

# PETROLEUM DEVELOPMENT CORP Weld County CO

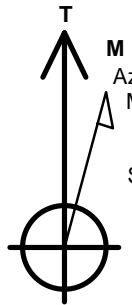
Well Name: **Rieder 18Y-241**

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1355509.81	3160228.93	40.307850	-104.925470	
RKB - 15' WELL @ 4821.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 678'FSL & 652'FEL	1.0	0.0	0.0	Point
BHL 500'FNL & 385'FEL	6944.0	4102.1	94.8	Point

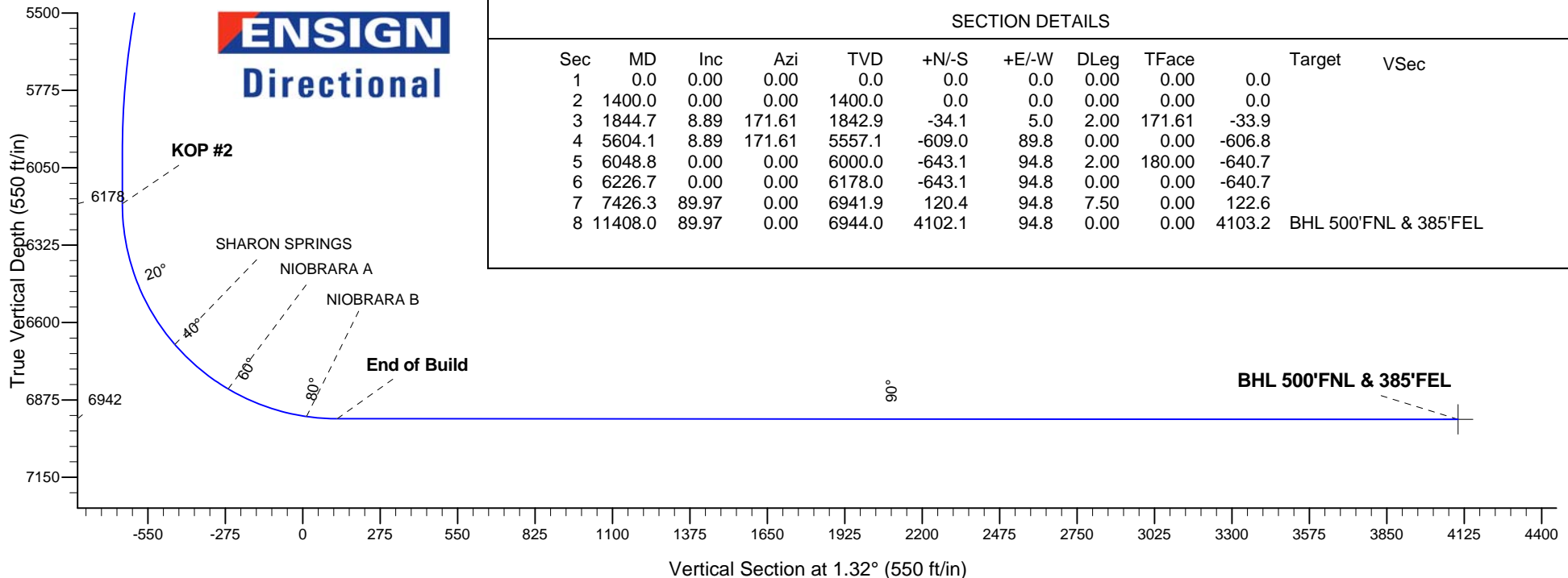
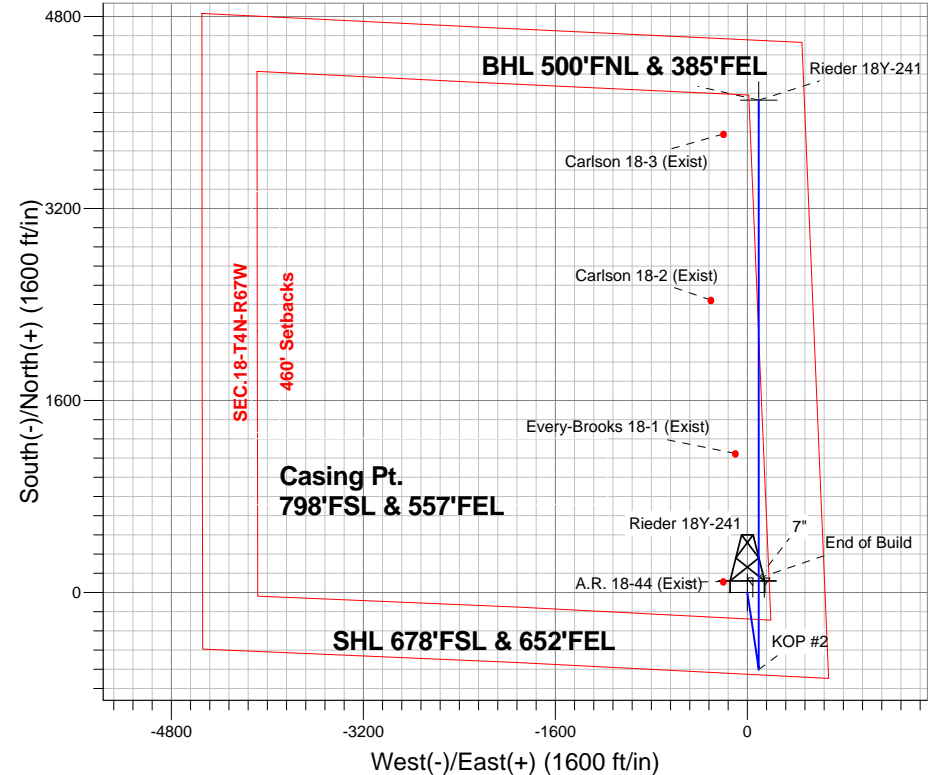


Azimuths to True North  
 Magnetic North: 8.52°  
 Magnetic Field  
 Strength: 52736.9snT  
 Dip Angle: 66.84°  
 Date: 7/31/2014  
 Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
1400.0	1400.0	KOP #1
6177.9	6226.7	KOP #2
6941.9	7426.3	End of Build

Rieder 4N67W18Y Pad Sec.18-T4N-R67W  
 Rieder 18Y-241  
 Plan #1 (7-31-14)  
 11:10, August 05 2014



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	1844.7	8.89	171.61	1842.9	-34.1	5.0	2.00	171.61	-33.9	
4	5604.1	8.89	171.61	5557.1	-609.0	89.8	0.00	0.00	-606.8	
5	6048.8	0.00	0.00	6000.0	-643.1	94.8	2.00	180.00	-640.7	
6	6226.7	0.00	0.00	6178.0	-643.1	94.8	0.00	0.00	-640.7	
7	7426.3	89.97	0.00	6941.9	120.4	94.8	7.50	0.00	122.6	
8	11408.0	89.97	0.00	6944.0	4102.1	94.8	0.00	0.00	4103.2	BHL 500'FNL & 385'FEL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.18-T4N-R67W**

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

**Rieder 18Y-241**

**Wellbore #1**

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

## **Standard Planning Report**

**05 August, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

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

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

Well	Rieder 18Y-241					
Well Position	+N-S	0.0 ft	Northing:	1,355,509.81 ft	Latitude:	40.307850
	+E-W	27.9 ft	Easting:	3,160,228.93 ft	Longitude:	-104.925470
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,806.0 ft

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

<b>Design</b>	Plan #1 (7-31-14)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	1.32

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,844.7	8.89	171.61	1,842.9	-34.1	5.0	2.00	2.00	0.00	171.61	
5,604.1	8.89	171.61	5,557.1	-609.0	89.8	0.00	0.00	0.00	0.00	
6,048.8	0.00	0.00	6,000.0	-643.1	94.8	2.00	-2.00	0.00	180.00	
6,226.7	0.00	0.00	6,178.0	-643.1	94.8	0.00	0.00	0.00	0.00	
7,426.3	89.97	0.00	6,941.9	120.4	94.8	7.50	7.50	0.00	0.00	
11,408.0	89.97	0.00	6,944.0	4,102.1	94.8	0.00	0.00	0.00	0.00	BHL 500'FNL & 385°

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 678'FSL & 652'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
KOP #1									
1,500.0	2.00	171.61	1,500.0	-1.7	0.3	-1.7	2.00	2.00	0.00
1,600.0	4.00	171.61	1,599.8	-6.9	1.0	-6.9	2.00	2.00	0.00
1,700.0	6.00	171.61	1,699.5	-15.5	2.3	-15.5	2.00	2.00	0.00
1,800.0	8.00	171.61	1,798.7	-27.6	4.1	-27.5	2.00	2.00	0.00
1,844.7	8.89	171.61	1,842.9	-34.1	5.0	-33.9	2.00	2.00	0.00
1,900.0	8.89	171.61	1,897.6	-42.5	6.3	-42.4	0.00	0.00	0.00
2,000.0	8.89	171.61	1,996.3	-57.8	8.5	-57.6	0.00	0.00	0.00
2,100.0	8.89	171.61	2,095.1	-73.1	10.8	-72.9	0.00	0.00	0.00
2,200.0	8.89	171.61	2,193.9	-88.4	13.0	-88.1	0.00	0.00	0.00
2,300.0	8.89	171.61	2,292.7	-103.7	15.3	-103.3	0.00	0.00	0.00
2,400.0	8.89	171.61	2,391.5	-119.0	17.5	-118.6	0.00	0.00	0.00
2,500.0	8.89	171.61	2,490.3	-134.3	19.8	-133.8	0.00	0.00	0.00
2,600.0	8.89	171.61	2,589.1	-149.6	22.1	-149.0	0.00	0.00	0.00
2,700.0	8.89	171.61	2,687.9	-164.9	24.3	-164.3	0.00	0.00	0.00
2,800.0	8.89	171.61	2,786.7	-180.2	26.6	-179.5	0.00	0.00	0.00
2,900.0	8.89	171.61	2,885.5	-195.5	28.8	-194.8	0.00	0.00	0.00
3,000.0	8.89	171.61	2,984.3	-210.8	31.1	-210.0	0.00	0.00	0.00
3,100.0	8.89	171.61	3,083.1	-226.1	33.3	-225.2	0.00	0.00	0.00
3,200.0	8.89	171.61	3,181.9	-241.4	35.6	-240.5	0.00	0.00	0.00
3,300.0	8.89	171.61	3,280.7	-256.6	37.8	-255.7	0.00	0.00	0.00
3,400.0	8.89	171.61	3,379.5	-271.9	40.1	-270.9	0.00	0.00	0.00
3,471.3	8.89	171.61	3,450.0	-282.9	41.7	-281.8	0.00	0.00	0.00
PARKMAN									
3,500.0	8.89	171.61	3,478.3	-287.2	42.3	-286.2	0.00	0.00	0.00
3,600.0	8.89	171.61	3,577.1	-302.5	44.6	-301.4	0.00	0.00	0.00
3,700.0	8.89	171.61	3,675.9	-317.8	46.9	-316.7	0.00	0.00	0.00
3,800.0	8.89	171.61	3,774.7	-333.1	49.1	-331.9	0.00	0.00	0.00
3,900.0	8.89	171.61	3,873.5	-348.4	51.4	-347.1	0.00	0.00	0.00
3,987.5	8.89	171.61	3,960.0	-361.8	53.3	-360.5	0.00	0.00	0.00
SUSSEX									
4,000.0	8.89	171.61	3,972.3	-363.7	53.6	-362.4	0.00	0.00	0.00
4,100.0	8.89	171.61	4,071.1	-379.0	55.9	-377.6	0.00	0.00	0.00
4,200.0	8.89	171.61	4,169.9	-394.3	58.1	-392.8	0.00	0.00	0.00
4,300.0	8.89	171.61	4,268.7	-409.6	60.4	-408.1	0.00	0.00	0.00
4,400.0	8.89	171.61	4,367.5	-424.9	62.6	-423.3	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	8.89	171.61	4,466.3	-440.2	64.9	-438.6	0.00	0.00	0.00
4,554.4	8.89	171.61	4,520.0	-448.5	66.1	-446.8	0.00	0.00	0.00
<b>SHANNON</b>									
4,600.0	8.89	171.61	4,565.1	-455.5	67.1	-453.8	0.00	0.00	0.00
4,700.0	8.89	171.61	4,663.9	-470.8	69.4	-469.0	0.00	0.00	0.00
4,800.0	8.89	171.61	4,762.7	-486.1	71.6	-484.3	0.00	0.00	0.00
4,900.0	8.89	171.61	4,861.5	-501.3	73.9	-499.5	0.00	0.00	0.00
5,000.0	8.89	171.61	4,960.3	-516.6	76.2	-514.7	0.00	0.00	0.00
5,100.0	8.89	171.61	5,059.1	-531.9	78.4	-530.0	0.00	0.00	0.00
5,200.0	8.89	171.61	5,157.9	-547.2	80.7	-545.2	0.00	0.00	0.00
5,300.0	8.89	171.61	5,256.7	-562.5	82.9	-560.5	0.00	0.00	0.00
5,400.0	8.89	171.61	5,355.5	-577.8	85.2	-575.7	0.00	0.00	0.00
5,500.0	8.89	171.61	5,454.3	-593.1	87.4	-590.9	0.00	0.00	0.00
5,600.0	8.89	171.61	5,553.1	-608.4	89.7	-606.2	0.00	0.00	0.00
5,604.1	8.89	171.61	5,557.1	-609.0	89.8	-606.8	0.00	0.00	0.00
5,700.0	6.98	171.61	5,652.1	-622.1	91.7	-619.8	2.00	-2.00	0.00
5,800.0	4.98	171.61	5,751.6	-632.4	93.2	-630.1	2.00	-2.00	0.00
5,900.0	2.98	171.61	5,851.3	-639.3	94.2	-636.9	2.00	-2.00	0.00
6,000.0	0.98	171.61	5,951.2	-642.7	94.7	-640.3	2.00	-2.00	0.00
6,048.8	0.00	0.00	6,000.0	-643.1	94.8	-640.7	2.00	-2.00	0.00
6,100.0	0.00	0.00	6,051.2	-643.1	94.8	-640.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,151.2	-643.1	94.8	-640.7	0.00	0.00	0.00
6,226.7	0.00	0.00	6,177.9	-643.1	94.8	-640.7	0.00	0.00	0.00
<b>KOP #2</b>									
6,300.0	5.50	0.00	6,251.1	-639.6	94.8	-637.2	7.50	7.50	0.00
6,400.0	13.00	0.00	6,349.8	-623.5	94.8	-621.2	7.50	7.50	0.00
6,500.0	20.50	0.00	6,445.4	-594.7	94.8	-592.4	7.50	7.50	0.00
6,600.0	28.00	0.00	6,536.6	-553.7	94.8	-551.4	7.50	7.50	0.00
6,700.0	35.50	0.00	6,621.5	-501.1	94.8	-498.8	7.50	7.50	0.00
6,771.9	40.88	0.00	6,678.0	-456.7	94.8	-454.4	7.50	7.50	0.00
<b>SHARON SPRINGS</b>									
6,800.0	43.00	0.00	6,698.9	-437.9	94.8	-435.6	7.50	7.50	0.00
6,900.0	50.50	0.00	6,767.4	-365.1	94.8	-362.8	7.50	7.50	0.00
7,000.0	58.00	0.00	6,825.8	-284.0	94.8	-281.8	7.50	7.50	0.00
7,019.7	59.47	0.00	6,836.0	-267.2	94.8	-265.0	7.50	7.50	0.00
<b>NIOBRARA A</b>									
7,100.0	65.50	0.00	6,873.1	-196.0	94.8	-193.8	7.50	7.50	0.00
7,200.0	73.00	0.00	6,908.5	-102.6	94.8	-100.4	7.50	7.50	0.00
7,300.0	80.50	0.00	6,931.4	-5.3	94.8	-3.1	7.50	7.50	0.00
7,316.7	81.75	0.00	6,934.0	11.2	94.8	13.3	7.50	7.50	0.00
<b>NIOBRARA B</b>									
7,400.0	88.00	0.00	6,941.4	94.1	94.8	96.3	7.50	7.50	0.00
7,426.3	89.97	0.00	6,941.9	120.4	94.8	122.6	7.50	7.50	0.00
<b>End of Build - 7"</b>									
7,500.0	89.97	0.00	6,942.0	194.1	94.8	196.3	0.00	0.00	0.00
7,600.0	89.97	0.00	6,942.0	294.1	94.8	296.2	0.00	0.00	0.00
7,700.0	89.97	0.00	6,942.1	394.1	94.8	396.2	0.00	0.00	0.00
7,800.0	89.97	0.00	6,942.1	494.1	94.8	496.2	0.00	0.00	0.00
7,900.0	89.97	0.00	6,942.2	594.1	94.8	596.1	0.00	0.00	0.00
8,000.0	89.97	0.00	6,942.2	694.1	94.8	696.1	0.00	0.00	0.00
8,100.0	89.97	0.00	6,942.3	794.1	94.8	796.1	0.00	0.00	0.00
8,200.0	89.97	0.00	6,942.3	894.1	94.8	896.1	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,300.0	89.97	0.00	6,942.4	994.1	94.8	996.0	0.00	0.00	0.00
8,400.0	89.97	0.00	6,942.4	1,094.1	94.8	1,096.0	0.00	0.00	0.00
8,500.0	89.97	0.00	6,942.5	1,194.1	94.8	1,196.0	0.00	0.00	0.00
8,600.0	89.97	0.00	6,942.5	1,294.1	94.8	1,296.0	0.00	0.00	0.00
8,700.0	89.97	0.00	6,942.6	1,394.1	94.8	1,395.9	0.00	0.00	0.00
8,800.0	89.97	0.00	6,942.6	1,494.1	94.8	1,495.9	0.00	0.00	0.00
8,900.0	89.97	0.00	6,942.7	1,594.1	94.8	1,595.9	0.00	0.00	0.00
9,000.0	89.97	0.00	6,942.7	1,694.1	94.8	1,695.9	0.00	0.00	0.00
9,100.0	89.97	0.00	6,942.8	1,794.1	94.8	1,795.8	0.00	0.00	0.00
9,200.0	89.97	0.00	6,942.8	1,894.1	94.8	1,895.8	0.00	0.00	0.00
9,300.0	89.97	0.00	6,942.9	1,994.1	94.8	1,995.8	0.00	0.00	0.00
9,400.0	89.97	0.00	6,942.9	2,094.1	94.8	2,095.7	0.00	0.00	0.00
9,500.0	89.97	0.00	6,943.0	2,194.1	94.8	2,195.7	0.00	0.00	0.00
9,600.0	89.97	0.00	6,943.1	2,294.1	94.8	2,295.7	0.00	0.00	0.00
9,700.0	89.97	0.00	6,943.1	2,394.1	94.8	2,395.7	0.00	0.00	0.00
9,800.0	89.97	0.00	6,943.2	2,494.1	94.8	2,495.6	0.00	0.00	0.00
9,900.0	89.97	0.00	6,943.2	2,594.1	94.8	2,595.6	0.00	0.00	0.00
10,000.0	89.97	0.00	6,943.3	2,694.1	94.8	2,695.6	0.00	0.00	0.00
10,100.0	89.97	0.00	6,943.3	2,794.1	94.8	2,795.6	0.00	0.00	0.00
10,200.0	89.97	0.00	6,943.4	2,894.1	94.8	2,895.5	0.00	0.00	0.00
10,300.0	89.97	0.00	6,943.4	2,994.1	94.8	2,995.5	0.00	0.00	0.00
10,400.0	89.97	0.00	6,943.5	3,094.1	94.8	3,095.5	0.00	0.00	0.00
10,500.0	89.97	0.00	6,943.5	3,194.1	94.8	3,195.5	0.00	0.00	0.00
10,600.0	89.97	0.00	6,943.6	3,294.1	94.8	3,295.4	0.00	0.00	0.00
10,700.0	89.97	0.00	6,943.6	3,394.1	94.8	3,395.4	0.00	0.00	0.00
10,800.0	89.97	0.00	6,943.7	3,494.1	94.8	3,495.4	0.00	0.00	0.00
10,900.0	89.97	0.00	6,943.7	3,594.1	94.8	3,595.3	0.00	0.00	0.00
11,000.0	89.97	0.00	6,943.8	3,694.1	94.8	3,695.3	0.00	0.00	0.00
11,100.0	89.97	0.00	6,943.8	3,794.1	94.8	3,795.3	0.00	0.00	0.00
11,200.0	89.97	0.00	6,943.9	3,894.1	94.8	3,895.3	0.00	0.00	0.00
11,300.0	89.97	0.00	6,943.9	3,994.1	94.8	3,995.2	0.00	0.00	0.00
11,400.0	89.97	0.00	6,944.0	4,094.1	94.8	4,095.2	0.00	0.00	0.00
11,408.0	89.97	0.00	6,944.0	4,102.1	94.8	4,103.2	0.00	0.00	0.00
BHL 500'FNL & 385'FEL									

