.2	-59.63	87.0	-8.4	177.8	150.1	27.71	6.418	
7,150.0	6,965.5	7,082.6	6,881.2	15.5	15.4	-58.97	127.2	-8.4	179.0	151.2	27.84	6.430	
7,200.0	6,986.4	7,127.1	6,898.1	15.7	15.6	-58.42	168.4	-8.4	180.1	152.0	28.06	6.417	
7,250.0	7,004.2	7,171.5	6,912.5	16.0	15.9	-57.97	210.4	-8.4	180.9	152.6	28.37	6.378	
7,300.0	7,018.9	7,215.9	6,924.5	16.4	16.3	-57.62	253.2	-8.4	181.6	152.9	28.78	6.312	
7,350.0	7,030.5	7,260.2	6,934.0	16.8	16.6	-57.37	296.4	-8.4	182.1	152.8	29.28	6.220	
7,400.0	7,038.8	7,304.5	6,940.9	17.2	17.0	-57.23	340.2	-8.4	182.4	152.5	29.89	6.103	
7,450.0	7,043.9	7,350.0	6,945.4	17.7	17.4	-57.18	385.4	-8.4	182.5	151.9	30.61	5.963	
7,500.0	7,045.8	7,393.0	6,947.1	18.2	17.9	-57.24	428.5	-8.4	182.4	151.0	31.40	5.808	
7,507.3	7,045.8	7,399.5	6,947.2	18.2	17.9	-57.26	434.9	-8.4	182.3	150.8	31.53	5.784	
7,600.0	7,045.3	7,491.7	6,947.1	19.3	19.0	-57.36	527.1	-8.4	182.1	148.8	33.33	5.465	
7,700.0	7,044.8	7,591.7	6,947.0	20.5	20.2	-57.47	627.1	-8.4	181.9	146.4	35.47	5.128	
7,800.0	7,044.3	7,691.7	6,946.9	21.8	21.6	-57.58	727.1	-8.4	181.7	143.9	37.80	4.806	
7,900.0	7,043.7	7,791.7	6,946.8	23.2	23.0	-57.70	827.1	-8.4	181.5	141.2	40.28	4.505	
8,000.0	7,043.2	7,891.7	6,946.6	24.7	24.5	-57.81	927.1	-8.4	181.2	138.4	42.88	4.226	
8,100.0	7,042.7	7,991.7	6,946.5	26.2	26.0	-57.92	1,027.1	-8.4	181.0	135.4	45.59	3.970	
8,200.0	7,042.2	8,091.7	6,946.4	27.8	27.6	-58.03	1,127.1	-8.4	180.8	132.4	48.39	3.736	
8,300.0	7,041.6	8,191.7	6,946.3	29.4	29.2	-58.14	1,227.1	-8.4	180.6	129.3	51.27	3.522	
8,400.0	7,041.1	8,291.7	6,946.2	31.1	30.9	-58.26	1,327.1	-8.4	180.3	126.1	54.21	3.327	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	7,040.6	8,391.7	6,946.1	32.8	32.6	-58.37	1,427.1	-8.4	180.1	122.9	57.21	3.149	
8,600.0	7,040.1	8,491.7	6,946.0	34.5	34.3	-58.48	1,527.1	-8.4	179.9	119.7	60.25	2.986	
8,700.0	7,039.5	8,591.7	6,945.9	36.2	36.0	-58.60	1,627.1	-8.4	179.7	116.3	63.34	2.837	
8,800.0	7,039.0	8,691.7	6,945.8	38.0	37.8	-58.71	1,727.1	-8.4	179.5	113.0	66.47	2.700	
8,900.0	7,038.5	8,791.7	6,945.7	39.7	39.6	-58.83	1,827.1	-8.4	179.3	109.6	69.63	2.574	
9,000.0	7,038.0	8,891.7	6,945.6	41.5	41.3	-58.94	1,927.1	-8.4	179.0	106.2	72.82	2.459	
9,100.0	7,037.4	8,991.7	6,945.5	43.3	43.1	-59.06	2,027.1	-8.4	178.8	102.8	76.04	2.352	
9,200.0	7,036.9	9,091.7	6,945.4	45.1	44.9	-59.17	2,127.1	-8.4	178.6	99.3	79.29	2.253	
9,300.0	7,036.4	9,191.7	6,945.3	46.9	46.8	-59.29	2,227.1	-8.4	178.4	95.8	82.55	2.161	
9,400.0	7,035.9	9,291.7	6,945.2	48.7	48.6	-59.40	2,327.1	-8.4	178.2	92.3	85.84	2.076	
9,500.0	7,035.4	9,391.7	6,945.1	50.6	50.4	-59.52	2,427.1	-8.4	178.0	88.8	89.15	1.996	
9,600.0	7,034.8	9,491.7	6,945.0	52.4	52.2	-59.64	2,527.1	-8.4	177.8	85.3	92.47	1.922	
9,700.0	7,034.3	9,591.7	6,944.9	54.2	54.1	-59.75	2,627.1	-8.4	177.5	81.7	95.82	1.853	
9,800.0	7,033.8	9,691.7	6,944.8	56.1	55.9	-59.87	2,727.1	-8.4	177.3	78.2	99.17	1.788	
9,900.0	7,033.3	9,791.7	6,944.7	57.9	57.8	-59.99	2,827.1	-8.4	177.1	74.6	102.55	1.727	
10,000.0	7,032.7	9,891.7	6,944.6	59.8	59.6	-60.10	2,927.1	-8.4	176.9	71.0	105.94	1.670	
10,100.0	7,032.2	9,991.7	6,944.5	61.6	61.5	-60.22	3,027.1	-8.4	176.7	67.4	109.34	1.616	
10,200.0	7,031.7	10,091.7	6,944.3	63.5	63.4	-60.34	3,127.1	-8.4	176.5	63.8	112.75	1.565	
10,300.0	7,031.2	10,191.7	6,944.2	65.4	65.2	-60.46	3,227.1	-8.4	176.3	60.1	116.18	1.517	
10,400.0	7,030.6	10,291.7	6,944.1	67.2	67.1	-60.58	3,327.1	-8.4	176.1	56.5	119.61	1.472	Level 3
10,500.0	7,030.1	10,391.7	6,944.0	69.1	69.0	-60.70	3,427.1	-8.4	175.9	52.8	123.06	1.429	Level 3
10,600.0	7,029.6	10,491.7	6,943.9	71.0	70.8	-60.81	3,527.1	-8.4	175.7	49.2	126.52	1.389	Level 3
10,700.0	7,029.1	10,591.7	6,943.8	72.8	72.7	-60.93	3,627.1	-8.4	175.5	45.5	129.99	1.350	Level 3
10,800.0	7,028.5	10,691.7	6,943.7	74.7	74.6	-61.05	3,727.1	-8.4	175.3	41.8	133.47	1.313	Level 3
10,900.0	7,028.0	10,791.7	6,943.6	76.6	76.5	-61.17	3,827.1	-8.4	175.1	38.1	136.96	1.278	Level 3
11,000.0	7,027.5	10,891.7	6,943.5	78.5	78.4	-61.29	3,927.1	-8.4	174.9	34.4	140.47	1.245	Level 2
11,100.0	7,027.0	10,991.7	6,943.4	80.4	80.3	-61.41	4,027.1	-8.4	174.7	30.7	143.97	1.213	Level 2
11,200.0	7,026.5	11,091.7	6,943.3	82.2	82.1	-61.54	4,127.1	-8.4	174.5	27.0	147.49	1.183	Level 2
11,300.0	7,025.9	11,191.7	6,943.2	84.1	84.0	-61.66	4,227.1	-8.4	174.3	23.2	151.02	1.154	Level 2
11,400.0	7,025.4	11,291.7	6,943.1	86.0	85.9	-61.78	4,327.1	-8.4	174.1	19.5	154.56	1.126	Level 2
11,477.3	7,025.0	11,369.0	6,943.0	87.2	87.4	-61.87	4,404.4	-8.4	173.9	16.9	157.03	1.108	Level 2, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-58.6	58.6				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-58.6	58.6	58.3	0.22	260.581	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-58.6	58.6	57.9	0.67	86.860	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-58.6	58.6	57.4	1.12	52.116	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-58.6	58.6	57.0	1.57	37.226	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-58.6	58.6	56.5	2.02	28.953	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-58.6	58.6	56.1	2.47	23.689	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-58.6	58.6	55.6	2.92	20.045	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-58.6	58.6	55.2	3.37	17.372	
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-58.6	58.6	54.7	3.82	15.328	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-58.6	58.6	54.3	4.27	13.715	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.00	0.0	-58.6	58.6	53.8	4.72	12.409	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.00	0.0	-58.6	58.6	53.4	5.17	11.330	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.00	0.0	-58.6	58.6	53.0	5.62	10.423	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.00	0.0	-58.6	58.6	52.5	6.07	9.651	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-90.00	0.0	-58.6	58.6	52.1	6.52	8.986	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-90.00	0.0	-58.6	58.6	51.6	6.97	8.406	CC, ES
1,700.0	1,700.0	1,699.3	1,699.3	3.7	3.7	113.44	-1.6	-59.1	59.8	52.5	7.36	8.129	
1,800.0	1,799.8	1,798.6	1,798.4	3.9	3.9	113.25	-6.5	-60.7	63.5	55.8	7.70	8.251	
1,900.0	1,899.5	1,897.7	1,897.1	4.0	4.0	112.98	-14.7	-63.4	69.7	61.7	8.06	8.651	
1,951.5	1,950.6	1,948.7	1,947.9	4.1	4.1	112.85	-20.1	-65.2	73.9	65.6	8.26	8.947	
2,000.0	1,998.8	1,997.0	1,995.8	4.2	4.2	112.94	-25.4	-67.0	78.0	69.6	8.45	9.232	
2,100.0	2,098.0	2,096.7	2,094.8	4.5	4.4	113.10	-36.4	-70.7	86.6	77.7	8.87	9.760	
2,200.0	2,197.3	2,196.3	2,193.8	4.7	4.7	113.23	-47.4	-74.3	95.1	85.8	9.31	10.214	
2,300.0	2,296.5	2,295.9	2,292.7	4.9	4.9	113.34	-58.5	-78.0	103.7	93.9	9.78	10.605	
2,400.0	2,395.7	2,395.6	2,391.7	5.2	5.1	113.43	-69.5	-81.7	112.2	102.0	10.26	10.942	
2,500.0	2,495.0	2,495.2	2,490.6	5.4	5.4	113.51	-80.5	-85.3	120.8	110.0	10.75	11.233	
2,600.0	2,594.2	2,594.8	2,589.6	5.7	5.6	113.58	-91.5	-89.0	129.3	118.1	11.26	11.485	
2,700.0	2,693.5	2,694.5	2,688.5	6.0	5.9	113.64	-102.5	-92.6	137.9	126.1	11.78	11.703	
2,800.0	2,792.7	2,794.1	2,787.5	6.3	6.2	113.69	-113.5	-96.3	146.4	134.1	12.31	11.893	
2,900.0	2,892.0	2,893.7	2,886.4	6.5	6.5	113.74	-124.5	-100.0	155.0	142.1	12.85	12.060	
3,000.0	2,991.2	2,993.4	2,985.4	6.8	6.7	113.78	-135.5	-103.6	163.5	150.1	13.40	12.205	
3,100.0	3,090.5	3,093.0	3,084.4	7.1	7.0	113.82	-146.5	-107.3	172.1	158.1	13.95	12.334	
3,200.0	3,189.7	3,192.6	3,183.3	7.4	7.3	113.86	-157.5	-110.9	180.6	166.1	14.51	12.447	
3,300.0	3,289.0	3,292.3	3,282.3	7.7	7.6	113.89	-168.6	-114.6	189.1	174.1	15.07	12.548	
3,400.0	3,388.2	3,391.9	3,381.2	8.0	7.9	113.92	-179.6	-118.3	197.7	182.1	15.64	12.637	
3,500.0	3,487.5	3,491.5	3,480.2	8.3	8.2	113.94	-190.6	-121.9	206.2	190.0	16.22	12.717	
3,600.0	3,586.7	3,591.2	3,579.1	8.6	8.5	113.97	-201.6	-125.6	214.8	198.0	16.80	12.788	
3,700.0	3,686.0	3,690.8	3,678.1	8.9	8.7	113.99	-212.6	-129.2	223.3	206.0	17.38	12.852	
3,800.0	3,785.2	3,790.4	3,777.1	9.2	9.0	114.01	-223.6	-132.9	231.9	213.9	17.96	12.910	
3,900.0	3,884.5	3,890.1	3,876.0	9.5	9.3	114.03	-234.6	-136.6	240.4	221.9	18.55	12.962	
4,000.0	3,983.7	3,989.7	3,975.0	9.8	9.6	114.05	-245.6	-140.2	249.0	229.8	19.14	13.009	
