

# PETROLEUM DEVELOPMENT CORP Weld County CO

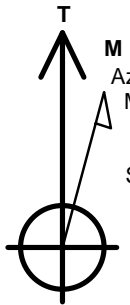
Well Name: **R&R Farms 29I-401**

Surface Location: R&R Farms 5N63W29L Pad Sec.29-T5N-R63W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4575.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1377496.01	3287397.23	40.365040	-104.468600	
RKB - 13' WELL @ 4588.0ft (RKB - 13')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 641'FSL, 284'FWL	1.0	0.0	0.0	Point
BHL 500'FNL, 87'FWL	6570.0	4116.7	-228.5	Point



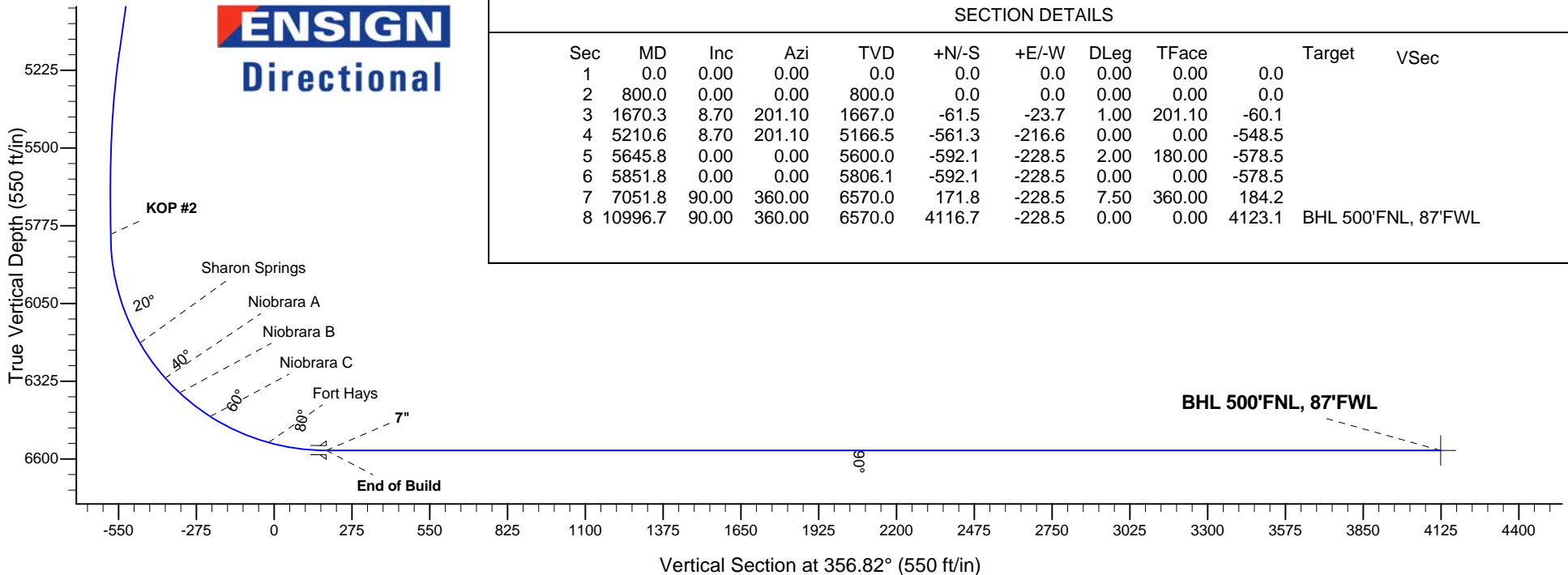
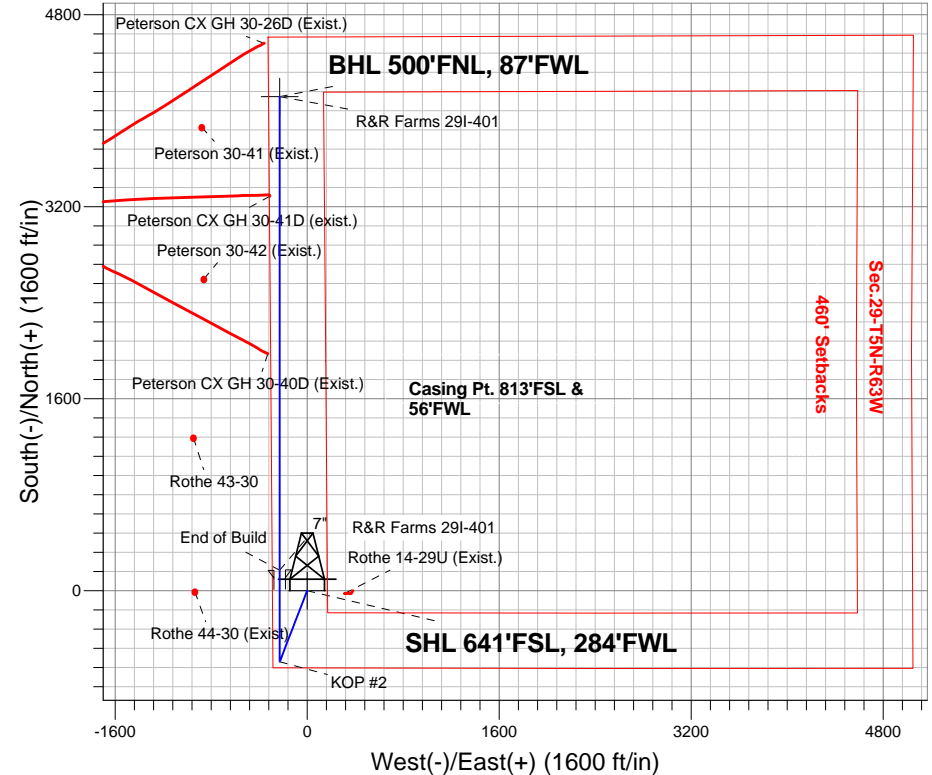
Azimuths to True North  
 Magnetic North: 8.19°

Magnetic Field  
 Strength: 52743.5snT  
 Dip Angle: 66.94°  
 Date: 4/9/2015  
 Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
800.0	800.0	KOP #1
5806.0	5851.8	KOP #2
6570.0	7051.8	End of Build

R&R Farms 5N63W29L Pad Sec.29-T5N-R63W  
 R&R Farms 29I-401  
 Plan #2 (4-10-15)



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1670.3	8.70	201.10	1667.0	-61.5	-23.7	1.00	201.10	-60.1	
4	5210.6	8.70	201.10	5166.5	-561.3	-216.6	0.00	0.00	-548.5	
5	5645.8	0.00	0.00	5600.0	-592.1	-228.5	2.00	180.00	-578.5	
6	5851.8	0.00	0.00	5806.1	-592.1	-228.5	0.00	0.00	-578.5	
7	7051.8	90.00	360.00	6570.0	171.8	-228.5	7.50	360.00	184.2	
8	10996.7	90.00	360.00	6570.0	4116.7	-228.5	0.00	0.00	4123.1	BHL 500'FNL, 87'FWL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.29-T5N-R63W**

**R&R Farms 5N63W29L Pad Sec.29-T5N-R63W**

**R&R Farms 29I-401**

**Wellbore #1**

**Plan: Plan #2 (4-10-15)**

## **Standard Planning Report**

**10 April, 2015**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Project:</b>	SEC.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	R&R Farms 29I-401	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-10-15)		

<b>Project</b>	SEC.29-T5N-R63W, Weld County, Colorado		
<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						R&R Farms 5N63W29L Pad Sec.29-T5N-R63W											
Site Position:						Northing:			1,377,077.43ft			Latitude:			40.363870		
From:			Lat/Long			Easting:			3,288,054.21ft			Longitude:			-104.466260		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.67 °		

Well	R&R Farms 29I-401					
Well Position	+N/-S	426.2 ft	Northing:	1,377,496.01 ft	Latitude:	40.365040
	+E/-W	-652.1 ft	Easting:	3,287,397.23 ft	Longitude:	-104.468600
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,575.0 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	4/9/2015	8.19	66.94	52,743

<b>Design</b>	Plan #2 (4-10-15)			
<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	356.82

<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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,670.3	8.70	201.10	1,667.0	-61.5	-23.7	1.00	1.00	0.00	201.10	
5,210.6	8.70	201.10	5,166.5	-561.3	-216.6	0.00	0.00	0.00	0.00	
5,645.8	0.00	0.00	5,600.0	-592.1	-228.5	2.00	-2.00	0.00	180.00	
5,851.8	0.00	0.00	5,806.1	-592.1	-228.5	0.00	0.00	0.00	0.00	
7,051.8	90.00	360.00	6,570.0	171.8	-228.5	7.50	7.50	0.00	360.00	
10,996.7	90.00	360.00	6,570.0	4,116.7	-228.5	0.00	0.00	0.00	0.00	BHL 500'FNL, 87°F

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Project:</b>	SEC.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	R&R Farms 29I-401	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-10-15)		

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
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
<b>KOP #1</b>									
900.0	1.00	201.10	900.0	-0.8	-0.3	-0.8	1.00	1.00	0.00
1,000.0	2.00	201.10	1,000.0	-3.3	-1.3	-3.2	1.00	1.00	0.00
1,100.0	3.00	201.10	1,099.9	-7.3	-2.8	-7.2	1.00	1.00	0.00
1,200.0	4.00	201.10	1,199.7	-13.0	-5.0	-12.7	1.00	1.00	0.00
1,300.0	5.00	201.10	1,299.4	-20.3	-7.8	-19.9	1.00	1.00	0.00
1,400.0	6.00	201.10	1,398.9	-29.3	-11.3	-28.6	1.00	1.00	0.00
1,500.0	7.00	201.10	1,498.3	-39.8	-15.4	-38.9	1.00	1.00	0.00
1,600.0	8.00	201.10	1,597.4	-52.0	-20.1	-50.8	1.00	1.00	0.00
1,670.3	8.70	201.10	1,667.0	-61.5	-23.7	-60.1	1.00	1.00	0.00
1,700.0	8.70	201.10	1,696.3	-65.7	-25.4	-64.2	0.00	0.00	0.00
1,800.0	8.70	201.10	1,795.2	-79.9	-30.8	-78.0	0.00	0.00	0.00
1,900.0	8.70	201.10	1,894.0	-94.0	-36.3	-91.8	0.00	0.00	0.00
2,000.0	8.70	201.10	1,992.9	-108.1	-41.7	-105.6	0.00	0.00	0.00
2,100.0	8.70	201.10	2,091.7	-122.2	-47.2	-119.4	0.00	0.00	0.00
2,200.0	8.70	201.10	2,190.6	-136.3	-52.6	-133.2	0.00	0.00	0.00
2,300.0	8.70	201.10	2,289.4	-150.4	-58.0	-147.0	0.00	0.00	0.00
2,400.0	8.70	201.10	2,388.3	-164.6	-63.5	-160.8	0.00	0.00	0.00
2,500.0	8.70	201.10	2,487.1	-178.7	-68.9	-174.6	0.00	0.00	0.00
2,600.0	8.70	201.10	2,586.0	-192.8	-74.4	-188.4	0.00	0.00	0.00
2,700.0	8.70	201.10	2,684.8	-206.9	-79.8	-202.2	0.00	0.00	0.00
2,800.0	8.70	201.10	2,783.6	-221.0	-85.3	-216.0	0.00	0.00	0.00
2,900.0	8.70	201.10	2,882.5	-235.1	-90.7	-229.8	0.00	0.00	0.00
3,000.0	8.70	201.10	2,981.3	-249.3	-96.2	-243.5	0.00	0.00	0.00
3,100.0	8.70	201.10	3,080.2	-263.4	-101.6	-257.3	0.00	0.00	0.00
3,200.0	8.70	201.10	3,179.0	-277.5	-107.1	-271.1	0.00	0.00	0.00
3,300.0	8.70	201.10	3,277.9	-291.6	-112.5	-284.9	0.00	0.00	0.00
3,311.2	8.70	201.10	3,289.0	-293.2	-113.1	-286.5	0.00	0.00	0.00
<b>Parkman</b>									
3,400.0	8.70	201.10	3,376.7	-305.7	-118.0	-298.7	0.00	0.00	0.00
3,500.0	8.70	201.10	3,475.6	-319.8	-123.4	-312.5	0.00	0.00	0.00
3,600.0	8.70	201.10	3,574.4	-334.0	-128.9	-326.3	0.00	0.00	0.00
3,700.0	8.70	201.10	3,673.3	-348.1	-134.3	-340.1	0.00	0.00	0.00
3,800.0	8.70	201.10	3,772.1	-362.2	-139.8	-353.9	0.00	0.00	0.00
3,900.0	8.70	201.10	3,871.0	-376.3	-145.2	-367.7	0.00	0.00	0.00
4,000.0	8.70	201.10	3,969.8	-390.4	-150.6	-381.5	0.00	0.00	0.00
4,020.4	8.70	201.10	3,990.0	-393.3	-151.8	-384.3	0.00	0.00	0.00
<b>Sussex</b>									
4,100.0	8.70	201.10	4,068.7	-404.5	-156.1	-395.3	0.00	0.00	0.00
4,200.0	8.70	201.10	4,167.5	-418.7	-161.5	-409.1	0.00	0.00	0.00
4,300.0	8.70	201.10	4,266.4	-432.8	-167.0	-422.9	0.00	0.00	0.00
4,400.0	8.70	201.10	4,365.2	-446.9	-172.4	-436.7	0.00	0.00	0.00
4,495.9	8.70	201.10	4,460.0	-460.4	-177.7	-449.9	0.00	0.00	0.00

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<b>Project:</b>	SEC.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site:</b>	R&R Farms 5N63W29L Pad	<b>North Reference:</b>	True
	Sec.29-T5N-R63W	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well:</b>	R&R Farms 29I-401		
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-10-15)		

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)
<b>Shannon</b>									
4,500.0	8.70	201.10	4,464.1	-461.0	-177.9	-450.4	0.00	0.00	0.00
4,600.0	8.70	201.10	4,562.9	-475.1	-183.3	-464.2	0.00	0.00	0.00
4,700.0	8.70	201.10	4,661.8	-489.2	-188.8	-478.0	0.00	0.00	0.00
4,800.0	8.70	201.10	4,760.6	-503.4	-194.2	-491.8	0.00	0.00	0.00
4,900.0	8.70	201.10	4,859.5	-517.5	-199.7	-505.6	0.00	0.00	0.00
5,000.0	8.70	201.10	4,958.3	-531.6	-205.1	-519.4	0.00	0.00	0.00
5,100.0	8.70	201.10	5,057.2	-545.7	-210.6	-533.2	0.00	0.00	0.00
5,200.0	8.70	201.10	5,156.0	-559.8	-216.0	-547.0	0.00	0.00	0.00
5,210.6	8.70	201.10	5,166.5	-561.3	-216.6	-548.5	0.00	0.00	0.00
5,300.0	6.92	201.10	5,255.1	-572.7	-221.0	-559.5	2.00	-2.00	0.00
5,400.0	4.92	201.10	5,354.5	-582.3	-224.7	-568.9	2.00	-2.00	0.00
5,500.0	2.92	201.10	5,454.3	-588.6	-227.1	-575.2	2.00	-2.00	0.00
5,600.0	0.92	201.10	5,554.2	-591.8	-228.3	-578.2	2.00	-2.00	0.00
5,645.8	0.00	0.00	5,600.0	-592.1	-228.5	-578.5	2.00	-2.00	0.00
5,700.0	0.00	0.00	5,654.2	-592.1	-228.5	-578.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,754.2	-592.1	-228.5	-578.5	0.00	0.00	0.00
5,851.8	0.00	0.00	5,806.0	-592.1	-228.5	-578.5	0.00	0.00	0.00
<b>KOP #2</b>									
5,900.0	3.61	360.00	5,854.2	-590.6	-228.5	-577.0	7.50	7.50	0.00
6,000.0	11.11	360.00	5,953.3	-577.8	-228.5	-564.2	7.50	7.50	0.00
6,100.0	18.61	360.00	6,049.9	-552.1	-228.5	-538.6	7.50	7.50	0.00
6,200.0	26.11	360.00	6,142.3	-514.1	-228.5	-500.7	7.50	7.50	0.00
6,254.1	30.17	360.00	6,190.0	-488.6	-228.5	-475.2	7.50	7.50	0.00
<b>Sharon Springs</b>									
6,300.0	33.61	360.00	6,229.0	-464.4	-228.5	-451.0	7.50	7.50	0.00
6,400.0	41.11	360.00	6,308.4	-403.7	-228.5	-390.4	7.50	7.50	0.00
6,407.5	41.67	360.00	6,314.0	-398.8	-228.5	-385.5	7.50	7.50	0.00
<b>Niobrara A</b>									
6,480.3	47.14	360.00	6,366.0	-347.8	-228.5	-334.6	7.50	7.50	0.00
<b>Niobrara B</b>									
6,500.0	48.61	360.00	6,379.2	-333.2	-228.5	-320.1	7.50	7.50	0.00
6,600.0	56.11	360.00	6,440.2	-254.1	-228.5	-241.1	7.50	7.50	0.00
6,617.8	57.45	360.00	6,450.0	-239.2	-228.5	-226.2	7.50	7.50	0.00
<b>Niobrara C</b>									
6,700.0	63.61	360.00	6,490.4	-167.7	-228.5	-154.8	7.50	7.50	0.00
6,800.0	71.11	360.00	6,528.9	-75.5	-228.5	-62.7	7.50	7.50	0.00
6,844.4	74.44	360.00	6,542.0	-33.1	-228.5	-20.4	7.50	7.50	0.00
<b>Fort Hays</b>									
6,900.0	78.61	360.00	6,555.0	21.0	-228.5	33.6	7.50	7.50	0.00
7,000.0	86.11	360.00	6,568.2	120.1	-228.5	132.5	7.50	7.50	0.00
7,051.8	90.00	360.00	6,570.0	171.8	-228.5	184.2	7.50	7.50	0.00
<b>End of Build - Codell - 7"</b>									
7,100.0	90.00	360.00	6,570.0	220.0	-228.5	232.3	0.01	0.01	0.00
7,200.0	90.00	360.00	6,570.0	320.0	-228.5	332.2	0.00	0.00	0.00
7,300.0	90.00	360.00	6,570.0	420.0	-228.5	432.0	0.00	0.00	0.00
7,400.0	90.00	360.00	6,570.0	520.0	-228.5	531.9	0.00	0.00	0.00
7,500.0	90.00	360.00	6,570.0	620.0	-228.5	631.7	0.00	0.00	0.00
7,600.0	90.00	360.00	6,570.0	720.0	-228.5	731.6	0.00	0.00	0.00
7,700.0	90.00	360.00	6,570.0	820.0	-228.5	831.4	0.00	0.00	0.00
7,800.0	90.00	360.00	6,570.0	920.0	-228.5	931.3	0.00	0.00	0.00