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,426.3	6,941.9	7"	7	7-1/2

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Project:</b>	SEC.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>North Reference:</b>	True
<b>Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (7-31-14)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,471.3	3,450.0	PARKMAN				
3,987.5	3,960.0	SUSSEX				
4,554.4	4,520.0	SHANNON				
6,771.9	6,678.0	SHARON SPRINGS				
7,019.7	6,836.0	NIOBRARA A				
7,316.7	6,934.0	NIOBRARA B				
	7,008.0	NIOBRARA C				
	7,132.0	FT HAYS				
	7,154.0	CODELL				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,400.0	1,400.0	0.0	0.0	KOP #1
6,226.7	6,177.9	-643.1	94.8	KOP #2
7,426.3	6,941.9	120.4	94.8	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.18-T4N-R67W**

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

**Rieder 18Y-241**

**Wellbore #1**

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

## **Anticollision Report**

**05 August, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

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

Survey Tool Program		Date	8/5/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,408.0	Plan #1 (7-31-14) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.18-T4N-R67W						
A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1	1,400.0	1,384.0	220.5	189.8	7.179	CC
A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1	7,400.0	6,925.4	295.6	139.5	1.893	ES, SF
Carlson 18-2 (Exist) - Wellbore #1 - Wellbore #1	9,743.1	6,924.1	398.8	207.2	2.082	CC, ES, SF
Carlson 18-3 (Exist) - Wellbore #1 - Wellbore #1	11,127.5	6,934.9	292.8	75.4	1.347	Level 3, CC, ES, SF
Every-Brooks 18-1 (Exist) - Wellbore #1 - Wellbore #1	8,464.4	6,923.5	195.2	25.9	1.153	Level 2, CC, ES, SF
Rieder 4N67W18Y Pad Sec.18-T4N-R67W						
Rieder 18T-221 - Wellbore #1 - Plan #1 (7-31-14)	1,200.0	1,200.0	27.9	22.7	5.395	CC, ES
Rieder 18T-221 - Wellbore #1 - Plan #1 (7-31-14)	11,408.0	11,393.7	535.4	368.0	3.199	SF
Rieder 18T-321 - Wellbore #1 - Plan #1 (7-31-14)	1,000.0	1,000.0	58.6	54.3	13.715	CC, ES
Rieder 18T-321 - Wellbore #1 - Plan #1 (7-31-14)	11,408.0	11,489.3	696.3	530.1	4.189	SF
Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)	800.0	799.0	89.2	85.9	26.489	CC, ES
Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)	11,408.0	11,591.4	873.6	710.8	5.366	SF
Rieder 18Y-301 - Wellbore #1 - Plan #1 (7-31-14)	1,000.0	1,000.0	61.4	57.1	14.368	CC, ES
Rieder 18Y-301 - Wellbore #1 - Plan #1 (7-31-14)	11,408.0	11,513.9	323.0	160.0	1.982	SF
Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)	1,200.0	1,200.0	30.7	25.5	5.935	CC, ES
Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)	11,408.0	11,609.6	274.8	164.0	2.480	SF