4,100.0	4,083.0	4,089.3	4,073.9	10.1	9.9	114.07	-256.6	-143.9	257.5	237.8	19.73	13.051	
4,200.0	4,182.2	4,189.0	4,172.9	10.5	10.2	114.08	-267.7	-147.5	266.1	245.8	20.33	13.090	
4,300.0	4,281.5	4,288.6	4,271.8	10.8	10.5	114.10	-278.7	-151.2	274.6	253.7	20.92	13.126	
4,400.0	4,380.7	4,388.2	4,370.8	11.1	10.8	114.11	-289.7	-154.9	283.2	261.7	21.52	13.158	
4,500.0	4,480.0	4,488.0	4,469.9	11.4	11.2	114.12	-300.7	-158.5	291.7	269.6	22.12	13.188	
4,569.9	4,549.4	4,559.9	4,541.4	11.6	11.3	114.32	-307.7	-160.8	297.4	274.9	22.50	13.219	
4,600.0	4,579.2	4,590.8	4,572.2	11.7	11.4	114.51	-310.2	-161.7	299.6	277.0	22.65	13.227	
4,700.0	4,678.8	4,693.8	4,675.0	11.9	11.6	115.14	-316.2	-163.7	305.4	282.3	23.10	13.223	
4,800.0	4,778.6	4,796.8	4,777.9	12.1	11.8	115.77	-318.7	-164.5	308.7	285.2	23.49	13.140	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,878.5	4,897.4	4,878.5	12.3	12.0	116.19	-318.8	-164.5	309.8	286.0	23.85	12.989	
4,921.5	4,900.0	4,918.9	4,900.0	12.4	12.0	-87.30	-318.8	-164.5	309.9	285.9	23.93	12.950	
5,000.0	4,978.5	4,997.4	4,978.5	12.5	12.1	-87.30	-318.8	-164.5	309.9	285.7	24.20	12.804	
5,100.0	5,078.5	5,097.4	5,078.5	12.7	12.3	-87.30	-318.8	-164.5	309.9	285.3	24.55	12.624	
5,200.0	5,178.5	5,197.4	5,178.5	12.8	12.5	-87.30	-318.8	-164.5	309.9	285.0	24.89	12.448	
5,300.0	5,278.5	5,297.4	5,278.5	13.0	12.7	-87.30	-318.8	-164.5	309.9	284.6	25.24	12.275	
5,400.0	5,378.5	5,397.4	5,378.5	13.2	12.8	-87.30	-318.8	-164.5	309.9	284.3	25.60	12.106	
5,500.0	5,478.5	5,497.4	5,478.5	13.3	13.0	-87.30	-318.8	-164.5	309.9	283.9	25.95	11.940	
5,600.0	5,578.5	5,597.4	5,578.5	13.5	13.2	-87.30	-318.8	-164.5	309.9	283.6	26.31	11.777	
5,700.0	5,678.5	5,697.4	5,678.5	13.7	13.4	-87.30	-318.8	-164.5	309.9	283.2	26.68	11.617	
5,800.0	5,778.5	5,797.4	5,778.5	13.9	13.6	-87.30	-318.8	-164.5	309.9	282.8	27.04	11.460	
5,900.0	5,878.5	5,897.4	5,878.5	14.1	13.7	-87.30	-318.8	-164.5	309.9	282.5	27.41	11.306	
6,000.0	5,978.5	5,997.4	5,978.5	14.2	13.9	-87.30	-318.8	-164.5	309.9	282.1	27.78	11.156	
6,100.0	6,078.5	6,097.4	6,078.5	14.4	14.1	-87.30	-318.8	-164.5	309.9	281.7	28.15	11.009	
6,200.0	6,178.5	6,197.4	6,178.5	14.6	14.3	-87.30	-318.8	-164.5	309.9	281.4	28.52	10.864	
6,303.3	6,281.9	6,300.7	6,281.9	14.8	14.5	-87.30	-318.8	-164.5	309.9	281.0	28.91	10.718	
6,350.0	6,328.5	6,346.5	6,327.6	14.9	14.6	-87.31	-317.4	-164.5	309.9	280.8	29.07	10.660	
6,400.0	6,378.3	6,395.6	6,376.5	14.9	14.6	-87.32	-312.9	-164.5	309.9	280.7	29.20	10.612	
6,450.0	6,427.6	6,444.7	6,425.0	15.0	14.7	-87.35	-305.3	-164.5	309.9	280.6	29.30	10.577	
6,500.0	6,476.4	6,493.8	6,472.9	15.0	14.7	-87.39	-294.5	-164.5	309.9	280.5	29.36	10.554	
6,550.0	6,524.3	6,542.9	6,520.0	15.0	14.7	-87.44	-280.8	-164.5	309.8	280.4	29.40	10.541	
6,600.0	6,571.1	6,592.0	6,566.1	15.0	14.8	-87.50	-264.0	-164.5	309.8	280.4	29.41	10.535	
6,650.0	6,616.8	6,641.1	6,611.1	15.0	14.8	-87.57	-244.2	-164.5	309.8	280.4	29.41	10.534	
6,700.0	6,661.0	6,690.3	6,654.8	15.0	14.8	-87.65	-221.6	-164.5	309.8	280.4	29.40	10.535	
6,750.0	6,703.5	6,739.5	6,696.9	15.0	14.8	-87.74	-196.2	-164.5	309.8	280.4	29.40	10.535	
6,800.0	6,744.3	6,788.7	6,737.3	15.0	14.8	-87.84	-168.2	-164.5	309.8	280.3	29.42	10.530	
6,850.0	6,783.1	6,838.0	6,775.9	15.0	14.8	-87.95	-137.6	-164.5	309.7	280.3	29.46	10.515	
6,900.0	6,819.7	6,887.3	6,812.5	15.0	14.8	-88.07	-104.5	-164.5	309.7	280.2	29.53	10.487	
6,950.0	6,854.0	6,936.6	6,846.8	15.0	14.8	-88.20	-69.1	-164.5	309.7	280.0	29.65	10.443	
7,000.0	6,885.9	6,986.0	6,878.9	15.1	14.9	-88.33	-31.5	-164.5	309.7	279.8	29.84	10.379	
7,050.0	6,915.2	7,035.5	6,908.4	15.2	15.0	-88.48	8.1	-164.5	309.6	279.6	30.09	10.292	
7,100.0	6,941.8	7,084.9	6,935.4	15.3	15.1	-88.62	49.6	-164.5	309.6	279.2	30.41	10.181	
7,150.0	6,965.5	7,134.5	6,959.7	15.5	15.3	-88.78	92.7	-164.5	309.6	278.8	30.82	10.045	
7,200.0	6,986.4	7,184.1	6,981.1	15.7	15.6	-88.94	137.5	-164.5	309.6	278.3	31.32	9.885	
7,250.0	7,004.2	7,233.7	6,999.6	16.0	15.9	-89.10	183.5	-164.5	309.6	277.7	31.91	9.703	
7,300.0	7,018.9	7,283.4	7,015.1	16.4	16.2	-89.27	230.7	-164.5	309.6	277.0	32.58	9.500	
7,350.0	7,030.5	7,333.2	7,027.5	16.8	16.6	-89.44	278.9	-164.5	309.5	276.2	33.35	9.282	
7,400.0	7,038.8	7,383.0	7,036.8	17.2	17.0	-89.61	327.9	-164.5	309.5	275.3	34.20	9.050	
7,450.0	7,043.9	7,432.9	7,042.8	17.7	17.5	-89.79	377.4	-164.5	309.5	274.4	35.13	8.811	
7,500.0	7,045.8	7,482.8	7,045.6	18.2	18.0	-89.97	427.2	-164.5	309.5	273.4	36.13	8.566	
7,507.3	7,045.8	7,490.1	7,045.7	18.2	18.1	-89.99	434.5	-164.5	309.5	273.2	36.29	8.531	
7,518.6	7,045.7	7,501.5	7,045.8	18.4	18.2	-90.02	445.9	-164.5	309.5	273.0	36.53	8.474	
7,600.0	7,045.3	7,582.8	7,045.4	19.3	19.1	-90.02	527.2	-164.5	309.5	271.2	38.34	8.073	
7,700.0	7,044.8	7,682.8	7,044.9	20.5	20.3	-90.02	627.2	-164.5	309.5	268.7	40.79	7.589	
7,800.0	7,044.3	7,782.8	7,044.3	21.8	21.7	-90.02	727.2	-164.5	309.5	266.1	43.43	7.127	
7,900.0	7,043.7	7,882.8	7,043.8	23.2	23.1	-90.02	827.2	-164.5	309.5	263.3	46.25	6.693	
8,000.0	7,043.2	7,982.8	7,043.3	24.7	24.5	-90.02	927.2	-164.5	309.5	260.3	49.20	6.292	
8,100.0	7,042.7	8,082.8	7,042.8	26.2	26.1	-90.02	1,027.2	-164.5	309.5	257.3	52.27	5.922	
8,200.0	7,042.2	8,182.8	7,042.3	27.8	27.7	-90.02	1,127.2	-164.5	309.5	254.1	55.43	5.584	
8,300.0	7,041.6	8,282.8	7,041.7	29.4	29.3	-90.02	1,227.2	-164.5	309.5	250.9	58.68	5.275	
8,400.0	7,041.1	8,382.8	7,041.2	31.1	30.9	-90.02	1,327.2	-164.5	309.5	247.5	61.99	4.993	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	7,040.6	8,482.8	7,040.7	32.8	32.6	-90.02	1,427.2	-164.5	309.5	244.2	65.36	4.736	
8,600.0	7,040.1	8,582.8	7,040.2	34.5	34.3	-90.02	1,527.2	-164.5	309.5	240.8	68.78	4.500	
8,700.0	7,039.5	8,682.8	7,039.6	36.2	36.1	-90.02	1,627.2	-164.5	309.5	237.3	72.24	4.285	
8,800.0	7,039.0	8,782.8	7,039.1	38.0	37.8	-90.02	1,727.2	-164.5	309.5	233.8	75.74	4.087	
8,900.0	7,038.5	8,882.8	7,038.6	39.7	39.6	-90.02	1,827.2	-164.5	309.5	230.3	79.27	3.905	
9,000.0	7,038.0	8,982.8	7,038.1	41.5	41.4	-90.02	1,927.2	-164.5	309.5	226.7	82.83	3.737	
9,100.0	7,037.4	9,082.8	7,037.5	43.3	43.2	-90.02	2,027.2	-164.5	309.5	223.1	86.41	3.582	
9,200.0	7,036.9	9,182.8	7,037.0	45.1	45.0	-90.02	2,127.2	-164.5	309.5	219.5	90.02	3.439	
9,300.0	7,036.4	9,282.8	7,036.5	46.9	46.8	-90.02	2,227.2	-164.5	309.5	215.9	93.64	3.306	
9,400.0	7,035.9	9,382.8	7,036.0	48.7	48.6	-90.02	2,327.2	-164.5	309.5	212.3	97.28	3.182	
9,500.0	7,035.4	9,482.8	7,035.4	50.6	50.4	-90.02	2,427.2	-164.5	309.5	208.6	100.93	3.067	
9,600.0	7,034.8	9,582.8	7,034.9	52.4	52.3	-90.02	2,527.2	-164.5	309.5	204.9	104.60	2.959	
9,700.0	7,034.3	9,682.8	7,034.4	54.2	54.1	-90.02	2,627.2	-164.5	309.5	201.3	108.28	2.859	
9,800.0	7,033.8	9,782.8	7,033.9	56.1	55.9	-90.02	2,727.2	-164.5	309.5	197.6	111.97	2.765	
9,900.0	7,033.3	9,882.8	7,033.4	57.9	57.8	-90.02	2,827.2	-164.5	309.5	193.9	115.67	2.676	
10,000.0	7,032.7	9,982.8	7,032.8	59.8	59.6	-90.02	2,927.2	-164.5	309.5	190.2	119.37	2.593	
10,100.0	7,032.2	10,082.8	7,032.3	61.6	61.5	-90.02	3,027.2	-164.5	309.5	186.4	123.09	2.515	
10,200.0	7,031.7	10,182.8	7,031.8	63.5	63.4	-90.02	3,127.2	-164.5	309.5	182.7	126.81	2.441	
10,300.0	7,031.2	10,282.8	7,031.3	65.4	65.2	-90.02	3,227.2	-164.5	309.5	179.0	130.54	2.371	
10,400.0	7,030.6	10,382.8	7,030.7	67.2	67.1	-90.02	3,327.2	-164.5	309.5	175.3	134.28	2.305	
10,500.0	7,030.1	10,482.8	7,030.2	69.1	69.0	-90.02	3,427.2	-164.5	309.5	171.5	138.02	2.243	
10,600.0	7,029.6	10,582.8	7,029.7	71.0	70.8	-90.02	3,527.2	-164.5	309.5	167.8	141.77	2.183	
10,700.0	7,029.1	10,682.8	7,029.2	72.8	72.7	-90.02	3,627.2	-164.5	309.5	164.0	145.52	2.127	
10,800.0	7,028.5	10,782.8	7,028.6	74.7	74.6	-90.02	3,727.2	-164.5	309.5	160.3	149.28	2.074	
10,900.0	7,028.0	10,882.8	7,028.1	76.6	76.5	-90.02	3,827.2	-164.5	309.5	156.5	153.04	2.023	
11,000.0	7,027.5	10,982.8	7,027.6	78.5	78.4	-90.02	3,927.2	-164.5	309.5	152.7	156.80	1.974	
11,100.0	7,027.0	11,082.8	7,027.1	80.4	80.2	-90.02	4,027.2	-164.5	309.5	149.0	160.57	1.928	
11,200.0	7,026.5	11,182.8	7,026.5	82.2	82.1	-90.02	4,127.2	-164.5	309.5	145.2	164.34	1.883	
11,300.0	7,025.9	11,282.8	7,026.0	84.1	84.0	-90.02	4,227.2	-164.5	309.5	141.4	168.12	1.841	
