

# PETROLEUM DEVELOPMENT CORP Weld County CO

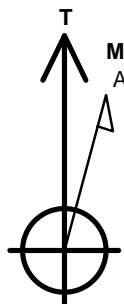
Well Name: **Becker Ranch 5U-203**

Surface Location: Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4783.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339356.65	3260134.66	40.261180	-104.567870	
RKB - 15' WELL @ 4798.0ft (RKB - 15')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 205'FNL, 700'FEL	1.0	0.0	0.0	Point
BHL 500'FSL, 145'FEL	6759.0	-4590.2	533.2	Point



Azimuths to True North  
Magnetic North: 8.41°

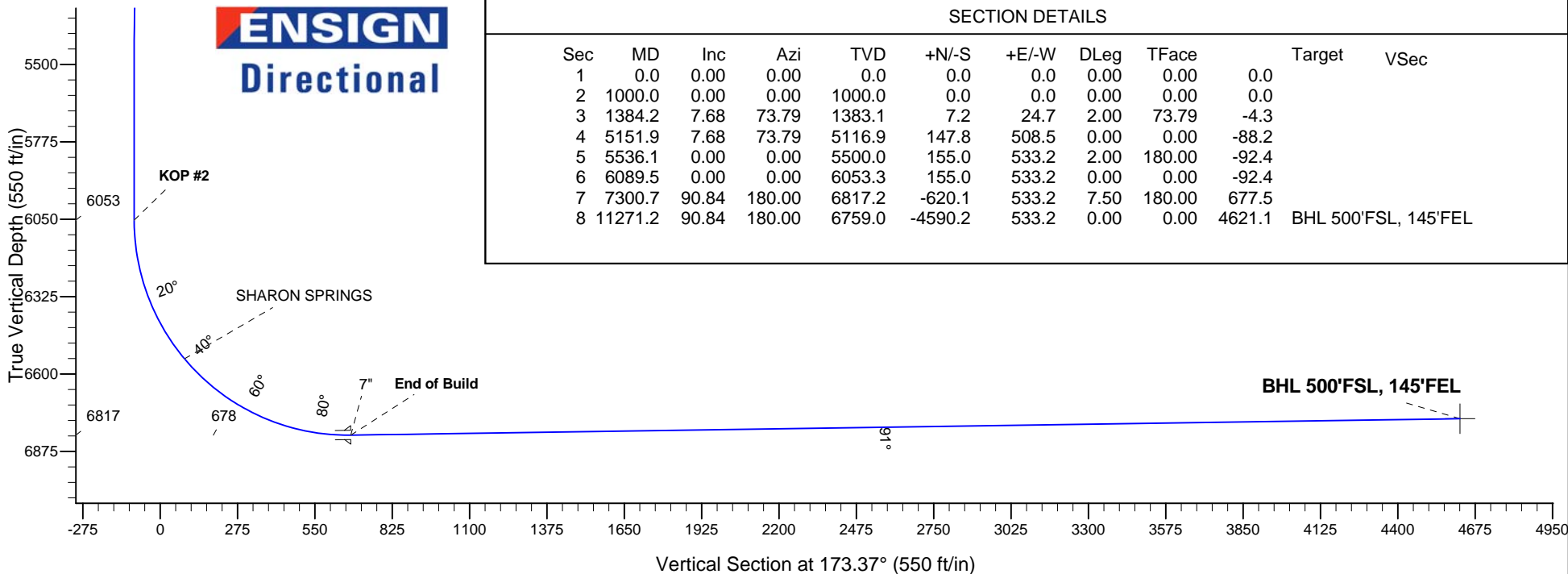
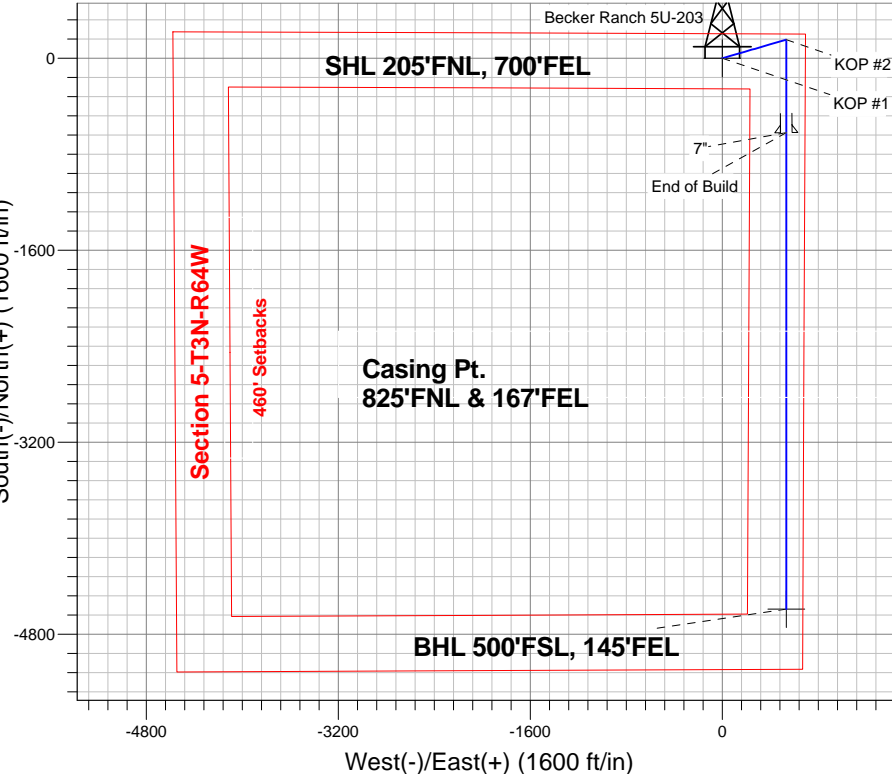
Magnetic Field  
Strength: 52819.5snT  
Dip Angle: 66.89°  
Date: 12/3/2013  
Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6053.4	6089.5	KOP #2
6817.2	7300.7	End of Build

Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W  
Becker Ranch 5U-203  
Plan #1 (12-03-13)  
13:59, December 11 2013

South(-)/North(+) (1600 ft/in)



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1384.2	7.68	73.79	1383.1	7.2	24.7	2.00	73.79	-4.3	
4	5151.9	7.68	73.79	5116.9	147.8	508.5	0.00	0.00	-88.2	
5	5536.1	0.00	0.00	5500.0	155.0	533.2	2.00	180.00	-92.4	
6	6089.5	0.00	0.00	6053.3	155.0	533.2	0.00	0.00	-92.4	
7	7300.7	90.84	180.00	6817.2	-620.1	533.2	7.50	180.00	677.5	
8	11271.2	90.84	180.00	6759.0	-4590.2	533.2	0.00	0.00	4621.1	BHL 500'FSL, 145'FEL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.5-T3N-R64W**

**Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W**

**Becker Ranch 5U-203**

**Wellbore #1**

**Plan: Plan #1 (12-03-13)**

## **Standard Planning Report**

**11 December, 2013**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-03-13)		

<b>Project</b>	SEC.5-T3N-R64W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W											
Site Position:			Northing:			1,339,355.73ft			Latitude:			40.261180					
From:			Lat/Long			Easting:			3,260,045.36ft			Longitude:			-104.568190		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.60 °		

Well	Becker Ranch 5U-203					
Well Position	+N/-S	0.0 ft	Northing:	1,339,356.65 ft	Latitude:	40.261180
	+E/-W	89.3 ft	Easting:	3,260,134.66 ft	Longitude:	-104.567870
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,783.0 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	12/3/2013	8.41	66.89	52,819

<b>Design</b>	Plan #1 (12-03-13)			
<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	173.37