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<b>Project:</b>	SEC.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site:</b>	R&R Farms 5N63W29L Pad	<b>North Reference:</b>	True
	Sec.29-T5N-R63W	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well:</b>	R&R Farms 29I-401		
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-10-15)		

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)
7,900.0	90.00	360.00	6,570.0	1,020.0	-228.5	1,031.1	0.00	0.00	0.00
8,000.0	90.00	360.00	6,570.0	1,120.0	-228.5	1,130.9	0.00	0.00	0.00
8,100.0	90.00	360.00	6,570.0	1,220.0	-228.5	1,230.8	0.00	0.00	0.00
8,200.0	90.00	360.00	6,570.0	1,320.0	-228.5	1,330.6	0.00	0.00	0.00
8,300.0	90.00	360.00	6,570.0	1,420.0	-228.5	1,430.5	0.00	0.00	0.00
8,400.0	90.00	360.00	6,570.0	1,520.0	-228.5	1,530.3	0.00	0.00	0.00
8,500.0	90.00	360.00	6,570.0	1,620.0	-228.5	1,630.2	0.00	0.00	0.00
8,600.0	90.00	360.00	6,570.0	1,720.0	-228.5	1,730.0	0.00	0.00	0.00
8,700.0	90.00	360.00	6,570.0	1,820.0	-228.5	1,829.9	0.00	0.00	0.00
8,800.0	90.00	360.00	6,570.0	1,920.0	-228.5	1,929.7	0.00	0.00	0.00
8,900.0	90.00	360.00	6,570.0	2,020.0	-228.5	2,029.6	0.00	0.00	0.00
9,000.0	90.00	360.00	6,570.0	2,120.0	-228.5	2,129.4	0.00	0.00	0.00
9,100.0	90.00	360.00	6,570.0	2,220.0	-228.5	2,229.3	0.00	0.00	0.00
9,200.0	90.00	360.00	6,570.0	2,320.0	-228.5	2,329.1	0.00	0.00	0.00
9,300.0	90.00	360.00	6,570.0	2,420.0	-228.5	2,429.0	0.00	0.00	0.00
9,400.0	90.00	360.00	6,570.0	2,520.0	-228.5	2,528.8	0.00	0.00	0.00
9,500.0	90.00	360.00	6,570.0	2,620.0	-228.5	2,628.6	0.00	0.00	0.00
9,600.0	90.00	360.00	6,570.0	2,720.0	-228.5	2,728.5	0.00	0.00	0.00
9,700.0	90.00	360.00	6,570.0	2,820.0	-228.5	2,828.3	0.00	0.00	0.00
9,800.0	90.00	360.00	6,570.0	2,920.0	-228.5	2,928.2	0.00	0.00	0.00
9,900.0	90.00	360.00	6,570.0	3,020.0	-228.5	3,028.0	0.00	0.00	0.00
10,000.0	90.00	360.00	6,570.0	3,120.0	-228.5	3,127.9	0.00	0.00	0.00
10,100.0	90.00	360.00	6,570.0	3,220.0	-228.5	3,227.7	0.00	0.00	0.00
10,200.0	90.00	360.00	6,570.0	3,320.0	-228.5	3,327.6	0.00	0.00	0.00
10,300.0	90.00	360.00	6,570.0	3,420.0	-228.5	3,427.4	0.00	0.00	0.00
10,400.0	90.00	360.00	6,570.0	3,520.0	-228.5	3,527.3	0.00	0.00	0.00
10,500.0	90.00	360.00	6,570.0	3,620.0	-228.5	3,627.1	0.00	0.00	0.00
10,600.0	90.00	360.00	6,570.0	3,720.0	-228.5	3,727.0	0.00	0.00	0.00
10,700.0	90.00	360.00	6,570.0	3,820.0	-228.5	3,826.8	0.00	0.00	0.00
10,800.0	90.00	360.00	6,570.0	3,920.0	-228.5	3,926.6	0.00	0.00	0.00
10,900.0	90.00	360.00	6,570.0	4,020.0	-228.5	4,026.5	0.00	0.00	0.00
10,996.7	90.00	360.00	6,570.0	4,116.7	-228.5	4,123.1	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 500'FNL, 87'FWL - plan hits target center - Point	0.00	0.00	6,570.0	4,116.7	-228.5	1,381,609.63	3,287,120.91	40.376340	-104.469420
SHL 641'FSL, 284'FW - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,377,496.04	3,287,397.23	40.365040	-104.468600

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Project:</b>	SEC.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>North Reference:</b>	True
<b>Well:</b>	R&R Farms 29I-401	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (4-10-15)		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,051.8	6,570.0	7"	7	7-1/2

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,311.2	3,289.0	Parkman		0.00	
4,020.4	3,990.0	Sussex		0.00	
4,495.9	4,460.0	Shannon		0.00	
6,254.1	6,190.0	Sharon Springs		0.00	
6,407.5	6,314.0	Niobrara A		0.00	
6,480.3	6,366.0	Niobrara B		0.00	
6,617.8	6,450.0	Niobrara C		0.00	
6,844.4	6,542.0	Fort Hays		0.00	
7,051.8	6,570.0	Codell		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP #1
5,851.8	5,806.0	-592.1	-228.5	KOP #2
7,051.8	6,570.0	171.8	-228.5	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.29-T5N-R63W**

**R&R Farms 5N63W29L Pad Sec.29-T5N-R63W**

**R&R Farms 29I-401**

**Wellbore #1**

**Plan #2 (4-10-15)**

## **Anticollision Report**

**10 April, 2015**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2 (4-10-15)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 4/10/2015			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	10,996.7	Plan #2 (4-10-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Existing Wells Sec.29-T5N-R63W						
Rothe 14-29U (Exist.) - Wellbore #1 - Wellbore #1	1,001.9	990.4	373.1	369.6	104.215	CC, ES
Rothe 14-29U (Exist.) - Wellbore #1 - Wellbore #1	6,900.0	6,550.9	545.7	516.3	18.537	SF
Rothe 43-30 - Wellbore #1 - Wellbore #1	8,155.1	6,558.0	718.9	555.9	4.408	CC, ES
Rothe 43-30 - Wellbore #1 - Wellbore #1	8,200.0	6,558.0	720.3	556.5	4.397	SF
Rothe 44-30 (Exist.) - Wellbore #1 - Wellbore #1	6,871.0	6,535.7	707.9	560.9	4.818	CC, ES
Rothe 44-30 (Exist.) - Wellbore #1 - Wellbore #1	6,900.0	6,542.0	708.4	561.3	4.815	SF
Peterson CX GH 30-41D Pad Sec.30-T5N-R63W						
Peterson 30-41 (Exist.) - Wellbore #1 - Wellbore #1	10,741.7	6,570.0	649.2	438.8	3.086	CC, ES
Peterson 30-41 (Exist.) - Wellbore #1 - Wellbore #1	10,800.0	6,570.0	651.8	440.4	3.083	SF
Peterson 30-42 (Exist.) - Wellbore #1 - Wellbore #1	9,477.6	6,570.0	632.5	445.7	3.386	CC
Peterson 30-42 (Exist.) - Wellbore #1 - Wellbore #1	9,500.0	6,570.0	632.9	445.7	3.381	ES, SF
Peterson CX GH 30-26D - Wellbore #1 - Wellbore #1	10,996.7	7,195.3	465.1	348.7	3.994	CC, ES, SF
Peterson CX GH 30-40D - Wellbore #1 - Wellbore #1	8,856.7	7,195.6	101.3	25.8	1.342	Level 3, CC, ES, SF
Peterson CX GH 30-41D - Wellbore #1 - Wellbore #1	10,168.0	7,161.7	84.3	-3.2	0.963	Level 1, CC, ES, SF
R&R Farms 5N63W29L Pad Sec.29-T5N-R63W						
R&R Farms 29I-221 - Wellbore #1 - Plan #1 (4-10-15)	800.0	799.0	30.7	27.3	9.098	CC
R&R Farms 29I-221 - Wellbore #1 - Plan #1 (4-10-15)	900.0	899.0	31.0	27.2	8.171	ES
R&R Farms 29I-221 - Wellbore #1 - Plan #1 (4-10-15)	10,996.7	10,844.9	259.3	127.3	1.965	SF
R&R Farms 29I-321 - Wellbore #1 - Plan #2 (4-9-15)	800.0	799.0	61.3	57.9	18.196	CC
R&R Farms 29I-321 - Wellbore #1 - Plan #2 (4-9-15)	900.0	899.0	61.6	57.8	16.255	ES
R&R Farms 29I-321 - Wellbore #1 - Plan #2 (4-9-15)	10,996.7	10,908.8	417.4	255.3	2.575	SF
R&R Farms 29L-241 - Wellbore #1 - Plan #2 (4-9-15)	800.0	799.0	92.0	88.6	27.294	CC, ES
R&R Farms 29L-241 - Wellbore #1 - Plan #2 (4-9-15)	10,996.7	10,852.9	672.1	509.3	4.128	SF
R&R Farms 29L-301 - Wellbore #1 - Plan #2 (4-9-15)	200.0	199.0	150.5	149.8	223.911	CC, ES
R&R Farms 29L-301 - Wellbore #1 - Plan #2 (4-9-15)	4,800.0	4,679.9	981.1	952.0	33.742	SF
R&R Farms 29L-441 - Wellbore #1 - Plan #2 (4-9-15)	400.0	399.0	119.8	118.3	76.268	CC, ES
R&R Farms 29L-441 - Wellbore #1 - Plan #2 (4-9-15)	10,996.7	11,014.1	891.6	724.1	5.324	SF