11,400.0	7,025.4	11,382.8	7,025.5	86.0	85.9	-90.02	4,327.2	-164.5	309.5	137.6	171.90	1.801	
11,477.3	7,025.0	11,460.1	7,025.1	87.2	87.4	-90.02	4,404.5	-164.5	309.5	135.0	174.53	1.774 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.01	0.0	-89.2	89.2				
100.0	100.0	100.0	100.0	0.1	0.1	-90.01	0.0	-89.2	89.2	89.0	0.22	397.076	
200.0	200.0	200.0	200.0	0.3	0.3	-90.01	0.0	-89.2	89.2	88.6	0.67	132.359	
300.0	300.0	300.0	300.0	0.6	0.6	-90.01	0.0	-89.2	89.2	88.1	1.12	79.415	
400.0	400.0	400.0	400.0	0.8	0.8	-90.01	0.0	-89.2	89.2	87.7	1.57	56.725	
500.0	500.0	500.0	500.0	1.0	1.0	-90.01	0.0	-89.2	89.2	87.2	2.02	44.120	
600.0	600.0	600.0	600.0	1.2	1.2	-90.01	0.0	-89.2	89.2	86.8	2.47	36.098	
700.0	700.0	700.0	700.0	1.5	1.5	-90.01	0.0	-89.2	89.2	86.3	2.92	30.544	
800.0	800.0	800.0	800.0	1.7	1.7	-90.01	0.0	-89.2	89.2	85.9	3.37	26.472	
900.0	900.0	900.0	900.0	1.9	1.9	-90.01	0.0	-89.2	89.2	85.4	3.82	23.357	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.01	0.0	-89.2	89.2	85.0	4.27	20.899	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.01	0.0	-89.2	89.2	84.5	4.72	18.908	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.01	0.0	-89.2	89.2	84.1	5.17	17.264	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.01	0.0	-89.2	89.2	83.6	5.62	15.883	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.01	0.0	-89.2	89.2	83.2	6.07	14.707	CC, ES
1,500.0	1,500.0	1,498.1	1,498.1	3.3	3.2	-90.86	-1.4	-90.3	90.3	83.8	6.49	13.915	
1,600.0	1,600.0	1,596.0	1,595.9	3.5	3.4	-93.31	-5.4	-93.2	93.5	86.6	6.89	13.574	
1,700.0	1,700.0	1,693.6	1,693.1	3.7	3.6	107.32	-12.1	-98.2	99.7	92.4	7.27	13.720	
1,800.0	1,799.8	1,791.3	1,790.1	3.9	3.8	105.24	-21.3	-105.1	109.3	101.7	7.63	14.321	
1,900.0	1,899.5	1,890.6	1,888.6	4.0	4.0	104.74	-31.4	-112.6	120.6	112.5	8.02	15.027	
1,951.5	1,950.6	1,941.8	1,939.4	4.1	4.1	105.09	-36.7	-116.5	126.7	118.5	8.23	15.388	
2,000.0	1,998.8	1,989.9	1,987.1	4.2	4.3	105.68	-41.6	-120.1	132.6	124.2	8.44	15.715	
2,100.0	2,098.0	2,089.1	2,085.5	4.5	4.5	106.74	-51.7	-127.6	144.8	135.9	8.88	16.312	
2,200.0	2,197.3	2,188.3	2,183.9	4.7	4.8	107.63	-61.8	-135.1	157.0	147.7	9.34	16.820	
2,300.0	2,296.5	2,287.5	2,282.3	4.9	5.0	108.39	-71.9	-142.6	169.3	159.5	9.81	17.251	
2,400.0	2,395.7	2,386.8	2,380.8	5.2	5.3	109.06	-82.0	-150.1	181.6	171.3	10.31	17.619	
2,500.0	2,495.0	2,486.0	2,479.2	5.4	5.6	109.63	-92.1	-157.6	193.9	183.1	10.81	17.933	
2,600.0	2,594.2	2,585.2	2,577.6	5.7	5.9	110.14	-102.2	-165.1	206.3	194.9	11.33	18.201	
2,700.0	2,693.5	2,684.4	2,676.0	6.0	6.2	110.59	-112.3	-172.6	218.6	206.8	11.86	18.432	
2,800.0	2,792.7	2,783.6	2,774.4	6.3	6.5	110.99	-122.4	-180.1	231.0	218.6	12.40	18.631	
2,900.0	2,892.0	2,882.9	2,872.9	6.5	6.8	111.36	-132.5	-187.6	243.4	230.4	12.94	18.803	
3,000.0	2,991.2	2,982.1	2,971.3	6.8	7.1	111.68	-142.6	-195.1	255.7	242.2	13.49	18.952	
3,100.0	3,090.5	3,081.3	3,069.7	7.1	7.4	111.98	-152.7	-202.6	268.1	254.1	14.05	19.082	
3,200.0	3,189.7	3,180.5	3,168.1	7.4	7.7	112.25	-162.8	-210.1	280.5	265.9	14.61	19.196	
3,300.0	3,289.0	3,279.7	3,266.5	7.7	8.0	112.50	-172.9	-217.6	292.9	277.7	15.18	19.296	
3,400.0	3,388.2	3,379.0	3,364.9	8.0	8.3	112.73	-183.0	-225.1	305.3	289.6	15.75	19.384	
3,500.0	3,487.5	3,478.2	3,463.4	8.3	8.6	112.93	-193.1	-232.7	317.7	301.4	16.33	19.461	
3,600.0	3,586.7	3,577.4	3,561.8	8.6	8.9	113.13	-203.2	-240.2	330.2	313.3	16.91	19.530	
3,700.0	3,686.0	3,676.6	3,660.2	8.9	9.2	113.31	-213.3	-247.7	342.6	325.1	17.49	19.591	
3,800.0	3,785.2	3,775.9	3,758.6	9.2	9.6	113.48	-223.4	-255.2	355.0	336.9	18.07	19.646	
3,900.0	3,884.5	3,875.1	3,857.0	9.5	9.9	113.63	-233.5	-262.7	367.4	348.8	18.66	19.694	
4,000.0	3,983.7	3,974.3	3,955.5	9.8	10.2	113.78	-243.6	-270.2	379.9	360.6	19.25	19.737	
4,100.0	4,083.0	4,073.5	4,053.9	10.1	10.5	113.91	-253.7	-277.7	392.3	372.5	19.84	19.776	
4,200.0	4,182.2	4,172.7	4,152.3	10.5	10.8	114.04	-263.8	-285.2	404.7	384.3	20.43	19.811	
4,300.0	4,281.5	4,272.0	4,250.7	10.8	11.1	114.16	-273.9	-292.7	417.2	396.1	21.02	19.843	
4,400.0	4,380.7	4,371.2	4,349.1	11.1	11.5	114.28	-284.0	-300.2	429.6	408.0	21.62	19.871	
4,500.0	4,480.0	4,471.5	4,448.6	11.4	11.8	114.39	-294.2	-307.8	442.0	419.8	22.21	19.897	
4,569.9	4,549.4	4,547.8	4,524.5	11.6	12.0	114.61	-300.9	-312.7	450.0	427.4	22.61	19.906	
4,600.0	4,579.2	4,580.7	4,557.2	11.7	12.0	114.80	-303.3	-314.5	453.1	430.3	22.77	19.901	
4,700.0	4,678.8	4,690.3	4,666.6	11.9	12.3	115.38	-309.1	-318.8	460.8	437.6	23.23	19.836	
4,800.0	4,778.6	4,800.2	4,776.4	12.1	12.5	115.88	-311.5	-320.6	465.0	441.3	23.65	19.661	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,878.5	4,902.3	4,878.5	12.3	12.6	116.17	-311.6	-320.6	466.1	442.1	24.02	19.407	
4,921.5	4,900.0	4,923.7	4,900.0	12.4	12.7	-87.32	-311.6	-320.6	466.2	442.1	24.09	19.348	
5,000.0	4,978.5	5,002.3	4,978.5	12.5	12.8	-87.32	-311.6	-320.6	466.2	441.8	24.37	19.132	
5,100.0	5,078.5	5,102.3	5,078.5	12.7	13.0	-87.32	-311.6	-320.6	466.2	441.5	24.71	18.867	
5,200.0	5,178.5	5,202.3	5,178.5	12.8	13.1	-87.32	-311.6	-320.6	466.2	441.1	25.05	18.607	
5,300.0	5,278.5	5,302.3	5,278.5	13.0	13.3	-87.32	-311.6	-320.6	466.2	440.8	25.40	18.351	
5,400.0	5,378.5	5,402.3	5,378.5	13.2	13.5	-87.32	-311.6	-320.6	466.2	440.4	25.75	18.101	
5,500.0	5,478.5	5,502.3	5,478.5	13.3	13.6	-87.32	-311.6	-320.6	466.2	440.1	26.11	17.855	
5,600.0	5,578.5	5,602.3	5,578.5	13.5	13.8	-87.32	-311.6	-320.6	466.2	439.7	26.47	17.614	
5,700.0	5,678.5	5,702.3	5,678.5	13.7	14.0	-87.32	-311.6	-320.6	466.2	439.3	26.83	17.377	
5,800.0	5,778.5	5,802.3	5,778.5	13.9	14.2	-87.32	-311.6	-320.6	466.2	439.0	27.19	17.145	
5,900.0	5,878.5	5,902.3	5,878.5	14.1	14.3	-87.32	-311.6	-320.6	466.2	438.6	27.55	16.917	
6,000.0	5,978.5	6,002.3	5,978.5	14.2	14.5	-87.32	-311.6	-320.6	466.2	438.2	27.92	16.694	
6,100.0	6,078.5	6,102.3	6,078.5	14.4	14.7	-87.32	-311.6	-320.6	466.2	437.9	28.29	16.476	
6,200.0	6,178.5	6,202.3	6,178.5	14.6	14.9	-87.32	-311.6	-320.6	466.2	437.5	28.67	16.262	
6,303.3	6,281.9	6,305.6	6,281.9	14.8	15.1	-87.32	-311.6	-320.6	466.2	437.1	29.05	16.045	
6,350.0	6,328.5	6,352.3	6,328.5	14.9	15.2	-87.50	-311.6	-320.6	466.1	436.9	29.22	15.952	
6,400.0	6,378.3	6,402.0	6,378.3	14.9	15.2	-88.09	-311.6	-320.6	465.9	436.5	29.37	15.861	
6,450.0	6,427.6	6,450.9	6,427.2	15.0	15.3	-88.91	-310.5	-320.6	465.7	436.2	29.50	15.787	
6,500.0	6,476.4	6,500.1	6,476.1	15.0	15.4	-89.75	-306.2	-320.6	465.7	436.1	29.59	15.736	
6,514.8	6,490.7	6,514.8	6,490.7	15.0	15.4	-90.00	-304.3	-320.6	465.6	436.0	29.61	15.726	
6,550.0	6,524.3	6,549.7	6,525.2	15.0	15.4	-90.59	-298.7	-320.6	465.7	436.0	29.65	15.705	
6,600.0	6,571.1	6,599.8	6,574.1	15.0	15.5	-91.43	-287.9	-320.6	465.8	436.1	29.68	15.693	
6,650.0	6,616.8	6,650.3	6,622.6	15.0	15.5	-92.27	-273.8	-320.6	466.0	436.3	29.69	15.696	
6,700.0	6,661.0	6,701.3	6,670.5	15.0	15.5	-93.11	-256.4	-320.6	466.3	436.7	29.68	15.712	
6,750.0	6,703.5	6,752.8	6,717.6	15.0	15.5	-93.93	-235.5	-320.7	466.8	437.1	29.67	15.734	
6,800.0	6,744.3	6,804.8	6,763.6	15.0	15.5	-94.74	-211.4	-320.7	467.3	437.6	29.65	15.758	
6,850.0	6,783.1	6,857.2	6,808.2	15.0	15.5	-95.53	-183.8	-320.7	467.9	438.2	29.65	15.779	
6,900.0	6,819.7	6,910.2	6,851.3	15.0	15.5	-96.29	-153.0	-320.7	468.5	438.8	29.67	15.789	
6,950.0	6,854.0	6,963.7	6,892.5	15.0	15.5	-97.04	-118.9	-320.7	469.2	439.5	29.73	15.783	
7,000.0	6,885.9	7,017.6	6,931.5	15.1	15.5	-97.75	-81.7	-320.7	470.0	440.2	29.84	15.752	
7,050.0	6,915.2	7,072.0	6,968.1	15.2	15.5	-98.42	-41.5	-320.7	470.8	440.8	30.00	15.691	
7,100.0	6,941.8	7,126.9	7,002.1	15.3	15.5	-99.06	1.7	-320.7	471.6	441.4	30.24	15.595	
7,150.0	6,965.5	7,182.3	7,033.1	15.5	15.5	-99.66	47.5	-320.7	472.4	441.9	30.56	15.458	
7,200.0	6,986.4	7,238.1	7,060.9	15.7	15.6	-100.22	95.8	-320.7	473.2	442.2	30.97	15.278	
7,250.0	7,004.2	7,294.2	7,085.3	16.0	15.9	-100.73	146.4	-320.7	474.0	442.5	31.48	15.057	
7,300.0	7,018.9	7,350.8	7,106.0	16.4	16.2	-101.18	199.0	-320.7	474.7	442.6	32.09	14.793	
7,350.0	7,030.5	7,407.7	7,122.8	16.8	16.6	-101.59	253.3	-320.7	475.4	442.6	32.81	14.489	
7,400.0	7,038.8	7,464.9	7,135.6	17.2	17.1	-101.93	309.1	-320.7	476.0	442.3	33.63	14.154	