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,384.2	7.68	73.79	1,383.1	7.2	24.7	2.00	2.00	0.00	73.79	
5,151.9	7.68	73.79	5,116.9	147.8	508.5	0.00	0.00	0.00	0.00	
5,536.1	0.00	0.00	5,500.0	155.0	533.2	2.00	-2.00	0.00	180.00	
6,089.5	0.00	0.00	6,053.3	155.0	533.2	0.00	0.00	0.00	0.00	
7,300.7	90.84	180.00	6,817.2	-620.1	533.2	7.50	7.50	0.00	180.00	
11,271.2	90.84	180.00	6,759.0	-4,590.2	533.2	0.00	0.00	0.00	0.00	BHL 500'FSL, 145°F

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<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-03-13)		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>SHL 205'FNL, 700'FEL</b>									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
1,100.0	2.00	73.79	1,100.0	0.5	1.7	-0.3	2.00	2.00	0.00
1,200.0	4.00	73.79	1,199.8	1.9	6.7	-1.2	2.00	2.00	0.00
1,300.0	6.00	73.79	1,299.5	4.4	15.1	-2.6	2.00	2.00	0.00
1,384.2	7.68	73.79	1,383.1	7.2	24.7	-4.3	2.00	2.00	0.00
1,400.0	7.68	73.79	1,398.7	7.8	26.7	-4.6	0.00	0.00	0.00
1,500.0	7.68	73.79	1,497.8	11.5	39.6	-6.9	0.00	0.00	0.00
1,600.0	7.68	73.79	1,596.9	15.2	52.4	-9.1	0.00	0.00	0.00
1,700.0	7.68	73.79	1,696.0	19.0	65.2	-11.3	0.00	0.00	0.00
1,800.0	7.68	73.79	1,795.1	22.7	78.1	-13.5	0.00	0.00	0.00
1,900.0	7.68	73.79	1,894.2	26.4	90.9	-15.8	0.00	0.00	0.00
2,000.0	7.68	73.79	1,993.3	30.2	103.8	-18.0	0.00	0.00	0.00
2,100.0	7.68	73.79	2,092.4	33.9	116.6	-20.2	0.00	0.00	0.00
2,200.0	7.68	73.79	2,191.5	37.6	129.4	-22.4	0.00	0.00	0.00
2,300.0	7.68	73.79	2,290.6	41.4	142.3	-24.7	0.00	0.00	0.00
2,400.0	7.68	73.79	2,389.7	45.1	155.1	-26.9	0.00	0.00	0.00
2,500.0	7.68	73.79	2,488.8	48.8	168.0	-29.1	0.00	0.00	0.00
2,600.0	7.68	73.79	2,587.9	52.6	180.8	-31.4	0.00	0.00	0.00
2,700.0	7.68	73.79	2,687.0	56.3	193.6	-33.6	0.00	0.00	0.00
2,800.0	7.68	73.79	2,786.1	60.0	206.5	-35.8	0.00	0.00	0.00
2,900.0	7.68	73.79	2,885.2	63.8	219.3	-38.0	0.00	0.00	0.00
3,000.0	7.68	73.79	2,984.3	67.5	232.2	-40.3	0.00	0.00	0.00
3,100.0	7.68	73.79	3,083.4	71.2	245.0	-42.5	0.00	0.00	0.00
3,200.0	7.68	73.79	3,182.5	75.0	257.8	-44.7	0.00	0.00	0.00
3,300.0	7.68	73.79	3,281.6	78.7	270.7	-46.9	0.00	0.00	0.00
3,400.0	7.68	73.79	3,380.7	82.4	283.5	-49.2	0.00	0.00	0.00
3,500.0	7.68	73.79	3,479.8	86.2	296.4	-51.4	0.00	0.00	0.00
3,600.0	7.68	73.79	3,579.0	89.9	309.2	-53.6	0.00	0.00	0.00
3,700.0	7.68	73.79	3,678.1	93.6	322.0	-55.8	0.00	0.00	0.00
3,722.1	7.68	73.79	3,700.0	94.4	324.9	-56.3	0.00	0.00	0.00
<b>PARKMAN</b>									
3,800.0	7.68	73.79	3,777.2	97.4	334.9	-58.1	0.00	0.00	0.00
3,900.0	7.68	73.79	3,876.3	101.1	347.7	-60.3	0.00	0.00	0.00
4,000.0	7.68	73.79	3,975.4	104.8	360.6	-62.5	0.00	0.00	0.00
4,100.0	7.68	73.79	4,074.5	108.6	373.4	-64.7	0.00	0.00	0.00
4,200.0	7.68	73.79	4,173.6	112.3	386.2	-67.0	0.00	0.00	0.00
4,300.0	7.68	73.79	4,272.7	116.0	399.1	-69.2	0.00	0.00	0.00
4,400.0	7.68	73.79	4,371.8	119.8	411.9	-71.4	0.00	0.00	0.00
4,428.5	7.68	73.79	4,400.0	120.8	415.6	-72.1	0.00	0.00	0.00
<b>SUSSEX</b>									

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<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-03-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	7.68	73.79	4,470.9	123.5	424.8	-73.7	0.00	0.00	0.00
4,600.0	7.68	73.79	4,570.0	127.2	437.6	-75.9	0.00	0.00	0.00
4,700.0	7.68	73.79	4,669.1	130.9	450.4	-78.1	0.00	0.00	0.00
4,800.0	7.68	73.79	4,768.2	134.7	463.3	-80.3	0.00	0.00	0.00
4,900.0	7.68	73.79	4,867.3	138.4	476.1	-82.6	0.00	0.00	0.00
5,000.0	7.68	73.79	4,966.4	142.1	489.0	-84.8	0.00	0.00	0.00
5,100.0	7.68	73.79	5,065.5	145.9	501.8	-87.0	0.00	0.00	0.00
5,134.8	7.68	73.79	5,100.0	147.2	506.3	-87.8	0.00	0.00	0.00
<b>SHANNON</b>									
5,151.9	7.68	73.79	5,116.9	147.8	508.5	-88.2	0.00	0.00	0.00
5,200.0	6.72	73.79	5,164.6	149.5	514.3	-89.2	2.00	-2.00	0.00
5,300.0	4.72	73.79	5,264.1	152.3	523.8	-90.8	2.00	-2.00	0.00
5,400.0	2.72	73.79	5,363.9	154.1	530.1	-91.9	2.00	-2.00	0.00
5,500.0	0.72	73.79	5,463.9	154.9	532.9	-92.4	2.00	-2.00	0.00
5,536.1	0.00	0.00	5,500.0	155.0	533.2	-92.4	2.00	-2.00	0.00
5,600.0	0.00	0.00	5,563.9	155.0	533.2	-92.4	0.00	0.00	0.00
5,700.0	0.00	0.00	5,663.9	155.0	533.2	-92.4	0.00	0.00	0.00
5,800.0	0.00	0.00	5,763.9	155.0	533.2	-92.4	0.00	0.00	0.00
5,900.0	0.00	0.00	5,863.9	155.0	533.2	-92.4	0.00	0.00	0.00
6,000.0	0.00	0.00	5,963.9	155.0	533.2	-92.4	0.00	0.00	0.00
6,089.5	0.00	0.00	6,053.4	155.0	533.2	-92.4	0.00	0.00	0.00
<b>KOP #2</b>									
6,100.0	0.79	180.00	6,063.9	154.9	533.2	-92.4	7.51	7.51	0.00
6,200.0	8.29	180.00	6,163.5	147.0	533.2	-84.5	7.50	7.50	0.00
6,300.0	15.79	180.00	6,261.2	126.2	533.2	-63.8	7.50	7.50	0.00
6,400.0	23.29	180.00	6,355.4	92.8	533.2	-30.6	7.50	7.50	0.00
6,500.0	30.79	180.00	6,444.4	47.3	533.2	14.5	7.50	7.50	0.00
6,600.0	38.29	180.00	6,526.7	-9.3	533.2	70.8	7.50	7.50	0.00
6,624.9	40.16	180.00	6,546.0	-25.1	533.2	86.4	7.50	7.50	0.00
<b>SHARON SPRINGS</b>									
6,700.0	45.79	180.00	6,600.9	-76.2	533.2	137.2	7.50	7.50	0.00
6,800.0	53.29	180.00	6,665.8	-152.3	533.2	212.8	7.50	7.50	0.00
6,900.0	60.79	180.00	6,720.1	-236.1	533.2	296.1	7.50	7.50	0.00
7,000.0	68.29	180.00	6,763.1	-326.3	533.2	385.7	7.50	7.50	0.00
7,100.0	75.79	180.00	6,793.9	-421.4	533.2	480.1	7.50	7.50	0.00
7,200.0	83.29	180.00	6,812.1	-519.7	533.2	577.7	7.50	7.50	0.00
7,300.0	90.79	180.00	6,817.2	-619.5	533.2	676.8	7.50	7.50	0.00
7,300.7	90.84	180.00	6,817.2	-620.2	533.2	677.5	7.31	7.31	0.00
<b>End of Build - 7"</b>									
7,400.0	90.84	180.00	6,815.8	-719.5	533.2	776.2	0.00	0.00	0.00
7,500.0	90.84	180.00	6,814.3	-819.4	533.2	875.5	0.00	0.00	0.00
7,600.0	90.84	180.00	6,812.8	-919.4	533.2	974.8	0.00	0.00	0.00
7,700.0	90.84	180.00	6,811.4	-1,019.4	533.2	1,074.1	0.00	0.00	0.00
7,800.0	90.84	180.00	6,809.9	-1,119.4	533.2	1,173.4	0.00	0.00	0.00
7,900.0	90.84	180.00	6,808.4	-1,219.4	533.2	1,272.8	0.00	0.00	0.00
8,000.0	90.84	180.00	6,807.0	-1,319.4	533.2	1,372.1	0.00	0.00	0.00
8,100.0	90.84	180.00	6,805.5	-1,419.4	533.2	1,471.4	0.00	0.00	0.00
8,200.0	90.84	180.00	6,804.0	-1,519.4	533.2	1,570.7	0.00	0.00	0.00
8,300.0	90.84	180.00	6,802.6	-1,619.4	533.2	1,670.1	0.00	0.00	0.00
8,400.0	90.84	180.00	6,801.1	-1,719.3	533.2	1,769.4	0.00	0.00	0.00
8,500.0	90.84	180.00	6,799.6	-1,819.3	533.2	1,868.7	0.00	0.00	0.00
8,600.0	90.84	180.00	6,798.2	-1,919.3	533.2	1,968.0	0.00	0.00	0.00