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 291-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 291-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R63W - Rothe 14-29U (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 600-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
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		
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	381.8	382.1					
100.0	100.0	84.8	84.8	0.1	0.1	90.01	-0.1	381.7	381.7	381.5	0.21	1,826.605		
200.0	200.0	185.8	185.8	0.3	0.2	90.08	-0.5	381.3	381.3	380.8	0.55	695.291		
300.0	300.0	286.8	286.8	0.6	0.3	90.19	-1.3	380.7	380.7	379.8	0.89	428.773		
400.0	400.0	387.8	387.7	0.8	0.4	90.36	-2.4	379.8	379.9	378.6	1.23	309.477		
500.0	500.0	488.7	488.7	1.0	0.6	90.57	-3.8	378.7	378.8	377.2	1.57	241.713		
600.0	600.0	589.7	589.6	1.2	0.7	90.83	-5.5	377.3	377.4	375.5	1.91	197.952		
700.0	700.0	689.6	689.5	1.5	0.9	91.13	-7.4	375.8	375.9	373.6	2.34	160.786		
800.0	800.0	789.5	789.4	1.7	1.1	91.45	-9.5	374.3	374.5	371.7	2.78	134.667		
900.0	900.0	888.6	888.4	1.9	1.3	-109.46	-11.6	372.9	373.4	370.2	3.19	117.089		
1,000.0	1,000.0	988.5	988.4	2.1	1.5	-109.54	-13.5	371.7	373.1	369.6	3.57	104.433		
1,001.9	1,001.9	990.4	990.2	2.1	1.5	-109.54	-13.5	371.7	373.1	369.6	3.58	104.215 CC, ES		
1,100.0	1,099.9	1,087.6	1,087.4	2.3	1.7	-109.86	-15.4	370.6	373.5	369.6	3.97	94.138		
1,200.0	1,199.7	1,185.9	1,185.6	2.5	1.9	-110.46	-17.0	369.8	374.9	370.5	4.36	85.935		
1,300.0	1,299.4	1,285.4	1,285.2	2.7	2.1	-111.32	-18.5	369.4	377.2	372.4	4.77	79.015		
1,400.0	1,398.9	1,384.4	1,384.2	2.9	2.3	-112.43	-19.8	369.0	380.4	375.2	5.20	73.148		
1,500.0	1,498.3	1,482.7	1,482.5	3.1	2.5	-113.80	-20.7	368.8	384.6	379.0	5.64	68.170		
1,600.0	1,597.4	1,582.4	1,582.2	3.4	2.7	-115.42	-21.2	368.7	390.0	383.9	6.11	63.885		
1,700.0	1,696.3	1,682.3	1,682.1	3.7	2.9	-117.23	-21.8	368.5	396.3	389.7	6.58	60.187		
1,800.0	1,795.2	1,782.2	1,781.9	4.0	3.1	-119.07	-22.4	368.0	402.9	395.8	7.07	56.971		
1,900.0	1,894.0	1,882.1	1,881.8	4.3	3.4	-120.85	-23.0	367.3	409.7	402.2	7.56	54.165		
2,000.0	1,992.9	1,982.0	1,981.8	4.7	3.6	-122.57	-23.7	366.3	416.7	408.6	8.06	51.708		
2,100.0	2,091.7	2,081.4	2,081.1	5.0	3.8	-124.24	-24.3	365.2	423.8	415.3	8.55	49.548		
2,200.0	2,190.6	2,180.5	2,180.2	5.3	4.0	-125.88	-24.7	364.0	431.3	422.3	9.05	47.663		
2,300.0	2,289.4	2,279.6	2,279.3	5.7	4.2	-127.49	-24.9	362.6	439.1	429.5	9.54	46.016		
2,400.0	2,388.3	2,378.7	2,378.4	6.0	4.4	-129.07	-24.9	361.2	447.2	437.1	10.03	44.573		
2,500.0	2,487.1	2,477.7	2,477.4	6.4	4.6	-130.62	-24.7	359.7	455.5	445.0	10.52	43.306		
2,600.0	2,586.0	2,576.6	2,576.3	6.7	4.8	-132.13	-24.4	358.2	464.2	453.2	11.00	42.200		
2,700.0	2,684.8	2,675.5	2,675.1	7.1	5.0	-133.57	-24.1	356.6	473.2	461.8	11.48	41.224		
2,800.0	2,783.6	2,774.4	2,774.0	7.4	5.2	-134.96	-24.0	355.1	482.5	470.6	11.96	40.361		
2,900.0	2,882.5	2,873.3	2,873.0	7.8	5.4	-136.28	-23.8	353.6	492.1	479.7	12.43	39.593		
3,000.0	2,981.3	2,972.3	2,971.9	8.1	5.6	-137.54	-23.8	352.2	501.9	489.0	12.90	38.908		
3,100.0	3,080.2	3,070.7	3,070.4	8.5	5.9	-138.75	-23.8	350.7	511.9	498.6	13.37	38.302		
3,200.0	3,179.0	3,169.0	3,168.6	8.8	6.1	-139.91	-23.7	349.4	522.3	508.5	13.83	37.770		
3,300.0	3,277.9	3,267.2	3,266.8	9.2	6.3	-141.02	-23.5	348.2	533.1	518.8	14.29	37.303		
3,400.0	3,376.7	3,365.4	3,365.0	9.6	6.5	-142.08	-23.3	347.1	544.1	529.4	14.75	36.892		
3,500.0	3,475.6	3,463.5	3,463.1	9.9	6.7	-143.11	-23.1	346.2	555.5	540.3	15.21	36.530		
3,600.0	3,574.4	3,562.4	3,562.0	10.3	6.9	-144.10	-22.8	345.2	567.1	551.5	15.66	36.205		
3,700.0	3,673.3	3,661.8	3,661.4	10.6	7.1	-145.06	-22.5	344.2	578.8	562.7	16.12	35.904		
3,800.0	3,772.1	3,761.2	3,760.8	11.0	7.3	-145.98	-22.2	343.2	590.6	574.0	16.58	35.626		
3,900.0	3,871.0	3,860.6	3,860.2	11.4	7.5	-146.87	-22.0	342.0	602.4	585.4	17.03	35.370		
4,000.0	3,969.8	3,960.0	3,959.6	11.7	7.7	-147.72	-21.8	340.7	614.3	596.8	17.49	35.133		
4,100.0	4,068.7	4,061.0	4,060.5	12.1	7.9	-148.57	-21.6	339.3	626.2	608.2	17.94	34.901		
4,200.0	4,167.5	4,162.9	4,162.5	12.5	8.1	-149.41	-21.5	337.3	637.7	619.3	18.40	34.661		
4,300.0	4,266.4	4,265.0	4,264.5	12.8	8.4	-150.24	-21.6	334.8	648.9	630.0	18.85	34.419		
4,400.0	4,365.2	4,367.1	4,366.5	13.2	8.6	-151.07	-21.7	331.7	659.7	640.4	19.30	34.173		
4,500.0	4,464.1	4,469.2	4,468.6	13.6	8.8	-151.90	-21.9	328.1	670.2	650.5	19.76	33.926		
4,600.0	4,562.9	4,567.0	4,566.3	13.9	9.0	-152.68	-22.2	324.3	680.6	660.4	20.20	33.700		
4,700.0	4,661.8	4,662.9	4,662.2	14.3	9.2	-153.40	-22.5	321.2	691.5	670.9	20.63	33.514		
4,800.0	4,760.6	4,758.8	4,758.0	14.6	9.4	-154.06	-22.7	318.6	703.0	681.9	21.07	33.361		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R63W - Rothe 14-29U (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:		0.0 ft	
Survey Program: 600-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
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			
4,900.0	4,859.5	4,854.6	4,853.8	15.0	9.6	-154.67	-22.9	316.6	715.0	693.5	21.51	33.238			
5,000.0	4,958.3	4,950.4	4,949.6	15.4	9.8	-155.23	-23.1	315.1	727.5	705.6	21.95	33.140			
5,100.0	5,057.2	5,046.3	5,045.5	15.7	10.0	-155.74	-23.3	314.3	740.5	718.2	22.39	33.069			
5,200.0	5,156.0	5,142.4	5,141.6	16.1	10.2	-156.22	-23.4	313.9	754.0	731.2	22.83	33.020			
5,300.0	5,255.1	5,238.7	5,237.9	16.4	10.4	-156.69	-23.5	314.0	766.6	743.3	23.27	32.939			
5,400.0	5,354.5	5,335.3	5,334.5	16.6	10.6	-157.03	-23.7	314.5	776.4	752.7	23.67	32.807			
5,500.0	5,454.3	5,432.2	5,431.4	16.8	10.8	-157.21	-23.8	315.6	783.4	759.4	24.04	32.589			
5,600.0	5,554.2	5,530.6	5,529.8	17.0	11.0	-157.24	-23.9	317.2	787.5	763.1	24.39	32.284			
5,700.0	5,654.2	5,632.3	5,631.5	17.1	11.2	43.92	-24.0	318.7	788.8	764.1	24.77	31.841			
5,800.0	5,754.2	5,734.0	5,733.2	17.3	11.4	43.99	-24.0	319.9	789.6	764.4	25.15	31.390			
5,900.0	5,854.2	5,835.7	5,834.9	17.4	11.7	44.16	-24.1	320.8	789.0	763.5	25.46	30.990			
6,000.0	5,953.3	5,936.5	5,935.7	17.4	11.9	45.33	-24.2	321.3	780.2	754.6	25.59	30.486			
6,100.0	6,049.9	6,034.9	6,034.1	17.3	12.1	47.71	-24.2	321.5	762.3	736.7	25.65	29.724			
6,200.0	6,142.3	6,129.4	6,128.5	17.1	12.3	51.39	-24.2	321.2	736.3	710.6	25.73	28.612			
6,300.0	6,229.0	6,218.0	6,217.2	16.9	12.5	56.44	-24.1	320.7	703.8	677.8	25.99	27.082			
6,400.0	6,308.4	6,299.4	6,298.5	16.7	12.6	62.78	-24.0	319.8	666.9	640.4	26.50	25.172			
6,500.0	6,379.2	6,372.0	6,371.1	16.4	12.8	70.05	-23.9	318.8	628.7	601.5	27.21	23.104			
6,600.0	6,440.2	6,434.6	6,433.8	16.2	12.9	77.56	-23.7	317.7	592.9	564.9	27.96	21.205			
6,700.0	6,490.4	6,486.3	6,485.4	16.1	13.0	84.32	-23.6	316.7	564.0	535.4	28.56	19.747			
6,800.0	6,528.9	6,524.9	6,524.0	16.1	13.1	89.34	-23.5	315.9	546.9	517.9	29.00	18.857			
6,857.4	6,545.4	6,541.3	6,540.4	16.3	13.1	91.20	-23.4	315.5	544.1	514.9	29.27	18.591			
6,900.0	6,555.0	6,550.9	6,550.0	16.4	13.2	92.06	-23.4	315.3	545.7	516.3	29.44	18.537 SF			
7,000.0	6,568.2	6,564.3	6,563.4	16.9	13.2	92.20	-23.3	315.1	562.3	532.2	30.01	18.738			
7,100.0	6,570.0	6,566.5	6,565.6	17.6	13.2	91.22	-23.3	315.0	595.6	564.9	30.73	19.384			
7,200.0	6,570.0	6,566.9	6,566.0	18.5	13.2	91.26	-23.3	315.0	643.0	611.3	31.62	20.334			
7,300.0	6,570.0	6,567.3	6,566.4	19.5	13.2	91.30	-23.3	315.0	701.5	668.8	32.66	21.477			
7,400.0	6,570.0	6,567.7	6,566.8	20.7	13.2	91.35	-23.3	315.0	768.6	734.8	33.83	22.719			
7,500.0	6,570.0	6,568.1	6,567.2	22.0	13.2	91.39	-23.3	315.0	842.3	807.1	35.10	23.993			
7,600.0	6,570.0	6,568.5	6,567.6	23.4	13.2	91.43	-23.3	315.0	920.9	884.4	36.47	25.253			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R63W - Rothe 43-30 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7400-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
7,500.0	6,570.0	6,558.0	6,558.0	22.0	131.2	-90.00	1,275.1	-947.4	972.7	819.6	153.10	6.353	
7,600.0	6,570.0	6,558.0	6,558.0	23.4	131.2	-90.00	1,275.1	-947.4	908.3	753.9	154.46	5.880	
7,700.0	6,570.0	6,558.0	6,558.0	24.8	131.2	-90.00	1,275.1	-947.4	850.9	695.0	155.90	5.458	
7,800.0	6,570.0	6,558.0	6,558.0	26.3	131.2	-90.00	1,275.1	-947.4	801.9	644.5	157.40	5.095	
7,900.0	6,570.0	6,558.0	6,558.0	27.9	131.2	-90.00	1,275.1	-947.4	762.9	603.9	158.95	4.800	
8,000.0	6,570.0	6,558.0	6,558.0	29.5	131.2	-90.00	1,275.1	-947.4	735.5	574.9	160.54	4.581	
8,100.0	6,570.0	6,558.0	6,558.0	31.1	131.2	-90.00	1,275.1	-947.4	721.1	558.9	162.17	4.446	
8,155.1	6,570.0	6,558.0	6,558.0	32.0	131.2	-90.00	1,275.1	-947.4	718.9	555.9	163.09	4.408 CC, ES	
8,200.0	6,570.0	6,558.0	6,558.0	32.7	131.2	-90.00	1,275.1	-947.4	720.3	556.5	163.83	4.397 SF	
8,300.0	6,570.0	6,558.0	6,558.0	34.4	131.2	-90.00	1,275.1	-947.4	733.4	567.9	165.52	4.431	
8,400.0	6,570.0	6,558.0	6,558.0	36.1	131.2	-90.00	1,275.1	-947.4	759.5	592.3	167.24	4.542	
8,500.0	6,570.0	6,558.0	6,558.0	37.9	131.2	-90.00	1,275.1	-947.4	797.4	628.4	168.97	4.719	
8,600.0	6,570.0	6,558.0	6,558.0	39.6	131.2	-90.00	1,275.1	-947.4	845.5	674.7	170.72	4.952	
8,700.0	6,570.0	6,558.0	6,558.0	41.4	131.2	-90.00	1,275.1	-947.4	902.1	729.6	172.48	5.230	
8,800.0	6,570.0	6,558.0	6,558.0	43.2	131.2	-90.00	1,275.1	-947.4	965.8	791.5	174.26	5.542	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 291-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 291-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.29-T5N-R63W - Rothe 44-30 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 7400-UNKNOWN													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
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		
0.0	0.0	0.0	0.0	0.0	0.0	-90.44	-7.2	-936.3	936.4					
100.0	100.0	87.0	87.0	0.1	1.7	-90.44	-7.2	-936.3	936.3	934.5	1.85	505.428		
200.0	200.0	187.0	187.0	0.3	3.7	-90.44	-7.2	-936.3	936.3	932.3	4.08	229.646		
300.0	300.0	287.0	287.0	0.6	5.7	-90.44	-7.2	-936.3	936.3	930.0	6.30	148.577		
400.0	400.0	387.0	387.0	0.8	7.7	-90.44	-7.2	-936.3	936.3	927.8	8.53	109.811		
500.0	500.0	487.0	487.0	1.0	9.7	-90.44	-7.2	-936.3	936.3	925.6	10.75	87.089		
600.0	600.0	587.0	587.0	1.2	11.7	-90.44	-7.2	-936.3	936.3	923.4	12.98	72.158		
700.0	700.0	687.0	687.0	1.5	13.7	-90.44	-7.2	-936.3	936.3	921.1	15.20	61.597		
800.0	800.0	787.0	787.0	1.7	15.7	-90.44	-7.2	-936.3	936.3	918.9	17.43	53.733		
900.0	900.0	887.0	887.0	1.9	17.7	68.51	-7.2	-936.3	936.0	916.4	19.62	47.701		
1,000.0	1,000.0	987.0	987.0	2.1	19.7	68.67	-7.2	-936.3	935.1	913.3	21.80	42.896		
1,100.0	1,099.9	1,086.9	1,086.9	2.3	21.7	68.93	-7.2	-936.3	933.5	909.5	23.98	38.923		
1,200.0	1,199.7	1,186.7	1,186.7	2.5	23.7	69.30	-7.2	-936.3	931.3	905.1	26.18	35.579		
1,300.0	1,299.4	1,286.4	1,286.4	2.7	25.7	69.78	-7.2	-936.3	928.6	900.2	28.38	32.721		
1,400.0	1,398.9	1,385.9	1,385.9	2.9	27.7	70.36	-7.2	-936.3	925.3	894.7	30.59	30.246		
1,500.0	1,498.3	1,485.3	1,485.3	3.1	29.7	71.06	-7.2	-936.3	921.5	888.7	32.82	28.079		
1,600.0	1,597.4	1,584.4	1,584.4	3.4	31.7	71.86	-7.2	-936.3	917.3	882.3	35.06	26.164		
1,700.0	1,696.3	1,683.3	1,683.3	3.7	33.7	72.76	-7.2	-936.3	912.8	875.5	37.32	24.458		
1,800.0	1,795.2	1,782.2	1,782.2	4.0	35.6	73.66	-7.2	-936.3	908.4	868.8	39.60	22.937		
1,900.0	1,894.0	1,881.0	1,881.0	4.3	37.6	74.58	-7.2	-936.3	904.2	862.3	41.90	21.582		
2,000.0	1,992.9	1,979.9	1,979.9	4.7	39.6	75.49	-7.2	-936.3	900.3	856.1	44.20	20.369		
2,100.0	2,091.7	2,078.7	2,078.7	5.0	41.6	76.42	-7.2	-936.3	896.6	850.1	46.51	19.278		
2,200.0	2,190.6	2,177.6	2,177.6	5.3	43.6	77.35	-7.2	-936.3	893.1	844.3	48.82	18.292		
2,300.0	2,289.4	2,276.4	2,276.4	5.7	45.5	78.29	-7.2	-936.3	889.9	838.7	51.14	17.399		
2,400.0	2,388.3	2,375.3	2,375.3	6.0	47.5	79.24	-7.2	-936.3	886.9	833.4	53.47	16.587		
2,500.0	2,487.1	2,474.1	2,474.1	6.4	49.5	80.19	-7.2	-936.3	884.2	828.4	55.80	15.846		
2,600.0	2,586.0	2,573.0	2,573.0	6.7	51.5	81.15	-7.2	-936.3	881.7	823.5	58.13	15.168		
2,700.0	2,684.8	2,671.8	2,671.8	7.1	53.4	82.11	-7.2	-936.3	879.4	819.0	60.46	14.545		
2,800.0	2,783.6	2,770.6	2,770.6	7.4	55.4	83.08	-7.2	-936.3	877.5	814.7	62.80	13.973		
2,900.0	2,882.5	2,869.5	2,869.5	7.8	57.4	84.05	-7.2	-936.3	875.8	810.6	65.14	13.445		
3,000.0	2,981.3	2,968.3	2,968.3	8.1	59.4	85.03	-7.2	-936.3	874.3	806.8	67.47	12.957		
3,100.0	3,080.2	3,067.2	3,067.2	8.5	61.3	86.01	-7.2	-936.3	873.1	803.3	69.81	12.506		
3,200.0	3,179.0	3,166.0	3,166.0	8.8	63.3	86.99	-7.2	-936.3	872.2	800.0	72.15	12.088		
3,300.0	3,277.9	3,264.9	3,264.9	9.2	65.3	87.97	-7.2	-936.3	871.5	797.0	74.49	11.699		
3,400.0	3,376.7	3,363.7	3,363.7	9.6	67.3	88.95	-7.2	-936.3	871.1	794.3	76.83	11.338		
3,500.0	3,475.6	3,462.6	3,462.6	9.9	69.3	89.93	-7.2	-936.3	870.9	791.8	79.17	11.001		
3,506.6	3,482.1	3,469.1	3,469.1	9.9	69.4	90.00	-7.2	-936.3	870.9	791.6	79.32	10.979		
3,600.0	3,574.4	3,561.4	3,561.4	10.3	71.2	90.92	-7.2	-936.3	871.0	789.5	81.51	10.687		
3,700.0	3,673.3	3,660.3	3,660.3	10.6	73.2	91.90	-7.2	-936.3	871.4	787.6	83.84	10.394		
3,800.0	3,772.1	3,759.1	3,759.1	11.0	75.2	92.88	-7.2	-936.3	872.1	785.9	86.18	10.119		
3,900.0	3,871.0	3,858.0	3,858.0	11.4	77.2	93.86	-7.2	-936.3	873.0	784.5	88.51	9.863		
4,000.0	3,969.8	3,956.8	3,956.8	11.7	79.1	94.84	-7.2	-936.3	874.1	783.3	90.84	9.623		
4,100.0	4,068.7	4,055.7	4,055.7	12.1	81.1	95.82	-7.2	-936.3	875.5	782.4	93.17	9.397		
4,200.0	4,167.5	4,154.5	4,154.5	12.5	83.1	96.79	-7.2	-936.3	877.2	781.7	95.49	9.186		
4,300.0	4,266.4	4,253.4	4,253.4	12.8	85.1	97.76	-7.2	-936.3	879.2	781.4	97.82	8.988		
4,400.0	4,365.2	4,352.2	4,352.2	13.2	87.0	98.72	-7.2	-936.3	881.4	781.2	100.14	8.801		
4,500.0	4,464.1	4,451.1	4,451.1	13.6	89.0	99.68	-7.2	-936.3	883.8	781.4	102.46	8.626		
4,600.0	4,562.9	4,549.9	4,549.9	13.9	91.0	100.63	-7.2	-936.3	886.5	781.7	104.77	8.461		
4,700.0	4,661.8	4,648.8	4,648.8	14.3	93.0	101.58	-7.2	-936.3	889.5	782.4	107.08	8.306		
4,800.0	4,760.6	4,747.6	4,747.6	14.6	95.0	102.52	-7.2	-936.3	892.7	783.3	109.39	8.160		
4,900.0	4,859.5	4,846.5	4,846.5	15.0	96.9	103.46	-7.2	-936.3	896.1	784.4	111.69	8.023		