7,450.0	7,043.9	7,522.3	7,144.3	17.7	17.6	-102.23	365.8	-320.7	476.5	441.9	34.54	13.794	
7,500.0	7,045.8	7,580.0	7,148.6	18.2	18.2	-102.46	423.3	-320.7	476.9	441.4	35.54	13.417	
7,507.3	7,045.8	7,588.4	7,148.9	18.2	18.3	-102.49	431.8	-320.7	476.9	441.3	35.70	13.361	
7,600.0	7,045.3	7,683.6	7,149.4	19.3	19.3	-102.60	526.9	-320.7	477.2	439.5	37.70	12.658	
7,700.0	7,044.8	7,783.6	7,149.7	20.5	20.5	-102.70	626.9	-320.7	477.3	437.3	40.05	11.917	
7,800.0	7,044.3	7,883.6	7,150.0	21.8	21.8	-102.80	726.9	-320.7	477.5	434.9	42.61	11.207	
7,900.0	7,043.7	7,983.6	7,150.3	23.2	23.2	-102.89	826.9	-320.7	477.7	432.4	45.33	10.539	
8,000.0	7,043.2	8,083.6	7,150.6	24.7	24.7	-102.99	926.9	-320.7	477.9	429.7	48.19	9.918	
8,100.0	7,042.7	8,183.6	7,150.9	26.2	26.2	-103.08	1,026.9	-320.7	478.1	426.9	51.15	9.346	
8,200.0	7,042.2	8,283.6	7,151.2	27.8	27.8	-103.18	1,126.9	-320.7	478.3	424.0	54.22	8.821	
8,300.0	7,041.6	8,383.5	7,151.5	29.4	29.4	-103.27	1,226.9	-320.7	478.5	421.1	57.36	8.341	
8,400.0	7,041.1	8,483.5	7,151.8	31.1	31.0	-103.37	1,326.9	-320.7	478.6	418.1	60.57	7.903	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	7,040.6	8,583.5	7,152.1	32.8	32.7	-103.47	1,426.9	-320.7	478.8	415.0	63.83	7.502	
8,600.0	7,040.1	8,683.5	7,152.4	34.5	34.4	-103.56	1,526.9	-320.7	479.0	411.9	67.14	7.135	
8,700.0	7,039.5	8,783.5	7,152.7	36.2	36.1	-103.66	1,626.9	-320.7	479.2	408.7	70.48	6.799	
8,800.0	7,039.0	8,883.5	7,153.0	38.0	37.9	-103.75	1,726.9	-320.7	479.4	405.5	73.87	6.490	
8,900.0	7,038.5	8,983.5	7,153.3	39.7	39.6	-103.85	1,826.9	-320.7	479.6	402.3	77.28	6.206	
9,000.0	7,038.0	9,083.5	7,153.6	41.5	41.4	-103.94	1,926.9	-320.7	479.8	399.1	80.71	5.945	
9,100.0	7,037.4	9,183.5	7,153.9	43.3	43.2	-104.04	2,026.9	-320.7	480.0	395.8	84.17	5.703	
9,200.0	7,036.9	9,283.5	7,154.2	45.1	45.0	-104.13	2,126.9	-320.7	480.2	392.6	87.65	5.479	
9,300.0	7,036.4	9,383.5	7,154.5	46.9	46.8	-104.23	2,226.9	-320.7	480.4	389.3	91.14	5.271	
9,400.0	7,035.9	9,483.5	7,154.8	48.7	48.6	-104.32	2,326.9	-320.7	480.6	386.0	94.65	5.078	
9,500.0	7,035.4	9,583.5	7,155.1	50.6	50.4	-104.42	2,426.9	-320.7	480.8	382.7	98.17	4.898	
9,600.0	7,034.8	9,683.5	7,155.4	52.4	52.2	-104.51	2,526.8	-320.7	481.0	379.3	101.69	4.730	
9,700.0	7,034.3	9,783.5	7,155.6	54.2	54.1	-104.60	2,626.8	-320.7	481.2	376.0	105.23	4.573	
9,800.0	7,033.8	9,883.5	7,155.9	56.1	55.9	-104.70	2,726.8	-320.7	481.4	372.7	108.78	4.426	
9,900.0	7,033.3	9,983.5	7,156.2	57.9	57.8	-104.79	2,826.8	-320.7	481.7	369.3	112.33	4.288	
10,000.0	7,032.7	10,083.5	7,156.5	59.8	59.6	-104.89	2,926.8	-320.7	481.9	366.0	115.89	4.158	
10,100.0	7,032.2	10,183.5	7,156.8	61.6	61.5	-104.98	3,026.8	-320.7	482.1	362.6	119.45	4.036	
10,200.0	7,031.7	10,283.5	7,157.1	63.5	63.3	-105.08	3,126.8	-320.7	482.3	359.3	123.02	3.920	
10,300.0	7,031.2	10,383.5	7,157.4	65.4	65.2	-105.17	3,226.8	-320.7	482.5	355.9	126.59	3.811	
10,400.0	7,030.6	10,483.5	7,157.7	67.2	67.1	-105.26	3,326.8	-320.7	482.7	352.6	130.17	3.708	
10,500.0	7,030.1	10,583.5	7,158.0	69.1	68.9	-105.36	3,426.8	-320.7	482.9	349.2	133.75	3.611	
10,600.0	7,029.6	10,683.5	7,158.3	71.0	70.8	-105.45	3,526.8	-320.7	483.2	345.8	137.33	3.518	
10,700.0	7,029.1	10,783.5	7,158.6	72.8	72.7	-105.55	3,626.8	-320.7	483.4	342.5	140.91	3.430	
10,800.0	7,028.5	10,883.5	7,158.9	74.7	74.5	-105.64	3,726.8	-320.7	483.6	339.1	144.49	3.347	
10,900.0	7,028.0	10,983.5	7,159.2	76.6	76.4	-105.73	3,826.8	-320.7	483.8	335.7	148.08	3.267	
11,000.0	7,027.5	11,083.5	7,159.5	78.5	78.3	-105.83	3,926.8	-320.7	484.0	332.4	151.66	3.192	
11,100.0	7,027.0	11,183.5	7,159.8	80.4	80.2	-105.92	4,026.8	-320.7	484.3	329.0	155.25	3.119	
11,200.0	7,026.5	11,283.5	7,160.1	82.2	82.1	-106.01	4,126.8	-320.7	484.5	325.7	158.83	3.050	
11,300.0	7,025.9	11,383.4	7,160.4	84.1	83.9	-106.11	4,226.8	-320.7	484.7	322.3	162.42	2.984	
11,400.0	7,025.4	11,483.4	7,160.7	86.0	85.8	-106.20	4,326.8	-320.7	485.0	319.0	166.00	2.921	
11,477.3	7,025.0	11,560.7	7,160.9	87.2	87.3	-106.27	4,404.1	-320.7	485.1	316.6	168.49	2.879 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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-201 - Wellbore #1 - Plan #1 (7-30-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	89.2	89.3				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	89.2	89.2	89.0	0.22	399.068	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	89.2	89.2	88.6	0.67	132.801	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	89.2	89.2	88.1	1.12	79.574	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	89.2	89.2	87.7	1.57	56.806	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	89.2	89.2	87.2	2.02	44.169	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	89.2	89.2	86.8	2.47	36.131	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	89.2	89.2	86.3	2.92	30.568	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	0.0	89.2	89.2	85.9	3.37	26.489	CC, ES
900.0	900.0	896.5	896.5	1.9	1.9	90.58	-0.9	90.6	90.6	86.8	3.79	23.896	
1,000.0	1,000.0	993.7	993.6	2.1	2.1	92.25	-3.7	94.6	94.9	90.7	4.20	22.567	
1,100.0	1,100.0	1,090.5	1,090.0	2.4	2.3	94.71	-8.3	101.4	102.1	97.5	4.62	22.085	
1,200.0	1,200.0	1,186.7	1,185.5	2.6	2.5	97.60	-14.8	110.7	112.5	107.5	5.05	22.281	
1,300.0	1,300.0	1,283.5	1,281.2	2.8	2.8	100.64	-23.1	122.8	126.2	120.7	5.48	23.009	
1,400.0	1,400.0	1,380.4	1,376.8	3.0	3.1	103.34	-32.3	136.2	141.7	135.8	5.92	23.934	
1,500.0	1,500.0	1,479.0	1,473.9	3.3	3.4	105.55	-41.7	149.8	157.5	151.2	6.36	24.760	
1,600.0	1,600.0	1,577.6	1,571.1	3.5	3.7	107.35	-51.1	163.5	173.5	166.7	6.81	25.483	
1,700.0	1,700.0	1,676.4	1,668.5	3.7	4.0	-47.81	-60.5	177.1	188.5	181.2	7.26	25.951	
1,800.0	1,799.8	1,775.6	1,766.3	3.9	4.4	-47.42	-69.9	190.9	201.2	193.5	7.67	26.227	
1,900.0	1,899.5	1,875.0	1,864.3	4.0	4.8	-47.78	-79.4	204.6	211.5	203.4	8.09	26.135	
1,951.5	1,950.6	1,926.3	1,914.9	4.1	4.9	-48.23	-84.3	211.7	216.0	207.6	8.32	25.958	
2,000.0	1,998.8	1,974.6	1,962.5	4.2	5.1	-48.78	-88.9	218.4	219.9	211.3	8.54	25.740	
2,100.0	2,098.0	2,074.2	2,060.7	4.5	5.5	-49.86	-98.4	232.2	228.0	218.9	9.01	25.294	
2,200.0	2,197.3	2,173.8	2,158.8	4.7	5.9	-50.86	-107.9	246.0	236.1	226.6	9.50	24.859	
2,300.0	2,296.5	2,273.3	2,257.0	4.9	6.2	-51.80	-117.3	259.7	244.4	234.4	10.00	24.438	
2,400.0	2,395.7	2,372.9	2,355.2	5.2	6.6	-52.68	-126.8	273.5	252.7	242.2	10.51	24.033	
2,500.0	2,495.0	2,472.5	2,453.3	5.4	7.0	-53.50	-136.3	287.3	261.1	250.0	11.04	23.645	
2,600.0	2,594.2	2,572.1	2,551.5	5.7	7.4	-54.27	-145.8	301.1	269.5	257.9	11.58	23.275	
2,700.0	2,693.5	2,671.7	2,649.7	6.0	7.8	-54.99	-155.3	314.9	277.9	265.8	12.12	22.924	
2,800.0	2,792.7	2,771.3	2,747.8	6.3	8.2	-55.67	-164.7	328.6	286.4	273.7	12.68	22.590	
2,900.0	2,892.0	2,870.8	2,846.0	6.5	8.5	-56.31	-174.2	342.4	295.0	281.7	13.24	22.274	
3,000.0	2,991.2	2,970.4	2,944.2	6.8	8.9	-56.91	-183.7	356.2	303.5	289.7	13.81	21.975	
3,100.0	3,090.5	3,070.0	3,042.3	7.1	9.3	-57.48	-193.2	370.0	312.1	297.7	14.39	21.693	
3,200.0	3,189.7	3,169.6	3,140.5	7.4	9.7	-58.02	-202.7	383.8	320.8	305.8	14.97	21.425	
3,300.0	3,289.0	3,269.2	3,238.7	7.7	10.1	-58.54	-212.2	397.5	329.4	313.9	15.56	21.172	
3,400.0	3,388.2	3,368.7	3,336.8	8.0	10.5	-59.02	-221.6	411.3	338.1	322.0	16.15	20.933	
3,500.0	3,487.5	3,468.3	3,435.0	8.3	10.9	-59.48	-231.1	425.1	346.8	330.1	16.75	20.707	
3,600.0	3,586.7	3,567.9	3,533.2	8.6	11.3	-59.92	-240.6	438.9	355.5	338.2	17.35	20.493	
3,700.0	3,686.0	3,667.5	3,631.3	8.9	11.6	-60.34	-250.1	452.7	364.3	346.3	17.95	20.290	
3,800.0	3,785.2	3,767.1	3,729.5	9.2	12.0	-60.74	-259.6	466.4	373.1	354.5	18.56	20.098	
3,900.0	3,884.5	3,866.7	3,827.7	9.5	12.4	-61.12	-269.1	480.2	381.8	362.7	19.17	19.915	
4,000.0	3,983.7	3,966.2	3,925.8	9.8	12.8	-61.48	-278.5	494.0	390.6	370.9	19.79	19.742	
4,100.0	4,083.0	4,065.8	4,024.0	10.1	13.2	-61.83	-288.0	507.8	399.5	379.1	20.40	19.577	
4,200.0	4,182.2	4,165.4	4,122.2	10.5	13.6	-62.16	-297.5	521.5	408.3	387.3	21.02	19.421	
4,300.0	4,281.5	4,265.0	4,220.3	10.8	14.0	-62.48	-307.0	535.3	417.1	395.5	21.64	19.272	
4,400.0	4,380.7	4,364.6	4,318.5	11.1	14.4	-62.78	-316.5	549.1	426.0	403.7	22.27	19.130	