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<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-03-13)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,700.0	90.84	180.00	6,796.7	-2,019.3	533.2	2,067.3	0.00	0.00	0.00
8,800.0	90.84	180.00	6,795.2	-2,119.3	533.2	2,166.7	0.00	0.00	0.00
8,900.0	90.84	180.00	6,793.8	-2,219.3	533.2	2,266.0	0.00	0.00	0.00
9,000.0	90.84	180.00	6,792.3	-2,319.3	533.2	2,365.3	0.00	0.00	0.00
9,100.0	90.84	180.00	6,790.8	-2,419.3	533.2	2,464.6	0.00	0.00	0.00
9,200.0	90.84	180.00	6,789.4	-2,519.3	533.2	2,563.9	0.00	0.00	0.00
9,300.0	90.84	180.00	6,787.9	-2,619.2	533.2	2,663.3	0.00	0.00	0.00
9,400.0	90.84	180.00	6,786.4	-2,719.2	533.2	2,762.6	0.00	0.00	0.00
9,500.0	90.84	180.00	6,785.0	-2,819.2	533.2	2,861.9	0.00	0.00	0.00
9,600.0	90.84	180.00	6,783.5	-2,919.2	533.2	2,961.2	0.00	0.00	0.00
9,700.0	90.84	180.00	6,782.0	-3,019.2	533.2	3,060.6	0.00	0.00	0.00
9,800.0	90.84	180.00	6,780.6	-3,119.2	533.2	3,159.9	0.00	0.00	0.00
9,900.0	90.84	180.00	6,779.1	-3,219.2	533.2	3,259.2	0.00	0.00	0.00
10,000.0	90.84	180.00	6,777.6	-3,319.2	533.2	3,358.5	0.00	0.00	0.00
10,100.0	90.84	180.00	6,776.2	-3,419.2	533.2	3,457.8	0.00	0.00	0.00
10,200.0	90.84	180.00	6,774.7	-3,519.2	533.2	3,557.2	0.00	0.00	0.00
10,300.0	90.84	180.00	6,773.2	-3,619.1	533.2	3,656.5	0.00	0.00	0.00
10,400.0	90.84	180.00	6,771.8	-3,719.1	533.2	3,755.8	0.00	0.00	0.00
10,500.0	90.84	180.00	6,770.3	-3,819.1	533.2	3,855.1	0.00	0.00	0.00
10,600.0	90.84	180.00	6,768.8	-3,919.1	533.2	3,954.5	0.00	0.00	0.00
10,700.0	90.84	180.00	6,767.4	-4,019.1	533.2	4,053.8	0.00	0.00	0.00
10,800.0	90.84	180.00	6,765.9	-4,119.1	533.2	4,153.1	0.00	0.00	0.00
10,900.0	90.84	180.00	6,764.4	-4,219.1	533.2	4,252.4	0.00	0.00	0.00
11,000.0	90.84	180.00	6,763.0	-4,319.1	533.2	4,351.7	0.00	0.00	0.00
11,100.0	90.84	180.00	6,761.5	-4,419.1	533.2	4,451.1	0.00	0.00	0.00
11,200.0	90.84	180.00	6,760.0	-4,519.0	533.2	4,550.4	0.00	0.00	0.00
11,271.2	90.84	180.00	6,759.0	-4,590.2	533.2	4,621.1	0.00	0.00	0.00
BHL 500'FSL, 145'FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,300.7	6,817.2	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,722.1	3,700.0	PARKMAN			
4,428.5	4,400.0	SUSSEX			
5,134.8	5,100.0	SHANNON			
6,624.9	6,546.0	SHARON SPRINGS			

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-203
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (12-03-13)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.0	1,000.0	0.0	0.0	KOP #1
6,089.5	6,053.4	155.0	533.2	KOP #2
7,300.7	6,817.2	-620.2	533.2	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.5-T3N-R64W**

**Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W**

**Becker Ranch 5U-203**

**Wellbore #1**

**Plan #1 (12-03-13)**

## **Anticollision Report**

**11 December, 2013**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (12-03-13)
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria
<b>Interpolation Method:</b>	MD Interval 100.0ft
<b>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft
<b>Warning Levels Evaluated at:</b>	2.00 Sigma
<b>Error Model:</b>	ISCWSA
<b>Scan Method:</b>	Closest Approach 3D
<b>Error Surface:</b>	Elliptical Conic

Survey Tool Program		Date	12/5/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,271.2	Plan #1 (12-03-13) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W						
Becker Ranch 5R-323 - Wellbore #1 - Plan #1 (12-03-13	1,000.0	1,001.0	61.4	57.1	14.370	CC, ES
Becker Ranch 5R-323 - Wellbore #1 - Plan #1 (12-03-13	11,271.2	11,322.7	664.4	486.0	3.726	SF
Becker Ranch 5R-403 - Wellbore #1 - Plan #1 (12-03-13	1,000.0	1,000.0	89.3	85.0	20.913	CC, ES
Becker Ranch 5R-403 - Wellbore #1 - Plan #1 (12-03-13	1,100.0	1,097.1	92.5	87.9	19.709	SF
Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-13	1,000.0	1,001.0	30.7	26.4	7.185	CC, ES
Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-13	11,271.2	11,398.7	398.9	244.3	2.579	SF