<b>Offset Design</b> Existing Wells Sec.18-T4N-R67W - A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 7290-UNKNOWN													<b>Offset Well Error:</b>	0.0 ft
Reference	Vertical Depth (ft)	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	-65.60	91.1	-200.8	221.1					
100.0	100.0	84.0	84.0	0.1	1.7	-65.60	91.1	-200.8	220.5	218.7	1.79	123.007		
200.0	200.0	184.0	184.0	0.3	3.7	-65.60	91.1	-200.8	220.5	216.5	4.02	54.887		
300.0	300.0	284.0	284.0	0.6	5.7	-65.60	91.1	-200.8	220.5	214.3	6.24	35.325		
400.0	400.0	384.0	384.0	0.8	7.7	-65.60	91.1	-200.8	220.5	212.0	8.47	26.043		
500.0	500.0	484.0	484.0	1.0	9.7	-65.60	91.1	-200.8	220.5	209.8	10.69	20.624		
600.0	600.0	584.0	584.0	1.2	11.7	-65.60	91.1	-200.8	220.5	207.6	12.92	17.071		
700.0	700.0	684.0	684.0	1.5	13.7	-65.60	91.1	-200.8	220.5	205.4	15.14	14.563		
800.0	800.0	784.0	784.0	1.7	15.7	-65.60	91.1	-200.8	220.5	203.1	17.37	12.697		
900.0	900.0	884.0	884.0	1.9	17.7	-65.60	91.1	-200.8	220.5	200.9	19.59	11.255		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.18-T4N-R67W - A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7290-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,000.0	1,000.0	984.0	984.0	2.1	19.7	-65.60		91.1	-200.8	220.5	198.7	21.82	10.108	
1,100.0	1,100.0	1,084.0	1,084.0	2.4	21.7	-65.60		91.1	-200.8	220.5	196.5	24.04	9.172	
1,200.0	1,200.0	1,184.0	1,184.0	2.6	23.7	-65.60		91.1	-200.8	220.5	194.2	26.26	8.395	
1,300.0	1,300.0	1,284.0	1,284.0	2.8	25.7	-65.60		91.1	-200.8	220.5	192.0	28.49	7.740	
1,400.0	1,400.0	1,384.0	1,384.0	3.0	27.7	-65.60		91.1	-200.8	220.5	189.8	30.71	7.179 CC	
1,500.0	1,500.0	1,484.0	1,484.0	3.2	29.7	123.15		91.1	-200.8	221.5	188.5	32.90	6.730	
1,600.0	1,599.8	1,583.8	1,583.8	3.4	31.7	124.22		91.1	-200.8	224.4	189.3	35.05	6.401	
1,700.0	1,699.5	1,683.5	1,683.5	3.6	33.7	125.93		91.1	-200.8	229.4	192.2	37.18	6.169	
1,800.0	1,798.7	1,782.7	1,782.7	3.8	35.7	128.19		91.1	-200.8	236.8	197.5	39.29	6.026	
1,900.0	1,897.6	1,881.6	1,881.6	4.0	37.6	130.88		91.1	-200.8	246.4	205.0	41.41	5.951	
2,000.0	1,996.3	1,980.3	1,980.3	4.3	39.6	133.47		91.1	-200.8	256.9	213.3	43.58	5.895	
2,100.0	2,095.1	2,079.1	2,079.1	4.5	41.6	135.85		91.1	-200.8	267.8	222.1	45.75	5.854	
2,200.0	2,193.9	2,177.9	2,177.9	4.8	43.6	138.05		91.1	-200.8	279.2	231.3	47.93	5.825	
2,300.0	2,292.7	2,276.7	2,276.7	5.1	45.5	140.08		91.1	-200.8	290.9	240.8	50.11	5.806	
2,400.0	2,391.5	2,375.5	2,375.5	5.4	47.5	141.95		91.1	-200.8	303.0	250.7	52.29	5.794	
2,500.0	2,490.3	2,474.3	2,474.3	5.7	49.5	143.67		91.1	-200.8	315.4	260.9	54.48	5.789	
2,600.0	2,589.1	2,573.1	2,573.1	6.0	51.5	145.26		91.1	-200.8	328.0	271.3	56.66	5.789	
2,700.0	2,687.9	2,671.9	2,671.9	6.4	53.4	146.74		91.1	-200.8	340.9	282.0	58.85	5.792	
2,800.0	2,786.7	2,770.7	2,770.7	6.7	55.4	148.11		91.1	-200.8	353.9	292.9	61.04	5.799	
2,900.0	2,885.5	2,869.5	2,869.5	7.0	57.4	149.38		91.1	-200.8	367.2	304.0	63.22	5.808	
3,000.0	2,984.3	2,968.3	2,968.3	7.4	59.4	150.56		91.1	-200.8	380.6	315.2	65.41	5.819	
3,100.0	3,083.1	3,067.1	3,067.1	7.7	61.3	151.66		91.1	-200.8	394.2	326.6	67.60	5.831	
3,200.0	3,181.9	3,165.9	3,165.9	8.1	63.3	152.69		91.1	-200.8	407.9	338.1	69.79	5.845	
3,300.0	3,280.7	3,264.7	3,264.7	8.4	65.3	153.65		91.1	-200.8	421.7	349.8	71.98	5.859	
3,400.0	3,379.5	3,363.5	3,363.5	8.8	67.3	154.55		91.1	-200.8	435.7	361.5	74.16	5.875	
3,500.0	3,478.3	3,462.3	3,462.3	9.1	69.2	155.40		91.1	-200.8	449.7	373.4	76.35	5.890	
3,600.0	3,577.1	3,561.1	3,561.1	9.5	71.2	156.19		91.1	-200.8	463.8	385.3	78.54	5.906	
3,700.0	3,675.9	3,659.9	3,659.9	9.8	73.2	156.94		91.1	-200.8	478.1	397.3	80.73	5.922	
3,800.0	3,774.7	3,758.7	3,758.7	10.2	75.2	157.64		91.1	-200.8	492.3	409.4	82.92	5.938	
3,900.0	3,873.5	3,857.5	3,857.5	10.5	77.2	158.30		91.1	-200.8	506.7	421.6	85.11	5.953	
4,000.0	3,972.3	3,956.3	3,956.3	10.9	79.1	158.93		91.1	-200.8	521.1	433.8	87.30	5.969	
4,100.0	4,071.1	4,055.1	4,055.1	11.2	81.1	159.52		91.1	-200.8	535.6	446.1	89.49	5.985	
4,200.0	4,169.9	4,153.9	4,153.9	11.6	83.1	160.09		91.1	-200.8	550.1	458.4	91.68	6.000	
4,300.0	4,268.7	4,252.7	4,252.7	12.0	85.1	160.62		91.1	-200.8	564.7	470.8	93.87	6.016	
4,400.0	4,367.5	4,351.5	4,351.5	12.3	87.0	161.13		91.1	-200.8	579.3	483.3	96.06	6.031	
4,500.0	4,466.3	4,450.3	4,450.3	12.7	89.0	161.61		91.1	-200.8	594.0	495.7	98.25	6.046	
4,600.0	4,565.1	4,549.1	4,549.1	13.1	91.0	162.07		91.1	-200.8	608.7	508.3	100.44	6.060	
4,700.0	4,663.9	4,647.9	4,647.9	13.4	93.0	162.50		91.1	-200.8	623.4	520.8	102.64	6.074	
4,800.0	4,762.7	4,746.7	4,746.7	13.8	94.9	162.92		91.1	-200.8	638.2	533.4	104.83	6.088	
4,900.0	4,861.5	4,845.5	4,845.5	14.2	96.9	163.32		91.1	-200.8	653.0	546.0	107.02	6.102	
5,000.0	4,960.3	4,944.3	4,944.3	14.5	98.9	163.70		91.1	-200.8	667.9	558.7	109.21	6.115	
5,100.0	5,059.1	5,043.1	5,043.1	14.9	100.9	164.06		91.1	-200.8	682.7	571.3	111.40	6.128	
5,200.0	5,157.9	5,141.9	5,141.9	15.3	102.8	164.41		91.1	-200.8	697.6	584.0	113.60	6.141	
5,300.0	5,256.7	5,240.7	5,240.7	15.6	104.8	164.75		91.1	-200.8	712.5	596.7	115.79	6.154	
5,400.0	5,355.5	5,339.5	5,339.5	16.0	106.8	165.07		91.1	-200.8	727.5	609.5	117.98	6.166	
5,500.0	5,454.3	5,438.3	5,438.3	16.4	108.8	165.37		91.1	-200.8	742.4	622.3	120.18	6.178	
5,600.0	5,553.1	5,537.1	5,537.1	16.7	110.7	165.67		91.1	-200.8	757.4	635.0	122.37	6.189	
5,700.0	5,652.1	5,636.1	5,636.1	17.0	112.7	165.99		91.1	-200.8	770.9	645.8	125.04	6.165	
5,800.0	5,751.6	5,735.6	5,735.6	17.3	114.7	166.22		91.1	-200.8	781.0	653.4	127.60	6.120	
5,900.0	5,851.3	5,835.3	5,835.3	17.5	116.7	166.37		91.1	-200.8	787.7	657.7	130.03	6.058	
6,000.0	5,951.2	5,935.2	5,935.2	17.6	118.7	166.45		91.1	-200.8	791.1	658.7	132.31	5.979	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.18-T4N-R67W - A.R. 18-44 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7290-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
6,100.0	6,051.2	6,035.2	6,035.2	17.8	120.7	-21.93	91.1	-200.8	791.5	657.0	134.50	5.884		
6,200.0	6,151.2	6,135.2	6,135.2	17.9	122.7	-21.93	91.1	-200.8	791.5	654.8	136.68	5.791		
6,300.0	6,251.1	6,235.1	6,235.1	18.0	124.7	-22.12	91.1	-200.8	788.2	650.0	138.21	5.703		
6,400.0	6,349.8	6,333.8	6,333.8	18.0	126.7	-23.00	91.1	-200.8	773.3	635.6	137.77	5.613		
6,500.0	6,445.4	6,429.4	6,429.4	17.9	128.6	-24.71	91.1	-200.8	746.8	611.4	135.46	5.513		
6,600.0	6,536.6	6,520.6	6,520.6	17.7	130.4	-27.44	91.1	-200.8	709.3	577.5	131.78	5.383		
6,700.0	6,621.5	6,605.5	6,605.5	17.5	132.1	-31.51	91.1	-200.8	661.9	534.1	127.77	5.180		
6,800.0	6,698.9	6,682.9	6,682.9	17.2	133.7	-37.38	91.1	-200.8	606.0	480.7	125.34	4.835		
6,900.0	6,767.4	6,751.4	6,751.4	17.0	135.0	-45.53	91.1	-200.8	543.6	416.5	127.10	4.277		
7,000.0	6,825.8	6,809.8	6,809.8	16.8	136.2	-56.08	91.1	-200.8	477.6	343.1	134.46	3.552		
7,100.0	6,873.1	6,857.1	6,857.1	16.8	137.1	-68.06	91.1	-200.8	412.1	267.5	144.61	2.850		
7,200.0	6,908.5	6,892.5	6,892.5	16.9	137.9	-79.15	91.1	-200.8	353.4	201.3	152.14	2.323		
7,300.0	6,931.4	6,915.4	6,915.4	17.2	138.3	-86.92	91.1	-200.8	310.9	155.7	155.24	2.003		
7,397.0	6,941.3	6,925.3	6,925.3	17.7	138.5	-90.00	91.1	-200.8	295.6	139.5	156.15	1.893		
7,400.0	6,941.4	6,925.4	6,925.4	17.7	138.5	-90.02	91.1	-200.8	295.6	139.5	156.17	1.893 ES, SF		
7,500.0	6,942.0	6,926.0	6,926.0	18.3	138.5	-90.01	91.1	-200.8	313.0	156.2	156.86	1.996		
7,600.0	6,942.0	6,926.0	6,926.0	19.2	138.5	-90.02	91.1	-200.8	358.6	200.9	157.70	2.274		
7,700.0	6,942.1	6,926.1	6,926.1	20.2	138.5	-90.03	91.1	-200.8	423.3	264.6	158.69	2.668		
7,800.0	6,942.1	6,926.1	6,926.1	21.3	138.5	-90.04	91.1	-200.8	499.8	340.0	159.81	3.128		
7,900.0	6,942.2	6,926.2	6,926.2	22.5	138.5	-90.05	91.1	-200.8	583.5	422.4	161.04	3.623		
8,000.0	6,942.2	6,926.2	6,926.2	23.8	138.5	-90.06	91.1	-200.8	671.6	509.2	162.35	4.137		
8,100.0	6,942.3	6,926.3	6,926.3	25.2	138.5	-90.07	91.1	-200.8	762.6	598.9	163.75	4.657		
8,200.0	6,942.3	6,926.3	6,926.3	26.7	138.5	-90.08	91.1	-200.8	855.7	690.5	165.21	5.179		
8,300.0	6,942.4	6,926.4	6,926.4	28.2	138.5	-90.09	91.1	-200.8	950.2	783.5	166.73	5.699		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Wells Sec.18-T4N-R67W - Carlson 18-2 (Exist) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 7255-UNKNOWN												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,900.0	6,942.7	6,923.7	6,923.7	38.1	138.5	-89.94	2,437.2	-304.0	932.7	756.1	176.54	5.283	
9,000.0	6,942.7	6,923.7	6,923.7	39.8	138.5	-89.94	2,437.2	-304.0	843.3	665.1	178.27	4.731	
9,100.0	6,942.8	6,923.8	6,923.8	41.6	138.5	-89.95	2,437.2	-304.0	756.7	576.7	180.02	4.203	
9,200.0	6,942.8	6,923.8	6,923.8	43.3	138.5	-89.96	2,437.2	-304.0	673.8	492.0	181.78	3.707	
9,300.0	6,942.9	6,923.9	6,923.9	45.1	138.5	-89.97	2,437.2	-304.0	596.1	412.6	183.56	3.248	
9,400.0	6,942.9	6,923.9	6,923.9	46.9	138.5	-89.97	2,437.2	-304.0	526.1	340.7	185.35	2.838	
9,500.0	6,943.0	6,924.0	6,924.0	48.7	138.5	-89.98	2,437.2	-304.0	467.0	279.9	187.15	2.496	
9,600.0	6,943.1	6,924.1	6,924.1	50.5	138.5	-89.99	2,437.2	-304.0	423.7	234.7	188.95	2.242	
9,700.0	6,943.1	6,924.1	6,924.1	52.3	138.5	-90.00	2,437.2	-304.0	401.1	210.3	190.77	2.103	
9,743.1	6,943.1	6,924.1	6,924.1	53.1	138.5	-90.00	2,437.2	-304.0	398.8	207.2	191.55	2.082 CC, ES, SF	
9,800.0	6,943.2	6,924.2	6,924.2	54.1	138.5	-90.00	2,437.2	-304.0	402.8	210.2	192.59	2.092	
9,900.0	6,943.2	6,924.2	6,924.2	55.9	138.5	-90.01	2,437.2	-304.0	428.5	234.1	194.42	2.204	
10,000.0	6,943.3	6,924.3	6,924.3	57.8	138.5	-90.02	2,437.2	-304.0	474.4	278.1	196.25	2.417	
10,100.0	6,943.3	6,924.3	6,924.3	59.6	138.5	-90.03	2,437.2	-304.0	535.2	337.1	198.09	2.702	
10,200.0	6,943.4	6,924.4	6,924.4	61.5	138.5	-90.03	2,437.2	-304.0	606.4	406.5	199.94	3.033	
10,300.0	6,943.4	6,924.4	6,924.4	63.3	138.5	-90.04	2,437.2	-304.0	684.9	483.2	201.79	3.394	
10,400.0	6,943.5	6,924.5	6,924.5	65.2	138.5	-90.05	2,437.2	-304.0	768.5	564.8	203.64	3.774	
10,500.0	6,943.5	6,924.5	6,924.5	67.0	138.5	-90.06	2,437.2	-304.0	855.5	650.0	205.50	4.163	
10,600.0	6,943.6	6,924.6	6,924.6	68.9	138.5	-90.06	2,437.2	-304.0	945.1	737.8	207.36	4.558	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.18-T4N-R67W - Carlson 18-3 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7288-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,200.0	6,943.4	6,934.4	6,934.4	61.5	138.7	-89.90	3,821.6	-198.0	972.6	772.5	200.14	4.860	
10,300.0	6,943.4	6,934.4	6,934.4	63.3	138.7	-89.92	3,821.6	-198.0	877.7	675.8	201.99	4.346	
10,400.0	6,943.5	6,934.5	6,934.5	65.2	138.7	-89.93	3,821.6	-198.0	784.2	580.3	203.84	3.847	
10,500.0	6,943.5	6,934.5	6,934.5	67.0	138.7	-89.94	3,821.6	-198.0	692.4	486.7	205.70	3.366	
10,600.0	6,943.6	6,934.6	6,934.6	68.9	138.7	-89.95	3,821.6	-198.0	603.3	395.7	207.56	2.907	
10,700.0	6,943.6	6,934.6	6,934.6	70.7	138.7	-89.96	3,821.6	-198.0	518.1	308.7	209.42	2.474	
10,800.0	6,943.7	6,934.7	6,934.7	72.6	138.7	-89.97	3,821.6	-198.0	439.3	228.0	211.29	2.079	
10,900.0	6,943.7	6,934.7	6,934.7	74.5	138.7	-89.98	3,821.6	-198.0	370.8	157.6	213.16	1.739	
11,000.0	6,943.8	6,934.8	6,934.8	76.3	138.7	-89.99	3,821.6	-198.0	319.3	104.3	215.03	1.485	Level 3
11,100.0	6,943.8	6,934.8	6,934.8	78.2	138.7	-90.00	3,821.6	-198.0	294.1	77.2	216.91	1.356	Level 3
11,127.5	6,943.9	6,934.9	6,934.9	78.7	138.7	-90.00	3,821.6	-198.0	292.8	75.4	217.42	1.347	Level 3, CC, ES, SF
11,200.0	6,943.9	6,934.9	6,934.9	80.1	138.7	-90.01	3,821.6	-198.0	301.6	82.9	218.78	1.379	Level 3
11,300.0	6,943.9	6,934.9	6,934.9	82.0	138.7	-90.02	3,821.6	-198.0	339.8	119.2	220.66	1.540	
11,400.0	6,944.0	6,935.0	6,935.0	83.9	138.7	-90.03	3,821.6	-198.0	400.0	177.5	222.54	1.797	
11,408.0	6,944.0	6,935.0	6,935.0	84.0	138.7	-90.03	3,821.6	-198.0	405.5	182.8	222.70	1.821	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.18-T4N-R67W - Every-Brooks 18-1 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7263-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,500.0	6,942.0	6,923.0	6,923.0	18.3	138.5	-89.85	-89.85	1,158.5	-100.4	983.9	827.2	156.79	6.275	
7,600.0	6,942.0	6,923.0	6,923.0	19.2	138.5	-89.87	-89.87	1,158.5	-100.4	886.2	728.5	157.64	5.622	
7,700.0	6,942.1	6,923.1	6,923.1	20.2	138.5	-89.88	-89.88	1,158.5	-100.4	788.9	630.3	158.63	4.973	
7,800.0	6,942.1	6,923.1	6,923.1	21.3	138.5	-89.90	-89.90	1,158.5	-100.4	692.5	532.7	159.75	4.335	
7,900.0	6,942.2	6,923.2	6,923.2	22.5	138.5	-89.91	-89.91	1,158.5	-100.4	597.2	436.2	160.97	3.710	
8,000.0	6,942.2	6,923.2	6,923.2	23.8	138.5	-89.93	-89.93	1,158.5	-100.4	503.7	341.5	162.29	3.104	
8,100.0	6,942.3	6,923.3	6,923.3	25.2	138.5	-89.94	-89.94	1,158.5	-100.4	413.4	249.7	163.69	2.525	
8,200.0	6,942.3	6,923.3	6,923.3	26.7	138.5	-89.96	-89.96	1,158.5	-100.4	328.6	163.5	165.15	1.990	
8,300.0	6,942.4	6,923.4	6,923.4	28.2	138.5	-89.97	-89.97	1,158.5	-100.4	255.2	88.5	166.67	1.531	
8,400.0	6,942.4	6,923.4	6,923.4	29.8	138.5	-89.99	-89.99	1,158.5	-100.4	205.5	37.3	168.23	1.222 Level 2	
8,464.4	6,942.5	6,923.5	6,923.5	30.8	138.5	-90.00	-90.00	1,158.5	-100.4	195.2	25.9	169.26	1.153 Level 2, CC, ES, SF	
8,500.0	6,942.5	6,923.5	6,923.5	31.4	138.5	-90.01	-90.01	1,158.5	-100.4	198.4	28.6	169.83	1.168 Level 2	
8,600.0	6,942.5	6,923.5	6,923.5	33.0	138.5	-90.02	-90.02	1,158.5	-100.4	237.7	66.2	171.47	1.386 Level 3	
8,700.0	6,942.6	6,923.6	6,923.6	34.7	138.5	-90.04	-90.04	1,158.5	-100.4	306.0	132.8	173.14	1.767	
8,800.0	6,942.6	6,923.6	6,923.6	36.4	138.5	-90.05	-90.05	1,158.5	-100.4	388.3	213.4	174.83	2.221	
8,900.0	6,942.7	6,923.7	6,923.7	38.1	138.5	-90.07	-90.07	1,158.5	-100.4	477.3	300.8	176.54	2.704	
9,000.0	6,942.7	6,923.7	6,923.7	39.8	138.5	-90.08	-90.08	1,158.5	-100.4	570.1	391.8	178.27	3.198	
9,100.0	6,942.8	6,923.8	6,923.8	41.6	138.5	-90.10	-90.10	1,158.5	-100.4	664.9	484.9	180.02	3.693	
9,200.0	6,942.8	6,923.8	6,923.8	43.3	138.5	-90.11	-90.11	1,158.5	-100.4	761.1	579.3	181.79	4.187	
9,300.0	6,942.9	6,923.9	6,923.9	45.1	138.5	-90.13	-90.13	1,158.5	-100.4	858.1	674.5	183.56	4.675	
9,400.0	6,942.9	6,923.9	6,923.9	46.9	138.5	-90.14	-90.14	1,158.5	-100.4	955.8	770.4	185.35	5.157	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-241 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	-89.98	0.0	-27.9	27.9	27.7	0.22	124.085	
100.0	100.0	100.0	100.0	0.1	0.1	-89.98	-89.98	0.0	-27.9	27.9	27.2	0.67	41.362	
200.0	200.0	200.0	200.0	0.3	0.3	-89.98	-89.98	0.0	-27.9	27.9	26.8	1.12	24.817	
300.0	300.0	300.0	300.0	0.6	0.6	-89.98	-89.98	0.0	-27.9	27.9	26.3	1.57	17.726	
400.0	400.0	400.0	400.0	0.8	0.8	-89.98	-89.98	0.0	-27.9	27.9	25.9	2.02	13.787	
500.0	500.0	500.0	500.0	1.0	1.0	-89.98	-89.98	0.0	-27.9	27.9	25.4	2.47	11.280	
600.0	600.0	600.0	600.0	1.2	1.2	-89.98	-89.98	0.0	-27.9	27.9	25.0	2.92	9.545	
700.0	700.0	700.0	700.0	1.5	1.5	-89.98	-89.98	0.0	-27.9	27.9	24.5	3.37	8.272	
800.0	800.0	800.0	800.0	1.7	1.7	-89.98	-89.98	0.0	-27.9	27.9	24.1	3.82	7.299	
900.0	900.0	900.0	900.0	1.9	1.9	-89.98	-89.98	0.0	-27.9	27.9	23.6	4.27	6.531	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.98	-89.98	0.0	-27.9	27.9	23.2	4.72	5.909	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-89.98	-89.98	0.0	-27.9	27.9	22.7	5.17	5.395 CC, ES	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-89.98	-89.98	0.0	-27.9	27.9	22.3	5.59	5.168	
1,300.0	1,300.0	1,299.4	1,299.4	2.8	2.8	-92.82	-92.82	-1.4	-28.9	28.9	26.3	5.99	5.385	
1,400.0	1,400.0	1,398.6	1,398.6	3.0	3.0	-100.19	-100.19	-5.7	-31.7	32.3	26.3	6.38	6.040	
1,500.0	1,500.0	1,497.4	1,496.9	3.2	3.2	81.47	81.47	-12.8	-36.5	38.5	40.4	6.74	6.993	
1,600.0	1,599.8	1,595.9	1,594.6	3.4	3.4	78.34	78.34	-22.7	-43.1	47.2	50.8	7.14	8.117	
1,700.0	1,699.5	1,693.8	1,691.4	3.6	3.6	77.54	77.54	-35.2	-51.6	57.9	62.3	7.57	9.228	
1,800.0	1,798.7	1,792.8	1,788.8	3.8	3.9	78.60	78.60	-49.8	-61.4	69.8	73.3	8.04	10.110	
1,900.0	1,897.6	1,892.0	1,886.4	4.0	4.2	81.46	81.46	-64.5	-71.2	81.3	84.4	8.56	10.857	
2,000.0	1,996.3	1,991.3	1,984.1	4.3	4.5	83.89	83.89	-79.2	-81.1	92.9	95.6	9.11	11.493	
2,100.0	2,095.1	2,090.5	2,081.8	4.5	4.8	85.78	85.78	-93.8	-91.0	104.7	106.9	9.69	12.033	
2,200.0	2,193.9	2,189.8	2,179.4	4.8	5.2	87.29	87.29	-108.5	-100.8	116.5	118.2	10.28	12.492	
2,300.0	2,292.7	2,289.0	2,277.1	5.1	5.5	88.52	88.52	-123.2	-110.7	128.4	129.5	10.90	12.883	
2,400.0	2,391.5	2,388.3	2,374.8	5.4	5.9	89.54	89.54	-137.9	-120.6	140.4	140.9	11.53	13.218	
2,500.0	2,490.3	2,487.6	2,472.4	5.7	6.2	90.40	90.40	-152.5	-130.4	152.4	152.2	12.17	13.506	
2,600.0	2,589.1	2,586.8	2,570.1	6.0	6.6	91.13	91.13	-167.2	-140.3	164.4	163.6	12.83	13.755	
2,700.0	2,687.9	2,686.1	2,667.8	6.4	7.0	91.77	91.77	-181.9	-150.2	176.5	175.0	13.49	13.971	
2,800.0	2,786.7	2,785.3	2,765.4	6.7	7.3	92.32	92.32	-196.6	-160.0	188.5	186.4	14.17	14.160	
2,900.0	2,885.5	2,884.6	2,863.1	7.0	7.7	92.81	92.81	-211.2	-169.9	200.6	197.8	14.85	14.327	
3,000.0	2,984.3	2,983.8	2,960.8	7.4	8.1	93.24	93.24	-225.9	-179.8	212.7	209.3	15.53	14.473	
3,100.0	3,083.1	3,083.1	3,058.4	7.7	8.5	93.62	93.62	-240.6	-189.6	224.8	220.7	16.22	14.603	
3,200.0	3,181.9	3,182.3	3,156.1	8.1	8.9	93.97	93.97	-255.3	-199.5	236.9	232.1	16.92	14.719	
3,300.0	3,280.7	3,281.6	3,253.8	8.4	9.3	94.28	94.28	-269.9	-209.4	249.0	243.5	17.62	14.823	
3,400.0	3,379.5	3,380.8	3,351.4	8.8	9.7	94.56	94.56	-284.6	-219.2	261.1	255.0	18.32	14.916	
3,500.0	3,478.3	3,480.1	3,449.1	9.1	10.1	94.82	94.82	-299.3	-229.1	273.3	266.4	19.03	15.000	
3,600.0	3,577.1	3,579.4	3,546.8	9.5	10.4	95.06	95.06	-314.0	-239.0	285.4	277.8	19.74	15.077	
3,700.0	3,675.9	3,678.6	3,644.4	9.8	10.8	95.28	95.28	-328.6	-248.8	297.5	289.2	20.45	15.146	
3,800.0	3,774.7	3,777.9	3,742.1	10.2	11.2	95.48	95.48	-343.3	-258.7	309.7	300.7	21.16	15.209	
3,900.0	3,873.5	3,877.1	3,839.8	10.5	11.6	95.66	95.66	-358.0	-268.6	321.8	312.1	21.88	15.266	
4,000.0	3,972.3	3,976.4	3,937.4	10.9	12.0	95.83	95.83	-372.7	-278.4	334.0	323.5	22.60	15.319	
4,100.0	4,071.1	4,075.6	4,035.1	11.2	12.4	95.99	95.99	-387.3	-288.3	346.1	335.0	23.32	15.368	
4,200.0	4,169.9	4,174.9	4,132.8	11.6	12.8	96.14	96.14	-402.0	-298.2	358.3	346.4	24.04	15.412	
4,300.0	4,268.7	4,274.1	4,230.4	12.0	13.2	96.28	96.28	-416.7	-308.0	370.5	357.9	24.76	15.454	
4,400.0	4,367.5	4,373.4	4,328.1	12.3	13.6	96.41	96.41	-431.4	-317.9	382.6	369.3	25.48	15.492	
4,500.0	4,466.3	4,472.6	4,425.7	12.7	14.0	96.53	96.53	-446.0	-327.8	394.8	380.7	26.21	15.528	
4,600.0	4,565.1	4,571.9	4,523.4	13.1	14.4	96.64	96.64	-460.7	-337.6	406.9	392.2	26.93	15.561	
4,700.0	4,663.9	4,671.1	4,621.1	13.4	14.8	96.75	96.75	-475.4	-347.5	419.1	403.6	27.66	15.591	
4,800.0	4,762.7	4,770.4	4,718.7	13.8	15.2	96.85	96.85	-490.1	-357.4	431.3	415.0	28.39	15.620	
4,900.0	4,861.5	4,869.7	4,816.4	14.2	15.6	96.95	96.95	-504.8	-367.2	443.4	426.5	29.12	15.647	
5,000.0	4,960.3	4,968.9	4,914.1	14.5	16.0	97.04	97.04	-519.4	-377.1	455.6				