4,500.0	4,480.0	4,464.2	4,416.7	11.4	14.8	-63.07	-326.0	562.9	434.8	412.0	22.89	18.995	
4,569.9	4,549.4	4,533.8	4,485.3	11.6	15.0	-63.27	-332.6	572.5	441.0	417.7	23.33	18.904	
4,600.0	4,579.2	4,563.7	4,514.8	11.7	15.2	-63.39	-335.4	576.7	443.8	420.3	23.51	18.877	
4,700.0	4,678.8	4,678.0	4,627.8	11.9	15.5	-63.63	-345.1	590.8	452.4	428.3	24.01	18.840	
4,800.0	4,778.6	4,793.4	4,742.5	12.1	15.8	-63.68	-352.3	601.2	459.1	434.6	24.44	18.785	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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-201 - Wellbore #1 - Plan #1 (7-30-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,878.5	4,909.1	4,858.0	12.3	16.0	-63.56	-356.9	607.8	463.9	439.1	24.80	18.705	
4,921.5	4,900.0	4,934.0	4,882.8	12.4	16.0	92.98	-357.5	608.8	464.7	439.8	24.87	18.685	
5,000.0	4,978.5	5,025.2	4,973.9	12.5	16.2	93.13	-358.8	610.7	466.4	441.2	25.14	18.548	
5,100.0	5,078.5	5,128.8	5,077.5	12.7	16.3	93.13	-358.9	610.7	466.4	441.0	25.48	18.304	
5,200.0	5,178.5	5,228.8	5,177.5	12.8	16.4	93.13	-358.9	610.7	466.4	440.6	25.82	18.067	
5,300.0	5,278.5	5,328.8	5,277.5	13.0	16.6	93.13	-358.9	610.7	466.4	440.3	26.15	17.835	
5,400.0	5,378.5	5,428.8	5,377.5	13.2	16.7	93.13	-358.9	610.7	466.4	440.0	26.49	17.606	
5,500.0	5,478.5	5,528.8	5,477.5	13.3	16.9	93.13	-358.9	610.7	466.4	439.6	26.84	17.381	
5,600.0	5,578.5	5,628.8	5,577.5	13.5	17.0	93.13	-358.9	610.7	466.4	439.3	27.18	17.159	
5,700.0	5,678.5	5,728.8	5,677.5	13.7	17.1	93.13	-358.9	610.7	466.4	438.9	27.53	16.942	
5,800.0	5,778.5	5,828.8	5,777.5	13.9	17.3	93.13	-358.9	610.7	466.4	438.6	27.88	16.728	
5,900.0	5,878.5	5,928.8	5,877.5	14.1	17.4	93.13	-358.9	610.7	466.4	438.2	28.24	16.518	
6,000.0	5,978.5	6,028.8	5,977.5	14.2	17.6	93.13	-358.9	610.7	466.4	437.8	28.60	16.311	
6,100.0	6,078.5	6,128.8	6,077.5	14.4	17.7	93.13	-358.9	610.7	466.4	437.5	28.96	16.108	
6,200.0	6,178.5	6,228.8	6,177.5	14.6	17.9	93.13	-358.9	610.7	466.4	437.1	29.32	15.909	
6,303.3	6,281.9	6,334.9	6,283.4	14.8	18.0	92.32	-352.3	610.7	466.1	436.4	29.73	15.680	
6,350.0	6,328.5	6,382.2	6,330.0	14.9	18.0	91.58	-344.7	610.7	465.9	436.0	29.91	15.580	
6,400.0	6,378.3	6,432.4	6,378.9	14.9	18.1	90.77	-333.4	610.7	465.8	435.7	30.06	15.495	
6,448.1	6,425.7	6,480.2	6,424.7	15.0	18.1	90.00	-319.7	610.7	465.7	435.6	30.18	15.434	
6,450.0	6,427.6	6,482.1	6,426.6	15.0	18.1	89.97	-319.1	610.7	465.7	435.6	30.18	15.432	
6,500.0	6,476.4	6,531.5	6,472.8	15.0	18.1	89.17	-301.9	610.7	465.8	435.5	30.27	15.390	
6,550.0	6,524.3	6,580.4	6,517.4	15.0	18.0	88.37	-281.9	610.7	465.9	435.6	30.33	15.365	
6,600.0	6,571.1	6,628.9	6,560.4	15.0	18.0	87.59	-259.3	610.7	466.2	435.8	30.36	15.354	
6,650.0	6,616.8	6,677.1	6,601.5	15.0	18.0	86.82	-234.2	610.7	466.5	436.1	30.38	15.354	
6,700.0	6,661.0	6,724.9	6,640.6	15.0	17.9	86.06	-206.8	610.7	466.9	436.5	30.39	15.361	
6,750.0	6,703.5	6,772.3	6,677.7	15.0	17.9	85.33	-177.3	610.7	467.3	436.9	30.40	15.371	
6,800.0	6,744.3	6,819.4	6,712.7	15.0	17.8	84.62	-145.7	610.7	467.8	437.4	30.42	15.378	
6,850.0	6,783.1	6,866.2	6,745.4	15.0	17.8	83.93	-112.2	610.7	468.4	437.9	30.46	15.377	
6,900.0	6,819.7	6,912.7	6,775.8	15.0	17.7	83.27	-77.1	610.7	469.0	438.5	30.53	15.363	
6,950.0	6,854.0	6,958.9	6,803.9	15.0	17.7	82.64	-40.4	610.7	469.7	439.0	30.64	15.331	
7,000.0	6,885.9	7,004.9	6,829.5	15.1	17.7	82.04	-2.2	610.7	470.3	439.5	30.79	15.274	
7,050.0	6,915.2	7,050.0	6,852.4	15.2	17.6	81.48	36.6	610.7	471.0	440.0	31.01	15.190	
7,100.0	6,941.8	7,096.1	6,873.5	15.3	17.6	80.94	77.7	610.7	471.7	440.4	31.30	15.072	
7,150.0	6,965.5	7,141.4	6,891.6	15.5	17.6	80.45	119.1	610.7	472.3	440.7	31.66	14.920	
7,200.0	6,986.4	7,186.5	6,907.3	15.7	17.6	79.99	161.4	610.7	473.0	440.9	32.11	14.731	
7,250.0	7,004.2	7,231.5	6,920.3	16.0	17.6	79.58	204.4	610.7	473.6	441.0	32.63	14.512	
7,300.0	7,018.9	7,276.2	6,930.8	16.4	17.8	79.20	247.9	610.7	474.2	440.9	33.25	14.261	
7,350.0	7,030.5	7,320.9	6,938.7	16.8	18.0	78.87	291.9	610.7	474.7	440.7	33.95	13.982	
7,400.0	7,038.8	7,365.4	6,944.0	17.2	18.3	78.58	336.1	610.7	475.2	440.4	34.73	13.680	
7,450.0	7,043.9	7,409.8	6,946.8	17.7	18.7	78.33	380.4	610.7	475.6	440.0	35.59	13.361	
7,500.0	7,045.8	7,456.6	6,947.1	18.2	19.2	78.16	427.1	610.7	475.9	439.3	36.56	13.016	
7,507.3	7,045.8	7,463.9	6,947.1	18.2	19.3	78.16	434.4	610.7	475.9	439.2	36.71	12.961	
7,600.0	7,045.3	7,556.6	6,947.0	19.3	20.3	78.20	527.1	610.7	475.8	437.1	38.72	12.287	
7,700.0	7,044.8	7,656.6	6,946.9	20.5	21.5	78.25	627.1	610.7	475.7	434.6	41.11	11.572	
7,800.0	7,044.3	7,756.6	6,946.8	21.8	22.8	78.30	727.1	610.7	475.6	431.9	43.69	10.887	
7,900.0	7,043.7	7,856.6	6,946.7	23.2	24.2	78.35	827.1	610.7	475.5	429.1	46.43	10.242	
8,000.0	7,043.2	7,956.6	6,946.6	24.7	25.6	78.40	927.1	610.7	475.4	426.1	49.31	9.641	
8,100.0	7,042.7	8,056.6	6,946.5	26.2	27.1	78.45	1,027.1	610.7	475.4	423.1	52.31	9.087	
8,200.0	7,042.2	8,156.6	6,946.4	27.8	28.7	78.50	1,127.1	610.7	475.3	419.9	55.40	8.578	
8,300.0	7,041.6	8,256.6	6,946.3	29.4	30.2	78.55	1,227.1	610.7	475.2	416.6	58.58	8.112	
8,400.0	7,041.1	8,356.6	6,946.2	31.1	31.9	78.60	1,327.1	610.7	475.1	413.3	61.82	7.685	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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-201 - Wellbore #1 - Plan #1 (7-30-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	7,040.6	8,456.6	6,946.1	32.8	33.5	78.65	1,427.1	610.7	475.0	409.9	65.12	7.294	
8,600.0	7,040.1	8,556.6	6,946.0	34.5	35.2	78.70	1,527.1	610.7	474.9	406.5	68.48	6.936	
8,700.0	7,039.5	8,656.6	6,945.9	36.2	36.9	78.75	1,627.1	610.7	474.9	403.0	71.88	6.607	
8,800.0	7,039.0	8,756.6	6,945.8	38.0	38.6	78.80	1,727.1	610.7	474.8	399.5	75.31	6.304	
8,900.0	7,038.5	8,856.6	6,945.7	39.7	40.4	78.85	1,827.1	610.7	474.7	395.9	78.78	6.026	
9,000.0	7,038.0	8,956.6	6,945.6	41.5	42.1	78.90	1,927.1	610.7	474.6	392.3	82.27	5.769	
9,100.0	7,037.4	9,056.6	6,945.5	43.3	43.9	78.95	2,027.1	610.7	474.5	388.7	85.80	5.531	
9,200.0	7,036.9	9,156.6	6,945.4	45.1	45.7	79.00	2,127.1	610.7	474.4	385.1	89.34	5.310	
9,300.0	7,036.4	9,256.6	6,945.3	46.9	47.5	79.05	2,227.1	610.7	474.4	381.5	92.91	5.106	
9,400.0	7,035.9	9,356.5	6,945.2	48.7	49.3	79.10	2,327.1	610.7	474.3	377.8	96.49	4.915	
9,500.0	7,035.4	9,456.5	6,945.0	50.6	51.1	79.15	2,427.1	610.7	474.2	374.1	100.09	4.738	
9,600.0	7,034.8	9,556.5	6,944.9	52.4	52.9	79.19	2,527.1	610.7	474.1	370.4	103.71	4.572	
9,700.0	7,034.3	9,656.5	6,944.8	54.2	54.7	79.24	2,627.1	610.7	474.0	366.7	107.33	4.417	
9,800.0	7,033.8	9,756.5	6,944.7	56.1	56.5	79.29	2,727.1	610.7	474.0	363.0	110.97	4.271	
9,900.0	7,033.3	9,856.5	6,944.6	57.9	58.4	79.34	2,827.1	610.7	473.9	359.3	114.63	4.134	
10,000.0	7,032.7	9,956.5	6,944.5	59.8	60.2	79.39	2,927.1	610.7	473.8	355.5	118.29	4.006	
10,100.0	7,032.2	10,056.5	6,944.4	61.6	62.0	79.44	3,027.1	610.7	473.7	351.8	121.96	3.884	
10,200.0	7,031.7	10,156.5	6,944.3	63.5	63.9	79.49	3,127.1	610.7	473.7	348.0	125.64	3.770	
10,300.0	7,031.2	10,256.5	6,944.2	65.4	65.7	79.54	3,227.1	610.7	473.6	344.3	129.32	3.662	
10,400.0	7,030.6	10,356.5	6,944.1	67.2	67.6	79.59	3,327.1	610.7	473.5	340.5	133.02	3.560	
10,500.0	7,030.1	10,456.5	6,944.0	69.1	69.5	79.64	3,427.1	610.7	473.4	336.7	136.72	3.463	
10,600.0	7,029.6	10,556.5	6,943.9	71.0	71.3	79.69	3,527.1	610.7	473.4	332.9	140.42	3.371	
10,700.0	7,029.1	10,656.5	6,943.8	72.8	73.2	79.74	3,627.1	610.7	473.3	329.1	144.14	3.283	
10,800.0	7,028.5	10,756.5	6,943.7	74.7	75.1	79.79	3,727.1	610.7	473.2	325.3	147.86	3.200	
10,900.0	7,028.0	10,856.5	6,943.6	76.6	76.9	79.84	3,827.1	610.7	473.1	321.5	151.58	3.121	
11,000.0	7,027.5	10,956.5	6,943.5	78.5	78.8	79.89	3,927.1	610.7	473.0	317.7	155.31	3.046	
11,100.0	7,027.0	11,056.5	6,943.4	80.4	80.7	79.94	4,027.1	610.7	473.0	313.9	159.04	2.974	
11,200.0	7,026.5	11,156.5	6,943.3	82.2	82.6	79.99	4,127.1	610.7	472.9	310.1	162.78	2.905	
11,300.0	7,025.9	11,256.5	6,943.2	84.1	84.4	80.04	4,227.1	610.7	472.8	306.3	166.52	2.839	
11,400.0	7,025.4	11,356.5	6,943.1	86.0	86.3	80.09	4,327.1	610.7	472.8	302.5	170.27	2.777	
11,447.5	7,025.2	11,404.0	6,943.0	86.7	87.2	80.12	4,374.6	610.7	472.7	300.8	171.87	2.750	