Offset Design		Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-323 - Wellbore #1 - Plan #1 (12-03-1										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)						
0.0	0.0	1.0	1.0	0.0	0.0	-89.99	0.0	-61.4	61.4	61.4	0.00	N/A					
100.0	100.0	101.0	101.0	0.1	0.1	-89.99	0.0	-61.4	61.4	61.2	0.23	270.471					
200.0	200.0	201.0	201.0	0.3	0.3	-89.99	0.0	-61.4	61.4	60.7	0.68	90.756					
300.0	300.0	301.0	301.0	0.6	0.6	-89.99	0.0	-61.4	61.4	60.3	1.13	54.526					
400.0	400.0	401.0	401.0	0.8	0.8	-89.99	0.0	-61.4	61.4	59.8	1.58	38.969					
500.0	500.0	501.0	501.0	1.0	1.0	-89.99	0.0	-61.4	61.4	59.4	2.03	30.319					
600.0	600.0	601.0	601.0	1.2	1.2	-89.99	0.0	-61.4	61.4	58.9	2.47	24.812					
700.0	700.0	701.0	701.0	1.5	1.5	-89.99	0.0	-61.4	61.4	58.5	2.92	20.997					
800.0	800.0	801.0	801.0	1.7	1.7	-89.99	0.0	-61.4	61.4	58.0	3.37	18.200					
900.0	900.0	901.0	901.0	1.9	1.9	-89.99	0.0	-61.4	61.4	57.6	3.82	16.060					
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-89.99	0.0	-61.4	61.4	57.1	4.27	14.370	CC, ES				
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-164.22	0.0	-61.4	63.1	58.4	4.71	13.388					
1,200.0	1,199.8	1,200.8	1,200.8	2.6	2.6	-165.39	0.0	-61.4	68.1	63.0	5.14	13.257					
1,300.0	1,299.5	1,300.5	1,300.5	2.8	2.8	-166.99	0.0	-61.4	76.6	71.0	5.56	13.764					
1,400.0	1,398.7	1,399.7	1,399.7	3.0	3.0	-168.72	0.0	-61.4	88.5	82.5	5.99	14.771					
1,500.0	1,497.8	1,498.8	1,498.8	3.3	3.3	-170.20	0.0	-61.4	101.6	95.2	6.43	15.808					
1,600.0	1,596.9	1,597.9	1,597.9	3.6	3.5	-171.33	0.0	-61.4	114.8	108.0	6.87	16.712					
1,700.0	1,696.0	1,697.0	1,697.0	3.9	3.7	-172.24	0.0	-61.4	128.1	120.7	7.32	17.505					
1,800.0	1,795.1	1,796.1	1,796.1	4.1	3.9	-172.97	0.0	-61.4	141.3	133.6	7.76	18.204					
1,900.0	1,894.2	1,895.2	1,895.2	4.4	4.1	-173.57	0.0	-61.4	154.6	146.4	8.21	18.825					
2,000.0	1,993.3	1,994.3	1,994.3	4.8	4.4	-174.09	0.0	-61.4	167.9	159.2	8.66	19.379					

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 Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-323 - Wellbore #1 - Plan #1 (12-03-1)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													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
2,100.0	2,092.4	2,093.4	2,093.4	5.1	4.6	-174.52		0.0	-61.4	181.2	172.1	9.12	19.877	
2,200.0	2,191.5	2,192.5	2,192.5	5.4	4.8	-174.90		0.0	-61.4	194.5	185.0	9.57	20.326	
2,300.0	2,290.6	2,291.6	2,291.6	5.7	5.0	-175.22		0.0	-61.4	207.8	197.8	10.03	20.732	
2,400.0	2,389.7	2,390.7	2,390.7	6.0	5.3	-175.51		0.0	-61.4	221.2	210.7	10.48	21.102	
2,500.0	2,488.8	2,489.8	2,489.8	6.3	5.5	-175.77		0.0	-61.4	234.5	223.6	10.94	21.441	
2,600.0	2,587.9	2,588.9	2,588.9	6.6	5.7	-176.00		0.0	-61.4	247.8	236.4	11.39	21.751	
2,700.0	2,687.0	2,688.0	2,688.0	7.0	5.9	-176.20		0.0	-61.4	261.2	249.3	11.85	22.036	
2,800.0	2,786.1	2,787.1	2,787.1	7.3	6.2	-176.39		0.0	-61.4	274.5	262.2	12.31	22.299	
2,900.0	2,885.2	2,886.2	2,886.2	7.6	6.4	-176.55		0.0	-61.4	287.9	275.1	12.77	22.543	
3,000.0	2,984.3	2,985.3	2,985.3	7.9	6.6	-176.71		0.0	-61.4	301.2	288.0	13.23	22.769	
3,100.0	3,083.4	3,082.9	3,082.9	8.3	6.8	-176.63		1.1	-61.9	314.8	301.1	13.68	23.002	
3,200.0	3,182.5	3,180.0	3,179.9	8.6	7.0	-175.99		5.2	-63.6	328.9	314.8	14.14	23.263	
3,300.0	3,281.6	3,278.1	3,277.8	8.9	7.3	-174.97		11.8	-66.2	343.5	328.9	14.60	23.537	
3,400.0	3,380.7	3,376.9	3,376.2	9.3	7.5	-174.01		18.5	-69.0	358.3	343.3	15.06	23.796	
3,500.0	3,479.8	3,475.6	3,474.7	9.6	7.7	-173.12		25.2	-71.8	373.2	357.7	15.52	24.041	
3,600.0	3,579.0	3,574.3	3,573.1	9.9	7.9	-172.30		31.9	-74.5	388.1	372.1	15.99	24.272	
3,700.0	3,678.1	3,673.0	3,671.6	10.2	8.2	-171.54		38.6	-77.3	403.2	386.7	16.46	24.490	
3,800.0	3,777.2	3,771.8	3,770.1	10.6	8.4	-170.84		45.3	-80.0	418.3	401.3	16.94	24.697	
3,900.0	3,876.3	3,870.5	3,868.5	10.9	8.6	-170.18		52.0	-82.8	433.4	416.0	17.41	24.892	
4,000.0	3,975.4	3,969.2	3,967.0	11.2	8.8	-169.57		58.7	-85.6	448.6	430.7	17.89	25.076	
4,100.0	4,074.5	4,068.0	4,065.5	11.6	9.1	-169.00		65.4	-88.3	463.8	445.5	18.37	25.251	
4,200.0	4,173.6	4,166.7	4,163.9	11.9	9.3	-168.46		72.1	-91.1	479.1	460.3	18.85	25.417	
4,300.0	4,272.7	4,265.4	4,262.4	12.2	9.6	-167.96		78.9	-93.8	494.5	475.1	19.33	25.575	
4,400.0	4,371.8	4,364.1	4,360.8	12.6	9.8	-167.49		85.6	-96.6	509.8	490.0	19.82	25.725	
4,500.0	4,470.9	4,462.9	4,459.3	12.9	10.0	-167.04		92.3	-99.4	525.2	504.9	20.30	25.867	
4,600.0	4,570.0	4,561.6	4,557.8	13.2	10.3	-166.63		99.0	-102.1	540.6	519.8	20.79	26.003	
4,700.0	4,669.1	4,660.3	4,656.2	13.6	10.5	-166.23		105.7	-104.9	556.1	534.8	21.28	26.132	
4,800.0	4,768.2	4,759.1	4,754.7	13.9	10.7	-165.86		112.4	-107.7	571.6	549.8	21.77	26.255	
4,900.0	4,867.3	4,857.8	4,853.1	14.2	11.0	-165.50		119.1	-110.4	587.0	564.8	22.26	26.373	
5,000.0	4,966.4	4,956.5	4,951.6	14.6	11.2	-165.16		125.8	-113.2	602.6	579.8	22.75	26.485	
5,100.0	5,065.5	5,055.2	5,050.1	14.9	11.5	-164.84		132.5	-115.9	618.1	594.9	23.24	26.593	
5,200.0	5,164.6	5,154.0	5,148.6	15.2	11.7	-164.57		139.2	-118.7	633.3	609.5	23.75	26.667	
5,300.0	5,264.1	5,253.2	5,247.5	15.4	12.0	-164.26		146.0	-121.5	648.6	621.4	24.22	26.652	
5,400.0	5,363.9	5,358.1	5,352.1	15.6	12.2	-163.90		152.5	-124.2	664.3	633.5	24.65	26.548	
5,500.0	5,463.9	5,467.5	5,461.5	15.8	12.4	-163.72		155.8	-125.5	680.5	648.5	25.01	26.326	
5,600.0	5,563.9	5,570.9	5,564.9	15.9	12.6	-89.91		156.0	-125.6	696.8	663.4	25.38	25.959	
5,700.0	5,663.9	5,670.9	5,664.9	16.1	12.8	-89.91		156.0	-125.6	713.1	678.3	25.79	25.548	
5,800.0	5,763.9	5,770.9	5,764.9	16.3	13.0	-89.91		156.0	-125.6	729.4	693.6	26.20	25.143	
5,900.0	5,863.9	5,870.9	5,864.9	16.4	13.2	-89.91		156.0	-125.6	745.7	708.2	26.62	24.749	
6,000.0	5,963.9	5,970.9	5,964.9	16.6	13.4	-89.91		156.0	-125.6	762.0	723.7	27.04	24.366	
6,062.9	6,026.8	6,033.8	6,027.8	16.7	13.6	90.11		156.0	-125.6	778.3	739.5	27.30	24.131	
6,100.0	6,063.9	6,070.9	6,064.9	16.8	13.7	90.09		156.0	-125.6	794.6	755.3	27.45	23.995	
6,200.0	6,163.5	6,170.8	6,164.8	16.9	13.9	90.72		155.4	-125.6	810.9	771.1	27.82	23.679	
6,300.0	6,261.2	6,272.1	6,265.4	17.0	14.0	91.62		144.6	-125.6	827.2	786.9	28.09	23.460	
6,400.0	6,355.4	6,374.8	6,365.1	17.1	14.1	92.49		120.3	-125.6	843.5	802.7	28.30	23.301	
6,500.0	6,444.4	6,478.9	6,461.9	17.2	14.2	93.33		82.1	-125.6	859.8	818.4	28.49	23.160	
6,600.0	6,526.7	6,584.5	6,553.8	17.3	14.3	94.11		30.4	-125.6	876.1	834.7	28.74	22.978	
6,700.0	6,600.9	6,691.4	6,638.8	17.4	14.5	94.82		-34.4	-125.6	892.4	851.0	29.14	22.685	
6,800.0	6,665.8	6,799.5	6,714.6	17.6	14.7	95.45		-111.3	-125.6	908.7	867.3	29.79	22.216	
6,900.0	6,720.1	6,908.8	6,779.5	18.0	15.2	95.98		-199.2	-125.6	925.0	883.6	30.77	21.525	
7,000.0	6,763.1	7,019.0	6,831.6	18.5	15.9	96.39		-296.2	-125.6	941.3	900.0	32.15	20.618	