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-241 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,059.1	5,068.2	5,011.7	14.9	16.4	97.13		-534.1	-387.0	467.8	437.9	29.85	15.672	
5,200.0	5,157.9	5,167.4	5,109.4	15.3	16.8	97.21		-548.8	-396.8	479.9	449.4	30.58	15.696	
5,300.0	5,256.7	5,266.7	5,207.1	15.6	17.3	97.29		-563.5	-406.7	492.1	460.8	31.31	15.718	
5,400.0	5,355.5	5,367.6	5,306.4	16.0	17.7	97.37		-578.3	-416.7	504.3	472.2	32.04	15.740	
5,500.0	5,454.3	5,478.1	5,415.6	16.4	18.0	97.70		-592.4	-426.1	515.0	482.3	32.72	15.742	
5,600.0	5,553.1	5,588.7	5,525.4	16.7	18.2	98.41		-602.9	-433.2	523.7	490.3	33.37	15.692	
5,700.0	5,652.1	5,699.3	5,635.7	17.0	18.5	99.42		-610.0	-438.0	530.1	496.1	33.96	15.608	
5,800.0	5,751.6	5,809.9	5,746.3	17.3	18.6	100.33		-613.5	-440.3	533.9	499.5	34.43	15.509	
5,900.0	5,851.3	5,915.0	5,851.3	17.5	18.8	101.09		-613.9	-440.6	535.4	500.6	34.82	15.376	
6,000.0	5,951.2	6,014.9	5,951.2	17.6	18.9	101.46		-613.9	-440.6	536.1	501.0	35.15	15.253	
6,100.0	6,051.2	6,114.9	6,051.2	17.8	19.0	-86.88		-613.9	-440.6	536.2	500.7	35.44	15.130	
6,200.0	6,151.2	6,214.9	6,151.2	17.9	19.2	-86.88		-613.9	-440.6	536.2	500.5	35.71	15.014	
6,300.0	6,251.1	6,312.2	6,248.4	18.0	19.3	-86.89		-610.6	-440.6	536.2	500.3	35.92	14.926	
6,400.0	6,349.8	6,408.6	6,343.6	18.0	19.3	-86.95		-595.7	-440.6	536.1	500.2	35.91	14.931	
6,500.0	6,445.4	6,505.0	6,436.2	17.9	19.2	-87.07		-568.9	-440.6	536.1	500.4	35.69	15.023	
6,600.0	6,536.6	6,601.7	6,524.8	17.7	19.0	-87.23		-530.6	-440.6	536.0	500.7	35.29	15.188	
6,700.0	6,621.5	6,698.5	6,608.1	17.5	18.8	-87.44		-481.3	-440.6	535.9	501.1	34.79	15.405	
6,800.0	6,698.9	6,795.5	6,684.6	17.2	18.5	-87.69		-421.7	-440.6	535.8	501.6	34.25	15.646	
6,900.0	6,767.4	6,892.9	6,753.2	17.0	18.2	-87.98		-352.7	-440.6	535.7	502.0	33.76	15.870	
7,000.0	6,825.8	6,990.6	6,812.6	16.8	17.9	-88.30		-275.2	-440.6	535.6	502.2	33.41	16.032	
7,100.0	6,873.1	7,088.8	6,861.9	16.8	17.7	-88.66		-190.4	-440.6	535.5	502.2	33.30	16.083	
7,200.0	6,908.5	7,187.3	6,900.0	16.9	17.4	-89.03		-99.6	-440.6	535.5	502.0	33.50	15.984	
7,300.0	6,931.4	7,286.3	6,926.2	17.2	17.3	-89.43		-4.2	-440.6	535.4	501.4	34.06	15.720	
7,400.0	6,941.4	7,385.8	6,939.9	17.7	17.4	-89.83		94.2	-440.6	535.4	500.4	34.99	15.301	
7,453.2	6,942.8	7,438.9	6,941.9	18.0	17.6	-89.90		147.3	-440.6	535.4	499.7	35.65	15.016	
7,500.0	6,942.0	7,485.7	6,941.9	18.3	18.0	-90.00		194.1	-440.6	535.4	499.1	36.29	14.754	
7,600.0	6,942.0	7,585.7	6,942.0	19.2	18.8	-90.00		294.1	-440.6	535.4	497.5	37.93	14.115	
7,700.0	6,942.1	7,685.7	6,942.0	20.2	19.8	-90.00		394.1	-440.6	535.4	495.5	39.87	13.427	
7,800.0	6,942.1	7,785.7	6,942.1	21.3	21.0	-90.00		494.1	-440.6	535.4	493.3	42.08	12.724	
7,900.0	6,942.2	7,885.7	6,942.1	22.5	22.2	-90.00		594.1	-440.6	535.4	490.9	44.51	12.030	
8,000.0	6,942.2	7,985.7	6,942.2	23.8	23.5	-90.00		694.1	-440.6	535.4	488.3	47.12	11.362	
8,100.0	6,942.3	8,085.7	6,942.3	25.2	24.9	-90.00		794.1	-440.6	535.4	485.5	49.90	10.730	
8,200.0	6,942.3	8,185.7	6,942.3	26.7	26.4	-90.00		894.1	-440.6	535.4	482.6	52.80	10.139	
8,300.0	6,942.4	8,285.7	6,942.4	28.2	27.9	-90.00		994.1	-440.6	535.4	479.6	55.82	9.591	
8,400.0	6,942.4	8,385.7	6,942.4	29.8	29.5	-90.00		1,094.1	-440.6	535.4	476.5	58.94	9.084	
8,500.0	6,942.5	8,485.7	6,942.5	31.4	31.1	-90.00		1,194.1	-440.6	535.4	473.3	62.14	8.616	
8,600.0	6,942.5	8,585.7	6,942.5	33.0	32.7	-90.00		1,294.1	-440.6	535.4	470.0	65.40	8.186	
8,700.0	6,942.6	8,685.7	6,942.6	34.7	34.3	-90.00		1,394.1	-440.6	535.4	466.7	68.73	7.790	
8,800.0	6,942.6	8,785.7	6,942.6	36.4	36.0	-90.00		1,494.1	-440.6	535.4	463.3	72.11	7.425	
8,900.0	6,942.7	8,885.7	6,942.7	38.1	37.7	-90.00		1,594.1	-440.6	535.4	459.9	75.53	7.089	
9,000.0	6,942.7	8,985.7	6,942.7	39.8	39.5	-90.00		1,694.1	-440.6	535.4	456.4	78.99	6.778	
9,100.0	6,942.8	9,085.7	6,942.8	41.6	41.2	-90.00		1,794.1	-440.6	535.4	452.9	82.48	6.491	
9,200.0	6,942.8	9,185.7	6,942.8	43.3	43.0	-90.00		1,894.1	-440.6	535.4	449.4	86.00	6.225	
9,300.0	6,942.9	9,285.7	6,942.9	45.1	44.7	-90.00		1,994.1	-440.6	535.4	445.8	89.55	5.979	
9,400.0	6,942.9	9,385.7	6,942.9	46.9	46.5	-90.00		2,094.1	-440.6	535.4	442.3	93.12	5.749	
9,500.0	6,943.0	9,485.7	6,943.0	48.7	48.3	-90.00		2,194.1	-440.6	535.4	438.7	96.72	5.536	
9,600.0	6,943.1	9,585.7	6,943.0	50.5	50.1	-90.00		2,294.1	-440.6	535.4	435.1	100.33	5.337	
9,700.0	6,943.1	9,685.7	6,943.1	52.3	51.9	-90.00		2,394.1	-440.6	535.4	431.4	103.95	5.150	
9,800.0	6,943.2	9,785.7	6,943.1	54.1	53.7	-90.00		2,494.1	-440.6	535.4	427.8	107.59	4.976	
9,900.0	6,943.2	9,885.7	6,943.2	55.9	55.5	-90.00		2,594.1	-440.6	535.4	424.2	111.25	4.813	
10,000.0	6,943.3	9,985.7	6,943.2	57.8	57.4	-90.00		2,694.1	-440.6	535.4	420.5	114.92	4.659	