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 R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.29-T5N-R63W - Rothe 44-30 (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error: 0.0 ft	
Survey Program: 7400-UNKNOWN													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
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		
5,000.0	4,958.3	4,945.3	4,945.3	15.4	98.9	104.38	-7.2	-936.3	899.8	785.8	113.99	7.893		
5,100.0	5,057.2	5,044.2	5,044.2	15.7	100.9	105.30	-7.2	-936.3	903.7	787.4	116.29	7.771		
5,200.0	5,156.0	5,143.0	5,143.0	16.1	102.9	106.22	-7.2	-936.3	907.8	789.3	118.58	7.656		
5,300.0	5,255.1	5,242.1	5,242.1	16.4	104.8	107.10	-7.2	-936.3	911.8	791.0	120.86	7.544		
5,400.0	5,354.5	5,341.5	5,341.5	16.6	106.8	107.78	-7.2	-936.3	914.9	791.9	123.07	7.434		
5,500.0	5,454.3	5,441.3	5,441.3	16.8	108.8	108.22	-7.2	-936.3	917.0	791.8	125.25	7.321		
5,600.0	5,554.2	5,541.2	5,541.2	17.0	110.8	108.44	-7.2	-936.3	918.1	790.7	127.41	7.206		
5,700.0	5,654.2	5,641.2	5,641.2	17.1	112.8	-50.44	-7.2	-936.3	918.2	788.6	129.56	7.087		
5,800.0	5,754.2	5,741.2	5,741.2	17.3	114.8	-50.44	-7.2	-936.3	918.2	786.5	131.69	6.972		
5,900.0	5,854.2	5,841.2	5,841.2	17.4	116.8	-50.56	-7.2	-936.3	917.2	783.5	133.70	6.860		
6,000.0	5,953.3	5,940.3	5,940.3	17.4	118.8	-51.66	-7.2	-936.3	909.2	774.2	134.91	6.739		
6,100.0	6,049.9	6,036.9	6,036.9	17.3	120.7	-53.89	-7.2	-936.3	893.3	757.9	135.41	6.597		
6,200.0	6,142.3	6,129.3	6,129.3	17.1	122.6	-57.26	-7.2	-936.3	870.6	734.9	135.69	6.416		
6,300.0	6,229.0	6,216.0	6,216.0	16.9	124.3	-61.73	-7.2	-936.3	842.6	706.3	136.37	6.179		
6,400.0	6,308.4	6,295.4	6,295.4	16.7	125.9	-67.12	-7.2	-936.3	811.3	673.4	137.91	5.883		
6,500.0	6,379.2	6,366.2	6,366.2	16.4	127.3	-73.07	-7.2	-936.3	779.3	639.1	140.25	5.556		
6,600.0	6,440.2	6,427.2	6,427.2	16.2	128.5	-79.00	-7.2	-936.3	749.7	606.8	142.81	5.249		
6,700.0	6,490.4	6,477.4	6,477.4	16.1	129.5	-84.25	-7.2	-936.3	725.8	580.9	144.89	5.009		
6,800.0	6,528.9	6,515.9	6,515.9	16.1	130.3	-88.21	-7.2	-936.3	711.1	564.9	146.25	4.862		
6,871.0	6,548.7	6,535.7	6,535.7	16.3	130.7	-90.00	-7.2	-936.3	707.9	560.9	146.92	4.818 CC, ES		
6,900.0	6,555.0	6,542.0	6,542.0	16.4	130.8	-90.45	-7.2	-936.3	708.4	561.3	147.13	4.815 SF		
7,000.0	6,568.2	6,555.2	6,555.2	16.9	131.1	-90.70	-7.2	-936.3	719.2	571.3	147.93	4.862		
7,100.0	6,570.0	6,557.0	6,557.0	17.6	131.1	-90.00	-7.2	-936.3	743.4	594.7	148.71	4.999		
7,200.0	6,570.0	6,557.0	6,557.0	18.5	131.1	-90.00	-7.2	-936.3	779.8	630.2	149.60	5.213		
7,300.0	6,570.0	6,557.0	6,557.0	19.5	131.1	-90.00	-7.2	-936.3	826.8	676.2	150.64	5.489		
7,400.0	6,570.0	6,557.0	6,557.0	20.7	131.1	-90.00	-7.2	-936.3	882.6	730.8	151.81	5.814		
7,500.0	6,570.0	6,557.0	6,557.0	22.0	131.1	-90.00	-7.2	-936.3	945.8	792.7	153.08	6.178		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>													Offset Site Error:	0.0 ft
Survey Program: 7000-Reference													Offset Well Error:	0.0 ft
Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson 30-41 (Exist.) - Wellbore #1 - Wellbore #1														
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	
10,000.0	6,570.0	6,570.0	6,570.0	65.1	131.4	-90.00	3,861.7	-877.7	985.7	789.2	196.47	5.017		
10,100.0	6,570.0	6,570.0	6,570.0	67.0	131.4	-90.00	3,861.7	-877.7	912.8	714.5	198.33	4.602		
10,200.0	6,570.0	6,570.0	6,570.0	68.9	131.4	-90.00	3,861.7	-877.7	845.5	645.3	200.20	4.223		
10,300.0	6,570.0	6,570.0	6,570.0	70.7	131.4	-90.00	3,861.7	-877.7	785.2	583.1	202.07	3.886		
10,400.0	6,570.0	6,570.0	6,570.0	72.6	131.4	-90.00	3,861.7	-877.7	733.6	529.7	203.94	3.597		
10,500.0	6,570.0	6,570.0	6,570.0	74.5	131.4	-90.00	3,861.7	-877.7	692.7	486.9	205.82	3.366		
10,600.0	6,570.0	6,570.0	6,570.0	76.3	131.4	-90.00	3,861.7	-877.7	664.5	456.8	207.69	3.199		
10,700.0	6,570.0	6,570.0	6,570.0	78.2	131.4	-90.00	3,861.7	-877.7	650.5	441.0	209.57	3.104		
10,741.7	6,570.0	6,570.0	6,570.0	79.0	131.4	-90.00	3,861.7	-877.7	649.2	438.8	210.36	3.086 CC, ES		
10,800.0	6,570.0	6,570.0	6,570.0	80.1	131.4	-90.00	3,861.7	-877.7	651.8	440.4	211.45	3.083 SF		
10,900.0	6,570.0	6,570.0	6,570.0	82.0	131.4	-90.00	3,861.7	-877.7	668.2	454.9	213.33	3.132		
10,996.7	6,570.0	6,570.0	6,570.0	83.8	131.4	-90.00	3,861.7	-877.7	697.5	482.3	215.16	3.242		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson 30-42 (Exist.) - Wellbore #1 - Wellbore #1														Offset Site Error:	0.0 ft
Survey Program: 7000-Reference														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	
8,800.0	6,570.0	6,570.0	6,570.0	43.2	131.4	-90.00		2,597.6	-861.0	926.9	752.4	174.50	5.312		
8,900.0	6,570.0	6,570.0	6,570.0	45.0	131.4	-90.00		2,597.6	-861.0	856.5	680.2	176.29	4.859		
9,000.0	6,570.0	6,570.0	6,570.0	46.8	131.4	-90.00		2,597.6	-861.0	792.6	614.5	178.09	4.450		
9,100.0	6,570.0	6,570.0	6,570.0	48.6	131.4	-90.00		2,597.6	-861.0	736.6	556.7	179.90	4.095		
9,200.0	6,570.0	6,570.0	6,570.0	50.4	131.4	-90.00		2,597.6	-861.0	690.7	509.0	181.72	3.801		
9,300.0	6,570.0	6,570.0	6,570.0	52.2	131.4	-90.00		2,597.6	-861.0	657.0	473.4	183.54	3.579		
9,400.0	6,570.0	6,570.0	6,570.0	54.0	131.4	-90.00		2,597.6	-861.0	637.3	451.9	185.37	3.438		
9,477.6	6,570.0	6,570.0	6,570.0	55.5	131.4	-90.00		2,597.6	-861.0	632.5	445.7	186.80	3.386 CC		
9,500.0	6,570.0	6,570.0	6,570.0	55.9	131.4	-90.00		2,597.6	-861.0	632.9	445.7	187.21	3.381 ES, SF		
9,600.0	6,570.0	6,570.0	6,570.0	57.7	131.4	-90.00		2,597.6	-861.0	644.3	455.2	189.05	3.408		
9,700.0	6,570.0	6,570.0	6,570.0	59.6	131.4	-90.00		2,597.6	-861.0	670.5	479.6	190.90	3.512		
9,800.0	6,570.0	6,570.0	6,570.0	61.4	131.4	-90.00		2,597.6	-861.0	710.0	517.2	192.75	3.683		
9,900.0	6,570.0	6,570.0	6,570.0	63.3	131.4	-90.00		2,597.6	-861.0	760.6	566.0	194.61	3.908		
10,000.0	6,570.0	6,570.0	6,570.0	65.1	131.4	-90.00		2,597.6	-861.0	820.4	623.9	196.47	4.176		
10,100.0	6,570.0	6,570.0	6,570.0	67.0	131.4	-90.00		2,597.6	-861.0	887.4	689.1	198.33	4.474		
10,200.0	6,570.0	6,570.0	6,570.0	68.9	131.4	-90.00		2,597.6	-861.0	960.2	760.0	200.20	4.796		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson CX GH 30-26D - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft			
Survey Program: 181-Reference		Offset		Semi Major Axis			Distance							Offset Well Error:		0.0 ft	
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)						
10,500.0	6,570.0	7,197.4	6,575.1	74.5	52.2	-92.19	4,562.7	-360.5	951.9	844.7	107.15	8.884					
10,600.0	6,570.0	7,196.9	6,574.6	76.3	52.2	-92.01	4,562.7	-360.5	853.0	744.0	109.02	7.824					
10,700.0	6,570.0	7,196.5	6,574.2	78.2	52.2	-91.83	4,562.7	-360.5	754.3	643.4	110.89	6.802					
10,800.0	6,570.0	7,196.1	6,573.8	80.1	52.2	-91.65	4,562.7	-360.5	656.1	543.4	112.77	5.818					
10,900.0	6,570.0	7,195.7	6,573.4	82.0	52.2	-91.47	4,562.7	-360.5	558.5	443.9	114.65	4.872					
10,996.7	6,570.0	7,195.3	6,573.0	83.8	52.2	-91.29	4,562.7	-360.5	465.1	348.7	116.46	3.994 CC, ES, SF					

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson CX GH 30-40D - Wellbore #1 - Wellbore #1														Offset Site Error:	0.0 ft
Survey Program: 61-Reference														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
7,900.0	6,570.0	7,201.5	6,576.9	27.9	53.5	-93.88	1,976.6	-329.7	962.0	902.7	59.29	16.226			
8,000.0	6,570.0	7,200.9	6,576.3	29.5	53.5	-93.54	1,976.6	-329.7	862.6	801.7	60.87	14.171			
8,100.0	6,570.0	7,200.2	6,575.6	31.1	53.5	-93.19	1,976.6	-329.7	763.4	700.9	62.49	12.216			
8,200.0	6,570.0	7,199.6	6,575.0	32.7	53.5	-92.84	1,976.6	-329.7	664.4	600.3	64.14	10.359			
8,300.0	6,570.0	7,199.0	6,574.4	34.4	53.5	-92.50	1,976.6	-329.7	565.8	500.0	65.81	8.597			
8,400.0	6,570.0	7,198.4	6,573.8	36.1	53.5	-92.15	1,976.6	-329.7	467.7	400.2	67.51	6.928			
8,500.0	6,570.0	7,197.8	6,573.2	37.9	53.5	-91.80	1,976.7	-329.7	370.8	301.5	69.23	5.356			
8,600.0	6,570.0	7,197.2	6,572.6	39.6	53.5	-91.45	1,976.7	-329.7	275.9	205.0	70.96	3.888			
8,700.0	6,570.0	7,196.6	6,572.0	41.4	53.5	-91.11	1,976.7	-329.7	186.5	113.8	72.70	2.566			
8,800.0	6,570.0	7,195.9	6,571.3	43.2	53.5	-90.76	1,976.7	-329.7	116.1	41.6	74.46	1.559			
8,856.7	6,570.0	7,195.6	6,571.0	44.2	53.5	-90.56	1,976.7	-329.8	101.3	25.8	75.46	1.342	Level 3, CC, ES, SF		
8,900.0	6,570.0	7,195.3	6,570.7	45.0	53.5	-90.41	1,976.7	-329.8	110.2	33.9	76.23	1.445	Level 3		
9,000.0	6,570.0	7,194.7	6,570.1	46.8	53.5	-90.07	1,976.7	-329.8	175.5	97.5	78.00	2.250			
9,100.0	6,570.0	7,194.1	6,569.5	48.6	53.5	-89.72	1,976.7	-329.8	263.6	183.8	79.78	3.304			
9,200.0	6,570.0	7,193.5	6,568.9	50.4	53.5	-89.37	1,976.7	-329.8	358.0	276.4	81.57	4.389			
9,300.0	6,570.0	7,192.9	6,568.3	52.2	53.5	-89.02	1,976.7	-329.8	454.8	371.4	83.36	5.456			
9,400.0	6,570.0	7,192.3	6,567.7	54.0	53.5	-88.68	1,976.7	-329.8	552.7	467.5	85.15	6.491			
9,500.0	6,570.0	7,191.6	6,567.0	55.9	53.5	-88.33	1,976.7	-329.8	651.3	564.3	86.95	7.490			
9,600.0	6,570.0	7,191.0	6,566.4	57.7	53.5	-87.98	1,976.7	-329.8	750.2	661.5	88.75	8.453			
9,700.0	6,570.0	7,190.4	6,565.8	59.6	53.5	-87.64	1,976.7	-329.8	849.4	758.8	90.55	9.381			
9,800.0	6,570.0	7,189.8	6,565.2	61.4	53.5	-87.29	1,976.7	-329.8	948.8	856.4	92.35	10.273			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Peterson CX GH 30-41D Pad Sec.30-T5N-R63W - Peterson CX GH 30-41D - Wellbore #1 - Wellbore #1														Offset Site Error:	0.0 ft
Survey Program: 181-Reference														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)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
9,200.0	6,570.0	7,171.9	6,580.2	50.4	49.1	-96.90		3,287.9	-312.8	971.7	901.5	70.14	13.854		
9,300.0	6,570.0	7,170.8	6,579.2	52.2	49.1	-96.20		3,288.0	-312.8	872.1	800.1	71.94	12.122		
9,400.0	6,570.0	7,169.8	6,578.1	54.0	49.1	-95.50		3,288.0	-312.8	772.6	698.9	73.75	10.476		
9,500.0	6,570.0	7,168.8	6,577.1	55.9	49.1	-94.80		3,288.0	-312.8	673.3	597.7	75.56	8.911		
9,600.0	6,570.0	7,167.7	6,576.0	57.7	49.1	-94.09		3,288.0	-312.8	574.2	496.9	77.37	7.422		
9,700.0	6,570.0	7,166.7	6,575.0	59.6	49.1	-93.38		3,288.0	-312.8	475.5	396.4	79.17	6.006		
9,800.0	6,570.0	7,165.6	6,573.9	61.4	49.1	-92.66		3,288.0	-312.8	377.6	296.6	80.98	4.663		
9,900.0	6,570.0	7,164.5	6,572.9	63.3	49.1	-91.95		3,288.0	-312.8	281.0	198.2	82.77	3.395		
10,000.0	6,570.0	7,163.5	6,571.8	65.1	49.1	-91.22		3,288.0	-312.8	188.0	103.4	84.56	2.223		
10,100.0	6,570.0	7,162.4	6,570.7	67.0	49.1	-90.50		3,288.0	-312.8	108.3	22.0	86.35	1.255 Level 3		
10,168.0	6,570.0	7,161.7	6,570.0	68.3	49.1	-90.00		3,288.1	-312.8	84.3	-3.2	87.55	0.963 Level 1, CC, ES, SF		
10,200.0	6,570.0	7,161.3	6,569.7	68.9	49.1	-89.77		3,288.1	-312.8	90.2	2.0	88.12	1.023 Level 2		
10,300.0	6,570.0	7,160.3	6,568.6	70.7	49.1	-89.04		3,288.1	-312.8	156.6	66.7	89.89	1.742		
10,400.0	6,570.0	7,159.2	6,567.5	72.6	49.1	-88.30		3,288.1	-312.8	246.8	155.2	91.64	2.693		
10,500.0	6,570.0	7,158.1	6,566.4	74.5	49.1	-87.57		3,288.1	-312.8	342.5	249.1	93.38	3.667		
10,600.0	6,570.0	7,157.0	6,565.3	76.3	49.1	-86.83		3,288.1	-312.8	440.1	345.0	95.11	4.627		
10,700.0	6,570.0	7,155.9	6,564.2	78.2	49.1	-86.09		3,288.1	-312.8	538.6	441.7	96.83	5.562		
10,800.0	6,570.0	7,154.8	6,563.1	80.1	49.1	-85.35		3,288.1	-312.8	637.5	539.0	98.53	6.470		
10,900.0	6,570.0	7,153.7	6,562.0	82.0	49.1	-84.61		3,288.1	-312.8	736.8	636.5	100.22	7.351		
10,996.7	6,570.0	7,152.6	6,561.0	83.8	49.1	-83.89		3,288.1	-312.8	832.9	731.1	101.84	8.179		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 291-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 291-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 291-221 - Wellbore #1 - Plan #1 (4-10-15)														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	30.7	30.7						
100.0	100.0	99.0	99.0	0.1	0.1	89.99	0.0	30.7	30.7	30.4	0.22	137.063			
200.0	200.0	199.0	199.0	0.3	0.3	89.99	0.0	30.7	30.7	30.0	0.67	45.612			
300.0	300.0	299.0	299.0	0.6	0.6	89.99	0.0	30.7	30.7	29.5	1.12	27.330			
400.0	400.0	399.0	399.0	0.8	0.8	89.99	0.0	30.7	30.7	29.1	1.57	19.511			
500.0	500.0	499.0	499.0	1.0	1.0	89.99	0.0	30.7	30.7	28.6	2.02	15.170			
600.0	600.0	599.0	599.0	1.2	1.2	89.99	0.0	30.7	30.7	28.2	2.47	12.409			
700.0	700.0	699.0	699.0	1.5	1.5	89.99	0.0	30.7	30.7	27.7	2.92	10.499			
800.0	800.0	799.0	799.0	1.7	1.7	89.99	0.0	30.7	30.7	27.3	3.37	9.098 CC			
900.0	900.0	899.0	899.0	1.9	1.9	-112.61	0.0	30.7	31.0	27.2	3.79	8.171 ES			
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-116.92	0.0	30.7	32.1	27.9	4.19	7.648			
1,100.0	1,099.9	1,098.9	1,098.9	2.3	2.4	-123.41	0.0	30.7	34.3	29.7	4.61	7.441			
1,200.0	1,199.7	1,198.7	1,198.7	2.5	2.6	-131.09	0.0	30.7	38.0	33.0	5.03	7.556			
1,300.0	1,299.4	1,298.8	1,298.8	2.7	2.8	-137.94	-0.8	30.6	43.1	37.6	5.43	7.940			
1,400.0	1,398.9	1,399.0	1,399.0	2.9	3.0	-142.91	-3.4	30.3	49.0	43.2	5.81	8.433			
1,500.0	1,498.3	1,499.3	1,499.2	3.1	3.1	-146.43	-7.8	29.8	55.4	49.2	6.20	8.940			
1,600.0	1,597.4	1,599.8	1,599.4	3.4	3.3	-148.88	-13.8	29.1	62.3	55.7	6.61	9.434			
1,700.0	1,696.3	1,700.3	1,699.7	3.7	3.5	-150.52	-21.7	28.2	69.5	62.5	7.03	9.886			
1,800.0	1,795.2	1,801.0	1,799.9	4.0	3.7	-151.11	-31.3	27.1	75.8	68.3	7.48	10.140			
1,900.0	1,894.0	1,901.9	1,900.1	4.3	4.0	-150.76	-42.7	25.8	80.9	72.9	7.95	10.178			
2,000.0	1,992.9	2,002.9	2,000.2	4.7	4.2	-149.61	-55.8	24.4	84.7	76.2	8.44	10.031			
2,100.0	2,091.7	2,103.8	2,100.1	5.0	4.5	-147.72	-70.7	22.7	87.3	78.3	8.97	9.733			
2,200.0	2,190.6	2,204.2	2,199.1	5.3	4.8	-145.27	-86.9	20.8	89.0	79.5	9.53	9.343			
2,300.0	2,289.4	2,304.1	2,297.6	5.7	5.1	-142.87	-103.1	19.0	90.9	80.8	10.12	8.981			
2,400.0	2,388.3	2,404.0	2,396.2	6.0	5.4	-140.56	-119.4	17.2	92.9	82.2	10.74	8.653			
2,500.0	2,487.1	2,503.9	2,494.8	6.4	5.7	-138.36	-135.6	15.3	95.0	83.7	11.37	8.357			
2,600.0	2,586.0	2,603.8	2,593.3	6.7	6.1	-136.26	-151.9	13.5	97.3	85.3	12.03	8.091			
2,700.0	2,684.8	2,703.7	2,691.9	7.1	6.4	-134.25	-168.1	11.7	99.7	87.0	12.70	7.850			
2,800.0	2,783.6	2,803.6	2,790.5	7.4	6.8	-132.34	-184.4	9.8	102.2	88.8	13.39	7.634			
2,900.0	2,882.5	2,903.5	2,889.0	7.8	7.1	-130.53	-200.6	8.0	104.9	90.8	14.09	7.440			
3,000.0	2,981.3	3,003.4	2,987.6	8.1	7.5	-128.80	-216.9	6.2	107.6	92.8	14.81	7.265			
3,100.0	3,080.2	3,103.4	3,086.2	8.5	7.8	-127.16	-233.1	4.3	110.4	94.9	15.53	7.108			
3,200.0	3,179.0	3,203.3	3,184.7	8.8	8.2	-125.61	-249.4	2.5	113.3	97.1	16.26	6.967			
3,300.0	3,277.9	3,303.2	3,283.3	9.2	8.5	-124.13	-265.6	0.7	116.3	99.3	17.00	6.840			
3,400.0	3,376.7	3,403.1	3,381.9	9.6	8.9	-122.73	-281.8	-1.2	119.4	101.6	17.75	6.726			
3,500.0	3,475.6	3,503.0	3,480.4	9.9	9.3	-121.40	-298.1	-3.0	122.5	104.0	18.50	6.622			
3,600.0	3,574.4	3,602.9	3,579.0	10.3	9.6	-120.13	-314.3	-4.8	125.7	106.4	19.25	6.529			
3,700.0	3,673.3	3,702.8	3,677.5	10.6	10.0	-118.93	-330.6	-6.7	128.9	108.9	20.01	6.445			
3,800.0	3,772.1	3,802.7	3,776.1	11.0	10.4	-117.79	-346.8	-8.5	132.2	111.5	20.76	6.368			
3,900.0	3,871.0	3,902.6	3,874.7	11.4	10.7	-116.70	-363.1	-10.4	135.6	114.1	21.52	6.299			
4,000.0	3,969.8	4,002.6	3,973.2	11.7	11.1	-115.67	-379.3	-12.2	139.0	116.7	22.28	6.236			
4,100.0	4,068.7	4,102.5	4,071.8	12.1	11.5	-114.69	-395.6	-14.0	142.4	119.4	23.05	6.179			
4,200.0	4,167.5	4,202.4	4,170.4	12.5	11.9	-113.75	-411.8	-15.9	145.9	122.1	23.81	6.128			
4,300.0	4,266.4	4,302.3	4,268.9	12.8	12.2	-112.86	-428.1	-17.7	149.4	124.8	24.57	6.080			
4,400.0	4,365.2	4,402.2	4,367.5	13.2	12.6	-112.01	-444.3	-19.5	153.0	127.6	25.34	6.037			
4,500.0	4,464.1	4,502.1	4,466.1	13.6	13.0	-111.19	-460.6	-21.4	156.6	130.5	26.10	5.998			
4,600.0	4,562.9	4,602.0	4,564.6	13.9	13.4	-110.42	-476.8	-23.2	160.2	133.3	26.86	5.962			
4,700.0	4,661.8	4,701.9	4,663.2	14.3	13.7	-109.67	-493.1	-25.0	163.8	136.2	27.63	5.929			
4,800.0	4,760.6	4,801.9	4,761.8	14.6	14.1	-108.96	-509.3	-26.9	167.5	139.1	28.39	5.899			
4,900.0	4,859.5	4,901.8	4,860.3	15.0	14.5	-108.29	-525.6	-28.7	171.2	142.0	29.15	5.871			
5,000.0	4,958.3	5,001.7	4,958.9	15.4	14.9	-107.64	-541.8	-30.5	174.9	145.0	29.92	5.846			