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 Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-323 - Wellbore #1 - Plan #1 (12-03-1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,100.0	6,793.9	7,130.0	6,869.3	19.2	16.9	96.69	96.69	-400.4	-125.6	663.3	629.4	33.94	19.542	
7,200.0	6,812.1	7,241.4	6,891.7	20.0	18.0	96.86	96.86	-509.4	-125.6	663.5	627.4	36.12	18.372	
7,300.0	6,817.2	7,352.7	6,898.0	21.1	19.3	96.90	96.90	-620.5	-125.6	663.6	625.0	38.61	17.189	
7,400.0	6,815.8	7,452.7	6,896.7	22.2	20.6	96.92	96.92	-720.5	-125.6	663.6	622.5	41.14	16.128	
7,500.0	6,814.3	7,552.7	6,895.3	23.5	21.9	96.93	96.93	-820.5	-125.6	663.6	619.8	43.86	15.132	
7,600.0	6,812.8	7,652.7	6,894.0	24.9	23.4	96.94	96.94	-920.5	-125.6	663.6	616.9	46.72	14.204	
7,700.0	6,811.4	7,752.7	6,892.7	26.3	24.9	96.96	96.96	-1,020.5	-125.6	663.7	613.9	49.72	13.349	
7,800.0	6,809.9	7,852.7	6,891.4	27.8	26.4	96.97	96.97	-1,120.5	-125.6	663.7	610.9	52.82	12.566	
7,900.0	6,808.4	7,952.7	6,890.1	29.3	28.0	96.98	96.98	-1,220.5	-125.6	663.7	607.7	56.00	11.851	
8,000.0	6,807.0	8,052.7	6,888.8	30.9	29.7	97.00	97.00	-1,320.4	-125.6	663.7	604.4	59.26	11.199	
8,100.0	6,805.5	8,152.7	6,887.5	32.5	31.4	97.01	97.01	-1,420.4	-125.6	663.7	601.1	62.59	10.605	
8,200.0	6,804.0	8,252.7	6,886.2	34.1	33.1	97.02	97.02	-1,520.4	-125.6	663.8	597.8	65.96	10.062	
8,300.0	6,802.6	8,352.7	6,884.9	35.8	34.8	97.04	97.04	-1,620.4	-125.6	663.8	594.4	69.39	9.566	
8,400.0	6,801.1	8,452.7	6,883.6	37.5	36.5	97.05	97.05	-1,720.4	-125.6	663.8	590.9	72.85	9.112	
8,500.0	6,799.6	8,552.7	6,882.3	39.2	38.3	97.06	97.06	-1,820.4	-125.6	663.8	587.5	76.34	8.695	
8,600.0	6,798.2	8,652.7	6,880.9	41.0	40.1	97.08	97.08	-1,920.4	-125.6	663.8	584.0	79.86	8.312	
8,700.0	6,796.7	8,752.7	6,879.6	42.7	41.9	97.09	97.09	-2,020.4	-125.6	663.8	580.4	83.41	7.959	
8,800.0	6,795.2	8,852.7	6,878.3	44.5	43.7	97.10	97.10	-2,120.4	-125.6	663.9	576.9	86.98	7.632	
8,900.0	6,793.8	8,952.7	6,877.0	46.3	45.5	97.12	97.12	-2,220.4	-125.6	663.9	573.3	90.57	7.330	
9,000.0	6,792.3	9,052.7	6,875.7	48.0	47.3	97.13	97.13	-2,320.4	-125.6	663.9	569.7	94.18	7.050	
9,100.0	6,790.8	9,152.7	6,874.4	49.8	49.1	97.15	97.15	-2,420.4	-125.6	663.9	566.1	97.80	6.789	
9,200.0	6,789.4	9,252.7	6,873.1	51.7	50.9	97.16	97.16	-2,520.3	-125.6	663.9	562.5	101.44	6.546	
9,300.0	6,787.9	9,352.7	6,871.8	53.5	52.8	97.17	97.17	-2,620.3	-125.6	664.0	558.9	105.08	6.318	
9,400.0	6,786.4	9,452.7	6,870.5	55.3	54.6	97.19	97.19	-2,720.3	-125.6	664.0	555.2	108.74	6.106	
9,500.0	6,785.0	9,552.7	6,869.2	57.1	56.5	97.20	97.20	-2,820.3	-125.6	664.0	551.6	112.41	5.907	
9,600.0	6,783.5	9,652.7	6,867.9	58.9	58.3	97.21	97.21	-2,920.3	-125.6	664.0	547.9	116.09	5.720	
9,700.0	6,782.0	9,752.7	6,866.6	60.8	60.2	97.23	97.23	-3,020.3	-125.6	664.0	544.3	119.77	5.544	
9,800.0	6,780.6	9,852.7	6,865.2	62.6	62.0	97.24	97.24	-3,120.3	-125.6	664.1	540.6	123.47	5.378	
9,900.0	6,779.1	9,952.7	6,863.9	64.5	63.9	97.25	97.25	-3,220.3	-125.6	664.1	536.9	127.17	5.222	
10,000.0	6,777.6	10,052.7	6,862.6	66.3	65.8	97.27	97.27	-3,320.3	-125.6	664.1	533.2	130.87	5.074	
10,100.0	6,776.2	10,152.7	6,861.3	68.2	67.6	97.28	97.28	-3,420.3	-125.6	664.1	529.5	134.59	4.935	
10,200.0	6,774.7	10,252.7	6,860.0	70.0	69.5	97.29	97.29	-3,520.3	-125.6	664.1	525.8	138.30	4.802	
10,300.0	6,773.2	10,352.7	6,858.7	71.9	71.4	97.31	97.31	-3,620.2	-125.6	664.2	522.1	142.02	4.676	
10,400.0	6,771.8	10,452.7	6,857.4	73.8	73.3	97.32	97.32	-3,720.2	-125.6	664.2	518.4	145.75	4.557	
10,500.0	6,770.3	10,552.7	6,856.1	75.6	75.2	97.33	97.33	-3,820.2	-125.6	664.2	514.7	149.48	4.443	
10,600.0	6,768.8	10,652.7	6,854.8	77.5	77.0	97.35	97.35	-3,920.2	-125.6	664.2	511.0	153.21	4.335	
10,700.0	6,767.4	10,752.7	6,853.5	79.4	78.9	97.36	97.36	-4,020.2	-125.6	664.2	507.3	156.95	4.232	
10,800.0	6,765.9	10,852.7	6,852.2	81.3	80.8	97.37	97.37	-4,120.2	-125.6	664.3	503.6	160.69	4.134	
10,900.0	6,764.4	10,952.7	6,850.8	83.1	82.7	97.39	97.39	-4,220.2	-125.6	664.3	499.9	164.43	4.040	
11,000.0	6,763.0	11,052.7	6,849.5	85.0	84.6	97.40	97.40	-4,320.2	-125.6	664.3	496.1	168.18	3.950	
11,100.0	6,761.5	11,152.7	6,848.2	86.9	86.5	97.41	97.41	-4,420.2	-125.6	664.3	492.4	171.92	3.864	
11,200.0	6,760.0	11,252.7	6,846.9	88.8	88.4	97.43	97.43	-4,520.2	-125.6	664.3	488.7	175.67	3.782	
11,236.6	6,759.5	11,289.3	6,846.4	89.5	89.1	97.43	97.43	-4,556.8	-125.6	664.4	487.3	177.05	3.752	