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-221 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	6,943.3	10,085.7	6,943.3	59.6	59.2	-90.00	2,794.1	-440.6	535.4	416.8	118.60	4.515		
10,200.0	6,943.4	10,185.7	6,943.4	61.5	61.0	-90.00	2,894.1	-440.6	535.4	413.1	122.28	4.378		
10,300.0	6,943.4	10,285.7	6,943.4	63.3	62.9	-90.00	2,994.1	-440.6	535.4	409.4	125.98	4.250		
10,400.0	6,943.5	10,385.7	6,943.5	65.2	64.7	-90.00	3,094.1	-440.6	535.4	405.7	129.69	4.128		
10,500.0	6,943.5	10,485.7	6,943.5	67.0	66.6	-90.00	3,194.1	-440.6	535.4	402.0	133.40	4.014		
10,600.0	6,943.6	10,585.7	6,943.6	68.9	68.4	-90.00	3,294.1	-440.6	535.4	398.3	137.12	3.905		
10,700.0	6,943.6	10,685.7	6,943.6	70.7	70.3	-90.00	3,394.1	-440.6	535.4	394.6	140.85	3.801		
10,800.0	6,943.7	10,785.7	6,943.7	72.6	72.2	-90.00	3,494.1	-440.6	535.4	390.8	144.58	3.703		
10,900.0	6,943.7	10,885.7	6,943.7	74.5	74.0	-90.00	3,594.1	-440.6	535.4	387.1	148.32	3.610		
11,000.0	6,943.8	10,985.7	6,943.8	76.3	75.9	-90.00	3,694.1	-440.6	535.4	383.3	152.06	3.521		
11,100.0	6,943.8	11,085.7	6,943.8	78.2	77.8	-90.00	3,794.1	-440.6	535.4	379.6	155.81	3.436		
11,200.0	6,943.9	11,185.7	6,943.9	80.1	79.6	-90.00	3,894.1	-440.6	535.4	375.8	159.56	3.356		
11,300.0	6,943.9	11,285.7	6,943.9	82.0	81.5	-90.00	3,994.1	-440.6	535.4	372.1	163.31	3.278		
11,400.0	6,944.0	11,385.7	6,944.0	83.9	83.4	-90.00	4,094.1	-440.6	535.4	368.3	167.07	3.205		
11,408.0	6,944.0	11,393.7	6,944.0	84.0	83.5	-90.00	4,102.1	-440.6	535.4	368.0	167.37	3.199 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-321 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	-90.00	0.0	-58.6	58.6				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-58.6	58.6	58.3	0.22	260.579	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-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	-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	-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	-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	-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	-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	-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	-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	-90.00	0.0	-58.6	58.6	54.3	4.27	13.715 CC, ES	
1,100.0	1,100.0	1,098.6	1,098.6	2.4	2.3	-91.21	-91.21	-1.3	-59.7	59.7	55.0	4.69	12.729	
1,200.0	1,200.0	1,197.0	1,196.9	2.6	2.5	-94.59	-94.59	-5.1	-63.1	63.3	58.2	5.10	12.427	
1,300.0	1,300.0	1,294.9	1,294.4	2.8	2.7	-99.38	-99.38	-11.3	-68.6	69.8	64.3	5.51	12.660	
1,400.0	1,400.0	1,392.2	1,391.0	3.0	2.9	-104.71	-104.71	-20.0	-76.4	79.5	73.5	5.94	13.375	
1,500.0	1,500.0	1,488.7	1,486.3	3.2	3.2	79.33	79.33	-31.1	-86.2	92.3	85.9	6.34	14.553	
1,600.0	1,599.8	1,586.9	1,583.0	3.4	3.5	77.15	77.15	-44.1	-97.7	106.8	100.1	6.74	15.861	
1,700.0	1,699.5	1,685.9	1,680.4	3.6	3.8	77.02	77.02	-57.3	-109.4	120.7	113.6	7.15	16.887	
1,800.0	1,798.7	1,785.0	1,777.9	3.8	4.1	78.35	78.35	-70.4	-121.1	133.9	126.3	7.60	17.623	
1,900.0	1,897.6	1,884.0	1,875.3	4.0	4.4	80.68	80.68	-83.6	-132.8	146.7	138.6	8.09	18.121	
2,000.0	1,996.3	1,983.0	1,972.7	4.3	4.8	82.85	82.85	-96.8	-144.5	159.6	151.0	8.63	18.505	
2,100.0	2,095.1	2,082.0	2,070.1	4.5	5.1	84.70	84.70	-110.0	-156.1	172.8	163.6	9.19	18.806	
2,200.0	2,193.9	2,180.9	2,167.6	4.8	5.5	86.28	86.28	-123.1	-167.8	186.0	176.3	9.77	19.042	
2,300.0	2,292.7	2,279.9	2,265.0	5.1	5.9	87.65	87.65	-136.3	-179.5	199.4	189.1	10.37	19.226	
2,400.0	2,391.5	2,378.9	2,362.4	5.4	6.3	88.85	88.85	-149.5	-191.2	213.0	202.0	10.99	19.370	
2,500.0	2,490.3	2,477.9	2,459.8	5.7	6.6	89.91	89.91	-162.6	-202.9	226.5	214.9	11.63	19.481	
2,600.0	2,589.1	2,576.9	2,557.2	6.0	7.0	90.85	90.85	-175.8	-214.6	240.2	227.9	12.28	19.568	
2,700.0	2,687.9	2,675.9	2,654.6	6.4	7.4	91.68	91.68	-189.0	-226.3	253.9	241.0	12.93	19.635	
2,800.0	2,786.7	2,774.9	2,752.0	6.7	7.8	92.43	92.43	-202.2	-237.9	267.7	254.1	13.60	19.686	
2,900.0	2,885.5	2,873.9	2,849.4	7.0	8.2	93.11	93.11	-215.3	-249.6	281.5	267.2	14.27	19.726	
3,000.0	2,984.3	2,972.9	2,946.9	7.4	8.6	93.72	93.72	-228.5	-261.3	295.3	280.4	14.95	19.756	
3,100.0	3,083.1	3,071.9	3,044.3	7.7	9.0	94.28	94.28	-241.7	-273.0	309.2	293.5	15.63	19.779	
3,200.0	3,181.9	3,170.9	3,141.7	8.1	9.4	94.79	94.79	-254.8	-284.7	323.1	306.7	16.32	19.795	
3,300.0	3,280.7	3,269.8	3,239.1	8.4	9.8	95.26	95.26	-268.0	-296.4	337.0	320.0	17.01	19.807	
3,400.0	3,379.5	3,368.8	3,336.5	8.8	10.2	95.69	95.69	-281.2	-308.1	350.9	333.2	17.71	19.815	
3,500.0	3,478.3	3,467.8	3,433.9	9.1	10.6	96.09	96.09	-294.4	-319.7	364.9	346.5	18.41	19.820	
3,600.0	3,577.1	3,566.8	3,531.3	9.5	11.0	96.46	96.46	-307.5	-331.4	378.8	359.7	19.11	19.823	
3,700.0	3,675.9	3,665.8	3,628.7	9.8	11.4	96.80	96.80	-320.7	-343.1	392.8	373.0	19.82	19.824	
3,800.0	3,774.7	3,764.8	3,726.2	10.2	11.8	97.12	97.12	-333.9	-354.8	406.8	386.3	20.52	19.823	
3,900.0	3,873.5	3,863.8	3,823.6	10.5	12.2	97.42	97.42	-347.0	-366.5	420.8	399.6	21.23	19.820	
4,000.0	3,972.3	3,962.8	3,921.0	10.9	12.6	97.70	97.70	-360.2	-378.2	434.8	412.9	21.94	19.817	
4,100.0	4,071.1	4,061.8	4,018.4	11.2	13.0	97.96	97.96	-373.4	-389.9	448.9	426.2	22.66	19.813	
4,200.0	4,169.9	4,160.8	4,115.8	11.6	13.4	98.21	98.21	-386.6	-401.5	462.9	439.5	23.37	19.808	
4,300.0	4,268.7	4,259.8	4,213.2	12.0	13.8	98.44	98.44	-399.7	-413.2	476.9	452.9	24.08	19.803	
4,400.0	4,367.5	4,358.7	4,310.6	12.3	14.2	98.66	98.66	-412.9	-424.9	491.0	466.2	24.80	19.798	
4,500.0	4,466.3	4,457.7	4,408.0	12.7	14.6	98.86	98.86	-426.1	-436.6	505.1	479.5	25.52	19.792	
4,600.0	4,565.1	4,556.7	4,505.5	13.1	15.0	99.06	99.06	-439.2	-448.3	519.1	492.9	26.24	19.786	
4,700.0	4,663.9	4,655.7	4,602.9	13.4	15.4	99.24	99.24	-452.4	-460.0	533.2	506.2	26.96	19.780	
4,800.0	4,762.7	4,754.7	4,700.3	13.8	15.8	99.42	99.42	-465.6	-471.7	547.3	519.6	27.68	19.773	
4,900.0	4,861.5	4,853.7	4,797.7	14.2	16.2	99.58	99.58	-478.8	-483.3	561.3	532.9	28.40	19.767	
5,000.0	4,960.3	4,952.7	4,895.1	14.5	16.6	99.74	99.74	-491.9	-495.0	575.4	546.3	29.12	19.760	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-321 - Wellbore #1 - Plan #1 (7-31-14)											Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,100.0	5,059.1	5,051.7	4,992.5	14.9	17.0	99.89	-505.1	-506.7	589.5	559.7	29.84	19.754		
5,200.0	5,157.9	5,150.7	5,089.9	15.3	17.4	100.03	-518.3	-518.4	603.6	573.0	30.57	19.748		
5,300.0	5,256.7	5,249.7	5,187.3	15.6	17.8	100.17	-531.4	-530.1	617.7	586.4	31.29	19.741		
5,400.0	5,355.5	5,348.7	5,284.8	16.0	18.2	100.30	-544.6	-541.8	631.8	599.8	32.01	19.735		
5,500.0	5,454.3	5,447.6	5,382.2	16.4	18.6	100.43	-557.8	-553.5	645.9	613.2	32.74	19.729		
5,600.0	5,553.1	5,546.6	5,479.6	16.7	19.0	100.55	-571.0	-565.1	660.0	626.5	33.46	19.722		
5,700.0	5,652.1	5,660.8	5,592.3	17.0	19.4	100.89	-584.8	-577.4	672.8	638.7	34.12	19.720		
5,800.0	5,751.6	5,777.6	5,708.2	17.3	19.7	101.14	-595.4	-586.9	682.5	647.9	34.63	19.705		
5,900.0	5,851.3	5,894.9	5,825.1	17.5	19.9	101.31	-602.6	-593.2	688.9	653.9	35.08	19.641		
6,000.0	5,951.2	6,012.6	5,942.6	17.6	20.1	101.40	-606.2	-596.4	692.1	656.7	35.44	19.528		
6,100.0	6,051.2	6,121.2	6,051.2	17.8	20.2	-86.98	-606.6	-596.8	692.5	656.8	35.76	19.368		
6,200.0	6,151.2	6,221.2	6,151.2	17.9	20.3	-86.98	-606.6	-596.8	692.5	656.5	36.03	19.222		
6,300.0	6,251.1	6,321.1	6,251.1	18.0	20.5	-87.28	-606.6	-596.8	692.4	656.1	36.25	19.101		
6,400.0	6,349.8	6,417.9	6,347.8	18.0	20.6	-88.31	-603.0	-596.8	691.9	655.6	36.26	19.081		
6,500.0	6,445.4	6,515.2	6,443.8	17.9	20.6	-89.39	-587.5	-596.8	691.6	655.5	36.06	19.179		
6,555.1	6,496.3	6,569.6	6,496.3	17.8	20.5	-90.00	-573.6	-596.8	691.6	655.7	35.86	19.285		
6,600.0	6,536.6	6,614.2	6,538.7	17.7	20.5	-90.50	-559.4	-596.8	691.6	655.9	35.68	19.384		
6,700.0	6,621.5	6,715.0	6,630.6	17.5	20.3	-91.60	-518.4	-596.8	691.8	656.7	35.16	19.675		
6,800.0	6,698.9	6,817.6	6,717.9	17.2	20.1	-92.69	-464.5	-596.8	692.3	657.8	34.58	20.020		
6,900.0	6,767.4	6,922.2	6,798.6	17.0	19.8	-93.73	-398.2	-596.8	693.1	659.0	34.02	20.369		
7,000.0	6,825.8	7,028.6	6,870.7	16.8	19.5	-94.72	-320.0	-596.8	694.0	660.4	33.59	20.663		
7,100.0	6,873.1	7,137.0	6,932.2	16.8	19.1	-95.63	-230.9	-596.8	695.0	661.6	33.37	20.828		
7,200.0	6,908.5	7,247.1	6,981.1	16.9	18.8	-96.45	-132.3	-596.8	696.0	662.5	33.46	20.800		
7,300.0	6,931.4	7,358.9	7,015.8	17.2	18.5	-97.14	-26.2	-596.8	697.0	663.1	33.95	20.532		
7,400.0	6,941.4	7,472.0	7,034.8	17.7	18.2	-97.71	85.3	-596.8	697.9	663.0	34.85	20.026		
7,500.0	6,942.0	7,581.3	7,038.1	18.3	18.3	-97.91	194.4	-596.8	698.2	662.1	36.14	19.322		
7,600.0	6,942.0	7,681.3	7,037.7	19.2	19.2	-97.88	294.4	-596.8	698.2	660.4	37.74	18.499		
7,700.0	6,942.1	7,781.3	7,037.4	20.2	20.2	-97.85	394.4	-596.8	698.1	658.5	39.64	17.610		
7,800.0	6,942.1	7,881.3	7,037.1	21.3	21.4	-97.82	494.4	-596.8	698.1	656.3	41.81	16.698		
7,900.0	6,942.2	7,981.3	7,036.7	22.5	22.6	-97.79	594.4	-596.8	698.0	653.8	44.19	15.795		
8,000.0	6,942.2	8,081.3	7,036.4	23.8	24.0	-97.76	694.4	-596.8	698.0	651.2	46.77	14.924		
8,100.0	6,942.3	8,181.3	7,036.1	25.2	25.3	-97.72	794.4	-596.8	697.9	648.4	49.50	14.098		
8,200.0	6,942.3	8,281.3	7,035.7	26.7	26.8	-97.69	894.4	-596.8	697.9	645.5	52.38	13.324		
8,300.0	6,942.4	8,381.3	7,035.4	28.2	28.3	-97.66	994.4	-596.8	697.8	642.4	55.36	12.604		
8,400.0	6,942.4	8,481.3	7,035.1	29.8	29.8	-97.63	1,094.4	-596.8	697.7	639.3	58.45	11.938		
8,500.0	6,942.5	8,581.3	7,034.8	31.4	31.4	-97.60	1,194.4	-596.8	697.7	636.1	61.61	11.324		
8,600.0	6,942.5	8,681.3	7,034.4	33.0	33.0	-97.57	1,294.4	-596.8	697.6	632.8	64.85	10.758		
8,700.0	6,942.6	8,781.3	7,034.1	34.7	34.7	-97.54	1,394.4	-596.8	697.6	629.5	68.14	10.237		
8,800.0	6,942.6	8,881.3	7,033.8	36.4	36.3	-97.51	1,494.4	-596.8	697.5	626.1	71.49	9.757		
8,900.0	6,942.7	8,981.3	7,033.4	38.1	38.0	-97.47	1,594.4	-596.8	697.5	622.6	74.88	9.314		
9,000.0	6,942.7	9,081.3	7,033.1	39.8	39.7	-97.44	1,694.4	-596.8	697.4	619.1	78.32	8.906		
9,100.0	6,942.8	9,181.3	7,032.8	41.6	41.5	-97.41	1,794.4	-596.8	697.4	615.6	81.78	8.527		
9,200.0	6,942.8	9,281.3	7,032.4	43.3	43.2	-97.38	1,894.4	-596.8	697.3	612.1	85.28	8.177		
9,300.0	6,942.9	9,381.3	7,032.1	45.1	45.0	-97.35	1,994.4	-596.8	697.3	608.5	88.81	7.852		
9,400.0	6,942.9	9,481.3	7,031.8	46.9	46.7	-97.32	2,094.4	-596.8	697.2	604.9	92.35	7.550		
9,500.0	6,943.0	9,581.3	7,031.4	48.7	48.5	-97.29	2,194.4	-596.8	697.2	601.3	95.92	7.268		
9,600.0	6,943.1	9,681.3	7,031.1	50.5	50.3	-97.26	2,294.4	-596.8	697.2	597.6	99.51	7.006		
9,700.0	6,943.1	9,781.3	7,030.8	52.3	52.1	-97.22	2,394.4	-596.8	697.1	594.0	103.12	6.760		
9,800.0	6,943.2	9,881.3	7,030.4	54.1	53.9	-97.19	2,494.4	-596.8	697.1	590.3	106.74	6.531		
9,900.0	6,943.2	9,981.3	7,030.1	55.9	55.7	-97.16	2,594.4	-596.8	697.0	586.6	110.37	6.315		
10,000.0	6,943.3	10,081.3	7,029.8	57.8	57.5	-97.13	2,694.4	-596.8	697.0	582.9	114.02	6.113		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-321 - Wellbore #1 - Plan #1 (7-31-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
10,100.0	6,943.3	10,181.3	7,029.4	59.6	59.4	-97.10	2,794.4	-596.8	696.9	579.2	117.68	5.922	
10,200.0	6,943.4	10,281.3	7,029.1	61.5	61.2	-97.07	2,894.4	-596.8	696.9	575.5	121.34	5.743	
10,300.0	6,943.4	10,381.3	7,028.8	63.3	63.0	-97.04	2,994.4	-596.8	696.8	571.8	125.02	5.574	
10,400.0	6,943.5	10,481.3	7,028.5	65.2	64.9	-97.01	3,094.4	-596.8	696.8	568.1	128.71	5.414	
10,500.0	6,943.5	10,581.3	7,028.1	67.0	66.7	-96.97	3,194.4	-596.8	696.7	564.3	132.41	5.262	
10,600.0	6,943.6	10,681.3	7,027.8	68.9	68.6	-96.94	3,294.4	-596.8	696.7	560.6	136.11	5.119	
10,700.0	6,943.6	10,781.3	7,027.5	70.7	70.4	-96.91	3,394.4	-596.8	696.6	556.8	139.82	4.982	
10,800.0	6,943.7	10,881.3	7,027.1	72.6	72.3	-96.88	3,494.4	-596.8	696.6	553.1	143.53	4.853	
10,900.0	6,943.7	10,981.3	7,026.8	74.5	74.1	-96.85	3,594.4	-596.8	696.5	549.3	147.26	4.730	
11,000.0	6,943.8	11,081.3	7,026.5	76.3	76.0	-96.82	3,694.4	-596.8	696.5	545.5	150.98	4.613	
11,100.0	6,943.8	11,181.3	7,026.1	78.2	77.9	-96.79	3,794.4	-596.8	696.4	541.7	154.71	4.501	
11,200.0	6,943.9	11,281.3	7,025.8	80.1	79.7	-96.75	3,894.4	-596.8	696.4	538.0	158.45	4.395	
11,300.0	6,943.9	11,381.3	7,025.5	82.0	81.6	-96.72	3,994.4	-596.8	696.4	534.2	162.19	4.293	
11,400.0	6,944.0	11,481.3	7,025.1	83.9	83.5	-96.69	4,094.4	-596.8	696.3	530.4	165.94	4.196	
11,408.0	6,944.0	11,489.3	7,025.1	84.0	83.6	-96.69	4,102.4	-596.8	696.3	530.1	166.24	4.189 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	-89.99	0.0	-89.2	89.3				
100.0	100.0	99.0	99.0	0.1	0.1	-89.99	-89.99	0.0	-89.2	89.2	89.0	0.22	399.064	
200.0	200.0	199.0	199.0	0.3	0.3	-89.99	-89.99	0.0	-89.2	89.2	88.6	0.67	132.800	
300.0	300.0	299.0	299.0	0.6	0.6	-89.99	-89.99	0.0	-89.2	89.2	88.1	1.12	79.574	
400.0	400.0	399.0	399.0	0.8	0.8	-89.99	-89.99	0.0	-89.2	89.2	87.7	1.57	56.806	
500.0	500.0	499.0	499.0	1.0	1.0	-89.99	-89.99	0.0	-89.2	89.2	87.2	2.02	44.168	
600.0	600.0	599.0	599.0	1.2	1.2	-89.99	-89.99	0.0	-89.2	89.2	86.8	2.47	36.130	
700.0	700.0	699.0	699.0	1.5	1.5	-89.99	-89.99	0.0	-89.2	89.2	86.3	2.92	30.568	
800.0	800.0	799.0	799.0	1.7	1.7	-89.99	-89.99	0.0	-89.2	89.2	85.9	3.37	26.489	CC, ES
900.0	900.0	896.7	896.7	1.9	1.9	-90.69	-90.69	-1.1	-90.5	90.5	86.7	3.79	23.872	
1,000.0	1,000.0	994.2	994.1	2.1	2.1	-92.68	-92.68	-4.4	-94.1	94.4	90.2	4.20	22.472	
1,100.0	1,100.0	1,091.2	1,090.7	2.4	2.3	-95.64	-95.64	-9.9	-100.2	101.1	96.4	4.62	21.876	
1,200.0	1,200.0	1,187.6	1,186.4	2.6	2.5	-99.17	-99.17	-17.5	-108.7	110.8	105.7	5.05	21.928	
1,300.0	1,300.0	1,283.1	1,280.8	2.8	2.7	-102.85	-102.85	-27.2	-119.4	123.8	118.3	5.50	22.513	
1,400.0	1,400.0	1,380.1	1,376.2	3.0	3.0	-106.35	-106.35	-38.8	-132.2	139.7	133.7	5.96	23.432	
1,500.0	1,500.0	1,478.6	1,473.2	3.2	3.4	79.48	79.48	-50.7	-145.4	155.8	149.5	6.36	24.491	
1,600.0	1,599.8	1,577.3	1,570.3	3.4	3.7	78.50	78.50	-62.6	-158.6	171.5	164.7	6.77	25.327	
1,700.0	1,699.5	1,676.2	1,667.5	3.6	4.1	78.72	78.72	-74.6	-171.8	186.4	179.2	7.20	25.889	
1,800.0	1,798.7	1,775.0	1,764.7	3.8	4.4	79.86	79.86	-86.5	-185.1	200.8	193.2	7.67	26.194	
1,900.0	1,897.6	1,873.8	1,861.9	4.0	4.8	81.74	81.74	-98.5	-198.3	214.9	206.7	8.18	26.283	
2,000.0	1,996.3	1,972.5	1,959.0	4.3	5.2	83.60	83.60	-110.4	-211.5	229.1	220.4	8.72	26.283	
2,100.0	2,095.1	2,071.2	2,056.1	4.5	5.6	85.23	85.23	-122.3	-224.7	243.5	234.3	9.28	26.231	
2,200.0	2,193.9	2,170.0	2,153.2	4.8	6.0	86.68	86.68	-134.2	-237.9	258.2	248.3	9.87	26.146	
2,300.0	2,292.7	2,268.7	2,250.3	5.1	6.4	87.98	87.98	-146.2	-251.1	272.9	262.4	10.48	26.038	
2,400.0	2,391.5	2,367.4	2,347.4	5.4	6.7	89.14	89.14	-158.1	-264.3	287.8	276.7	11.10	25.917	
2,500.0	2,490.3	2,466.1	2,444.5	5.7	7.1	90.19	90.19	-170.0	-277.5	302.8	291.1	11.74	25.790	
2,600.0	2,589.1	2,564.9	2,541.6	6.0	7.5	91.14	91.14	-182.0	-290.7	317.9	305.5	12.39	25.660	
2,700.0	2,687.9	2,663.6	2,638.7	6.4	7.9	92.00	92.00	-193.9	-303.9	333.0	320.0	13.04	25.531	
2,800.0	2,786.7	2,762.3	2,735.8	6.7	8.3	92.79	92.79	-205.8	-317.2	348.3	334.6	13.71	25.404	
2,900.0	2,885.5	2,861.0	2,832.9	7.0	8.7	93.51	93.51	-217.7	-330.4	363.5	349.2	14.38	25.282	
3,000.0	2,984.3	2,959.8	2,930.0	7.4	9.1	94.18	94.18	-229.7	-343.6	378.9	363.8	15.06	25.164	
3,100.0	3,083.1	3,058.5	3,027.2	7.7	9.5	94.79	94.79	-241.6	-356.8	394.3	378.5	15.74	25.051	
3,200.0	3,181.9	3,157.2	3,124.3	8.1	10.0	95.35	95.35	-253.5	-370.0	409.7	393.3	16.42	24.943	
3,300.0	3,280.7	3,255.9	3,221.4	8.4	10.4	95.88	95.88	-265.5	-383.2	425.1	408.0	17.11	24.841	
3,400.0	3,379.5	3,354.7	3,318.5	8.8	10.8	96.37	96.37	-277.4	-396.4	440.6	422.8	17.81	24.744	
3,500.0	3,478.3	3,453.4	3,415.6	9.1	11.2	96.82	96.82	-289.3	-409.6	456.2	437.7	18.50	24.652	
3,600.0	3,577.1	3,552.1	3,512.7	9.5	11.6	97.25	97.25	-301.3	-422.8	471.7	452.5	19.20	24.564	
3,700.0	3,675.9	3,650.8	3,609.8	9.8	12.0	97.65	97.65	-313.2	-436.0	487.3	467.4	19.90	24.481	
3,800.0	3,774.7	3,749.6	3,706.9	10.2	12.4	98.02	98.02	-325.1	-449.2	502.9	482.3	20.61	24.403	
3,900.0	3,873.5	3,848.3	3,804.0	10.5	12.8	98.37	98.37	-337.0	-462.5	518.5	497.2	21.31	24.328	
4,000.0	3,972.3	3,947.0	3,901.1	10.9	13.2	98.70	98.70	-349.0	-475.7	534.1	512.1	22.02	24.257	
4,100.0	4,071.1	4,045.7	3,998.2	11.2	13.6	99.01	99.01	-360.9	-488.9	549.8	527.0	22.73	24.190	
4,200.0	4,169.9	4,144.5	4,095.3	11.6	14.0	99.31	99.31	-372.8	-502.1	565.4	542.0	23.44	24.126	
4,300.0	4,268.7	4,243.2	4,192.4	12.0	14.4	99.59	99.59	-384.8	-515.3	581.1	556.9	24.15	24.065	
4,400.0	4,367.5	4,341.9	4,289.6	12.3	14.8	99.85	99.85	-396.7	-528.5	596.8	571.9	24.86	24.007	
4,500.0	4,466.3	4,440.6	4,386.7	12.7	15.2	100.10	100.10	-408.6	-541.7	612.5	586.9	25.57	23.952	
4,600.0	4,565.1	4,539.4	4,483.8	13.1	15.7	100.34	100.34	-420.5	-554.9	628.2	601.9	26.28	23.899	
4,700.0	4,663.9	4,638.1	4,580.9	13.4	16.1	100.57	100.57	-432.5	-568.1	643.9	616.9	27.00	23.849	
4,800.0	4,762.7	4,736.8	4,678.0	13.8	16.5	100.78	100.78	-444.4	-581.3	659.6	631.9	27.71	23.801	
4,900.0	4,861.5	4,835.5	4,775.1	14.2	16.9	100.99	100.99	-456.3	-594.5	675.4	647.0	28.43	23.755	
5,000.0	4,960.3	4,934.3	4,872.2	14.5	17.3	101.18	101.18	-468.3	-607.8	691.1	662.0	29.15	23.712	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,059.1	5,033.0	4,969.3	14.9	17.7	101.37		-480.2	-621.0	706.9	677.0	29.86	23.670	
5,200.0	5,157.9	5,131.7	5,066.4	15.3	18.1	101.55		-492.1	-634.2	722.6	692.1	30.58	23.630	
5,300.0	5,256.7	5,230.4	5,163.5	15.6	18.5	101.72		-504.0	-647.4	738.4	707.1	31.30	23.591	
5,400.0	5,355.5	5,329.2	5,260.6	16.0	18.9	101.89		-516.0	-660.6	754.2	722.2	32.02	23.554	
5,500.0	5,454.3	5,427.9	5,357.7	16.4	19.3	102.04		-527.9	-673.8	770.0	737.2	32.74	23.519	
5,600.0	5,553.1	5,526.6	5,454.8	16.7	19.7	102.19		-539.8	-687.0	785.7	752.3	33.46	23.485	
5,700.0	5,652.1	5,625.4	5,552.0	17.0	20.2	102.52		-551.8	-700.2	801.2	767.0	34.15	23.461	
5,800.0	5,751.6	5,724.3	5,649.3	17.3	20.6	102.60		-563.7	-713.5	815.9	781.2	34.74	23.483	
5,900.0	5,851.3	5,839.2	5,762.5	17.5	21.0	102.40		-576.9	-728.0	829.3	794.0	35.27	23.513	
6,000.0	5,951.2	5,963.8	5,886.0	17.6	21.3	102.07		-587.8	-740.1	839.1	803.5	35.69	23.514	
6,100.0	6,051.2	6,089.3	6,011.0	17.8	21.5	-86.75		-595.2	-748.3	845.4	809.3	36.04	23.458	
6,200.0	6,151.2	6,215.5	6,137.1	17.9	21.7	-87.02		-598.9	-752.4	848.5	812.1	36.35	23.342	
6,300.0	6,251.1	6,328.6	6,250.1	18.0	21.9	-87.30		-599.4	-752.9	848.7	812.1	36.59	23.193	
6,400.0	6,349.8	6,427.2	6,348.8	18.0	22.0	-88.41		-599.4	-752.9	848.1	811.5	36.61	23.167	
6,494.0	6,439.8	6,517.3	6,438.8	17.9	22.1	-90.00		-596.8	-752.9	847.7	811.3	36.44	23.265	
6,500.0	6,445.4	6,523.1	6,444.6	17.9	22.1	-90.10		-596.3	-752.9	847.8	811.3	36.42	23.274	
6,600.0	6,536.6	6,621.4	6,541.7	17.7	22.1	-91.84		-581.2	-752.9	848.2	812.2	36.06	23.523	
6,700.0	6,621.5	6,723.4	6,639.4	17.5	22.0	-93.57		-552.6	-752.9	849.5	814.0	35.54	23.900	
6,800.0	6,698.9	6,829.3	6,736.1	17.2	21.8	-95.27		-509.3	-752.9	851.6	816.7	34.94	24.376	
6,900.0	6,767.4	6,939.7	6,829.3	17.0	21.6	-96.92		-450.5	-752.9	854.4	820.0	34.31	24.902	
7,000.0	6,825.8	7,054.6	6,916.4	16.8	21.3	-98.47		-375.6	-752.9	857.6	823.8	33.75	25.408	
7,100.0	6,873.1	7,174.3	6,994.1	16.8	20.9	-99.89		-284.7	-752.9	861.1	827.7	33.39	25.791	
7,200.0	6,908.5	7,298.7	7,058.7	16.9	20.5	-101.13		-178.6	-752.9	864.5	831.2	33.32	25.945	
7,300.0	6,931.4	7,427.4	7,106.6	17.2	20.2	-102.16		-59.3	-752.9	867.5	833.9	33.68	25.761	
7,400.0	6,941.4	7,559.7	7,134.2	17.7	19.8	-102.92		69.9	-752.9	869.9	835.4	34.51	25.207	
7,500.0	6,942.0	7,683.5	7,140.2	18.3	19.7	-103.23		193.4	-752.9	870.8	835.1	35.79	24.335	
7,600.0	6,942.0	7,783.5	7,140.6	19.2	20.0	-103.25		293.4	-752.9	870.9	833.6	37.33	23.331	
7,700.0	6,942.1	7,883.5	7,140.9	20.2	21.0	-103.27		393.4	-752.9	871.0	831.8	39.16	22.240	
7,800.0	6,942.1	7,983.5	7,141.3	21.3	22.1	-103.28		493.4	-752.9	871.1	829.8	41.26	21.112	
7,900.0	6,942.2	8,083.5	7,141.6	22.5	23.3	-103.30		593.4	-752.9	871.1	827.5	43.58	19.991	
8,000.0	6,942.2	8,183.5	7,142.0	23.8	24.6	-103.32		693.4	-752.9	871.2	825.1	46.08	18.905	
8,100.0	6,942.3	8,283.5	7,142.3	25.2	25.9	-103.34		793.4	-752.9	871.3	822.5	48.75	17.873	
8,200.0	6,942.3	8,383.5	7,142.7	26.7	27.3	-103.36		893.4	-752.9	871.3	819.8	51.55	16.903	
8,300.0	6,942.4	8,483.5	7,143.0	28.2	28.8	-103.38		993.4	-752.9	871.4	816.9	54.46	16.000	
8,400.0	6,942.4	8,583.5	7,143.4	29.8	30.3	-103.40		1,093.4	-752.9	871.5	814.0	57.47	15.163	
8,500.0	6,942.5	8,683.5	7,143.7	31.4	31.9	-103.42		1,193.4	-752.9	871.5	811.0	60.57	14.390	
8,600.0	6,942.5	8,783.5	7,144.1	33.0	33.5	-103.44		1,293.4	-752.9	871.6	807.9	63.73	13.677	
8,700.0	6,942.6	8,883.5	7,144.4	34.7	35.1	-103.46		1,393.4	-752.9	871.7	804.7	66.95	13.019	
8,800.0	6,942.6	8,983.5	7,144.8	36.4	36.7	-103.47		1,493.4	-752.9	871.7	801.5	70.23	12.413	
8,900.0	6,942.7	9,083.5	7,145.1	38.1	38.4	-103.49		1,593.4	-752.9	871.8	798.3	73.55	11.854	
9,000.0	6,942.7	9,183.5	7,145.5	39.8	40.1	-103.51		1,693.4	-752.9	871.9	795.0	76.90	11.337	
9,100.0	6,942.8	9,283.5	7,145.8	41.6	41.8	-103.53		1,793.4	-752.9	871.9	791.6	80.30	10.859	
9,200.0	6,942.8	9,383.5	7,146.2	43.3	43.5	-103.55		1,893.4	-752.9	872.0	788.3	83.72	10.416	
9,300.0	6,942.9	9,483.5	7,146.5	45.1	45.3	-103.57		1,993.4	-752.9	872.1	784.9	87.16	10.005	
9,400.0	6,942.9	9,583.5	7,146.8	46.9	47.0	-103.59		2,093.4	-752.9	872.2	781.5	90.63	9.623	
9,500.0	6,943.0	9,683.5	7,147.2	48.7	48.8	-103.61		2,193.4	-752.9	872.2	778.1	94.13	9.267	
9,600.0	6,943.1	9,783.5	7,147.5	50.5	50.6	-103.63		2,293.4	-752.9	872.3	774.7	97.63	8.934	
9,700.0	6,943.1	9,883.5	7,147.9	52.3	52.3	-103.64		2,393.4	-752.9	872.4	771.2	101.16	8.624	
9,800.0	6,943.2	9,983.5	7,148.2	54.1	54.1	-103.66		2,493.4	-752.9	872.4	767.7	104.70	8.333	
9,900.0	6,943.2	10,083.5	7,148.6	55.9	55.9	-103.68		2,593.4	-752.9	872.5	764.2	108.25	8.060	
10,000.0	6,943.3	10,183.5	7,148.9	57.8	57.8	-103.70		2,693.4	-752.9	872.6	760.8	111.82	7.804	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design										Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18T-401 - Wellbore #1 - Plan #1 (7-31-14)		Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis		Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
10,100.0	6,943.3	10,283.5	7,149.3	59.6	59.6	-103.72	2,793.4	-752.9	872.6	757.2	115.39	7.562			
10,200.0	6,943.4	10,383.5	7,149.6	61.5	61.4	-103.74	2,893.4	-752.9	872.7	753.7	118.98	7.335			
10,300.0	6,943.4	10,483.5	7,150.0	63.3	63.2	-103.76	2,993.4	-752.9	872.8	750.2	122.57	7.121			
10,400.0	6,943.5	10,583.5	7,150.3	65.2	65.1	-103.78	3,093.4	-752.9	872.8	746.7	126.17	6.918			
10,500.0	6,943.5	10,683.4	7,150.7	67.0	66.9	-103.80	3,193.4	-752.9	872.9	743.1	129.78	6.726			
10,600.0	6,943.6	10,783.4	7,151.0	68.9	68.7	-103.82	3,293.4	-752.9	873.0	739.6	133.40	6.544			
10,700.0	6,943.6	10,883.4	7,151.4	70.7	70.6	-103.83	3,393.4	-752.9	873.1	736.0	137.02	6.372			
10,800.0	6,943.7	10,983.4	7,151.7	72.6	72.4	-103.85	3,493.4	-752.9	873.1	732.5	140.64	6.208			
10,900.0	6,943.7	11,083.4	7,152.1	74.5	74.3	-103.87	3,593.4	-752.9	873.2	728.9	144.27	6.052			
11,000.0	6,943.8	11,183.4	7,152.4	76.3	76.1	-103.89	3,693.4	-752.9	873.3	725.4	147.91	5.904			
11,100.0	6,943.8	11,283.4	7,152.8	78.2	78.0	-103.91	3,793.4	-752.9	873.3	721.8	151.55	5.763			
11,200.0	6,943.9	11,383.4	7,153.1	80.1	79.9	-103.93	3,893.4	-752.9	873.4	718.2	155.20	5.628			
11,300.0	6,943.9	11,483.4	7,153.5	82.0	81.7	-103.95	3,993.4	-752.9	873.5	714.6	158.84	5.499			
11,400.0	6,944.0	11,583.4	7,153.8	83.9	83.6	-103.97	4,093.4	-752.9	873.6	711.1	162.50	5.376			
11,408.0	6,944.0	11,591.4	7,153.9	84.0	83.7	-103.97	4,101.4	-752.9	873.6	710.8	162.79	5.366 SF			