11,477.3	7,025.0	11,412.1	6,943.0	87.2	87.4	80.12	4,382.6	610.7	473.2	300.7	172.47	2.744 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	0.0	30.7	30.7	30.5	0.22	136.495	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	0.0	30.7	30.7	30.0	0.67	45.498	
300.0	300.0	300.0	300.0	0.6	0.6	89.99	0.0	30.7	30.7	29.6	1.12	27.299	
400.0	400.0	400.0	400.0	0.8	0.8	89.99	0.0	30.7	30.7	29.1	1.57	19.499	
500.0	500.0	500.0	500.0	1.0	1.0	89.99	0.0	30.7	30.7	28.7	2.02	15.166	
600.0	600.0	600.0	600.0	1.2	1.2	89.99	0.0	30.7	30.7	28.2	2.47	12.409	
700.0	700.0	700.0	700.0	1.5	1.5	89.99	0.0	30.7	30.7	27.8	2.92	10.500	
800.0	800.0	800.0	800.0	1.7	1.7	89.99	0.0	30.7	30.7	27.3	3.37	9.100	
900.0	900.0	900.0	900.0	1.9	1.9	89.99	0.0	30.7	30.7	26.9	3.82	8.029	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.99	0.0	30.7	30.7	26.4	4.27	7.184	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	89.99	0.0	30.7	30.7	26.0	4.72	6.500	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	89.99	0.0	30.7	30.7	25.5	5.17	5.935 CC	
1,300.0	1,300.0	1,299.3	1,299.3	2.8	2.8	92.43	-1.3	31.7	31.8	26.2	5.59	5.683	
1,400.0	1,400.0	1,398.4	1,398.2	3.0	3.0	98.78	-5.4	34.9	35.4	29.4	6.00	5.900	
1,500.0	1,500.0	1,497.0	1,496.4	3.3	3.2	106.74	-12.1	40.2	42.1	35.7	6.41	6.571	
1,600.0	1,600.0	1,595.4	1,594.1	3.5	3.4	114.17	-21.3	47.4	52.3	45.5	6.83	7.656	
1,700.0	1,700.0	1,694.8	1,692.7	3.7	3.6	-37.88	-31.2	55.2	62.4	55.2	7.22	8.640	
1,800.0	1,799.8	1,794.5	1,791.6	3.9	3.9	-36.33	-41.1	62.9	69.9	62.3	7.59	9.209	
1,900.0	1,899.5	1,894.3	1,890.7	4.0	4.1	-36.65	-51.0	70.7	74.7	66.7	7.97	9.363	
1,951.5	1,950.6	1,945.8	1,941.8	4.1	4.3	-37.42	-56.1	74.8	76.0	67.8	8.18	9.294	
2,000.0	1,998.8	1,994.3	1,989.9	4.2	4.4	-38.34	-60.9	78.5	77.0	68.6	8.38	9.183	
2,100.0	2,098.0	2,094.2	2,089.0	4.5	4.7	-40.16	-70.9	86.3	79.0	70.2	8.82	8.960	
2,200.0	2,197.3	2,194.2	2,188.1	4.7	4.9	-41.89	-80.8	94.2	81.1	71.8	9.27	8.748	
2,300.0	2,296.5	2,294.1	2,287.3	4.9	5.2	-43.53	-90.7	102.0	83.2	73.5	9.74	8.550	
2,400.0	2,395.7	2,394.1	2,386.4	5.2	5.5	-45.08	-100.7	109.8	85.5	75.3	10.22	8.362	
2,500.0	2,495.0	2,494.0	2,485.6	5.4	5.8	-46.56	-110.6	117.6	87.8	77.0	10.72	8.187	
2,600.0	2,594.2	2,594.0	2,584.7	5.7	6.1	-47.96	-120.5	125.4	90.1	78.9	11.23	8.022	
2,700.0	2,693.5	2,693.9	2,683.9	6.0	6.4	-49.29	-130.5	133.2	92.5	80.7	11.76	7.867	
2,800.0	2,792.7	2,793.9	2,783.0	6.3	6.8	-50.55	-140.4	141.0	94.9	82.7	12.29	7.723	
2,900.0	2,892.0	2,893.8	2,882.2	6.5	7.1	-51.74	-150.3	148.8	97.4	84.6	12.84	7.587	
3,000.0	2,991.2	2,993.8	2,981.3	6.8	7.4	-52.88	-160.3	156.6	100.0	86.6	13.40	7.461	
3,100.0	3,090.5	3,093.7	3,080.5	7.1	7.7	-53.96	-170.2	164.4	102.5	88.6	13.96	7.342	
3,200.0	3,189.7	3,193.7	3,179.6	7.4	8.0	-54.99	-180.1	172.2	105.1	90.6	14.54	7.231	
3,300.0	3,289.0	3,293.6	3,278.8	7.7	8.3	-55.97	-190.1	180.0	107.8	92.6	15.12	7.128	
3,400.0	3,388.2	3,393.6	3,377.9	8.0	8.7	-56.90	-200.0	187.8	110.4	94.7	15.70	7.031	
3,500.0	3,487.5	3,493.5	3,477.1	8.3	9.0	-57.78	-209.9	195.6	113.1	96.8	16.30	6.940	
3,600.0	3,586.7	3,593.5	3,576.2	8.6	9.3	-58.63	-219.9	203.4	115.8	98.9	16.90	6.855	
3,700.0	3,686.0	3,693.4	3,675.4	8.9	9.6	-59.43	-229.8	211.2	118.6	101.1	17.50	6.775	
3,800.0	3,785.2	3,793.4	3,774.5	9.2	9.9	-60.20	-239.7	219.0	121.3	103.2	18.11	6.700	
3,900.0	3,884.5	3,893.3	3,873.7	9.5	10.3	-60.94	-249.7	226.8	124.1	105.4	18.72	6.629	
4,000.0	3,983.7	3,993.3	3,972.8	9.8	10.6	-61.64	-259.6	234.6	126.9	107.6	19.34	6.563	
4,100.0	4,083.0	4,093.2	4,071.9	10.1	10.9	-62.32	-269.5	242.4	129.7	109.8	19.95	6.501	
4,200.0	4,182.2	4,193.2	4,171.1	10.5	11.2	-62.96	-279.5	250.2	132.6	112.0	20.58	6.442	
4,300.0	4,281.5	4,293.1	4,270.2	10.8	11.6	-63.58	-289.4	258.0	135.4	114.2	21.20	6.387	
4,400.0	4,380.7	4,393.1	4,369.4	11.1	11.9	-64.17	-299.3	265.8	138.3	116.5	21.83	6.335	
4,500.0	4,480.0	4,493.0	4,468.5	11.4	12.2	-64.73	-309.3	273.7	141.2	118.7	22.46	6.285	
4,569.9	4,549.4	4,562.9	4,537.9	11.6	12.4	-65.12	-316.2	279.1	143.2	120.3	22.90	6.253	
4,600.0	4,579.2	4,593.0	4,567.7	11.7	12.5	-65.24	-319.2	281.5	144.1	121.0	23.08	6.245	
4,700.0	4,678.8	4,693.9	4,667.8	11.9	12.9	-64.89	-329.1	289.2	148.1	124.5	23.57	6.284	
4,800.0	4,778.6	4,797.3	4,770.7	12.1	13.1	-64.12	-337.1	295.5	151.9	127.9	23.94	6.344	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,878.5	4,900.8	4,874.0	12.3	13.3	-63.23	-342.1	299.5	154.8	130.6	24.25	6.384	
4,921.5	4,900.0	4,923.0	4,896.3	12.4	13.3	93.48	-342.8	300.0	155.3	131.0	24.31	6.391	
5,000.0	4,978.5	5,004.5	4,977.7	12.5	13.5	93.97	-344.2	301.1	156.5	131.9	24.56	6.373	
5,100.0	5,078.5	5,105.4	5,078.5	12.7	13.6	93.99	-344.3	301.2	156.6	131.7	24.90	6.287	
5,200.0	5,178.5	5,205.4	5,178.5	12.8	13.8	93.99	-344.3	301.2	156.6	131.3	25.24	6.203	
5,300.0	5,278.5	5,305.4	5,278.5	13.0	14.0	93.99	-344.3	301.2	156.6	131.0	25.58	6.120	
5,400.0	5,378.5	5,405.4	5,378.5	13.2	14.1	93.99	-344.3	301.2	156.6	130.6	25.93	6.038	
5,500.0	5,478.5	5,505.4	5,478.5	13.3	14.3	93.99	-344.3	301.2	156.6	130.3	26.28	5.958	
5,600.0	5,578.5	5,605.4	5,578.5	13.5	14.4	93.99	-344.3	301.2	156.6	129.9	26.63	5.879	
5,700.0	5,678.5	5,705.4	5,678.5	13.7	14.6	93.99	-344.3	301.2	156.6	129.6	26.99	5.801	
5,800.0	5,778.5	5,805.4	5,778.5	13.9	14.8	93.99	-344.3	301.2	156.6	129.2	27.34	5.726	
5,900.0	5,878.5	5,905.4	5,878.5	14.1	14.9	93.99	-344.3	301.2	156.6	128.9	27.70	5.651	
6,000.0	5,978.5	6,005.4	5,978.5	14.2	15.1	93.99	-344.3	301.2	156.6	128.5	28.07	5.578	
6,100.0	6,078.5	6,105.4	6,078.5	14.4	15.3	93.99	-344.3	301.2	156.6	128.1	28.43	5.506	
6,200.0	6,178.5	6,205.4	6,178.5	14.6	15.5	93.99	-344.3	301.2	156.6	127.8	28.80	5.436	
6,303.3	6,281.9	6,309.5	6,282.4	14.8	15.6	91.62	-337.8	301.2	156.2	127.0	29.28	5.337	
6,337.7	6,316.2	6,343.7	6,316.2	14.9	15.6	90.00	-332.6	301.2	156.2	126.7	29.45	5.302	
6,350.0	6,328.5	6,355.9	6,328.2	14.9	15.6	89.42	-330.4	301.2	156.2	126.7	29.51	5.292	
6,400.0	6,378.3	6,405.2	6,376.3	14.9	15.7	87.08	-319.5	301.2	156.4	126.7	29.72	5.261	
6,450.0	6,427.6	6,454.1	6,423.1	15.0	15.7	84.76	-305.7	301.2	156.8	127.0	29.89	5.248	
6,500.0	6,476.4	6,502.5	6,468.6	15.0	15.7	82.49	-289.0	301.2	157.6	127.5	30.00	5.251	
6,550.0	6,524.3	6,550.0	6,512.1	15.0	15.7	80.31	-269.9	301.2	158.5	128.4	30.07	5.271	
6,600.0	6,571.1	6,598.4	6,555.1	15.0	15.6	78.15	-247.7	301.2	159.6	129.5	30.09	5.306	
6,650.0	6,616.8	6,645.8	6,595.8	15.0	15.6	76.10	-223.3	301.2	161.0	130.9	30.06	5.354	
6,700.0	6,661.0	6,692.9	6,634.6	15.0	15.6	74.15	-196.7	301.2	162.4	132.4	30.00	5.415	
6,750.0	6,703.5	6,739.7	6,671.5	15.0	15.6	72.29	-167.9	301.2	164.0	134.1	29.90	5.486	
6,800.0	6,744.3	6,786.2	6,706.3	15.0	15.5	70.55	-137.1	301.2	165.7	135.9	29.79	5.564	
6,850.0	6,783.1	6,832.4	6,739.0	15.0	15.5	68.91	-104.5	301.2	167.5	137.8	29.66	5.648	
6,900.0	6,819.7	6,878.4	6,769.5	15.0	15.5	67.38	-70.1	301.2	169.3	139.8	29.53	5.734	
6,950.0	6,854.0	6,924.2	6,797.8	15.0	15.5	65.97	-34.1	301.2	171.1	141.7	29.41	5.818	
7,000.0	6,885.9	6,969.7	6,823.7	15.1	15.5	64.67	3.3	301.2	172.9	143.6	29.32	5.896	
7,050.0	6,915.2	7,015.0	6,847.3	15.2	15.5	63.49	42.0	301.2	174.6	145.3	29.28	5.964	
7,100.0	6,941.8	7,060.2	6,868.4	15.3	15.6	62.42	81.9	301.2	176.3	147.0	29.30	6.017	
7,150.0	6,965.5	7,105.1	6,887.1	15.5	15.7	61.46	122.8	301.2	177.9	148.5	29.38	6.053	
7,200.0	6,986.4	7,150.0	6,903.3	15.7	16.0	60.61	164.6	301.2	179.3	149.8	29.56	6.065	
7,250.0	7,004.2	7,194.6	6,917.0	16.0	16.3	59.87	207.1	301.2	180.6	150.8	29.84	6.053	
7,300.0	7,018.9	7,239.2	6,928.2	16.4	16.6	59.23	250.3	301.2	181.8	151.6	30.22	6.016	
7,350.0	7,030.5	7,283.7	6,936.7	16.8	17.0	58.70	293.9	301.2	182.8	152.1	30.71	5.953	
7,400.0	7,038.8	7,328.1	6,942.8	17.2	17.4	58.27	337.9	301.2	183.6	152.3	31.31	5.865	
7,450.0	7,043.9	7,372.5	6,946.2	17.7	17.8	57.95	382.1	301.2	184.3	152.3	32.02	5.755	
7,500.0	7,045.8	7,417.5	6,947.2	18.2	18.3	57.73	427.1	301.2	184.7	151.9	32.85	5.624	
7,507.3	7,045.8	7,424.8	6,947.1	18.2	18.4	57.72	434.4	301.2	184.7	151.7	32.99	5.599	
7,600.0	7,045.3	7,517.5	6,947.1	19.3	19.4	57.83	527.1	301.2	184.5	149.7	34.81	5.300	
7,700.0	7,044.8	7,617.5	6,946.9	20.5	20.6	57.94	627.1	301.2	184.3	147.3	36.97	4.984	