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 R&R Farms 291-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 291-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 291-221 - Wellbore #1 - Plan #1 (4-10-15)											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 (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	
5,100.0	5,057.2	5,101.5	5,057.4	15.7	15.2	-107.05	-557.9	-32.4	178.6	148.0	30.66	5.826	
5,200.0	5,156.0	5,201.1	5,156.1	16.1	15.5	-107.29	-571.5	-33.9	182.5	151.2	31.26	5.837	
5,300.0	5,255.1	5,300.7	5,255.1	16.4	15.7	-108.23	-581.7	-35.0	186.1	154.4	31.75	5.862	
5,400.0	5,354.5	5,400.0	5,354.2	16.6	15.9	-109.19	-588.4	-35.8	189.0	156.9	32.12	5.884	
5,500.0	5,454.3	5,499.5	5,453.6	16.8	16.1	-110.16	-591.7	-36.2	191.0	158.6	32.42	5.891	
5,600.0	5,554.2	5,599.1	5,553.2	17.0	16.2	-111.00	-592.1	-36.2	192.1	159.4	32.68	5.879	
5,700.0	5,654.2	5,699.1	5,653.2	17.1	16.4	90.00	-592.1	-36.2	192.3	159.3	32.95	5.834	
5,728.7	5,682.9	5,727.8	5,681.9	17.2	16.4	89.86	-591.6	-36.2	192.3	159.2	33.02	5.823	
5,800.0	5,754.2	5,798.6	5,752.4	17.3	16.4	88.15	-585.9	-36.2	192.4	159.3	33.05	5.820	
5,900.0	5,854.2	5,895.2	5,847.2	17.4	16.4	83.07	-567.6	-36.2	193.7	161.0	32.77	5.912	
6,000.0	5,953.3	5,989.4	5,936.7	17.4	16.3	77.76	-538.3	-36.2	196.9	164.7	32.18	6.119	
6,100.0	6,049.9	6,081.6	6,020.1	17.3	16.1	72.86	-499.3	-36.2	201.5	170.1	31.37	6.421	
6,200.0	6,142.3	6,172.0	6,096.9	17.1	15.9	68.47	-451.4	-36.2	207.0	176.6	30.42	6.805	
6,300.0	6,229.0	6,261.0	6,166.3	16.9	15.6	64.63	-395.9	-36.2	213.2	183.8	29.39	7.253	
6,400.0	6,308.4	6,350.0	6,228.8	16.7	15.4	61.31	-332.6	-36.2	219.5	191.2	28.35	7.743	
6,500.0	6,379.2	6,435.2	6,281.4	16.4	15.3	58.61	-265.6	-36.2	225.6	198.2	27.41	8.230	
6,600.0	6,440.2	6,520.9	6,326.4	16.2	15.3	56.38	-192.8	-36.2	231.2	204.5	26.66	8.673	
6,700.0	6,490.4	6,605.8	6,362.7	16.1	15.3	54.65	-116.1	-36.2	235.9	209.7	26.19	9.009	
6,800.0	6,528.9	6,690.1	6,390.1	16.1	15.5	53.37	-36.4	-36.2	239.7	213.6	26.11	9.178	
6,900.0	6,555.0	6,774.0	6,408.5	16.4	15.9	52.53	45.4	-36.2	242.3	215.8	26.49	9.146	
7,000.0	6,568.2	6,857.7	6,417.9	16.9	16.4	52.11	128.5	-36.2	243.6	216.3	27.33	8.914	
7,100.0	6,570.0	6,948.3	6,418.8	17.6	17.1	52.00	219.1	-36.2	244.0	215.4	28.57	8.538	
7,200.0	6,570.0	7,048.3	6,418.2	18.5	18.0	51.89	319.1	-36.2	244.3	214.3	30.07	8.126	
7,300.0	6,570.0	7,148.3	6,417.6	19.5	19.1	51.78	419.1	-36.2	244.7	212.9	31.80	7.696	
7,400.0	6,570.0	7,248.3	6,417.0	20.7	20.3	51.66	519.1	-36.2	245.1	211.4	33.73	7.267	
7,500.0	6,570.0	7,348.3	6,416.4	22.0	21.5	51.55	619.1	-36.2	245.5	209.7	35.82	6.852	
7,600.0	6,570.0	7,448.3	6,415.8	23.4	22.9	51.44	719.1	-36.2	245.9	207.8	38.05	6.461	
7,700.0	6,570.0	7,548.3	6,415.1	24.8	24.4	51.33	819.1	-36.2	246.2	205.8	40.40	6.096	
7,800.0	6,570.0	7,648.3	6,414.5	26.3	25.9	51.22	919.1	-36.2	246.6	203.8	42.83	5.758	
7,900.0	6,570.0	7,748.3	6,413.9	27.9	27.5	51.11	1,019.1	-36.2	247.0	201.7	45.34	5.448	
8,000.0	6,570.0	7,848.3	6,413.3	29.5	29.1	51.00	1,119.1	-36.2	247.4	199.5	47.91	5.164	
8,100.0	6,570.0	7,948.3	6,412.7	31.1	30.7	50.89	1,219.1	-36.2	247.8	197.2	50.53	4.903	
8,200.0	6,570.0	8,048.3	6,412.1	32.7	32.4	50.78	1,319.1	-36.2	248.2	195.0	53.20	4.665	
8,300.0	6,570.0	8,148.3	6,411.5	34.4	34.1	50.67	1,419.0	-36.2	248.5	192.7	55.89	4.447	
8,400.0	6,570.0	8,248.3	6,410.9	36.1	35.8	50.56	1,519.0	-36.2	248.9	190.3	58.62	4.246	
8,500.0	6,570.0	8,348.3	6,410.3	37.9	37.6	50.45	1,619.0	-36.2	249.3	187.9	61.38	4.062	
8,600.0	6,570.0	8,448.3	6,409.6	39.6	39.3	50.35	1,719.0	-36.2	249.7	185.6	64.15	3.893	
8,700.0	6,570.0	8,548.3	6,409.0	41.4	41.1	50.24	1,819.0	-36.2	250.1	183.2	66.94	3.736	
8,800.0	6,570.0	8,648.3	6,408.4	43.2	42.9	50.13	1,919.0	-36.2	250.5	180.8	69.74	3.592	
8,900.0	6,570.0	8,748.2	6,407.8	45.0	44.7	50.02	2,019.0	-36.2	250.9	178.3	72.55	3.458	
9,000.0	6,570.0	8,848.2	6,407.2	46.8	46.5	49.92	2,119.0	-36.2	251.3	175.9	75.38	3.334	
9,100.0	6,570.0	8,948.2	6,406.6	48.6	48.3	49.81	2,219.0	-36.2	251.7	173.5	78.20	3.218	
9,200.0	6,570.0	9,048.2	6,406.0	50.4	50.1	49.70	2,319.0	-36.2	252.1	171.0	81.04	3.110	
9,300.0	6,570.0	9,148.2	6,405.4	52.2	52.0	49.60	2,419.0	-36.2	252.5	168.6	83.88	3.010	
9,400.0	6,570.0	9,248.2	6,404.8	54.0	53.8	49.49	2,519.0	-36.2	252.9	166.1	86.72	2.916	
9,500.0	6,570.0	9,348.2	6,404.1	55.9	55.6	49.39	2,619.0	-36.2	253.3	163.7	89.57	2.828	
9,600.0	6,570.0	9,448.2	6,403.5	57.7	57.5	49.28	2,719.0	-36.2	253.7	161.2	92.41	2.745	
9,700.0	6,570.0	9,548.2	6,402.9	59.6	59.3	49.18	2,819.0	-36.2	254.1	158.8	95.26	2.667	
9,800.0	6,570.0	9,648.2	6,402.3	61.4	61.2	49.07	2,919.0	-36.2	254.5	156.3	98.10	2.594	
9,900.0	6,570.0	9,748.2	6,401.7	63.3	63.1	48.97	3,019.0	-36.2	254.9	153.9	100.95	2.525	

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 R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,000.0	6,570.0	9,848.2	6,401.1	65.1	64.9	48.87	3,119.0	-36.2	255.3	151.5	103.79	2.459		
10,100.0	6,570.0	9,948.2	6,400.5	67.0	66.8	48.76	3,219.0	-36.2	255.7	149.0	106.63	2.398		
10,200.0	6,570.0	10,048.2	6,399.9	68.9	68.7	48.66	3,319.0	-36.2	256.1	146.6	109.47	2.339		
10,300.0	6,570.0	10,148.2	6,399.3	70.7	70.5	48.56	3,419.0	-36.2	256.5	144.2	112.31	2.284		
10,400.0	6,570.0	10,248.2	6,398.7	72.6	72.4	48.46	3,519.0	-36.2	256.9	141.7	115.14	2.231		
10,500.0	6,570.0	10,348.2	6,398.0	74.5	74.3	48.36	3,619.0	-36.2	257.3	139.3	117.97	2.181		
10,600.0	6,570.0	10,448.2	6,397.4	76.3	76.2	48.25	3,719.0	-36.2	257.7	136.9	120.80	2.133		
10,700.0	6,570.0	10,548.2	6,396.8	78.2	78.0	48.15	3,819.0	-36.2	258.1	134.5	123.62	2.088		
10,800.0	6,570.0	10,648.2	6,396.2	80.1	79.9	48.05	3,919.0	-36.2	258.5	132.1	126.44	2.044		
10,900.0	6,570.0	10,748.2	6,395.6	82.0	81.8	47.95	4,019.0	-36.2	258.9	129.6	129.26	2.003		
10,996.7	6,570.0	10,844.9	6,395.0	83.8	83.6	47.85	4,115.7	-36.2	259.3	127.3	131.98	1.965 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 291-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 291-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 291-321 - Wellbore #1 - Plan #2 (4-9-15)												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 (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	
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	61.3	61.3				
100.0	100.0	99.0	99.0	0.1	0.1	89.99	0.0	61.3	61.3	61.1	0.22	274.125	
200.0	200.0	199.0	199.0	0.3	0.3	89.99	0.0	61.3	61.3	60.6	0.67	91.223	
300.0	300.0	299.0	299.0	0.6	0.6	89.99	0.0	61.3	61.3	60.2	1.12	54.661	
400.0	400.0	399.0	399.0	0.8	0.8	89.99	0.0	61.3	61.3	59.7	1.57	39.021	
500.0	500.0	499.0	499.0	1.0	1.0	89.99	0.0	61.3	61.3	59.3	2.02	30.340	
600.0	600.0	599.0	599.0	1.2	1.2	89.99	0.0	61.3	61.3	58.8	2.47	24.819	
700.0	700.0	699.0	699.0	1.5	1.5	89.99	0.0	61.3	61.3	58.4	2.92	20.997	
800.0	800.0	799.0	799.0	1.7	1.7	89.99	0.0	61.3	61.3	57.9	3.37	18.196 CC	
900.0	900.0	899.0	899.0	1.9	1.9	-111.87	0.0	61.3	61.6	57.8	3.79	16.255 ES	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-114.08	0.0	61.3	62.6	58.5	4.19	14.938	
1,100.0	1,099.9	1,098.8	1,098.8	2.3	2.3	-116.84	-0.8	61.5	64.6	60.0	4.58	14.114	
1,200.0	1,199.7	1,198.6	1,198.6	2.5	2.5	-119.24	-3.4	61.9	67.7	62.7	4.95	13.664	
1,300.0	1,299.4	1,298.5	1,298.3	2.7	2.7	-121.21	-7.6	62.7	71.7	66.4	5.34	13.420	
1,400.0	1,398.9	1,398.3	1,398.0	2.9	2.9	-122.76	-13.6	63.9	76.8	71.0	5.76	13.330	
1,500.0	1,498.3	1,498.2	1,497.6	3.1	3.1	-123.89	-21.3	65.3	82.8	76.6	6.20	13.352	
1,600.0	1,597.4	1,598.0	1,596.9	3.4	3.3	-124.67	-30.6	67.1	89.7	83.1	6.67	13.452	
1,700.0	1,696.3	1,697.8	1,696.1	3.7	3.6	-125.12	-41.7	69.2	97.5	90.4	7.17	13.595	
1,800.0	1,795.2	1,797.6	1,795.0	4.0	3.8	-124.78	-54.5	71.6	105.5	97.8	7.71	13.673	
1,900.0	1,894.0	1,897.3	1,893.7	4.3	4.1	-123.62	-68.9	74.3	113.3	105.1	8.29	13.672	
2,000.0	1,992.9	1,997.0	1,992.1	4.7	4.4	-122.21	-84.1	77.1	121.2	112.3	8.90	13.628	
2,100.0	2,091.7	2,096.6	2,090.5	5.0	4.7	-120.98	-99.4	80.0	129.2	119.7	9.52	13.571	
2,200.0	2,190.6	2,196.3	2,189.0	5.3	5.0	-119.90	-114.6	82.9	137.2	127.1	10.16	13.505	
2,300.0	2,289.4	2,295.9	2,287.4	5.7	5.3	-118.93	-129.8	85.7	145.3	134.5	10.81	13.436	
2,400.0	2,388.3	2,395.6	2,385.8	6.0	5.7	-118.07	-145.0	88.6	153.4	141.9	11.47	13.366	
2,500.0	2,487.1	2,495.2	2,484.3	6.4	6.0	-117.29	-160.3	91.5	161.5	149.3	12.14	13.298	
2,600.0	2,586.0	2,594.9	2,582.7	6.7	6.3	-116.59	-175.5	94.3	169.6	156.8	12.82	13.231	
2,700.0	2,684.8	2,694.5	2,681.2	7.1	6.7	-115.95	-190.7	97.2	177.8	164.3	13.50	13.167	
2,800.0	2,783.6	2,794.2	2,779.6	7.4	7.0	-115.36	-205.9	100.1	186.0	171.8	14.19	13.105	
2,900.0	2,882.5	2,893.8	2,878.0	7.8	7.4	-114.83	-221.2	102.9	194.2	179.3	14.88	13.047	
3,000.0	2,981.3	2,993.5	2,976.5	8.1	7.7	-114.34	-236.4	105.8	202.4	186.8	15.58	12.992	
3,100.0	3,080.2	3,093.1	3,074.9	8.5	8.1	-113.89	-251.6	108.7	210.7	194.4	16.28	12.940	
3,200.0	3,179.0	3,192.7	3,173.3	8.8	8.5	-113.47	-266.8	111.5	218.9	201.9	16.98	12.891	
3,300.0	3,277.9	3,292.4	3,271.8	9.2	8.8	-113.08	-282.1	114.4	227.2	209.5	17.69	12.845	
3,400.0	3,376.7	3,392.0	3,370.2	9.6	9.2	-112.72	-297.3	117.3	235.5	217.1	18.39	12.801	
3,500.0	3,475.6	3,491.7	3,468.6	9.9	9.5	-112.39	-312.5	120.1	243.7	224.6	19.10	12.760	
3,600.0	3,574.4	3,591.3	3,567.1	10.3	9.9	-112.07	-327.7	123.0	252.0	232.2	19.81	12.721	
3,700.0	3,673.3	3,691.0	3,665.5	10.6	10.3	-111.78	-343.0	125.9	260.3	239.8	20.52	12.684	
3,800.0	3,772.1	3,790.6	3,763.9	11.0	10.6	-111.51	-358.2	128.7	268.6	247.4	21.24	12.649	
3,900.0	3,871.0	3,890.3	3,862.4	11.4	11.0	-111.25	-373.4	131.6	276.9	255.0	21.95	12.616	
4,000.0	3,969.8	3,989.9	3,960.8	11.7	11.3	-111.00	-388.7	134.5	285.2	262.6	22.67	12.584	
4,100.0	4,068.7	4,089.6	4,059.2	12.1	11.7	-110.77	-403.9	137.3	293.5	270.2	23.38	12.555	
4,200.0	4,167.5	4,189.2	4,157.7	12.5	12.1	-110.55	-419.1	140.2	301.9	277.8	24.10	12.527	
4,300.0	4,266.4	4,288.9	4,256.1	12.8	12.4	-110.35	-434.3	143.1	310.2	285.4	24.82	12.500	
4,400.0	4,365.2	4,388.5	4,354.5	13.2	12.8	-110.15	-449.6	145.9	318.5	293.0	25.53	12.474	
4,500.0	4,464.1	4,488.2	4,453.0	13.6	13.2	-109.97	-464.8	148.8	326.9	300.6	26.25	12.450	
4,600.0	4,562.9	4,587.8	4,551.4	13.9	13.5	-109.79	-480.0	151.7	335.2	308.2	26.97	12.427	
4,700.0	4,661.8	4,687.4	4,649.9	14.3	13.9	-109.63	-495.2	154.5	343.5	315.8	27.69	12.405	
4,800.0	4,760.6	4,787.1	4,748.3	14.6	14.3	-109.47	-510.5	157.4	351.9	323.5	28.41	12.384	
4,900.0	4,859.5	4,886.7	4,846.7	15.0	14.7	-109.31	-525.7	160.3	360.2	331.1	29.13	12.364	
5,000.0	4,958.3	4,986.4	4,945.2	15.4	15.0	-109.17	-540.9	163.1	368.6	338.7	29.86	12.345	