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-301 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	61.4	61.4					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	61.4	61.4	61.1	0.22	272.987		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	61.4	61.4	60.7	0.67	90.996		
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	61.4	61.4	60.2	1.12	54.597		
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	61.4	61.4	59.8	1.57	38.998		
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	61.4	61.4	59.3	2.02	30.332		
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	61.4	61.4	58.9	2.47	24.817		
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	61.4	61.4	58.4	2.92	20.999		
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	61.4	61.4	58.0	3.37	18.199		
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	61.4	61.4	57.5	3.82	16.058		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	61.4	61.4	57.1	4.27	14.368 CC, ES		
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.3	91.39	-1.5	62.2	62.2	57.5	4.69	13.256		
1,200.0	1,200.0	1,197.7	1,197.6	2.6	2.5	95.34	-6.0	64.5	64.9	59.8	5.09	12.735		
1,300.0	1,300.0	1,296.0	1,295.5	2.8	2.7	101.17	-13.5	68.5	69.9	64.4	5.51	12.702		
1,400.0	1,400.0	1,393.6	1,392.3	3.0	2.9	107.91	-23.9	73.9	78.1	72.1	5.93	13.163		
1,500.0	1,500.0	1,491.1	1,488.7	3.2	3.2	-57.74	-37.1	80.8	88.7	82.4	6.34	13.991		
1,600.0	1,599.8	1,590.4	1,586.7	3.4	3.4	-54.30	-51.3	88.3	98.8	92.1	6.73	14.677		
1,700.0	1,699.5	1,690.1	1,685.1	3.6	3.7	-52.98	-65.5	95.8	107.0	99.9	7.14	14.987		
1,800.0	1,798.7	1,789.9	1,783.6	3.8	4.0	-53.26	-79.8	103.3	113.2	105.6	7.58	14.934		
1,900.0	1,897.6	1,889.7	1,882.1	4.0	4.4	-54.72	-94.1	110.9	117.6	109.6	8.06	14.594		
2,000.0	1,996.3	1,989.6	1,980.6	4.3	4.7	-56.24	-108.4	118.4	121.9	113.4	8.58	14.219		
2,100.0	2,095.1	2,089.4	2,079.2	4.5	5.0	-57.66	-122.7	125.9	126.3	117.2	9.12	13.855		
2,200.0	2,193.9	2,189.3	2,177.7	4.8	5.4	-58.98	-137.0	133.4	130.8	121.1	9.68	13.508		
2,300.0	2,292.7	2,289.1	2,276.3	5.1	5.7	-60.22	-151.3	140.9	135.3	125.1	10.27	13.178		
2,400.0	2,391.5	2,389.0	2,374.8	5.4	6.1	-61.37	-165.6	148.4	139.9	129.1	10.88	12.868		
2,500.0	2,490.3	2,488.9	2,473.3	5.7	6.5	-62.45	-179.9	156.0	144.6	133.1	11.50	12.577		
2,600.0	2,589.1	2,588.7	2,571.9	6.0	6.8	-63.46	-194.2	163.5	149.3	137.1	12.13	12.307		
2,700.0	2,687.9	2,688.6	2,670.4	6.4	7.2	-64.41	-208.5	171.0	154.0	141.2	12.78	12.054		
2,800.0	2,786.7	2,788.4	2,769.0	6.7	7.6	-65.31	-222.8	178.5	158.8	145.4	13.43	11.820		
2,900.0	2,885.5	2,886.5	2,867.5	7.0	7.9	-66.15	-237.1	186.0	163.6	149.5	14.10	11.602		
3,000.0	2,984.3	2,988.1	2,966.1	7.4	8.3	-66.94	-251.3	193.5	168.4	153.7	14.78	11.400		
3,100.0	3,083.1	3,088.0	3,064.6	7.7	8.7	-67.69	-265.6	201.0	173.3	157.9	15.46	11.212		
3,200.0	3,181.9	3,187.9	3,163.1	8.1	9.0	-68.40	-279.9	208.6	178.2	162.1	16.15	11.038		
3,300.0	3,280.7	3,287.7	3,261.7	8.4	9.4	-69.07	-294.2	216.1	183.2	166.3	16.84	10.875		
3,400.0	3,379.5	3,387.6	3,360.2	8.8	9.8	-69.70	-308.5	223.6	188.1	170.6	17.54	10.723		
3,500.0	3,478.3	3,487.4	3,458.8	9.1	10.2	-70.30	-322.8	231.1	193.1	174.8	18.25	10.582		
3,600.0	3,577.1	3,587.3	3,557.3	9.5	10.6	-70.87	-337.1	238.6	198.1	179.1	18.96	10.450		
3,700.0	3,675.9	3,687.1	3,655.8	9.8	10.9	-71.42	-351.4	246.1	203.1	183.4	19.67	10.326		
3,800.0	3,774.7	3,787.0	3,754.4	10.2	11.3	-71.93	-365.7	253.7	208.1	187.7	20.38	10.211		
3,900.0	3,873.5	3,886.8	3,852.9	10.5	11.7	-72.43	-380.0	261.2	213.2	192.1	21.10	10.102		
4,000.0	3,972.3	3,986.7	3,951.5	10.9	12.1	-72.90	-394.3	268.7	218.2	196.4	21.82	10.000		
4,100.0	4,071.1	4,086.6	4,050.0	11.2	12.4	-73.35	-408.6	276.2	223.3	200.8	22.55	9.905		
4,200.0	4,169.9	4,186.4	4,148.5	11.6	12.8	-73.77	-422.9	283.7	228.4	205.1	23.27	9.814		
4,300.0	4,268.7	4,286.3	4,247.1	12.0	13.2	-74.18	-437.2	291.2	233.5	209.5	24.00	9.729		
4,400.0	4,367.5	4,386.1	4,345.6	12.3	13.6	-74.58	-451.5	298.8	238.6	213.9	24.73	9.649		
4,500.0	4,466.3	4,486.0	4,444.2	12.7	14.0	-74.95	-465.7	306.3	243.7	218.3	25.46	9.573		
4,600.0	4,565.1	4,585.8	4,542.7	13.1	14.4	-75.31	-480.0	313.8	248.9	222.7	26.19	9.502		
4,700.0	4,663.9	4,685.7	4,641.3	13.4	14.7	-75.66	-494.3	321.3	254.0	227.1	26.93	9.434		
4,800.0	4,762.7	4,785.6	4,739.8	13.8	15.1	-75.99	-508.6	328.8	259.2	231.5	27.66	9.369		
4,900.0	4,861.5	4,885.4	4,838.3	14.2	15.5	-76.31	-522.9	336.3	264.3	235.9	28.40	9.308		
5,000.0	4,960.3	4,985.3	4,936.9	14.5	15.9	-76.62	-537.2	343.9	269.5	240.4	29.14	9.250		