7,800.0	7,044.3	7,717.5	6,946.8	21.8	22.0	58.05	727.1	301.2	184.1	144.8	39.31	4.682	
7,900.0	7,043.7	7,817.5	6,946.7	23.2	23.4	58.16	827.1	301.2	183.8	142.0	41.79	4.399	
8,000.0	7,043.2	7,917.5	6,946.6	24.7	24.9	58.27	927.1	301.2	183.6	139.2	44.40	4.136	
8,100.0	7,042.7	8,017.5	6,946.5	26.2	26.4	58.38	1,027.1	301.2	183.4	136.3	47.11	3.893	
8,200.0	7,042.2	8,117.5	6,946.4	27.8	28.0	58.49	1,127.1	301.2	183.2	133.3	49.91	3.670	
8,300.0	7,041.6	8,217.5	6,946.3	29.4	29.6	58.60	1,227.1	301.2	183.0	130.2	52.78	3.466	
8,400.0	7,041.1	8,317.5	6,946.2	31.1	31.2	58.72	1,327.1	301.2	182.7	127.0	55.72	3.280	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,500.0	7,040.6	8,417.5	6,946.1	32.8	32.9	58.83	1,427.1	301.2	182.5	123.8	58.72	3.109	
8,600.0	7,040.1	8,517.5	6,946.0	34.5	34.6	58.94	1,527.1	301.2	182.3	120.5	61.76	2.952	
8,700.0	7,039.5	8,617.5	6,945.9	36.2	36.4	59.05	1,627.1	301.2	182.1	117.2	64.85	2.808	
8,800.0	7,039.0	8,717.5	6,945.8	38.0	38.1	59.17	1,727.1	301.2	181.9	113.9	67.98	2.676	
8,900.0	7,038.5	8,817.5	6,945.7	39.7	39.9	59.28	1,827.1	301.2	181.7	110.5	71.14	2.554	
9,000.0	7,038.0	8,917.5	6,945.6	41.5	41.6	59.39	1,927.1	301.2	181.5	107.1	74.33	2.441	
9,100.0	7,037.4	9,017.5	6,945.5	43.3	43.4	59.51	2,027.1	301.2	181.2	103.7	77.55	2.337	
9,200.0	7,036.9	9,117.5	6,945.4	45.1	45.2	59.62	2,127.1	301.2	181.0	100.2	80.80	2.241	
9,300.0	7,036.4	9,217.5	6,945.3	46.9	47.0	59.74	2,227.1	301.2	180.8	96.7	84.06	2.151	
9,400.0	7,035.9	9,317.5	6,945.2	48.7	48.8	59.85	2,327.1	301.2	180.6	93.2	87.35	2.067	
9,500.0	7,035.4	9,417.5	6,945.1	50.6	50.7	59.97	2,427.1	301.2	180.4	89.7	90.66	1.990	
9,600.0	7,034.8	9,517.5	6,945.0	52.4	52.5	60.08	2,527.1	301.2	180.2	86.2	93.99	1.917	
9,700.0	7,034.3	9,617.5	6,944.9	54.2	54.3	60.20	2,627.1	301.2	180.0	82.6	97.34	1.849	
9,800.0	7,033.8	9,717.5	6,944.7	56.1	56.2	60.31	2,727.1	301.2	179.8	79.1	100.70	1.785	
9,900.0	7,033.3	9,817.5	6,944.6	57.9	58.0	60.43	2,827.1	301.2	179.6	75.5	104.07	1.725	
10,000.0	7,032.7	9,917.5	6,944.5	59.8	59.9	60.54	2,927.1	301.2	179.4	71.9	107.46	1.669	
10,100.0	7,032.2	10,017.5	6,944.4	61.6	61.7	60.66	3,027.1	301.2	179.1	68.3	110.87	1.616	
10,200.0	7,031.7	10,117.5	6,944.3	63.5	63.6	60.78	3,127.1	301.2	178.9	64.7	114.28	1.566	
10,300.0	7,031.2	10,217.5	6,944.2	65.4	65.4	60.90	3,227.1	301.2	178.7	61.0	117.71	1.518	
10,400.0	7,030.6	10,317.5	6,944.1	67.2	67.3	61.01	3,327.1	301.2	178.5	57.4	121.15	1.474	Level 3
10,500.0	7,030.1	10,417.5	6,944.0	69.1	69.2	61.13	3,427.1	301.2	178.3	53.7	124.61	1.431	Level 3
10,600.0	7,029.6	10,517.5	6,943.9	71.0	71.0	61.25	3,527.1	301.2	178.1	50.1	128.07	1.391	Level 3
10,700.0	7,029.1	10,617.5	6,943.8	72.8	72.9	61.37	3,627.1	301.2	177.9	46.4	131.54	1.353	Level 3
10,800.0	7,028.5	10,717.5	6,943.7	74.7	74.8	61.49	3,727.1	301.2	177.7	42.7	135.03	1.316	Level 3
10,900.0	7,028.0	10,817.5	6,943.6	76.6	76.7	61.60	3,827.1	301.2	177.5	39.0	138.52	1.282	Level 3
11,000.0	7,027.5	10,917.5	6,943.5	78.5	78.6	61.72	3,927.1	301.2	177.3	35.3	142.02	1.249	Level 2
11,100.0	7,027.0	11,017.5	6,943.4	80.4	80.4	61.84	4,027.1	301.2	177.1	31.6	145.54	1.217	Level 2
11,200.0	7,026.5	11,117.5	6,943.3	82.2	82.3	61.96	4,127.1	301.2	176.9	27.9	149.06	1.187	Level 2
11,300.0	7,025.9	11,217.5	6,943.2	84.1	84.2	62.08	4,227.1	301.2	176.7	24.1	152.59	1.158	Level 2
11,400.0	7,025.4	11,317.5	6,943.1	86.0	86.1	62.20	4,327.1	301.2	176.5	20.4	156.13	1.131	Level 2
11,455.9	7,025.1	11,373.4	6,943.0	86.9	87.1	62.27	4,383.0	301.2	176.4	18.5	157.92	1.117	Level 2
11,477.3	7,025.0	11,387.6	6,943.0	87.2	87.4	62.29	4,397.2	301.2	176.5	18.1	158.47	1.114	Level 2, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	61.4	61.4				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	61.4	61.4	61.1	0.22	274.359	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	61.4	61.4	60.7	0.67	91.301	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	61.4	61.4	60.2	1.12	54.707	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	61.4	61.4	59.8	1.57	39.054	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	61.4	61.4	59.3	2.02	30.366	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	61.4	61.4	58.9	2.47	24.840	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	61.4	61.4	58.4	2.92	21.015	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	0.0	61.4	61.4	58.0	3.37	18.211	
900.0	900.0	899.0	899.0	1.9	1.9	90.00	0.0	61.4	61.4	57.5	3.82	16.068	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.00	0.0	61.4	61.4	57.1	4.27	14.375	CC, ES
1,100.0	1,100.0	1,097.4	1,097.4	2.4	2.3	91.01	-1.1	62.6	62.6	57.9	4.69	13.349	
1,200.0	1,200.0	1,195.6	1,195.4	2.6	2.5	93.82	-4.4	66.3	66.6	61.5	5.10	13.058	
1,300.0	1,300.0	1,293.3	1,292.7	2.8	2.7	97.82	-10.0	72.6	73.5	68.0	5.52	13.330	
1,400.0	1,400.0	1,390.3	1,389.1	3.0	2.9	102.25	-17.6	81.2	83.7	77.8	5.94	14.096	
1,500.0	1,500.0	1,488.4	1,486.2	3.3	3.2	106.42	-27.1	91.8	96.6	90.2	6.37	15.171	
1,600.0	1,600.0	1,587.3	1,584.0	3.5	3.5	109.66	-36.7	102.7	110.0	103.2	6.80	16.190	
1,700.0	1,700.0	1,686.5	1,682.1	3.7	3.7	-44.70	-46.3	113.5	122.5	115.3	7.22	16.968	
1,800.0	1,799.8	1,786.0	1,780.5	3.9	4.0	-44.00	-56.0	124.4	132.6	125.0	7.61	17.421	
1,900.0	1,899.5	1,885.7	1,879.1	4.0	4.4	-44.40	-65.7	135.3	140.2	132.2	8.02	17.489	
1,951.5	1,950.6	1,937.1	1,930.0	4.1	4.5	-44.98	-70.7	140.9	143.2	134.9	8.23	17.388	
2,000.0	1,998.8	1,985.4	1,977.9	4.2	4.7	-45.67	-75.4	146.2	145.7	137.2	8.45	17.242	
2,100.0	2,098.0	2,085.3	2,076.6	4.5	5.0	-47.01	-85.1	157.2	150.9	142.0	8.90	16.944	
2,200.0	2,197.3	2,185.1	2,175.3	4.7	5.3	-48.26	-94.8	168.1	156.1	146.8	9.38	16.653	
2,300.0	2,296.5	2,284.9	2,274.0	4.9	5.7	-49.44	-104.5	179.0	161.5	151.6	9.86	16.371	
2,400.0	2,395.7	2,384.7	2,372.8	5.2	6.0	-50.53	-114.2	189.9	166.9	156.5	10.37	16.100	
2,500.0	2,495.0	2,484.5	2,471.5	5.4	6.3	-51.56	-123.9	200.9	172.4	161.5	10.88	15.840	
2,600.0	2,594.2	2,584.3	2,570.2	5.7	6.7	-52.52	-133.6	211.8	177.9	166.5	11.41	15.593	
2,700.0	2,693.5	2,684.1	2,669.0	6.0	7.0	-53.43	-143.3	222.7	183.5	171.5	11.95	15.358	
2,800.0	2,792.7	2,783.9	2,767.7	6.3	7.4	-54.28	-153.0	233.6	189.1	176.6	12.49	15.134	
2,900.0	2,892.0	2,883.7	2,866.4	6.5	7.7	-55.08	-162.7	244.6	194.7	181.7	13.05	14.923	
3,000.0	2,991.2	2,983.5	2,965.1	6.8	8.1	-55.84	-172.4	255.5	200.4	186.8	13.61	14.723	
3,100.0	3,090.5	3,083.3	3,063.9	7.1	8.4	-56.55	-182.1	266.4	206.1	191.9	14.18	14.534	
3,200.0	3,189.7	3,183.1	3,162.6	7.4	8.8	-57.23	-191.8	277.4	211.9	197.1	14.76	14.355	
3,300.0	3,289.0	3,282.9	3,261.3	7.7	9.1	-57.87	-201.5	288.3	217.6	202.3	15.34	14.186	
3,400.0	3,388.2	3,382.7	3,360.1	8.0	9.5	-58.48	-211.2	299.2	223.4	207.5	15.93	14.026	
3,500.0	3,487.5	3,482.5	3,458.8	8.3	9.8	-59.05	-220.9	310.1	229.3	212.8	16.52	13.875	
3,600.0	3,586.7	3,582.3	3,557.5	8.6	10.2	-59.60	-230.6	321.1	235.1	218.0	17.12	13.733	
3,700.0	3,686.0	3,682.1	3,656.2	8.9	10.5	-60.12	-240.3	332.0	241.0	223.3	17.72	13.598	
3,800.0	3,785.2	3,781.9	3,755.0	9.2	10.9	-60.62	-250.0	342.9	246.9	228.6	18.33	13.470	
3,900.0	3,884.5	3,881.7	3,853.7	9.5	11.2	-61.09	-259.7	353.8	252.8	233.8	18.94	13.349	
4,000.0	3,983.7	3,981.5	3,952.4	9.8	11.6	-61.55	-269.4	364.8	258.7	239.2	19.55	13.234	
4,100.0	4,083.0	4,081.3	4,051.2	10.1	11.9	-61.98	-279.1	375.7	264.6	244.5	20.16	13.125	
4,200.0	4,182.2	4,181.1	4,149.9	10.5	12.3	-62.39	-288.8	386.6	270.6	249.8	20.78	13.021	
4,300.0	4,281.5	4,280.9	4,248.6	10.8	12.7	-62.78	-298.5	397.5	276.6	255.2	21.40	12.923	
4,400.0	4,380.7	4,380.7	4,347.3	11.1	13.0	-63.16	-308.2	408.5	282.5	260.5	22.02	12.829	
4,500.0	4,480.0	4,480.6	4,446.1	11.4	13.4	-63.53	-317.9	419.4	288.5	265.9	22.65	12.740	
4,569.9	4,549.4	4,550.3	4,515.1	11.6	13.6	-63.77	-324.7	427.0	292.7	269.6	23.08	12.681	
4,600.0	4,579.2	4,580.4	4,544.8	11.7	13.7	-63.88	-327.6	430.3	294.6	271.3	23.26	12.665	
4,700.0	4,678.8	4,685.7	4,649.2	11.9	14.1	-63.94	-337.3	441.2	301.2	277.5	23.77	12.674	
4,800.0	4,778.6	4,794.5	4,757.4	12.1	14.3	-63.80	-344.8	449.7	306.7	282.5	24.18	12.683	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,878.5	4,903.6	4,866.2	12.3	14.5	-63.49	-349.5	455.0	310.7	286.2	24.52	12.669	