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 R&R Farms 291-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 291-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 291-321 - Wellbore #1 - Plan #2 (4-9-15)												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	5,057.2	5,086.0	5,043.6	15.7	15.4	-109.03	-556.1	166.0	376.9	346.3	30.58	12.326		
5,200.0	5,156.0	5,188.3	5,144.8	16.1	15.7	-109.11	-570.4	168.7	385.0	353.8	31.20	12.337		
5,300.0	5,255.1	5,291.0	5,246.9	16.4	15.9	-109.62	-581.1	170.7	391.8	360.1	31.74	12.346		
5,400.0	5,354.5	5,393.7	5,349.4	16.6	16.1	-110.13	-588.2	172.0	396.8	364.6	32.15	12.341		
5,500.0	5,454.3	5,496.4	5,452.0	16.8	16.3	-110.63	-591.7	172.7	399.8	367.3	32.50	12.303		
5,600.0	5,554.2	5,597.6	5,553.2	17.0	16.4	-111.05	-592.1	172.8	401.1	368.3	32.80	12.229		
5,700.0	5,654.2	5,697.6	5,653.2	17.1	16.6	90.00	-592.1	172.8	401.2	368.1	33.08	12.128		
5,759.9	5,714.1	5,757.5	5,713.1	17.2	16.6	90.00	-592.1	172.8	401.2	368.0	33.24	12.070		
5,800.0	5,754.2	5,797.6	5,753.2	17.3	16.7	89.90	-591.4	172.8	401.2	367.9	33.34	12.034		
5,900.0	5,854.2	5,896.5	5,851.5	17.4	16.7	88.58	-580.7	172.8	401.3	367.9	33.46	11.994		
6,000.0	5,953.3	5,994.0	5,946.2	17.4	16.7	87.05	-557.9	172.8	401.8	368.4	33.37	12.041		
6,100.0	6,049.9	6,090.2	6,036.0	17.3	16.5	85.59	-523.8	172.8	402.4	369.4	33.07	12.167		
6,200.0	6,142.3	6,185.2	6,119.9	17.1	16.3	84.20	-479.3	172.8	403.3	370.7	32.64	12.357		
6,300.0	6,229.0	6,279.2	6,196.8	16.9	16.1	82.93	-425.3	172.8	404.3	372.2	32.12	12.590		
6,400.0	6,308.4	6,372.3	6,265.8	16.7	15.8	81.77	-363.0	172.8	405.4	373.8	31.59	12.834		
6,500.0	6,379.2	6,464.5	6,326.3	16.4	15.7	80.75	-293.4	172.8	406.5	375.4	31.14	13.053		
6,600.0	6,440.2	6,556.1	6,377.6	16.2	15.6	79.89	-217.6	172.8	407.6	376.7	30.87	13.204		
6,700.0	6,490.4	6,647.1	6,419.2	16.1	15.6	79.18	-136.7	172.8	408.5	377.6	30.85	13.242		
6,800.0	6,528.9	6,737.7	6,450.8	16.1	15.8	78.64	-51.8	172.8	409.2	378.1	31.16	13.135		
6,900.0	6,555.0	6,828.0	6,472.1	16.4	16.1	78.28	35.8	172.8	409.8	377.9	31.82	12.876		
7,000.0	6,568.2	6,918.0	6,482.8	16.9	16.7	78.10	125.2	172.8	410.0	377.2	32.86	12.479		
7,100.0	6,570.0	7,012.2	6,483.9	17.6	17.4	78.03	219.4	172.8	410.1	375.9	34.26	11.973		
7,200.0	6,570.0	7,112.2	6,483.2	18.5	18.3	77.92	319.4	172.8	410.3	374.3	36.01	11.393		
7,300.0	6,570.0	7,212.2	6,482.4	19.5	19.3	77.82	419.3	172.8	410.5	372.4	38.06	10.785		
7,400.0	6,570.0	7,312.2	6,481.6	20.7	20.5	77.71	519.3	172.8	410.6	370.3	40.35	10.176		
7,500.0	6,570.0	7,412.2	6,480.9	22.0	21.8	77.61	619.3	172.8	410.8	367.9	42.85	9.586		
7,600.0	6,570.0	7,512.2	6,480.1	23.4	23.2	77.51	719.3	172.8	411.0	365.4	45.52	9.028		
7,700.0	6,570.0	7,612.2	6,479.3	24.8	24.6	77.40	819.3	172.8	411.1	362.8	48.33	8.506		
7,800.0	6,570.0	7,712.2	6,478.6	26.3	26.1	77.30	919.3	172.8	411.3	360.0	51.26	8.023		
7,900.0	6,570.0	7,812.2	6,477.8	27.9	27.7	77.19	1,019.3	172.8	411.5	357.2	54.29	7.579		
8,000.0	6,570.0	7,912.2	6,477.0	29.5	29.3	77.09	1,119.3	172.8	411.6	354.2	57.40	7.171		
8,100.0	6,570.0	8,012.2	6,476.3	31.1	30.9	76.98	1,219.3	172.8	411.8	351.2	60.58	6.797		
8,200.0	6,570.0	8,112.2	6,475.5	32.7	32.6	76.88	1,319.3	172.8	412.0	348.2	63.82	6.455		
8,300.0	6,570.0	8,212.2	6,474.7	34.4	34.3	76.78	1,419.3	172.8	412.2	345.0	67.11	6.141		
8,400.0	6,570.0	8,312.2	6,473.9	36.1	36.0	76.67	1,519.3	172.8	412.3	341.9	70.44	5.853		
8,500.0	6,570.0	8,412.2	6,473.2	37.9	37.7	76.57	1,619.3	172.8	412.5	338.7	73.81	5.589		
8,600.0	6,570.0	8,512.2	6,472.4	39.6	39.5	76.46	1,719.3	172.8	412.7	335.5	77.21	5.345		
8,700.0	6,570.0	8,612.2	6,471.6	41.4	41.3	76.36	1,819.3	172.8	412.9	332.2	80.63	5.121		
8,800.0	6,570.0	8,712.2	6,470.9	43.2	43.1	76.26	1,919.3	172.8	413.0	329.0	84.07	4.913		
8,900.0	6,570.0	8,812.2	6,470.1	45.0	44.8	76.15	2,019.3	172.8	413.2	325.7	87.54	4.720		
9,000.0	6,570.0	8,912.2	6,469.3	46.8	46.7	76.05	2,119.2	172.8	413.4	322.4	91.02	4.542		
9,100.0	6,570.0	9,012.2	6,468.6	48.6	48.5	75.95	2,219.2	172.8	413.6	319.1	94.52	4.376		
9,200.0	6,570.0	9,112.2	6,467.8	50.4	50.3	75.84	2,319.2	172.8	413.8	315.8	98.03	4.221		
9,300.0	6,570.0	9,212.2	6,467.0	52.2	52.1	75.74	2,419.2	172.8	414.0	312.4	101.55	4.076		
9,400.0	6,570.0	9,312.2	6,466.3	54.0	53.9	75.64	2,519.2	172.8	414.2	309.1	105.08	3.941		
9,500.0	6,570.0	9,412.2	6,465.5	55.9	55.8	75.54	2,619.2	172.8	414.4	305.7	108.62	3.815		
9,600.0	6,570.0	9,512.1	6,464.7	57.7	57.6	75.43	2,719.2	172.8	414.6	302.4	112.17	3.696		
9,700.0	6,570.0	9,612.1	6,464.0	59.6	59.5	75.33	2,819.2	172.8	414.7	299.0	115.72	3.584		
9,800.0	6,570.0	9,712.1	6,463.2	61.4	61.3	75.23	2,919.2	172.8	414.9	295.7	119.28	3.479		
9,900.0	6,570.0	9,812.1	6,462.4	63.3	63.2	75.12	3,019.2	172.8	415.1	292.3	122.84	3.379		

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 R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	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	
10,000.0	6,570.0	9,912.1	6,461.7	65.1	65.1	75.02	3,119.2	172.8	415.3	288.9	126.41	3.286		
10,100.0	6,570.0	10,012.1	6,460.9	67.0	66.9	74.92	3,219.2	172.8	415.5	285.6	129.98	3.197		
10,200.0	6,570.0	10,112.1	6,460.1	68.9	68.8	74.82	3,319.2	172.8	415.7	282.2	133.55	3.113		
10,300.0	6,570.0	10,212.1	6,459.4	70.7	70.7	74.72	3,419.2	172.8	415.9	278.8	137.13	3.033		
10,400.0	6,570.0	10,312.1	6,458.6	72.6	72.5	74.61	3,519.2	172.8	416.1	275.4	140.71	2.957		
10,500.0	6,570.0	10,412.1	6,457.8	74.5	74.4	74.51	3,619.2	172.8	416.3	272.1	144.29	2.886		
10,600.0	6,570.0	10,512.1	6,457.1	76.3	76.3	74.41	3,719.2	172.8	416.5	268.7	147.86	2.817		
10,700.0	6,570.0	10,612.1	6,456.3	78.2	78.2	74.31	3,819.1	172.8	416.8	265.3	151.44	2.752		
10,800.0	6,570.0	10,712.1	6,455.5	80.1	80.0	74.21	3,919.1	172.8	417.0	261.9	155.03	2.690		
10,900.0	6,570.0	10,812.1	6,454.7	82.0	81.9	74.11	4,019.1	172.8	417.2	258.6	158.61	2.630		
10,996.7	6,570.0	10,908.8	6,454.0	83.8	83.8	74.01	4,115.9	172.8	417.4	255.3	162.07	2.575 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29L-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29L-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 29L-241 - Wellbore #1 - Plan #2 (4-9-15)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 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
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	92.0	92.0				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	92.0	92.0	91.7	0.22	411.188	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	92.0	92.0	91.3	0.67	136.835	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	0.0	92.0	92.0	90.8	1.12	81.991	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	0.0	92.0	92.0	90.4	1.57	58.532	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	0.0	92.0	92.0	89.9	2.02	45.510	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	0.0	92.0	92.0	89.5	2.47	37.228	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	0.0	92.0	92.0	89.0	2.92	31.496	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	0.0	92.0	92.0	88.6	3.37	27.294 CC, ES	
900.0	900.0	898.2	898.2	1.9	1.9	-111.14	-0.7	92.4	92.7	88.9	3.76	24.628	
1,000.0	1,000.0	997.4	997.4	2.1	2.1	-111.23	-3.0	93.6	94.9	90.8	4.12	23.026	
1,100.0	1,099.9	1,096.5	1,096.4	2.3	2.3	-111.37	-6.7	95.7	98.5	94.0	4.50	21.907	
1,200.0	1,199.7	1,195.6	1,195.3	2.5	2.5	-111.53	-11.9	98.6	103.7	98.8	4.90	21.168	
1,300.0	1,299.4	1,294.5	1,293.9	2.7	2.7	-111.72	-18.6	102.3	110.3	104.9	5.32	20.723	
1,400.0	1,398.9	1,393.2	1,392.2	2.9	2.9	-111.91	-26.8	106.9	118.3	112.5	5.77	20.500	
1,500.0	1,498.3	1,491.8	1,490.1	3.1	3.1	-112.10	-36.5	112.2	127.8	121.6	6.25	20.442	
1,600.0	1,597.4	1,590.1	1,587.6	3.4	3.4	-112.28	-47.5	118.4	138.8	132.0	6.77	20.504	
1,700.0	1,696.3	1,688.2	1,684.7	3.7	3.7	-112.45	-60.1	125.3	151.2	143.8	7.32	20.645	
1,800.0	1,795.2	1,786.3	1,781.5	4.0	4.0	-112.28	-74.0	133.1	164.5	156.6	7.91	20.796	
1,900.0	1,894.0	1,885.4	1,879.1	4.3	4.3	-111.98	-88.6	141.1	178.0	169.5	8.52	20.893	
2,000.0	1,992.9	1,984.5	1,976.8	4.7	4.7	-111.72	-103.1	149.2	191.6	182.4	9.15	20.942	
2,100.0	2,091.7	2,083.6	2,074.5	5.0	5.0	-111.49	-117.7	157.3	205.2	195.4	9.79	20.958	
2,200.0	2,190.6	2,182.6	2,172.1	5.3	5.4	-111.30	-132.2	165.4	218.7	208.3	10.44	20.951	
2,300.0	2,289.4	2,281.7	2,269.8	5.7	5.7	-111.12	-146.8	173.5	232.3	221.2	11.10	20.928	
2,400.0	2,388.3	2,380.8	2,367.5	6.0	6.1	-110.97	-161.3	181.6	245.9	234.1	11.77	20.896	
2,500.0	2,487.1	2,479.8	2,465.1	6.4	6.5	-110.83	-175.9	189.6	259.4	247.0	12.44	20.857	
2,600.0	2,586.0	2,578.9	2,562.8	6.7	6.8	-110.70	-190.5	197.7	273.0	259.9	13.12	20.814	
2,700.0	2,684.8	2,678.0	2,660.4	7.1	7.2	-110.59	-205.0	205.8	286.6	272.8	13.80	20.768	
2,800.0	2,783.6	2,777.1	2,758.1	7.4	7.6	-110.49	-219.6	213.9	300.2	285.7	14.49	20.722	
2,900.0	2,882.5	2,876.1	2,855.8	7.8	8.0	-110.39	-234.1	222.0	313.8	298.6	15.17	20.676	
3,000.0	2,981.3	2,975.2	2,953.4	8.1	8.3	-110.31	-248.7	230.0	327.3	311.5	15.87	20.630	
3,100.0	3,080.2	3,074.3	3,051.1	8.5	8.7	-110.23	-263.2	238.1	340.9	324.4	16.56	20.585	
3,200.0	3,179.0	3,173.3	3,148.8	8.8	9.1	-110.15	-277.8	246.2	354.5	337.2	17.26	20.541	
3,300.0	3,277.9	3,272.4	3,246.4	9.2	9.5	-110.09	-292.3	254.3	368.1	350.1	17.96	20.498	
3,400.0	3,376.7	3,371.5	3,344.1	9.6	9.9	-110.02	-306.9	262.4	381.7	363.0	18.66	20.457	
3,500.0	3,475.6	3,470.6	3,441.8	9.9	10.3	-109.96	-321.5	270.5	395.2	375.9	19.36	20.417	
3,600.0	3,574.4	3,569.6	3,539.4	10.3	10.6	-109.91	-336.0	278.5	408.8	388.8	20.06	20.379	
3,700.0	3,673.3	3,668.7	3,637.1	10.6	11.0	-109.86	-350.6	286.6	422.4	401.6	20.77	20.342	
3,800.0	3,772.1	3,767.8	3,734.7	11.0	11.4	-109.81	-365.1	294.7	436.0	414.5	21.47	20.306	
3,900.0	3,871.0	3,866.9	3,832.4	11.4	11.8	-109.76	-379.7	302.8	449.6	427.4	22.18	20.272	
4,000.0	3,969.8	3,965.9	3,930.1	11.7	12.2	-109.72	-394.2	310.9	463.2	440.3	22.88	20.239	
4,100.0	4,068.7	4,065.0	4,027.7	12.1	12.6	-109.68	-408.8	319.0	476.7	453.2	23.59	20.207	
4,200.0	4,167.5	4,164.1	4,125.4	12.5	13.0	-109.64	-423.4	327.0	490.3	466.0	24.30	20.177	
4,300.0	4,266.4	4,263.1	4,223.1	12.8	13.3	-109.61	-437.9	335.1	503.9	478.9	25.01	20.148	
4,400.0	4,365.2	4,362.2	4,320.7	13.2	13.7	-109.57	-452.5	343.2	517.5	491.8	25.72	20.120	
4,500.0	4,464.1	4,461.3	4,418.4	13.6	14.1	-109.54	-467.0	351.3	531.1	504.7	26.43	20.093	
4,600.0	4,562.9	4,560.4	4,516.1	13.9	14.5	-109.51	-481.6	359.4	544.7	517.5	27.14	20.067	
4,700.0	4,661.8	4,659.4	4,613.7	14.3	14.9	-109.48	-496.1	367.4	558.3	530.4	27.85	20.042	
4,800.0	4,760.6	4,758.5	4,711.4	14.6	15.3	-109.45	-510.7	375.5	571.8	543.3	28.57	20.018	
4,900.0	4,859.5	4,857.6	4,809.0	15.0	15.7	-109.43	-525.2	383.6	585.4	556.1	29.28	19.994	
5,000.0	4,958.3	4,956.7	4,906.7	15.4	16.1	-109.40	-539.8	391.7	599.0	569.0	29.99	19.972	