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



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-301 - Wellbore #1 - Plan #1 (7-31-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,059.1	5,085.1	5,035.4	14.9	16.3	-76.91	-551.5	351.4	274.7	244.8	29.87	9.194	
5,200.0	5,157.9	5,185.0	5,134.0	15.3	16.6	-77.20	-565.8	358.9	279.9	249.3	30.61	9.142	
5,300.0	5,256.7	5,284.8	5,232.5	15.6	17.0	-77.47	-580.1	366.4	285.1	253.7	31.35	9.091	
5,400.0	5,355.5	5,384.7	5,331.0	16.0	17.4	-77.73	-594.4	373.9	290.2	258.2	32.09	9.043	
5,500.0	5,454.3	5,484.5	5,429.6	16.4	17.8	-77.99	-608.7	381.4	295.5	262.6	32.84	8.998	
5,600.0	5,553.1	5,584.4	5,528.1	16.7	18.2	-78.24	-623.0	389.0	300.7	267.1	33.58	8.954	
5,700.0	5,652.1	5,689.5	5,632.1	17.0	18.5	-78.52	-636.6	396.1	305.4	271.2	34.18	8.936	
5,800.0	5,751.6	5,795.2	5,737.2	17.3	18.7	-78.74	-646.9	401.5	309.0	274.3	34.65	8.917	
5,900.0	5,851.3	5,901.0	5,842.6	17.5	18.9	-78.88	-653.8	405.1	311.4	276.3	35.06	8.882	
6,000.0	5,951.2	6,006.8	5,948.4	17.6	19.1	-78.95	-657.2	406.9	312.6	277.2	35.39	8.831	
6,100.0	6,051.2	6,109.7	6,051.2	17.8	19.2	92.66	-657.6	407.2	312.7	277.0	35.69	8.761	
6,200.0	6,151.2	6,209.7	6,151.2	17.9	19.4	92.66	-657.6	407.2	312.7	276.7	35.96	8.695	
6,200.0	6,151.3	6,209.7	6,151.3	17.9	19.4	92.66	-657.6	407.2	312.7	276.7	35.96	8.695	
6,300.0	6,251.1	6,309.6	6,251.1	18.0	19.5	93.28	-657.6	407.2	312.9	276.7	36.14	8.658	
6,400.0	6,349.8	6,411.4	6,352.9	18.0	19.6	95.47	-653.5	407.2	313.8	277.8	36.00	8.718	
6,500.0	6,445.4	6,515.6	6,455.5	17.9	19.6	97.65	-635.8	407.2	315.2	279.6	35.63	8.847	
6,600.0	6,536.6	6,621.7	6,556.4	17.7	19.4	99.69	-603.6	407.2	316.9	281.9	35.07	9.037	
6,700.0	6,621.5	6,729.4	6,653.4	17.5	19.2	101.56	-556.9	407.2	318.9	284.5	34.39	9.272	
6,800.0	6,698.9	6,838.9	6,744.2	17.2	18.9	103.21	-495.9	407.2	320.9	287.2	33.67	9.531	
6,900.0	6,767.4	6,949.8	6,826.4	17.0	18.6	104.62	-421.6	407.2	322.9	289.9	33.00	9.782	
7,000.0	6,825.8	7,062.1	6,897.8	16.8	18.3	105.75	-335.0	407.2	324.6	292.1	32.52	9.982	
7,100.0	6,873.1	7,175.5	6,956.2	16.8	18.0	106.58	-238.0	407.2	325.9	293.6	32.31	10.087	
7,200.0	6,908.5	7,289.6	6,999.8	16.9	17.9	107.11	-132.7	407.2	326.8	294.3	32.49	10.060	
7,300.0	6,931.4	7,404.1	7,027.4	17.2	17.9	107.31	-21.6	407.2	327.2	294.1	33.10	9.883	
7,400.0	6,941.4	7,518.7	7,038.1	17.7	18.3	107.19	92.3	407.2	327.0	292.8	34.17	9.569	
7,500.0	6,942.0	7,620.8	7,037.9	18.3	18.9	107.08	194.4	407.2	326.8	291.3	35.49	9.206	
7,600.0	6,942.0	7,720.8	7,037.6	19.2	19.7	107.01	294.4	407.2	326.6	289.6	37.10	8.805	
7,700.0	6,942.1	7,820.8	7,037.2	20.2	20.7	106.95	394.4	407.2	326.5	287.5	38.99	8.375	
7,800.0	6,942.1	7,920.8	7,036.9	21.3	21.8	106.88	494.4	407.2	326.4	285.3	41.13	7.937	
7,900.0	6,942.2	8,020.8	7,036.6	22.5	23.0	106.82	594.4	407.2	326.3	282.8	43.48	7.505	
8,000.0	6,942.2	8,120.8	7,036.3	23.8	24.3	106.75	694.4	407.2	326.2	280.2	46.01	7.090	
8,100.0	6,942.3	8,220.8	7,035.9	25.2	25.7	106.69	794.4	407.2	326.1	277.4	48.69	6.697	
8,200.0	6,942.3	8,320.8	7,035.6	26.7	27.2	106.63	894.4	407.2	326.0	274.5	51.51	6.329	
8,300.0	6,942.4	8,420.8	7,035.3	28.2	28.7	106.56	994.4	407.2	325.9	271.4	54.43	5.987	
8,400.0	6,942.4	8,520.8	7,034.9	29.8	30.2	106.50	1,094.4	407.2	325.8	268.3	57.44	5.671	
8,500.0	6,942.5	8,620.8	7,034.6	31.4	31.8	106.43	1,194.4	407.2	325.6	265.1	60.54	5.379	
8,600.0	6,942.5	8,720.8	7,034.3	33.0	33.4	106.37	1,294.4	407.2	325.5	261.8	63.70	5.110	
8,700.0	6,942.6	8,820.8	7,033.9	34.7	35.1	106.30	1,394.4	407.1	325.4	258.5	66.93	4.862	
8,800.0	6,942.6	8,920.8	7,033.6	36.4	36.8	106.24	1,494.4	407.1	325.3	255.1	70.20	4.634	
8,900.0	6,942.7	9,020.8	7,033.3	38.1	38.5	106.17	1,594.4	407.1	325.2	251.7	73.52	4.423	
9,000.0	6,942.7	9,120.8	7,032.9	39.8	40.2	106.11	1,694.4	407.1	325.1	248.2	76.88	4.229	
9,100.0	6,942.8	9,220.8	7,032.6	41.6	41.9	106.04	1,794.4	407.1	325.0	244.7	80.27	4.049	
9,200.0	6,942.8	9,320.8	7,032.3	43.3	43.7	105.98	1,894.4	407.1	324.9	241.2	83.70	3.882	
9,300.0	6,942.9	9,420.8	7,031.9	45.1	45.4	105.91	1,994.4	407.1	324.8	237.6	87.15	3.727	
9,400.0	6,942.9	9,520.7	7,031.6	46.9	47.2	105.85	2,094.4	407.1	324.7	234.1	90.62	3.583	
9,500.0	6,943.0	9,620.7	7,031.3	48.7	49.0	105.78	2,194.4	407.1	324.6	230.5	94.12	3.449	
9,600.0	6,943.1	9,720.7	7,030.9	50.5	50.8	105.72	2,294.4	407.1	324.5	226.8	97.64	3.323	
9,700.0	6,943.1	9,820.7	7,030.6	52.3	52.6	105.65	2,394.4	407.1	324.4	223.2	101.17	3.206	
9,800.0	6,943.2	9,920.7	7,030.3	54.1	54.4	105.59	2,494.4	407.1	324.3	219.5	104.72	3.096	
9,900.0	6,943.2	10,020.7	7,030.0	55.9	56.2	105.52	2,594.4	407.1	324.2	215.9	108.29	2.994	
10,000.0	6,943.3	10,120.7	7,029.6	57.8	58.0	105.46	2,694.4	407.1	324.1	212.2	111.87	2.897	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-301 - Wellbore #1 - Plan #1 (7-31-14)													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	6,943.3	10,220.7	7,029.3	59.6	59.9	105.39	2,794.4	407.1	324.0	208.5	115.46	2.806		
10,200.0	6,943.4	10,320.7	7,029.0	61.5	61.7	105.32	2,894.4	407.1	323.9	204.8	119.06	2.720		
10,300.0	6,943.4	10,420.7	7,028.6	63.3	63.6	105.26	2,994.4	407.1	323.7	201.1	122.68	2.639		
10,400.0	6,943.5	10,520.7	7,028.3	65.2	65.4	105.19	3,094.4	407.1	323.6	197.3	126.30	2.563		
10,500.0	6,943.5	10,620.7	7,028.0	67.0	67.3	105.13	3,194.4	407.1	323.5	193.6	129.93	2.490		
10,600.0	6,943.6	10,720.7	7,027.6	68.9	69.1	105.06	3,294.4	407.1	323.4	189.9	133.57	2.421		
10,700.0	6,943.6	10,820.7	7,027.3	70.7	71.0	105.00	3,394.4	407.1	323.3	186.1	137.22	2.356		
10,800.0	6,943.7	10,920.7	7,027.0	72.6	72.8	104.93	3,494.4	407.1	323.2	182.4	140.88	2.294		
10,900.0	6,943.7	11,020.7	7,026.6	74.5	74.7	104.87	3,594.4	407.1	323.1	178.6	144.55	2.236		
11,000.0	6,943.8	11,120.7	7,026.3	76.3	76.6	104.80	3,694.4	407.1	323.0	174.8	148.22	2.180		
11,100.0	6,943.8	11,220.7	7,026.0	78.2	78.4	104.73	3,794.4	407.1	322.9	171.1	151.90	2.126		
11,200.0	6,943.9	11,320.7	7,025.6	80.1	80.3	104.67	3,894.4	407.1	322.9	167.3	155.58	2.075		
11,300.0	6,943.9	11,420.7	7,025.3	82.0	82.2	104.60	3,994.4	407.1	322.8	163.5	159.27	2.026		
11,371.7	6,944.0	11,492.4	7,025.1	83.3	83.5	104.55	4,066.1	407.1	322.7	160.8	161.92	1.993		
11,400.0	6,944.0	11,513.9	7,025.0	83.9	83.9	104.54	4,087.5	407.1	322.7	159.9	162.84	1.982		
11,408.0	6,944.0	11,513.9	7,025.0	84.0	83.9	104.54	4,087.5	407.1	323.0	160.0	162.98	1.982 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	89.99	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	89.99	89.99	0.0	30.7	30.7	30.5	0.22	136.494	
200.0	200.0	200.0	200.0	0.3	0.3	89.99	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	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	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	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	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	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	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	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	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	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	89.99	0.0	30.7	30.7	25.5	5.17	5.935 CC, ES	
1,300.0	1,300.0	1,299.6	1,299.6	2.8	2.8	93.00	93.00	-1.6	31.2	31.3	25.7	5.59	5.596	
1,400.0	1,400.0	1,399.0	1,398.8	3.0	3.0	101.24	101.24	-6.5	32.9	33.6	27.6	5.99	5.603	
1,500.0	1,500.0	1,498.1	1,497.5	3.2	3.1	-61.43	-61.43	-14.7	35.6	37.8	31.4	6.37	5.931	
1,600.0	1,599.8	1,596.9	1,595.6	3.4	3.4	-54.97	-54.97	-26.0	39.5	43.2	36.4	6.73	6.410	
1,700.0	1,699.5	1,696.0	1,693.6	3.6	3.6	-50.78	-50.78	-40.2	44.3	49.1	41.9	7.12	6.895	
1,800.0	1,798.7	1,796.0	1,792.3	3.8	3.8	-49.97	-49.97	-55.0	49.3	53.3	45.7	7.52	7.077	
1,900.0	1,897.6	1,895.9	1,891.1	4.0	4.1	-51.62	-51.62	-69.7	54.3	55.6	47.6	7.98	6.964	
2,000.0	1,996.3	1,995.9	1,989.8	4.3	4.4	-53.43	-53.43	-84.5	59.3	57.7	49.2	8.47	6.812	
2,100.0	2,095.1	2,095.8	2,088.5	4.5	4.7	-55.11	-55.11	-99.2	64.3	59.9	50.9	8.99	6.661	
2,200.0	2,193.9	2,195.8	2,187.3	4.8	5.0	-56.68	-56.68	-114.0	69.3	62.2	52.6	9.54	6.513	
2,300.0	2,292.7	2,295.8	2,286.0	5.1	5.4	-58.13	-58.13	-128.8	74.3	64.5	54.3	10.12	6.372	
2,400.0	2,391.5	2,395.7	2,384.7	5.4	5.7	-59.48	-59.48	-143.5	79.3	66.8	56.1	10.71	6.237	
2,500.0	2,490.3	2,495.7	2,483.5	5.7	6.0	-60.74	-60.74	-158.3	84.3	69.2	57.8	11.32	6.109	
2,600.0	2,589.1	2,595.6	2,582.2	6.0	6.4	-61.91	-61.91	-173.0	89.3	71.5	59.6	11.94	5.990	
2,700.0	2,687.9	2,695.6	2,681.0	6.4	6.7	-63.01	-63.01	-187.8	94.3	74.0	61.4	12.58	5.878	
2,800.0	2,786.7	2,795.6	2,779.7	6.7	7.1	-64.04	-64.04	-202.6	99.3	76.4	63.2	13.24	5.773	
2,900.0	2,885.5	2,895.5	2,878.4	7.0	7.4	-65.00	-65.00	-217.3	104.3	78.9	65.0	13.90	5.676	
3,000.0	2,984.3	2,995.5	2,977.2	7.4	7.8	-65.91	-65.91	-232.1	109.3	81.4	66.8	14.57	5.586	
3,100.0	3,083.1	3,095.4	3,075.9	7.7	8.1	-66.76	-66.76	-246.8	114.3	83.9	68.7	15.25	5.501	
3,200.0	3,181.9	3,195.4	3,174.7	8.1	8.5	-67.56	-67.56	-261.6	119.3	86.4	70.5	15.94	5.423	
3,300.0	3,280.7	3,295.4	3,273.4	8.4	8.8	-68.32	-68.32	-276.4	124.3	89.0	72.4	16.63	5.350	
3,400.0	3,379.5	3,395.3	3,372.1	8.8	9.2	-69.03	-69.03	-291.1	129.3	91.5	74.2	17.33	5.282	
3,500.0	3,478.3	3,495.3	3,470.9	9.1	9.6	-69.70	-69.70	-305.9	134.3	94.1	76.1	18.03	5.219	
3,600.0	3,577.1	3,595.2	3,569.6	9.5	9.9	-70.34	-70.34	-320.7	139.3	96.7	78.0	18.74	5.160	
3,700.0	3,675.9	3,695.2	3,668.3	9.8	10.3	-70.95	-70.95	-335.4	144.3	99.3	79.8	19.45	5.104	
3,800.0	3,774.7	3,795.2	3,767.1	10.2	10.7	-71.52	-71.52	-350.2	149.3	101.9	81.7	20.17	5.053	
3,900.0	3,873.5	3,895.1	3,865.8	10.5	11.0	-72.07	-72.07	-364.9	154.3	104.5	83.6	20.89	5.004	
4,000.0	3,972.3	3,995.1	3,964.6	10.9	11.4	-72.59	-72.59	-379.7	159.3	107.2	85.6	21.61	4.959	
4,100.0	4,071.1	4,095.1	4,063.3	11.2	11.8	-73.08	-73.08	-394.5	164.3	109.8	87.5	22.33	4.916	
4,200.0	4,169.9	4,195.0	4,162.0	11.6	12.1	-73.55	-73.55	-409.2	169.3	112.4	89.4	23.06	4.876	
4,300.0	4,268.7	4,295.0	4,260.8	12.0	12.5	-74.00	-74.00	-424.0	174.3	115.1	91.3	23.79	4.838	
4,400.0	4,367.5	4,394.9	4,359.5	12.3	12.9	-74.43	-74.43	-438.7	179.3	117.7	93.2	24.52	4.803	
4,500.0	4,466.3	4,494.9	4,458.3	12.7	13.2	-74.84	-74.84	-453.5	184.3	120.4	95.2	25.25	4.769	
4,600.0	4,565.1	4,594.9	4,557.0	13.1	13.6	-75.23	-75.23	-468.3	189.3	123.1	97.1	25.98	4.738	
4,700.0	4,663.9	4,694.8	4,655.7	13.4	14.0	-75.61	-75.61	-483.0	194.3	125.8	99.0	26.71	4.708	
4,800.0	4,762.7	4,794.8	4,754.5	13.8	14.3	-75.97	-75.97	-497.8	199.3	128.4	101.0	27.45	4.679	
4,900.0	4,861.5	4,894.7	4,853.2	14.2	14.7	-76.31	-76.31	-512.5	204.3	131.1	102.9	28.19	4.652	
5,000.0	4,960.3	4,994.7	4,951.9	14.5	15.1	-76.65	-76.65	-527.3	209.3	133.8	104.9	28.92	4.627	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,059.1	5,094.7	5,050.7	14.9	15.5	-76.96	-542.1	214.3	136.5	106.8	29.66	4.602		
5,200.0	5,157.9	5,194.6	5,149.4	15.3	15.8	-77.27	-556.8	219.3	139.2	108.8	30.40	4.579		
5,300.0	5,256.7	5,294.6	5,248.2	15.6	16.2	-77.56	-571.6	224.3	141.9	110.8	31.14	4.557		
5,400.0	5,355.5	5,394.5	5,346.9	16.0	16.6	-77.85	-586.4	229.3	144.6	112.7	31.88	4.536		
5,500.0	5,454.3	5,494.5	5,445.6	16.4	16.9	-78.12	-601.1	234.3	147.3	114.7	32.62	4.516		
5,600.0	5,553.1	5,594.5	5,544.4	16.7	17.3	-78.38	-615.9	239.3	150.0	116.7	33.36	4.497		
5,700.0	5,652.1	5,696.2	5,645.1	17.0	17.6	-78.61	-629.5	243.9	152.5	118.5	33.99	4.487		
5,800.0	5,751.6	5,798.2	5,746.5	17.3	17.9	-78.77	-639.8	247.4	154.4	119.9	34.45	4.481		
5,900.0	5,851.3	5,900.2	5,848.3	17.5	18.1	-78.88	-646.6	249.7	155.7	120.8	34.85	4.466		
6,000.0	5,951.2	6,002.3	5,950.3	17.6	18.2	-78.93	-650.0	250.8	156.3	121.1	35.18	4.442		
6,100.0	6,051.2	6,103.3	6,051.2	17.8	18.4	92.67	-650.4	251.0	156.3	120.9	35.48	4.406		
6,200.0	6,151.2	6,203.3	6,151.2	17.9	18.5	92.67	-650.4	251.0	156.3	120.6	35.75	4.373		
6,208.0	6,159.2	6,211.2	6,159.2	17.9	18.5	92.69	-650.4	251.0	156.4	120.6	35.77	4.371		
6,300.0	6,251.1	6,303.2	6,251.1	18.0	18.6	93.94	-650.4	251.0	156.6	120.7	35.90	4.361		
6,400.0	6,349.8	6,401.8	6,349.8	18.0	18.8	99.51	-650.4	251.0	158.5	123.0	35.51	4.462		
6,500.0	6,445.4	6,502.7	6,450.5	17.9	18.9	107.92	-646.8	251.0	164.7	130.2	34.47	4.777		
6,600.0	6,536.6	6,608.4	6,554.7	17.7	18.9	115.71	-629.2	251.0	174.4	141.4	33.01	5.285		
6,700.0	6,621.5	6,718.3	6,659.4	17.5	18.7	122.42	-595.9	251.0	186.6	155.3	31.28	5.966		
6,800.0	6,698.9	6,832.7	6,762.1	17.2	18.5	127.98	-545.8	251.0	200.0	170.6	29.43	6.797		
6,900.0	6,767.4	6,951.7	6,859.6	17.0	18.2	132.46	-478.0	251.0	213.6	186.0	27.62	7.734		
7,000.0	6,825.8	7,075.1	6,948.5	16.8	17.9	135.96	-392.5	251.0	226.3	200.3	26.02	8.696		
7,100.0	6,873.1	7,202.6	7,024.6	16.8	17.6	138.57	-290.4	251.0	237.2	212.3	24.83	9.551		
7,200.0	6,908.5	7,333.6	7,084.0	16.9	17.5	140.38	-173.8	251.0	245.5	221.2	24.25	10.124		
7,300.0	6,931.4	7,467.1	7,123.2	17.2	17.7	141.44	-46.4	251.0	250.7	226.3	24.41	10.269		
7,400.0	6,941.4	7,601.9	7,139.6	17.7	18.2	141.78	87.3	251.0	252.4	227.1	25.36	9.955		
7,409.2	6,941.8	7,614.4	7,140.0	17.7	18.2	141.77	99.7	251.0	252.4	226.9	25.47	9.909		
7,500.0	6,942.0	7,707.3	7,140.7	18.3	18.8	141.84	192.6	251.0	252.8	226.3	26.46	9.554		
7,600.0	6,942.0	7,807.3	7,141.5	19.2	19.7	141.94	292.6	251.0	253.3	225.7	27.66	9.159		
7,700.0	6,942.1	7,907.2	7,142.2	20.2	20.6	142.04	392.6	251.0	253.9	224.8	29.04	8.741		
7,800.0	6,942.1	8,007.2	7,143.0	21.3	21.7	142.13	492.6	251.0	254.4	223.8	30.58	8.319		
7,900.0	6,942.2	8,107.2	7,143.7	22.5	23.0	142.23	592.6	251.0	255.0	222.7	32.26	7.905		
8,000.0	6,942.2	8,207.2	7,144.5	23.8	24.3	142.33	692.6	251.0	255.5	221.5	34.04	7.506		
8,100.0	6,942.3	8,307.2	7,145.2	25.2	25.6	142.42	792.6	251.0	256.1	220.2	35.92	7.129		
8,200.0	6,942.3	8,407.2	7,146.0	26.7	27.1	142.52	892.6	251.0	256.6	218.8	37.88	6.776		
8,300.0	6,942.4	8,507.2	7,146.7	28.2	28.6	142.61	992.6	251.0	257.2	217.3	39.90	6.446		
8,400.0	6,942.4	8,607.2	7,147.5	29.8	30.1	142.70	1,092.6	251.0	257.8	215.8	41.97	6.141		
8,500.0	6,942.5	8,707.2	7,148.2	31.4	31.7	142.80	1,192.6	251.0	258.3	214.2	44.09	5.858		
8,600.0	6,942.5	8,807.2	7,149.0	33.0	33.3	142.89	1,292.6	251.0	258.9	212.6	46.25	5.597		
8,700.0	6,942.6	8,907.2	7,149.7	34.7	35.0	142.99	1,392.6	251.0	259.4	211.0	48.44	5.356		
8,800.0	6,942.6	9,007.2	7,150.5	36.4	36.7	143.08	1,492.6	251.0	260.0	209.3	50.66	5.132		
8,900.0	6,942.7	9,107.2	7,151.2	38.1	38.4	143.17	1,592.5	251.0	260.5	207.6	52.89	4.926		
9,000.0	6,942.7	9,207.2	7,152.0	39.8	40.1	143.26	1,692.5	251.0	261.1	205.9	55.15	4.734		
9,100.0	6,942.8	9,307.2	7,152.7	41.6	41.8	143.35	1,792.5	251.0	261.7	204.2	57.42	4.557		
9,200.0	6,942.8	9,407.2	7,153.5	43.3	43.6	143.44	1,892.5	251.0	262.2	202.5	59.71	4.392		
9,300.0	6,942.9	9,507.2	7,154.2	45.1	45.3	143.54	1,992.5	251.0	262.8	200.8	62.00	4.238		
9,400.0	6,942.9	9,607.2	7,155.0	46.9	47.1	143.63	2,092.5	251.0	263.3	199.0	64.30	4.095		
9,500.0	6,943.0	9,707.2	7,155.7	48.7	48.9	143.72	2,192.5	251.0	263.9	197.3	66.61	3.962		
9,600.0	6,943.1	9,807.2	7,156.5	50.5	50.7	143.81	2,292.5	251.0	264.5	195.5	68.93	3.837		
9,700.0	6,943.1	9,907.2	7,157.2	52.3	52.5	143.89	2,392.5	251.0	265.0	193.8	71.25	3.720		
9,800.0	6,943.2	10,007.2	7,158.0	54.1	54.3	143.98	2,492.5	251.0	265.6	192.0	73.57	3.610		
9,900.0	6,943.2	10,107.2	7,158.7	55.9	56.1	144.07	2,592.5	251.0	266.2	190.3	75.90	3.507		