11,271.2	6,759.0	11,322.7	6,846.0	90.1	89.7	97.44	97.44	-4,590.2	-125.6	664.4	486.0	178.32	3.726 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-403 - Wellbore #1 - Plan #1 (12-03-1)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-89.3	89.3					
100.0	100.0	100.0	100.0	0.1	0.1	-89.99	0.0	-89.3	89.3	89.1	0.22	397.346		
200.0	200.0	200.0	200.0	0.3	0.3	-89.99	0.0	-89.3	89.3	88.6	0.67	132.449		
300.0	300.0	300.0	300.0	0.6	0.6	-89.99	0.0	-89.3	89.3	88.2	1.12	79.469		
400.0	400.0	400.0	400.0	0.8	0.8	-89.99	0.0	-89.3	89.3	87.7	1.57	56.764		
500.0	500.0	500.0	500.0	1.0	1.0	-89.99	0.0	-89.3	89.3	87.3	2.02	44.150		
600.0	600.0	600.0	600.0	1.2	1.2	-89.99	0.0	-89.3	89.3	86.8	2.47	36.122		
700.0	700.0	700.0	700.0	1.5	1.5	-89.99	0.0	-89.3	89.3	86.4	2.92	30.565		
800.0	800.0	800.0	800.0	1.7	1.7	-89.99	0.0	-89.3	89.3	85.9	3.37	26.490		
900.0	900.0	900.0	900.0	1.9	1.9	-89.99	0.0	-89.3	89.3	85.5	3.82	23.373		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.99	0.0	-89.3	89.3	85.0	4.27	20.913 CC, ES		
1,100.0	1,100.0	1,097.1	1,097.1	2.4	2.3	-163.66	0.7	-90.8	92.5	87.9	4.70	19.709 SF		
1,200.0	1,199.8	1,193.6	1,193.5	2.6	2.6	-163.33	2.6	-95.3	102.2	97.1	5.11	20.011		
1,300.0	1,299.5	1,289.6	1,289.1	2.8	2.8	-162.91	5.7	-102.7	118.2	112.7	5.53	21.389		
1,400.0	1,398.7	1,387.6	1,386.6	3.0	3.0	-162.82	9.3	-111.2	138.5	132.5	5.95	23.292		
1,500.0	1,497.8	1,485.2	1,483.9	3.3	3.2	-162.96	12.9	-119.7	159.9	153.5	6.37	25.081		
1,600.0	1,596.9	1,582.9	1,581.1	3.6	3.5	-163.06	16.5	-128.2	181.3	174.4	6.81	26.618		
1,700.0	1,696.0	1,680.6	1,678.4	3.9	3.7	-163.15	20.1	-136.6	202.7	195.4	7.25	27.947		
1,800.0	1,795.1	1,778.3	1,775.6	4.1	4.0	-163.21	23.6	-145.1	224.0	216.3	7.70	29.107		
1,900.0	1,894.2	1,876.0	1,872.9	4.4	4.2	-163.27	27.2	-153.6	245.4	237.3	8.15	30.120		
2,000.0	1,993.3	1,973.7	1,970.1	4.8	4.5	-163.32	30.8	-162.0	266.8	258.2	8.60	31.021		
2,100.0	2,092.4	2,071.4	2,067.4	5.1	4.8	-163.36	34.4	-170.5	288.2	279.2	9.06	31.820		
2,200.0	2,191.5	2,169.0	2,164.6	5.4	5.0	-163.39	38.0	-179.0	309.6	300.1	9.52	32.534		
2,300.0	2,290.6	2,266.7	2,261.9	5.7	5.3	-163.42	41.6	-187.5	331.0	321.0	9.98	33.175		
2,400.0	2,389.7	2,364.4	2,359.1	6.0	5.6	-163.45	45.2	-195.9	352.4	342.0	10.44	33.754		
2,500.0	2,488.8	2,462.1	2,456.4	6.3	5.8	-163.47	48.7	-204.4	373.8	362.9	10.90	34.278		
2,600.0	2,587.9	2,559.8	2,553.6	6.6	6.1	-163.49	52.3	-212.9	395.2	383.8	11.37	34.755		
2,700.0	2,687.0	2,657.5	2,650.9	7.0	6.4	-163.51	55.9	-221.4	416.6	404.7	11.84	35.191		
2,800.0	2,786.1	2,755.1	2,748.1	7.3	6.6	-163.53	59.5	-229.8	438.0	425.7	12.31	35.591		
2,900.0	2,885.2	2,852.8	2,845.4	7.6	6.9	-163.54	63.1	-238.3	459.4	446.6	12.77	35.959		
3,000.0	2,984.3	2,950.5	2,942.6	7.9	7.2	-163.56	66.7	-246.8	480.7	467.5	13.24	36.298		
3,100.0	3,083.4	3,048.2	3,039.9	8.3	7.5	-163.57	70.3	-255.2	502.1	488.4	13.72	36.612		
3,200.0	3,182.5	3,145.9	3,137.1	8.6	7.7	-163.58	73.9	-263.7	523.5	509.3	14.19	36.903		
3,300.0	3,281.6	3,243.6	3,234.4	8.9	8.0	-163.59	77.4	-272.2	544.9	530.3	14.66	37.174		
3,400.0	3,380.7	3,341.3	3,331.6	9.3	8.3	-163.60	81.0	-280.7	566.3	551.2	15.13	37.426		
3,500.0	3,479.8	3,438.9	3,428.9	9.6	8.5	-163.61	84.6	-289.1	587.7	572.1	15.60	37.662		
3,600.0	3,579.0	3,536.6	3,526.2	9.9	8.8	-163.62	88.2	-297.6	609.1	593.0	16.08	37.883		
3,700.0	3,678.1	3,634.3	3,623.4	10.2	9.1	-163.63	91.8	-306.1	630.5	613.9	16.55	38.089		
3,800.0	3,777.2	3,732.0	3,720.7	10.6	9.4	-163.64	95.4	-314.5	651.9	634.9	17.03	38.284		
3,900.0	3,876.3	3,829.7	3,817.9	10.9	9.6	-163.64	99.0	-323.0	673.3	655.8	17.50	38.467		
4,000.0	3,975.4	3,927.4	3,915.2	11.2	9.9	-163.65	102.5	-331.5	694.7	676.7	17.98	38.640		
4,100.0	4,074.5	4,025.1	4,012.4	11.6	10.2	-163.66	106.1	-340.0	716.1	697.6	18.45	38.803		
4,200.0	4,173.6	4,122.7	4,109.7	11.9	10.5	-163.66	109.7	-348.4	737.5	718.5	18.93	38.957		
4,300.0	4,272.7	4,220.4	4,206.9	12.2	10.7	-163.67	113.3	-356.9	758.8	739.4	19.41	39.103		
4,400.0	4,371.8	4,318.1	4,304.2	12.6	11.0	-163.67	116.9	-365.4	780.2	760.4	19.88	39.241		
4,500.0	4,470.9	4,415.8	4,401.4	12.9	11.3	-163.68	120.5	-373.9	801.6	781.3	20.36	39.372		
4,600.0	4,570.0	4,513.5	4,498.7	13.2	11.6	-163.68	124.1	-382.3	823.0	802.2	20.84	39.497		
4,700.0	4,669.1	4,611.2	4,595.9	13.6	11.9	-163.69	127.7	-390.8	844.4	823.1	21.32	39.616		
4,800.0	4,768.2	4,708.8	4,693.2	13.9	12.1	-163.69	131.2	-399.3	865.8	844.0	21.79	39.729		
4,900.0	4,867.3	4,806.5	4,790.4	14.2	12.4	-163.70	134.8	-407.7	887.2	864.9	22.27	39.837		
5,000.0	4,966.4	4,904.2	4,887.7	14.6	12.7	-163.70	138.4	-416.2	908.6	885.8	22.75	39.940		