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 R&R Farms 29L-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29L-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 29L-241 - Wellbore #1 - Plan #2 (4-9-15)											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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
							+N/-S (ft)	+E/-W (ft)							
5,100.0	5,057.2	5,055.7	5,004.4	15.7	16.5	-109.38	-554.4	399.8	612.6	581.9	30.71	19.950			
5,200.0	5,156.0	5,165.2	5,112.6	16.1	16.8	-109.48	-569.1	408.0	625.5	594.1	31.37	19.942			
5,300.0	5,255.1	5,276.9	5,223.5	16.4	17.0	-109.95	-580.4	414.2	636.0	604.0	31.94	19.911			
5,400.0	5,354.5	5,389.0	5,335.3	16.6	17.3	-110.39	-588.0	418.4	643.4	611.0	32.40	19.860			
5,500.0	5,454.3	5,501.3	5,447.5	16.8	17.4	-110.78	-591.7	420.5	647.7	614.9	32.78	19.757			
5,600.0	5,554.2	5,607.1	5,553.2	17.0	17.6	-111.07	-592.1	420.7	649.1	616.0	33.11	19.605			
5,700.0	5,654.2	5,707.1	5,653.2	17.1	17.7	90.00	-592.1	420.7	649.2	615.8	33.39	19.442			
5,728.7	5,683.0	5,735.8	5,681.9	17.2	17.8	89.96	-591.6	420.7	649.2	615.7	33.46	19.402			
5,800.0	5,754.2	5,806.5	5,752.4	17.3	17.8	89.45	-585.9	420.7	649.2	615.6	33.61	19.319			
5,900.0	5,854.2	5,903.2	5,847.2	17.4	17.8	87.94	-567.6	420.7	649.6	615.9	33.71	19.269			
6,000.0	5,953.3	5,997.3	5,936.7	17.4	17.6	86.32	-538.3	420.7	650.6	617.0	33.62	19.351			
6,100.0	6,049.9	6,089.5	6,020.1	17.3	17.5	84.78	-499.3	420.7	652.0	618.6	33.34	19.554			
6,200.0	6,142.3	6,180.0	6,096.9	17.1	17.2	83.34	-451.4	420.7	653.7	620.8	32.93	19.854			
6,300.0	6,229.0	6,269.0	6,166.3	16.9	17.0	82.01	-395.9	420.7	655.7	623.3	32.43	20.217			
6,400.0	6,308.4	6,356.6	6,227.9	16.7	16.8	80.81	-333.6	420.7	657.8	625.9	31.93	20.601			
6,500.0	6,379.2	6,443.2	6,281.4	16.4	16.6	79.76	-265.6	420.7	659.8	628.3	31.50	20.947			
6,600.0	6,440.2	6,528.8	6,326.4	16.2	16.4	78.86	-192.8	420.7	661.8	630.5	31.23	21.187			
6,700.0	6,490.4	6,613.7	6,362.7	16.1	16.3	78.14	-116.1	420.7	663.4	632.2	31.21	21.260			
6,800.0	6,528.9	6,700.0	6,390.7	16.1	16.3	77.57	-34.6	420.7	664.8	633.3	31.49	21.113			
6,900.0	6,555.0	6,782.0	6,408.5	16.4	16.5	77.21	45.4	420.7	665.7	633.6	32.11	20.730			
7,000.0	6,568.2	6,865.7	6,417.9	16.9	16.8	77.02	128.5	420.7	666.2	633.1	33.09	20.131			
7,100.0	6,570.0	6,956.2	6,418.8	17.6	17.5	76.97	219.1	420.7	666.3	631.9	34.46	19.334			
7,200.0	6,570.0	7,056.2	6,418.2	18.5	18.4	76.92	319.1	420.7	666.5	630.3	36.21	18.404			
7,300.0	6,570.0	7,156.2	6,417.6	19.5	19.5	76.87	419.1	420.7	666.6	628.4	38.25	17.429			
7,400.0	6,570.0	7,256.2	6,417.0	20.7	20.7	76.82	519.1	420.7	666.8	626.2	40.53	16.453			
7,500.0	6,570.0	7,356.2	6,416.4	22.0	22.0	76.77	619.1	420.7	666.9	623.9	43.01	15.505			
7,600.0	6,570.0	7,456.2	6,415.8	23.4	23.3	76.72	719.1	420.7	667.0	621.4	45.67	14.606			
7,700.0	6,570.0	7,556.2	6,415.1	24.8	24.8	76.67	819.1	420.7	667.2	618.7	48.47	13.765			
7,800.0	6,570.0	7,656.2	6,414.5	26.3	26.3	76.62	919.1	420.7	667.3	615.9	51.39	12.986			
7,900.0	6,570.0	7,756.2	6,413.9	27.9	27.9	76.57	1,019.1	420.7	667.5	613.1	54.41	12.267			
8,000.0	6,570.0	7,856.2	6,413.3	29.5	29.4	76.51	1,119.1	420.7	667.6	610.1	57.52	11.607			
8,100.0	6,570.0	7,956.2	6,412.7	31.1	31.1	76.46	1,219.1	420.7	667.7	607.1	60.69	11.002			
8,200.0	6,570.0	8,056.2	6,412.1	32.7	32.7	76.41	1,319.1	420.7	667.9	604.0	63.93	10.448			
8,300.0	6,570.0	8,156.2	6,411.5	34.4	34.4	76.36	1,419.0	420.7	668.0	600.8	67.22	9.939			
8,400.0	6,570.0	8,256.2	6,410.9	36.1	36.1	76.31	1,519.0	420.7	668.2	597.6	70.55	9.472			
8,500.0	6,570.0	8,356.2	6,410.3	37.9	37.9	76.26	1,619.0	420.7	668.3	594.4	73.92	9.042			
8,600.0	6,570.0	8,456.2	6,409.6	39.6	39.6	76.21	1,719.0	420.7	668.5	591.2	77.32	8.646			
8,700.0	6,570.0	8,556.2	6,409.0	41.4	41.4	76.16	1,819.0	420.7	668.6	587.9	80.75	8.280			
8,800.0	6,570.0	8,656.2	6,408.4	43.2	43.2	76.11	1,919.0	420.7	668.8	584.6	84.20	7.942			
8,900.0	6,570.0	8,756.2	6,407.8	45.0	45.0	76.06	2,019.0	420.7	668.9	581.2	87.68	7.629			
9,000.0	6,570.0	8,856.2	6,407.2	46.8	46.8	76.01	2,119.0	420.7	669.1	577.9	91.17	7.339			
9,100.0	6,570.0	8,956.2	6,406.6	48.6	48.6	75.95	2,219.0	420.7	669.2	574.5	94.68	7.068			
9,200.0	6,570.0	9,056.2	6,406.0	50.4	50.4	75.90	2,319.0	420.7	669.4	571.1	98.21	6.816			
9,300.0	6,570.0	9,156.2	6,405.4	52.2	52.2	75.85	2,419.0	420.7	669.5	567.8	101.75	6.580			
9,400.0	6,570.0	9,256.2	6,404.8	54.0	54.0	75.80	2,519.0	420.7	669.7	564.4	105.30	6.360			
9,500.0	6,570.0	9,356.2	6,404.1	55.9	55.9	75.75	2,619.0	420.7	669.8	560.9	108.86	6.153			
9,600.0	6,570.0	9,456.2	6,403.5	57.7	57.7	75.70	2,719.0	420.7	670.0	557.5	112.43	5.959			
9,700.0	6,570.0	9,556.2	6,402.9	59.6	59.5	75.65	2,819.0	420.7	670.1	554.1	116.00	5.777			
9,800.0	6,570.0	9,656.2	6,402.3	61.4	61.4	75.60	2,919.0	420.7	670.3	550.7	119.59	5.605			
9,900.0	6,570.0	9,756.2	6,401.7	63.3	63.2	75.55	3,019.0	420.7	670.4	547.2	123.18	5.443			

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 R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design										R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 29L-241 - Wellbore #1 - Plan #2 (4-9-15)			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)				
10,000.0	6,570.0	9,856.2	6,401.1	65.1	65.1	75.50	3,119.0	420.7	670.6	543.8	126.78	5.289			
10,100.0	6,570.0	9,956.2	6,400.5	67.0	67.0	75.45	3,219.0	420.7	670.7	540.3	130.38	5.144			
10,200.0	6,570.0	10,056.2	6,399.9	68.9	68.8	75.40	3,319.0	420.7	670.9	536.9	133.99	5.007			
10,300.0	6,570.0	10,156.2	6,399.3	70.7	70.7	75.35	3,419.0	420.7	671.0	533.4	137.60	4.877			
10,400.0	6,570.0	10,256.2	6,398.7	72.6	72.6	75.30	3,519.0	420.7	671.2	530.0	141.21	4.753			
10,500.0	6,570.0	10,356.2	6,398.0	74.5	74.4	75.25	3,619.0	420.7	671.3	526.5	144.83	4.635			
10,600.0	6,570.0	10,456.2	6,397.4	76.3	76.3	75.20	3,719.0	420.7	671.5	523.0	148.45	4.523			
10,700.0	6,570.0	10,556.2	6,396.8	78.2	78.2	75.15	3,819.0	420.7	671.6	519.6	152.07	4.417			
10,800.0	6,570.0	10,656.2	6,396.2	80.1	80.1	75.10	3,919.0	420.7	671.8	516.1	155.70	4.315			
10,900.0	6,570.0	10,756.2	6,395.6	82.0	82.0	75.05	4,019.0	420.7	672.0	512.6	159.33	4.218			
10,996.7	6,570.0	10,852.9	6,395.0	83.8	83.8	75.00	4,115.7	420.7	672.1	509.3	162.84	4.128 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29L-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29L-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design											R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 29L-301 - Wellbore #1 - Plan #2 (4-9-15)		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 (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			
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	150.5	150.5						
100.0	100.0	99.0	99.0	0.1	0.1	89.99	0.0	150.5	150.5	150.3	0.22	672.853			
200.0	200.0	199.0	199.0	0.3	0.3	89.99	0.0	150.5	150.5	149.8	0.67	223.911	CC, ES		
300.0	300.0	297.0	297.0	0.6	0.5	90.19	-0.5	151.1	151.1	150.0	1.10	137.591			
400.0	400.0	395.0	394.9	0.8	0.7	90.78	-2.1	153.0	153.1	151.6	1.52	100.456			
500.0	500.0	492.8	492.7	1.0	1.0	91.73	-4.7	156.3	156.5	154.5	1.96	79.662			
600.0	600.0	590.5	590.2	1.2	1.2	93.00	-8.4	160.8	161.2	158.8	2.42	66.739			
700.0	700.0	687.9	687.3	1.5	1.4	94.52	-13.2	166.5	167.5	164.6	2.88	58.182			
800.0	800.0	785.0	784.0	1.7	1.7	96.22	-18.9	173.6	175.2	171.9	3.35	52.288			
900.0	900.0	881.9	880.3	1.9	2.0	-103.22	-25.7	181.8	184.8	181.0	3.76	49.142			
1,000.0	1,000.0	978.4	976.0	2.1	2.3	-101.94	-33.5	191.3	196.3	192.1	4.18	46.907			
1,100.0	1,099.9	1,074.5	1,071.1	2.3	2.6	-101.02	-42.2	202.0	209.6	205.0	4.62	45.320			
1,200.0	1,199.7	1,170.2	1,165.5	2.5	2.9	-100.40	-52.0	213.8	224.7	219.7	5.08	44.201			
1,300.0	1,299.4	1,265.3	1,259.2	2.7	3.3	-100.04	-62.6	226.8	241.6	236.1	5.57	43.418			
1,400.0	1,398.9	1,359.9	1,352.0	2.9	3.7	-99.89	-74.2	240.9	260.3	254.2	6.07	42.874			
1,500.0	1,498.3	1,456.3	1,446.4	3.1	4.1	-99.94	-86.8	256.3	280.4	273.8	6.61	42.427			
1,600.0	1,597.4	1,554.2	1,542.1	3.4	4.5	-100.27	-99.7	272.0	300.9	293.7	7.18	41.932			
1,700.0	1,696.3	1,651.9	1,637.6	3.7	4.9	-100.90	-112.6	287.7	321.8	314.0	7.77	41.389			
1,800.0	1,795.2	1,749.6	1,733.2	4.0	5.4	-101.65	-125.4	303.4	342.8	334.4	8.40	40.825			
1,900.0	1,894.0	1,847.2	1,828.7	4.3	5.8	-102.31	-138.3	319.1	363.8	354.8	9.03	40.283			
2,000.0	1,992.9	1,944.9	1,924.3	4.7	6.3	-102.90	-151.2	334.7	384.9	375.2	9.68	39.772			
2,100.0	2,091.7	2,042.6	2,019.8	5.0	6.7	-103.43	-164.0	350.4	406.0	395.7	10.33	39.295			
2,200.0	2,190.6	2,140.3	2,115.4	5.3	7.2	-103.91	-176.9	366.1	427.1	416.1	10.99	38.851			
2,300.0	2,289.4	2,238.0	2,210.9	5.7	7.6	-104.34	-189.8	381.8	448.3	436.7	11.66	38.440			
2,400.0	2,388.3	2,335.6	2,306.5	6.0	8.0	-104.73	-202.6	397.4	469.5	457.2	12.34	38.060			
2,500.0	2,487.1	2,433.3	2,402.1	6.4	8.5	-105.09	-215.5	413.1	490.7	477.7	13.01	37.709			
2,600.0	2,586.0	2,531.0	2,497.6	6.7	8.9	-105.42	-228.4	428.8	512.0	498.3	13.69	37.383			
2,700.0	2,684.8	2,628.7	2,593.2	7.1	9.4	-105.73	-241.2	444.5	533.2	518.8	14.38	37.081			
2,800.0	2,783.6	2,726.4	2,688.7	7.4	9.8	-106.01	-254.1	460.2	554.5	539.4	15.07	36.801			
2,900.0	2,882.5	2,824.0	2,784.3	7.8	10.3	-106.27	-266.9	475.8	575.7	560.0	15.76	36.541			
3,000.0	2,981.3	2,921.7	2,879.8	8.1	10.7	-106.51	-279.8	491.5	597.0	580.6	16.45	36.299			
3,100.0	3,080.2	3,019.4	2,975.4	8.5	11.2	-106.73	-292.7	507.2	618.3	601.2	17.14	36.073			
3,200.0	3,179.0	3,117.1	3,070.9	8.8	11.6	-106.94	-305.5	522.9	639.6	621.8	17.84	35.862			
3,300.0	3,277.9	3,214.8	3,166.5	9.2	12.1	-107.14	-318.4	538.5	660.9	642.4	18.53	35.664			
3,400.0	3,376.7	3,312.4	3,262.0	9.6	12.6	-107.32	-331.3	554.2	682.2	663.0	19.23	35.479			
3,500.0	3,475.6	3,410.1	3,357.6	9.9	13.0	-107.49	-344.1	569.9	703.5	683.6	19.93	35.305			
3,600.0	3,574.4	3,507.8	3,453.1	10.3	13.5	-107.66	-357.0	585.6	724.9	704.2	20.63	35.141			
3,700.0	3,673.3	3,605.5	3,548.7	10.6	13.9	-107.81	-369.9	601.3	746.2	724.9	21.33	34.987			
3,800.0	3,772.1	3,703.2	3,644.2	11.0	14.4	-107.95	-382.7	616.9	767.5	745.5	22.03	34.842			
3,900.0	3,871.0	3,800.8	3,739.8	11.4	14.8	-108.09	-395.6	632.6	788.9	766.1	22.73	34.704			
4,000.0	3,969.8	3,898.5	3,835.3	11.7	15.3	-108.22	-408.4	648.3	810.2	786.8	23.43	34.574			
4,100.0	4,068.7	3,996.2	3,930.9	12.1	15.7	-108.34	-421.3	664.0	831.6	807.4	24.14	34.451			
4,200.0	4,167.5	4,093.9	4,026.4	12.5	16.2	-108.46	-434.2	679.7	852.9	828.1	24.84	34.334			
4,300.0	4,266.4	4,191.6	4,122.0	12.8	16.6	-108.57	-447.0	695.3	874.3	848.7	25.55	34.223			
4,400.0	4,365.2	4,289.2	4,217.5	13.2	17.1	-108.68	-459.9	711.0	895.6	869.4	26.25	34.117			
4,500.0	4,464.1	4,386.9	4,313.1	13.6	17.5	-108.78	-472.8	726.7	917.0	890.0	26.96	34.017			
4,600.0	4,562.9	4,484.6	4,408.6	13.9	18.0	-108.87	-485.6	742.4	938.4	910.7	27.66	33.921			
4,700.0	4,661.8	4,582.3	4,504.2	14.3	18.4	-108.96	-498.5	758.0	959.7	931.4	28.37	33.829			
4,800.0	4,760.6	4,679.9	4,599.7	14.6	18.9	-109.05	-511.4	773.7	981.1	952.0	29.08	33.742	SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29L-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29L-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 29L-441 - Wellbore #1 - Plan #2 (4-9-15)											Offset Site Error:		0.0 ft	
Survey Program: 0-MWDD											Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
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		
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	119.8	119.8					
100.0	100.0	99.0	99.0	0.1	0.1	89.99	0.0	119.8	119.8	119.6	0.22	535.790		
200.0	200.0	199.0	199.0	0.3	0.3	89.99	0.0	119.8	119.8	119.2	0.67	178.300		
300.0	300.0	299.0	299.0	0.6	0.6	89.99	0.0	119.8	119.8	118.7	1.12	106.837		
400.0	400.0	399.0	399.0	0.8	0.8	89.99	0.0	119.8	119.8	118.3	1.57	76.268	CC, ES	
500.0	500.0	497.6	497.6	1.0	1.0	90.28	-0.6	120.4	120.4	118.4	2.00	60.349		
600.0	600.0	596.1	596.1	1.2	1.2	91.15	-2.5	122.1	122.2	119.7	2.41	50.698		
700.0	700.0	694.6	694.4	1.5	1.4	92.55	-5.6	124.9	125.2	122.3	2.84	44.108		
800.0	800.0	792.8	792.5	1.7	1.6	94.39	-9.9	128.9	129.5	126.2	3.28	39.495		
900.0	900.0	890.9	890.3	1.9	1.8	-104.81	-15.5	134.0	135.4	131.7	3.69	36.679		
1,000.0	1,000.0	988.7	987.7	2.1	2.1	-103.29	-22.2	140.3	143.2	139.1	4.10	34.928		
1,100.0	1,099.9	1,086.2	1,084.6	2.3	2.3	-102.15	-30.2	147.6	152.8	148.3	4.53	33.742		
1,200.0	1,199.7	1,183.5	1,181.0	2.5	2.6	-101.35	-39.4	156.0	164.1	159.1	4.98	32.970		
1,300.0	1,299.4	1,280.3	1,276.9	2.7	2.9	-100.84	-49.7	165.5	177.1	171.6	5.45	32.496		
1,400.0	1,398.9	1,376.8	1,372.1	2.9	3.3	-100.57	-61.2	176.0	191.7	185.8	5.95	32.233		
1,500.0	1,498.3	1,474.1	1,467.8	3.1	3.6	-100.53	-73.8	187.6	207.9	201.4	6.48	32.086		
1,600.0	1,597.4	1,572.6	1,564.8	3.4	4.0	-100.87	-86.8	199.5	224.5	217.5	7.04	31.892		
1,700.0	1,696.3	1,671.1	1,661.7	3.7	4.4	-101.59	-99.8	211.4	241.5	233.9	7.63	31.643		
1,800.0	1,795.2	1,769.6	1,758.6	4.0	4.8	-102.40	-112.7	223.3	258.7	250.4	8.25	31.362		
1,900.0	1,894.0	1,868.0	1,855.5	4.3	5.2	-103.12	-125.7	235.2	275.8	267.0	8.88	31.075		
2,000.0	1,992.9	1,966.5	1,952.3	4.7	5.5	-103.75	-138.6	247.0	293.0	283.5	9.52	30.793		
2,100.0	2,091.7	2,065.0	2,049.2	5.0	5.9	-104.31	-151.6	258.9	310.3	300.1	10.17	30.522		
2,200.0	2,190.6	2,163.4	2,146.1	5.3	6.3	-104.81	-164.5	270.8	327.6	316.7	10.82	30.266		
2,300.0	2,289.4	2,261.9	2,243.0	5.7	6.7	-105.26	-177.5	282.7	344.9	333.4	11.49	30.025		
2,400.0	2,388.3	2,360.3	2,339.8	6.0	7.1	-105.67	-190.5	294.6	362.2	350.0	12.15	29.799		
2,500.0	2,487.1	2,458.8	2,436.7	6.4	7.5	-106.05	-203.4	306.5	379.5	366.7	12.83	29.587		
2,600.0	2,586.0	2,557.3	2,533.6	6.7	7.9	-106.38	-216.4	318.4	396.8	383.3	13.50	29.390		
2,700.0	2,684.8	2,655.7	2,630.5	7.1	8.3	-106.69	-229.3	330.3	414.2	400.0	14.18	29.206		
2,800.0	2,783.6	2,754.2	2,727.3	7.4	8.7	-106.98	-242.3	342.2	431.6	416.7	14.86	29.035		
2,900.0	2,882.5	2,852.6	2,824.2	7.8	9.1	-107.24	-255.3	354.1	448.9	433.4	15.55	28.875		
3,000.0	2,981.3	2,951.1	2,921.1	8.1	9.5	-107.49	-268.2	366.0	466.3	450.1	16.23	28.725		
3,100.0	3,080.2	3,049.5	3,018.0	8.5	9.9	-107.71	-281.2	377.9	483.7	466.8	16.92	28.584		
3,200.0	3,179.0	3,148.0	3,114.8	8.8	10.3	-107.92	-294.1	389.7	501.1	483.5	17.61	28.453		
3,300.0	3,277.9	3,246.5	3,211.7	9.2	10.8	-108.12	-307.1	401.6	518.5	500.2	18.30	28.330		
3,400.0	3,376.7	3,344.9	3,308.6	9.6	11.2	-108.31	-320.1	413.5	535.9	516.9	18.99	28.214		
3,500.0	3,475.6	3,443.4	3,405.5	9.9	11.6	-108.48	-333.0	425.4	553.3	533.6	19.69	28.105		
3,600.0	3,574.4	3,541.8	3,502.3	10.3	12.0	-108.64	-346.0	437.3	570.7	550.4	20.38	28.002		
3,700.0	3,673.3	3,640.3	3,599.2	10.6	12.4	-108.79	-358.9	449.2	588.2	567.1	21.08	27.905		
3,800.0	3,772.1	3,738.8	3,696.1	11.0	12.8	-108.93	-371.9	461.1	605.6	583.8	21.77	27.813		
3,900.0	3,871.0	3,837.2	3,793.0	11.4	13.2	-109.07	-384.9	473.0	623.0	600.6	22.47	27.726		
4,000.0	3,969.8	3,935.7	3,889.8	11.7	13.6	-109.20	-397.8	484.9	640.5	617.3	23.17	27.644		
4,100.0	4,068.7	4,034.1	3,986.7	12.1	14.0	-109.32	-410.8	496.8	657.9	634.0	23.87	27.566		
4,200.0	4,167.5	4,132.6	4,083.6	12.5	14.4	-109.43	-423.7	508.7	675.3	650.8	24.57	27.492		
4,300.0	4,266.4	4,231.1	4,180.5	12.8	14.8	-109.54	-436.7	520.5	692.8	667.5	25.26	27.421		
4,400.0	4,365.2	4,329.5	4,277.3	13.2	15.2	-109.65	-449.7	532.4	710.2	684.3	25.96	27.354		
4,500.0	4,464.1	4,428.0	4,374.2	13.6	15.6	-109.75	-462.6	544.3	727.7	701.0	26.66	27.290		
4,600.0	4,562.9	4,526.4	4,471.1	13.9	16.0	-109.84	-475.6	556.2	745.1	717.8	27.36	27.229		
4,700.0	4,661.8	4,624.9	4,568.0	14.3	16.4	-109.93	-488.5	568.1	762.6	734.5	28.07	27.171		
4,800.0	4,760.6	4,723.3	4,664.8	14.6	16.9	-110.02	-501.5	580.0	780.0	751.2	28.77	27.115		
4,900.0	4,859.5	4,821.8	4,761.7	15.0	17.3	-110.10	-514.4	591.9	797.5	768.0	29.47	27.062		
5,000.0	4,958.3	4,920.3	4,858.6	15.4	17.7	-110.18	-527.4	603.8	814.9	784.8	30.17	27.011		