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Rieder 4N67W18Y Pad Sec.18-T4N-R67W - Rieder 18Y-441 - Wellbore #1 - Plan #1 (7-31-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,000.0	6,943.3	10,207.2	7,159.5	57.8	58.0	144.16	2,692.5	251.0	266.7	188.5	78.23	3.410		
10,100.0	6,943.3	10,307.2	7,160.2	59.6	59.8	144.25	2,792.5	251.0	267.3	186.7	80.55	3.318		
10,200.0	6,943.4	10,407.2	7,161.0	61.5	61.6	144.33	2,892.5	251.0	267.9	185.0	82.88	3.232		
10,300.0	6,943.4	10,507.2	7,161.7	63.3	63.5	144.42	2,992.5	251.0	268.4	183.2	85.21	3.150		
10,400.0	6,943.5	10,607.2	7,162.5	65.2	65.3	144.51	3,092.5	251.0	269.0	181.5	87.54	3.073		
10,500.0	6,943.5	10,707.2	7,163.2	67.0	67.2	144.59	3,192.5	251.0	269.6	179.7	89.86	3.000		
10,600.0	6,943.6	10,807.2	7,164.0	68.9	69.0	144.68	3,292.5	251.0	270.1	177.9	92.19	2.930		
10,700.0	6,943.6	10,907.2	7,164.7	70.7	70.9	144.77	3,392.5	251.0	270.7	176.2	94.51	2.864		
10,800.0	6,943.7	11,007.2	7,165.5	72.6	72.8	144.85	3,492.4	251.0	271.3	174.4	96.83	2.802		
10,900.0	6,943.7	11,107.2	7,166.2	74.5	74.6	144.94	3,592.4	251.0	271.8	172.7	99.14	2.742		
11,000.0	6,943.8	11,207.2	7,167.0	76.3	76.5	145.02	3,692.4	251.0	272.4	171.0	101.46	2.685		
11,100.0	6,943.8	11,307.2	7,167.7	78.2	78.4	145.10	3,792.4	251.0	273.0	169.2	103.77	2.631		
11,200.0	6,943.9	11,407.2	7,168.5	80.1	80.2	145.19	3,892.4	251.0	273.6	167.5	106.07	2.579		
11,300.0	6,943.9	11,507.2	7,169.2	82.0	82.1	145.27	3,992.4	251.0	274.1	165.7	108.38	2.529		
11,400.0	6,944.0	11,607.2	7,170.0	83.9	84.0	145.35	4,092.4	251.0	274.7	164.0	110.68	2.482		
11,408.0	6,944.0	11,609.6	7,170.0	84.0	84.0	145.36	4,094.8	251.0	274.8	164.0	110.80	2.480 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rieder 18Y-241
<b>Project:</b>	SEC.18-T4N-R67W	<b>TVD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Reference Site:</b>	Rieder 4N67W18Y Pad Sec.18-T4N-R67W	<b>MD Reference:</b>	WELL @ 4821.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Rieder 18Y-241	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (7-31-14)	<b>Offset TVD Reference:</b>	Offset Datum

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

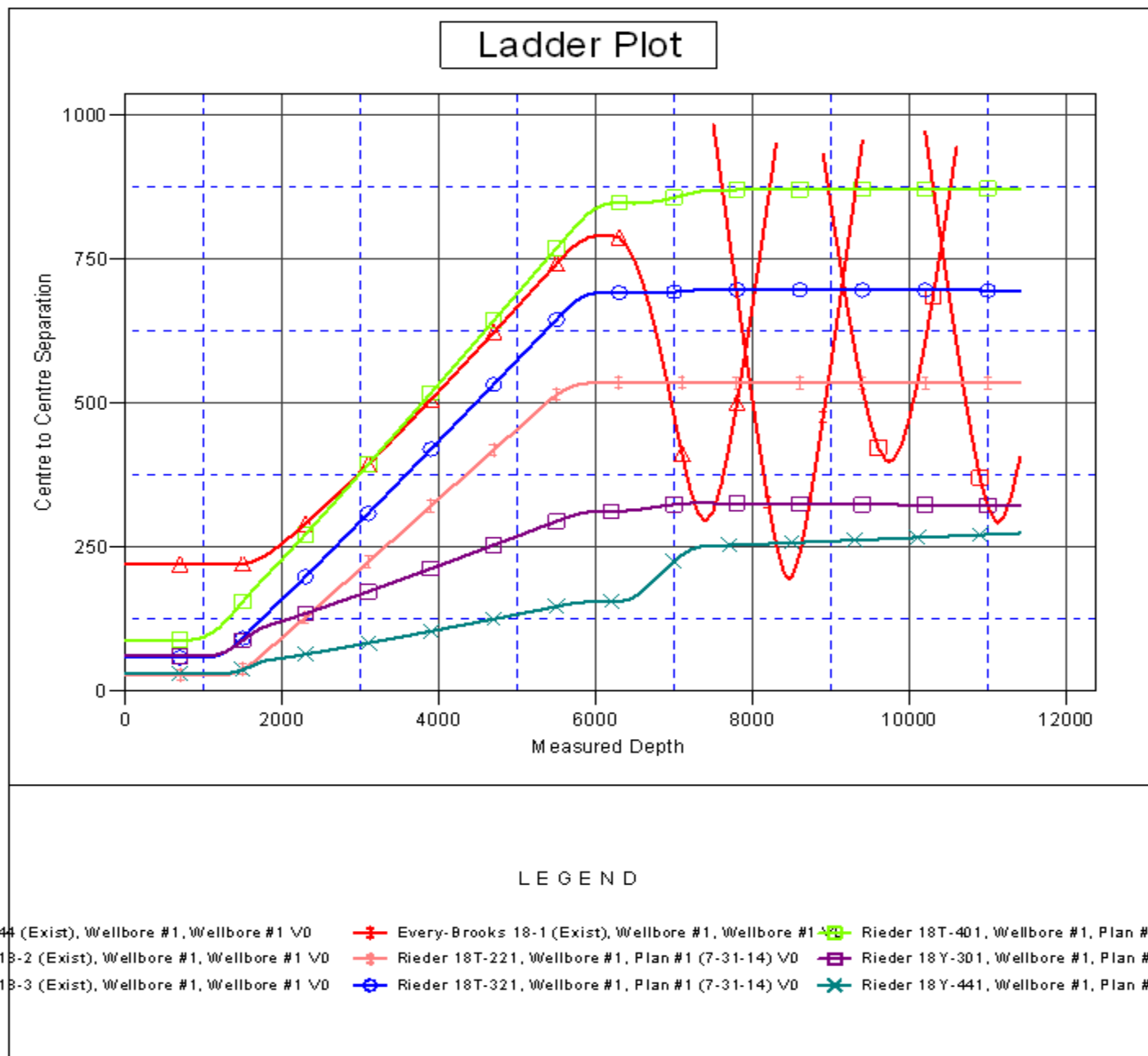
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Rieder 18Y-241

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.37°



Coordinates are relative to: Rieder 18Y-241  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.37°