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 Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-403 - Wellbore #1 - Plan #1 (12-03-1													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
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	
5,100.0	5,065.5	5,001.9	4,984.9	14.9	13.0	-163.70	142.0	-424.7	930.0	906.8	23.23	40.039		
5,200.0	5,164.6	5,099.7	5,082.2	15.2	13.2	-163.76	145.6	-433.2	951.0	927.3	23.73	40.082		
5,300.0	5,264.1	5,198.0	5,180.1	15.4	13.5	-163.81	149.2	-441.7	969.2	945.0	24.20	40.040		
5,400.0	5,363.9	5,319.3	5,301.0	15.6	13.8	-163.77	153.3	-451.4	983.5	958.8	24.68	39.842		
5,500.0	5,463.9	5,465.5	5,447.0	15.8	14.1	-163.73	155.8	-457.3	990.4	965.3	25.13	39.413		
5,600.0	5,563.9	5,582.3	5,563.9	15.9	14.3	-89.94	156.0	-457.8	990.9	965.4	25.52	38.827		
5,700.0	5,663.9	5,682.3	5,663.9	16.1	14.5	-89.94	156.0	-457.8	990.9	965.0	25.92	38.230		
5,800.0	5,763.9	5,782.3	5,763.9	16.3	14.6	-89.94	156.0	-457.8	990.9	964.6	26.32	37.645		
5,900.0	5,863.9	5,882.3	5,863.9	16.4	14.8	-89.94	156.0	-457.8	990.9	964.2	26.73	37.076		
6,000.0	5,963.9	5,982.3	5,963.9	16.6	15.0	-89.94	156.0	-457.8	990.9	963.8	27.13	36.522		
6,062.9	6,026.8	6,045.2	6,026.8	16.7	15.1	90.07	156.0	-457.8	990.9	963.6	27.39	36.182		
6,100.0	6,063.9	6,082.3	6,063.9	16.8	15.2	90.06	156.0	-457.8	990.9	963.4	27.54	35.985		
6,200.0	6,163.5	6,182.0	6,163.5	16.9	15.4	90.51	156.0	-457.8	991.0	963.1	27.90	35.521		
6,300.0	6,261.2	6,281.9	6,263.3	17.0	15.6	91.57	153.7	-457.8	991.3	963.1	28.20	35.150		
6,400.0	6,355.4	6,385.0	6,365.3	17.1	15.7	92.68	138.9	-457.8	992.1	963.6	28.43	34.892		
6,500.0	6,444.4	6,491.1	6,467.1	17.2	15.8	93.75	109.4	-457.8	993.2	964.5	28.63	34.684		
6,600.0	6,526.7	6,600.2	6,566.6	17.3	15.9	94.78	64.7	-457.8	994.5	965.6	28.87	34.447		
6,700.0	6,600.9	6,712.4	6,661.1	17.4	16.0	95.73	4.5	-457.8	996.1	966.8	29.24	34.070		
6,800.0	6,665.8	6,827.7	6,748.0	17.6	16.2	96.59	-71.1	-457.8	997.7	967.8	29.82	33.457		
6,900.0	6,720.1	6,945.7	6,824.1	18.0	16.4	97.32	-161.1	-457.8	999.2	968.5	30.73	32.513		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	-90.00	0.0	-30.7	30.7	30.7	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	-90.00	0.0	-30.7	30.7	30.5	0.23	135.235	
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	-90.00	0.0	-30.7	30.7	30.0	0.68	45.378	
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	-90.00	0.0	-30.7	30.7	29.6	1.13	27.263	
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	-90.00	0.0	-30.7	30.7	29.1	1.58	19.485	
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	-90.00	0.0	-30.7	30.7	28.7	2.03	15.160	
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	-90.00	0.0	-30.7	30.7	28.2	2.47	12.406	
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	-90.00	0.0	-30.7	30.7	27.8	2.92	10.499	
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	-90.00	0.0	-30.7	30.7	27.3	3.37	9.100	
900.0	900.0	901.0	901.0	1.9	1.9	-90.00	-90.00	0.0	-30.7	30.7	26.9	3.82	8.030	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-90.00	-90.00	0.0	-30.7	30.7	26.4	4.27	7.185 CC, ES	
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-164.64	-164.64	0.0	-30.7	32.4	27.7	4.71	6.873	
1,200.0	1,199.8	1,200.8	1,200.8	2.6	2.6	-166.74	-166.74	0.0	-30.7	37.5	32.3	5.14	7.288	
1,300.0	1,299.5	1,300.5	1,300.5	2.8	2.8	-169.20	-169.20	0.0	-30.7	46.0	40.4	5.56	8.263	
1,400.0	1,398.7	1,399.7	1,399.7	3.0	3.0	-171.42	-171.42	0.0	-30.7	58.0	52.0	5.99	9.677	
1,500.0	1,497.8	1,498.8	1,498.8	3.3	3.3	-173.03	-173.03	0.0	-30.7	71.2	64.8	6.43	11.078	
1,600.0	1,596.9	1,600.6	1,600.6	3.6	3.5	-173.67	-173.67	1.0	-29.2	82.9	76.1	6.87	12.076	
1,700.0	1,696.0	1,703.1	1,702.9	3.9	3.7	-173.24	-173.24	4.0	-24.7	91.4	84.1	7.30	12.512	
1,800.0	1,795.1	1,804.2	1,803.7	4.1	3.9	-172.16	-172.16	8.6	-17.7	97.1	89.4	7.75	12.541	
1,900.0	1,894.2	1,904.1	1,903.2	4.4	4.2	-171.12	-171.12	13.4	-10.6	102.6	94.4	8.19	12.526	
2,000.0	1,993.3	2,003.9	2,002.6	4.8	4.4	-170.19	-170.19	18.2	-3.4	108.1	99.5	8.65	12.509	
2,100.0	2,092.4	2,103.7	2,102.1	5.1	4.6	-169.35	-169.35	22.9	3.8	113.7	104.6	9.10	12.490	
2,200.0	2,191.5	2,203.6	2,201.5	5.4	4.9	-168.59	-168.59	27.7	11.0	119.3	109.7	9.56	12.470	
2,300.0	2,290.6	2,303.4	2,301.0	5.7	5.1	-167.90	-167.90	32.5	18.1	124.8	114.8	10.03	12.448	
2,400.0	2,389.7	2,403.2	2,400.5	6.0	5.4	-167.26	-167.26	37.3	25.3	130.4	119.9	10.50	12.427	
2,500.0	2,488.8	2,503.0	2,499.9	6.3	5.6	-166.68	-166.68	42.0	32.5	136.0	125.1	10.97	12.405	
2,600.0	2,587.9	2,602.9	2,599.4	6.6	5.9	-166.15	-166.15	46.8	39.6	141.7	130.2	11.44	12.382	
2,700.0	2,687.0	2,702.7	2,698.8	7.0	6.1	-165.65	-165.65	51.6	46.8	147.3	135.4	11.92	12.360	
2,800.0	2,786.1	2,802.5	2,798.3	7.3	6.4	-165.19	-165.19	56.3	54.0	153.0	140.6	12.40	12.338	
2,900.0	2,885.2	2,902.4	2,897.8	7.6	6.6	-164.77	-164.77	61.1	61.1	158.6	145.7	12.88	12.317	
3,000.0	2,984.3	3,002.2	2,997.2	7.9	6.9	-164.37	-164.37	65.9	68.3	164.3	150.9	13.36	12.295	
3,100.0	3,083.4	3,102.0	3,096.7	8.3	7.2	-164.00	-164.00	70.6	75.5	170.0	156.1	13.85	12.275	
3,200.0	3,182.5	3,201.9	3,196.2	8.6	7.4	-163.66	-163.66	75.4	82.7	175.6	161.3	14.33	12.254	
3,300.0	3,281.6	3,301.7	3,295.6	8.9	7.7	-163.33	-163.33	80.2	89.8	181.3	166.5	14.82	12.234	
3,400.0	3,380.7	3,401.5	3,395.1	9.3	7.9	-163.03	-163.03	85.0	97.0	187.0	171.7	15.31	12.215	
3,500.0	3,479.8	3,501.4	3,494.5	9.6	8.2	-162.74	-162.74	89.7	104.2	192.7	176.9	15.80	12.196	
3,600.0	3,579.0	3,601.2	3,594.0	9.9	8.5	-162.47	-162.47	94.5	111.3	198.4	182.1	16.29	12.178	
3,700.0	3,678.1	3,701.0	3,693.5	10.2	8.7	-162.22	-162.22	99.3	118.5	204.1	187.3	16.79	12.160	
3,800.0	3,777.2	3,800.9	3,792.9	10.6	9.0	-161.98	-161.98	104.0	125.7	209.8	192.5	17.28	12.142	
3,900.0	3,876.3	3,900.7	3,892.4	10.9	9.3	-161.75	-161.75	108.8	132.9	215.5	197.8	17.78	12.126	
4,000.0	3,975.4	4,000.5	3,991.8	11.2	9.5	-161.53	-161.53	113.6	140.0	221.3	203.0	18.27	12.109	
4,100.0	4,074.5	4,100.4	4,091.3	11.6	9.8	-161.33	-161.33	118.4	147.2	227.0	208.2	18.77	12.093	
4,200.0	4,173.6	4,200.2	4,190.8	11.9	10.1	-161.13	-161.13	123.1	154.4	232.7	213.4	19.27	12.078	
4,300.0	4,272.7	4,300.0	4,290.2	12.2	10.3	-160.94	-160.94	127.9	161.5	238.4	218.7	19.76	12.063	
4,400.0	4,371.8	4,399.9	4,389.7	12.6	10.6	-160.77	-160.77	132.7	168.7	244.1	223.9	20.26	12.049	
4,500.0	4,470.9	4,499.7	4,489.1	12.9	10.9	-160.60	-160.60	137.4	175.9	249.9	229.1	20.76	12.035	
4,600.0	4,570.0	4,599.5	4,588.6	13.2	11.1	-160.44	-160.44	142.2	183.0	255.6	234.3	21.26	12.021	
4,700.0	4,669.1	4,699.4	4,688.1	13.6	11.4	-160.28	-160.28	147.0	190.2	261.3	239.6	21.76	12.008	
4,800.0	4,768.2	4,796.8	4,785.1	13.9	11.7	-160.16	-160.16	151.5	197.1	267.2	245.0	22.25	12.010	
4,900.0	4,867.3	4,889.5	4,877.7	14.2	11.8	-160.35	-160.35	154.6	201.6	275.1	252.5	22.67	12.138	
5,000.0	4,966.4	4,981.7	4,969.8	14.6	12.0	-160.89	-160.89	155.9	203.6	285.7	262.6	23.06	12.388	