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 R&R Farms 29L-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29L-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design R&R Farms 5N63W29L Pad Sec.29-T5N-R63W - R&R Farms 29L-441 - Wellbore #1 - Plan #2 (4-9-15)											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 (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	
5,100.0	5,057.2	5,018.7	4,955.5	15.7	18.1	-110.25	-540.4	615.7	832.4	801.5	30.87	26.962	
5,200.0	5,156.0	5,117.2	5,052.3	16.1	18.5	-110.32	-553.3	627.6	849.8	818.3	31.57	26.915	
5,300.0	5,255.1	5,231.7	5,165.2	16.4	18.9	-110.63	-567.6	640.7	866.2	834.0	32.25	26.859	
5,400.0	5,354.5	5,356.6	5,289.0	16.6	19.2	-110.86	-579.6	651.7	878.7	846.0	32.77	26.812	
5,500.0	5,454.3	5,482.5	5,414.4	16.8	19.4	-111.02	-587.7	659.1	887.1	853.8	33.22	26.701	
5,600.0	5,554.2	5,609.0	5,540.8	17.0	19.6	-111.09	-591.6	662.7	891.1	857.6	33.59	26.529	
5,700.0	5,654.2	5,721.4	5,653.2	17.1	19.8	90.00	-592.1	663.1	891.6	857.7	33.91	26.297	
5,800.0	5,754.2	5,821.4	5,753.2	17.3	19.9	90.00	-592.1	663.1	891.6	857.4	34.17	26.096	
5,823.1	5,777.4	5,844.6	5,776.4	17.3	19.9	90.01	-592.1	663.1	891.6	857.4	34.22	26.053	
5,900.0	5,854.2	5,921.4	5,853.2	17.4	20.0	89.98	-590.3	663.1	891.6	857.2	34.40	25.920	
6,000.0	5,953.3	6,021.3	5,952.1	17.4	20.0	89.95	-577.0	663.1	891.6	857.2	34.43	25.894	
6,100.0	6,049.9	6,121.2	6,048.5	17.3	19.9	89.92	-550.9	663.1	891.6	857.3	34.26	26.025	
6,200.0	6,142.3	6,221.0	6,140.5	17.1	19.8	89.89	-512.5	663.1	891.6	857.7	33.92	26.288	
6,300.0	6,229.0	6,320.7	6,226.7	16.9	19.5	89.86	-462.5	663.1	891.6	858.1	33.47	26.643	
6,400.0	6,308.4	6,420.4	6,305.6	16.7	19.3	89.83	-401.7	663.1	891.6	858.6	32.98	27.034	
6,500.0	6,379.2	6,520.0	6,375.9	16.4	19.0	89.81	-331.2	663.1	891.6	859.1	32.55	27.388	
6,600.0	6,440.2	6,619.6	6,436.5	16.2	18.7	89.79	-252.3	663.1	891.6	859.3	32.28	27.619	
6,700.0	6,490.4	6,719.2	6,486.2	16.1	18.4	89.77	-166.1	663.1	891.6	859.4	32.26	27.641	
6,800.0	6,528.9	6,818.7	6,524.3	16.1	18.2	89.76	-74.2	663.1	891.6	859.1	32.56	27.387	
6,900.0	6,555.0	6,918.2	6,550.1	16.4	17.9	89.75	21.8	663.1	891.6	858.4	33.22	26.837	
7,000.0	6,568.2	7,017.7	6,563.3	16.9	17.8	89.74	120.3	663.1	891.6	857.3	34.27	26.018	
7,100.0	6,570.0	7,117.4	6,565.0	17.6	18.1	89.74	220.0	663.1	891.6	855.9	35.68	24.991	
7,200.0	6,570.0	7,217.4	6,565.0	18.5	19.0	89.74	320.0	663.1	891.6	854.2	37.42	23.829	
7,300.0	6,570.0	7,317.4	6,565.0	19.5	20.1	89.74	420.0	663.1	891.6	852.2	39.46	22.598	
7,400.0	6,570.0	7,417.4	6,565.0	20.7	21.4	89.74	520.0	663.1	891.6	849.9	41.75	21.357	
7,500.0	6,570.0	7,517.4	6,565.0	22.0	22.7	89.74	620.0	663.1	891.6	847.4	44.26	20.147	
7,600.0	6,570.0	7,617.4	6,565.0	23.4	24.0	89.74	720.0	663.1	891.6	844.7	46.94	18.993	
7,700.0	6,570.0	7,717.4	6,565.0	24.8	25.5	89.74	820.0	663.1	891.6	841.8	49.78	17.910	
7,800.0	6,570.0	7,817.4	6,565.0	26.3	27.0	89.74	920.0	663.1	891.6	838.9	52.75	16.902	
7,900.0	6,570.0	7,917.4	6,565.0	27.9	28.5	89.74	1,020.0	663.1	891.6	835.8	55.82	15.972	
8,000.0	6,570.0	8,017.4	6,565.0	29.5	30.1	89.74	1,120.0	663.1	891.6	832.6	58.99	15.115	
8,100.0	6,570.0	8,117.4	6,565.0	31.1	31.7	89.74	1,220.0	663.1	891.6	829.4	62.23	14.329	
8,200.0	6,570.0	8,217.4	6,565.0	32.7	33.3	89.74	1,320.0	663.1	891.6	826.1	65.53	13.606	
8,300.0	6,570.0	8,317.4	6,565.0	34.4	35.0	89.74	1,420.0	663.1	891.6	822.7	68.89	12.942	
8,400.0	6,570.0	8,417.4	6,565.0	36.1	36.7	89.74	1,520.0	663.1	891.6	819.3	72.30	12.332	
8,500.0	6,570.0	8,517.4	6,565.0	37.9	38.4	89.74	1,620.0	663.1	891.6	815.9	75.75	11.771	
8,600.0	6,570.0	8,617.4	6,565.0	39.6	40.1	89.74	1,720.0	663.1	891.6	812.4	79.23	11.253	
8,700.0	6,570.0	8,717.4	6,565.0	41.4	41.9	89.74	1,820.0	663.1	891.6	808.9	82.75	10.775	
8,800.0	6,570.0	8,817.4	6,565.0	43.2	43.6	89.74	1,920.0	663.1	891.6	805.3	86.29	10.332	
8,900.0	6,570.0	8,917.4	6,565.0	45.0	45.4	89.74	2,020.0	663.1	891.6	801.7	89.86	9.922	
9,000.0	6,570.0	9,017.4	6,565.0	46.8	47.2	89.74	2,120.0	663.1	891.6	798.2	93.45	9.541	
9,100.0	6,570.0	9,117.4	6,565.0	48.6	49.0	89.74	2,220.0	663.1	891.6	794.6	97.06	9.186	
9,200.0	6,570.0	9,217.4	6,565.0	50.4	50.8	89.74	2,320.0	663.1	891.6	790.9	100.69	8.855	
9,300.0	6,570.0	9,317.4	6,565.0	52.2	52.6	89.74	2,420.0	663.1	891.6	787.3	104.33	8.546	
9,400.0	6,570.0	9,417.4	6,565.0	54.0	54.4	89.74	2,520.0	663.1	891.6	783.6	107.99	8.257	
9,500.0	6,570.0	9,517.4	6,565.0	55.9	56.2	89.74	2,620.0	663.1	891.6	780.0	111.65	7.986	
9,600.0	6,570.0	9,617.4	6,565.0	57.7	58.0	89.74	2,720.0	663.1	891.6	776.3	115.33	7.731	
9,700.0	6,570.0	9,717.4	6,565.0	59.6	59.9	89.74	2,820.0	663.1	891.6	772.6	119.02	7.491	
9,800.0	6,570.0	9,817.4	6,565.0	61.4	61.7	89.74	2,920.0	663.1	891.6	768.9	122.72	7.265	
9,900.0	6,570.0	9,917.4	6,565.0	63.3	63.6	89.74	3,020.0	663.1	891.6	765.2	126.43	7.052	

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 R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

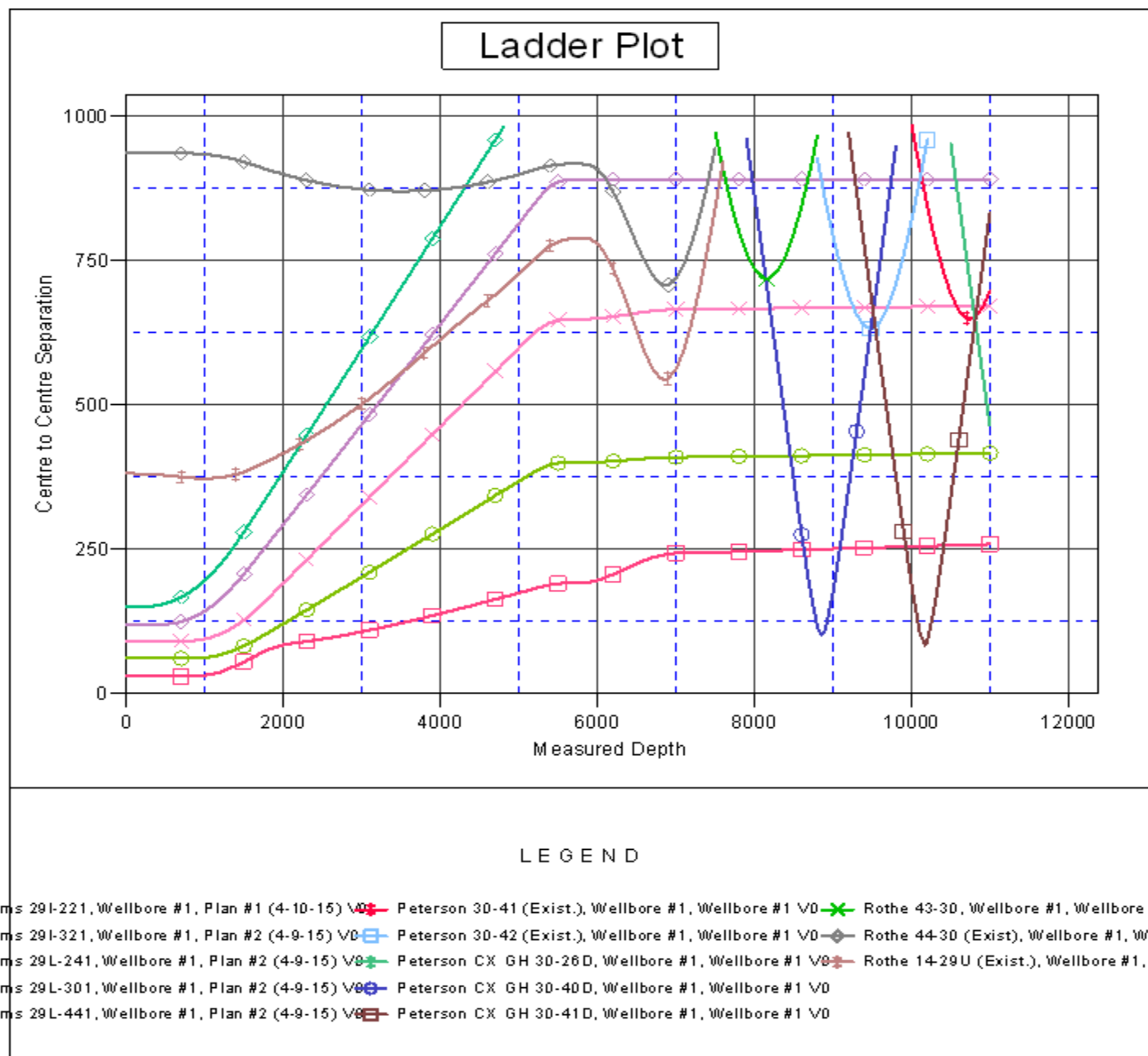
<b>Offset Design</b>													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,000.0	6,570.0	10,017.4	6,565.0	65.1	65.4	89.74	3,120.0	663.1	891.6	761.5	130.14	6.851		
10,100.0	6,570.0	10,117.4	6,565.0	67.0	67.3	89.74	3,220.0	663.1	891.6	757.7	133.86	6.661		
10,200.0	6,570.0	10,217.4	6,565.0	68.9	69.1	89.74	3,320.0	663.1	891.6	754.0	137.59	6.480		
10,300.0	6,570.0	10,317.4	6,565.0	70.7	71.0	89.74	3,420.0	663.1	891.6	750.3	141.33	6.309		
10,400.0	6,570.0	10,417.4	6,565.0	72.6	72.8	89.74	3,520.0	663.1	891.6	746.5	145.07	6.146		
10,500.0	6,570.0	10,517.4	6,565.0	74.5	74.7	89.74	3,620.0	663.1	891.6	742.8	148.81	5.992		
10,600.0	6,570.0	10,617.4	6,565.0	76.3	76.6	89.74	3,720.0	663.1	891.6	739.1	152.56	5.844		
10,700.0	6,570.0	10,717.4	6,565.0	78.2	78.4	89.74	3,820.0	663.1	891.6	735.3	156.31	5.704		
10,800.0	6,570.0	10,817.4	6,565.0	80.1	80.3	89.74	3,920.0	663.1	891.6	731.5	160.07	5.570		
10,900.0	6,570.0	10,917.4	6,565.0	82.0	82.2	89.74	4,020.0	663.1	891.6	727.8	163.83	5.442		
10,996.7	6,570.0	11,014.1	6,565.0	83.8	84.0	89.74	4,116.7	663.1	891.6	724.1	167.48	5.324 SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4588.0ft (RKB - 13')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: R&R Farms 29I-401  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.67°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well R&R Farms 29I-401
<b>Project:</b>	SEC.29-T5N-R63W	<b>TVD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Reference Site:</b>	R&R Farms 5N63W29L Pad Sec.29-T5N-R63W	<b>MD Reference:</b>	WELL @ 4588.0ft (RKB - 13')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	R&R Farms 29I-401	<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 #2 (4-10-15)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4588.0ft (RKB - 13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: R&R Farms 29I-401

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.67°