4,921.5	4,900.0	4,927.0	4,889.6	12.4	14.6	93.09	-350.2	455.8	311.4	286.8	24.59	12.662	
5,000.0	4,978.5	5,012.9	4,975.4	12.5	14.7	93.32	-351.5	457.3	312.8	288.0	24.85	12.586	
5,100.0	5,078.5	5,115.0	5,077.5	12.7	14.9	93.34	-351.6	457.4	312.9	287.7	25.20	12.418	
5,200.0	5,178.5	5,215.0	5,177.5	12.8	15.0	93.34	-351.6	457.4	312.9	287.4	25.53	12.255	
5,300.0	5,278.5	5,315.0	5,277.5	13.0	15.2	93.34	-351.6	457.4	312.9	287.0	25.87	12.094	
5,400.0	5,378.5	5,415.0	5,377.5	13.2	15.3	93.34	-351.6	457.4	312.9	286.7	26.21	11.936	
5,500.0	5,478.5	5,515.0	5,477.5	13.3	15.5	93.34	-351.6	457.4	312.9	286.3	26.56	11.780	
5,600.0	5,578.5	5,615.0	5,577.5	13.5	15.6	93.34	-351.6	457.4	312.9	286.0	26.91	11.627	
5,700.0	5,678.5	5,715.0	5,677.5	13.7	15.8	93.34	-351.6	457.4	312.9	285.6	27.26	11.477	
5,800.0	5,778.5	5,815.0	5,777.5	13.9	15.9	93.34	-351.6	457.4	312.9	285.3	27.62	11.329	
5,900.0	5,878.5	5,915.0	5,877.5	14.1	16.1	93.34	-351.6	457.4	312.9	284.9	27.97	11.185	
6,000.0	5,978.5	6,015.0	5,977.5	14.2	16.2	93.34	-351.6	457.4	312.9	284.6	28.34	11.042	
6,100.0	6,078.5	6,115.0	6,077.5	14.4	16.4	93.34	-351.6	457.4	312.9	284.2	28.70	10.903	
6,200.0	6,178.5	6,215.0	6,177.5	14.6	16.6	93.34	-351.6	457.4	312.9	283.8	29.06	10.766	
6,303.3	6,281.9	6,318.3	6,280.9	14.8	16.7	93.34	-351.6	457.4	312.9	283.4	29.44	10.627	
6,350.0	6,328.5	6,366.1	6,328.6	14.9	16.8	93.34	-350.2	457.4	312.9	283.3	29.59	10.573	
6,400.0	6,378.3	6,417.3	6,379.6	14.9	16.9	93.33	-345.3	457.4	312.9	283.2	29.72	10.528	
6,450.0	6,427.6	6,468.6	6,430.2	15.0	16.9	93.31	-337.1	457.4	312.9	283.1	29.81	10.495	
6,500.0	6,476.4	6,519.8	6,480.0	15.0	16.9	93.27	-325.5	457.4	312.9	283.0	29.87	10.474	
6,550.0	6,524.3	6,570.9	6,529.0	15.0	16.9	93.22	-310.5	457.4	312.9	283.0	29.90	10.463	
6,600.0	6,571.1	6,622.1	6,576.8	15.0	16.9	93.15	-292.4	457.4	312.8	282.9	29.91	10.459	
6,650.0	6,616.8	6,673.2	6,623.3	15.0	16.9	93.07	-271.1	457.4	312.8	282.9	29.91	10.459	
6,700.0	6,661.0	6,724.4	6,668.2	15.0	16.9	92.98	-246.7	457.4	312.8	282.9	29.90	10.461	
6,750.0	6,703.5	6,775.4	6,711.3	15.0	16.8	92.87	-219.5	457.4	312.8	282.9	29.90	10.461	
6,800.0	6,744.3	6,826.4	6,752.6	15.0	16.8	92.76	-189.4	457.4	312.7	282.8	29.91	10.455	
6,850.0	6,783.1	6,877.4	6,791.6	15.0	16.8	92.63	-156.7	457.4	312.7	282.7	29.95	10.440	
6,900.0	6,819.7	6,928.3	6,828.4	15.0	16.7	92.48	-121.4	457.4	312.7	282.6	30.03	10.412	
6,950.0	6,854.0	6,979.2	6,862.7	15.0	16.7	92.33	-83.9	457.4	312.6	282.5	30.15	10.367	
7,000.0	6,885.9	7,030.0	6,894.4	15.1	16.6	92.17	-44.2	457.4	312.6	282.2	30.34	10.303	
7,050.0	6,915.2	7,080.8	6,923.3	15.2	16.6	92.00	-2.5	457.4	312.5	282.0	30.59	10.216	
7,100.0	6,941.8	7,131.4	6,949.4	15.3	16.6	91.81	40.9	457.4	312.5	281.6	30.92	10.106	
7,150.0	6,965.5	7,182.1	6,972.6	15.5	16.5	91.63	85.9	457.4	312.5	281.1	31.34	9.971	
7,200.0	6,986.4	7,232.6	6,992.6	15.7	16.5	91.43	132.3	457.4	312.5	280.6	31.84	9.813	
7,250.0	7,004.2	7,283.1	7,009.6	16.0	16.5	91.23	179.8	457.4	312.4	280.0	32.43	9.634	
7,300.0	7,018.9	7,333.4	7,023.3	16.4	16.9	91.02	228.3	457.4	312.4	279.3	33.11	9.435	
7,350.0	7,030.5	7,383.8	7,033.8	16.8	17.3	90.81	277.5	457.4	312.4	278.5	33.88	9.221	
7,400.0	7,038.8	7,434.0	7,041.1	17.2	17.8	90.60	327.2	457.4	312.4	277.6	34.73	8.995	
7,450.0	7,043.9	7,484.2	7,045.0	17.7	18.2	90.38	377.2	457.4	312.4	276.7	35.65	8.761	
7,500.0	7,045.8	7,534.2	7,045.7	18.2	18.8	90.18	427.2	457.4	312.4	275.7	36.65	8.523	
7,507.3	7,045.8	7,541.5	7,045.7	18.2	18.8	90.17	434.6	457.4	312.4	275.6	36.80	8.487	
7,600.0	7,045.3	7,634.2	7,045.2	19.3	19.9	90.17	527.2	457.4	312.4	273.5	38.84	8.043	
7,700.0	7,044.8	7,734.2	7,044.7	20.5	21.1	90.17	627.2	457.4	312.4	271.1	41.26	7.571	
7,800.0	7,044.3	7,834.2	7,044.2	21.8	22.4	90.17	727.2	457.4	312.4	268.5	43.88	7.119	
7,900.0	7,043.7	7,934.2	7,043.7	23.2	23.8	90.17	827.2	457.4	312.4	265.7	46.67	6.693	
8,000.0	7,043.2	8,034.2	7,043.1	24.7	25.3	90.17	927.2	457.4	312.4	262.8	49.60	6.297	
8,100.0	7,042.7	8,134.2	7,042.6	26.2	26.8	90.17	1,027.2	457.4	312.4	259.7	52.65	5.933	
8,200.0	7,042.2	8,234.2	7,042.1	27.8	28.4	90.17	1,127.2	457.4	312.4	256.6	55.79	5.598	
8,300.0	7,041.6	8,334.2	7,041.6	29.4	30.0	90.17	1,227.2	457.4	312.3	253.3	59.02	5.292	
8,400.0	7,041.1	8,434.2	7,041.0	31.1	31.6	90.17	1,327.2	457.3	312.3	250.0	62.32	5.012	
8,500.0	7,040.6	8,534.2	7,040.5	32.8	33.3	90.17	1,427.2	457.3	312.3	246.7	65.68	4.756	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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

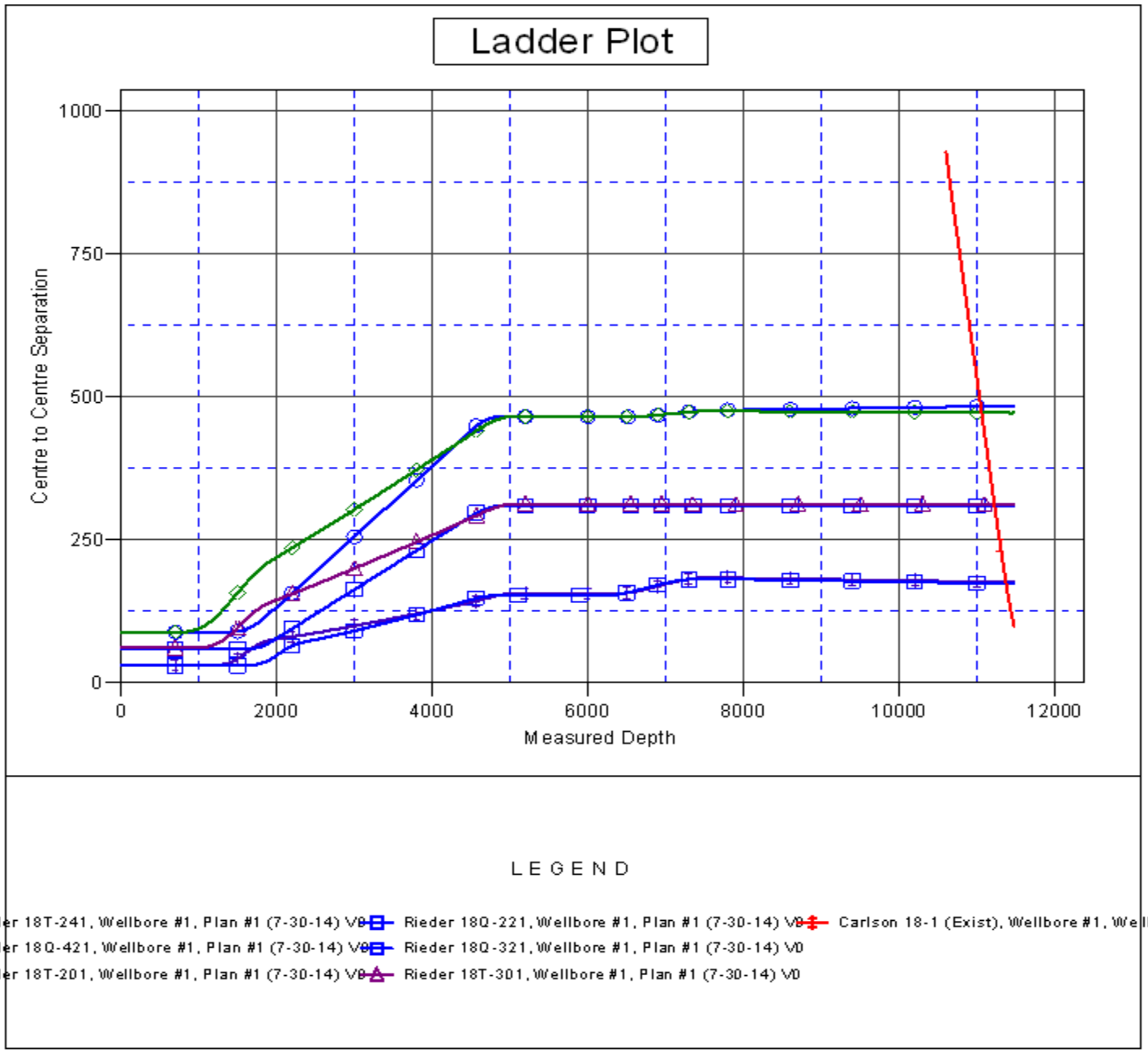
Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,600.0	7,040.1	8,634.2	7,040.0	34.5	34.9	90.17	1,527.2	457.3	312.3	243.3	69.08	4.521	
8,700.0	7,039.5	8,734.2	7,039.5	36.2	36.7	90.17	1,627.2	457.3	312.3	239.8	72.54	4.306	
8,800.0	7,039.0	8,834.2	7,038.9	38.0	38.4	90.17	1,727.2	457.3	312.3	236.3	76.02	4.109	
8,900.0	7,038.5	8,934.2	7,038.4	39.7	40.1	90.17	1,827.2	457.3	312.3	232.8	79.54	3.927	
9,000.0	7,038.0	9,034.2	7,037.9	41.5	41.9	90.17	1,927.2	457.3	312.3	229.3	83.09	3.759	
9,100.0	7,037.4	9,134.2	7,037.4	43.3	43.7	90.17	2,027.2	457.3	312.3	225.7	86.66	3.604	
9,200.0	7,036.9	9,234.2	7,036.8	45.1	45.5	90.17	2,127.2	457.3	312.3	222.1	90.26	3.460	
9,300.0	7,036.4	9,334.2	7,036.3	46.9	47.3	90.17	2,227.2	457.3	312.3	218.5	93.87	3.327	
9,400.0	7,035.9	9,434.2	7,035.8	48.7	49.1	90.17	2,327.2	457.3	312.3	214.8	97.51	3.203	
9,500.0	7,035.4	9,534.2	7,035.3	50.6	50.9	90.17	2,427.2	457.3	312.3	211.2	101.15	3.088	
9,600.0	7,034.8	9,634.2	7,034.8	52.4	52.7	90.17	2,527.2	457.3	312.3	207.5	104.81	2.980	
9,700.0	7,034.3	9,734.2	7,034.2	54.2	54.5	90.17	2,627.2	457.3	312.3	203.9	108.49	2.879	
9,800.0	7,033.8	9,834.2	7,033.7	56.1	56.4	90.17	2,727.2	457.3	312.3	200.2	112.17	2.784	
9,900.0	7,033.3	9,934.2	7,033.2	57.9	58.2	90.17	2,827.2	457.3	312.3	196.5	115.87	2.696	
10,000.0	7,032.7	10,034.2	7,032.7	59.8	60.0	90.17	2,927.2	457.3	312.3	192.8	119.57	2.612	
10,100.0	7,032.2	10,134.2	7,032.1	61.6	61.9	90.17	3,027.2	457.3	312.3	189.1	123.28	2.534	
10,200.0	7,031.7	10,234.2	7,031.6	63.5	63.7	90.17	3,127.2	457.3	312.3	185.3	127.00	2.459	
10,300.0	7,031.2	10,334.2	7,031.1	65.4	65.6	90.17	3,227.2	457.3	312.3	181.6	130.73	2.389	
10,400.0	7,030.6	10,434.2	7,030.6	67.2	67.5	90.17	3,327.2	457.3	312.3	177.9	134.46	2.323	
10,500.0	7,030.1	10,534.2	7,030.0	69.1	69.3	90.17	3,427.2	457.3	312.3	174.1	138.20	2.260	
10,600.0	7,029.6	10,634.2	7,029.5	71.0	71.2	90.17	3,527.2	457.3	312.3	170.4	141.94	2.200	
10,700.0	7,029.1	10,734.2	7,029.0	72.8	73.1	90.17	3,627.2	457.3	312.3	166.6	145.69	2.144	
10,800.0	7,028.5	10,834.2	7,028.5	74.7	74.9	90.17	3,727.2	457.3	312.3	162.9	149.45	2.090	
10,900.0	7,028.0	10,934.2	7,027.9	76.6	76.8	90.17	3,827.2	457.3	312.3	159.1	153.20	2.039	
11,000.0	7,027.5	11,034.2	7,027.4	78.5	78.7	90.17	3,927.2	457.3	312.3	155.4	156.97	1.990	
11,100.0	7,027.0	11,134.2	7,026.9	80.4	80.6	90.17	4,027.2	457.3	312.3	151.6	160.73	1.943	
11,200.0	7,026.5	11,234.2	7,026.4	82.2	82.4	90.17	4,127.2	457.3	312.3	147.8	164.50	1.899	
11,300.0	7,025.9	11,334.2	7,025.9	84.1	84.3	90.17	4,227.2	457.3	312.3	144.1	168.27	1.856	
11,400.0	7,025.4	11,434.2	7,025.3	86.0	86.2	90.17	4,327.2	457.3	312.3	140.3	172.05	1.815	
11,450.9	7,025.1	11,485.1	7,025.1	86.8	87.2	90.17	4,378.1	457.3	312.3	138.5	173.78	1.797	
11,477.3	7,025.0	11,497.6	7,025.0	87.2	87.4	90.17	4,390.6	457.3	312.6	138.2	174.42	1.792 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Rieder 18T-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 @ 4827.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Rieder 18T-341
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-341
Project:	SEC.18-T4N-R67W	**TVD Reference:**	WELL @ 4827.0ft (RKB - 15')
Reference Site:	Rieder 4N67W18Q Pad Sec.18-T4N-R67	**MD Reference:**	WELL @ 4827.0ft (RKB - 15')
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Rieder 18T-341	**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 @ 4827.0ft (RKB - 15')	Coordinates are relative to: Rieder 18T-341
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.37°