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 Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-1)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,065.5	5,078.3	5,066.5	14.9	12.2	-161.69		156.0	203.8	298.2	274.7	23.45	12.716	
5,200.0	5,164.6	5,177.5	5,165.6	15.2	12.4	-162.48		156.0	203.8	310.5	286.7	23.87	13.011	
5,300.0	5,264.1	5,277.0	5,265.1	15.4	12.6	-163.07		156.0	203.8	320.1	295.8	24.26	13.194	
5,400.0	5,363.9	5,376.8	5,364.9	15.6	12.8	-163.44		156.0	203.8	326.3	301.7	24.63	13.248	
5,500.0	5,463.9	5,476.7	5,464.9	15.8	13.0	-163.60		156.0	203.8	329.2	304.2	24.98	13.178	
5,600.0	5,563.9	5,576.7	5,564.9	15.9	13.2	-89.83		156.0	203.8	329.4	304.0	25.36	12.990	
5,700.0	5,663.9	5,676.7	5,664.9	16.1	13.4	-89.83		156.0	203.8	329.4	303.6	25.76	12.784	
5,800.0	5,763.9	5,776.7	5,764.9	16.3	13.6	-89.83		156.0	203.8	329.4	303.2	26.18	12.584	
5,900.0	5,863.9	5,876.7	5,864.9	16.4	13.8	-89.83		156.0	203.8	329.4	302.8	26.59	12.389	
6,000.0	5,963.9	5,976.7	5,964.9	16.6	14.0	-89.83		156.0	203.8	329.4	302.4	27.00	12.200	
6,062.9	6,026.8	6,039.6	6,027.8	16.7	14.1	90.22		156.0	203.8	329.4	302.1	27.26	12.083	
6,100.0	6,063.9	6,076.7	6,064.9	16.8	14.2	90.19		156.0	203.8	329.4	302.0	27.41	12.016	
6,200.0	6,163.5	6,176.3	6,164.5	16.9	14.4	91.55		156.0	203.8	329.5	301.7	27.84	11.837	
6,300.0	6,261.2	6,274.0	6,264.4	17.0	14.6	94.69		153.6	203.8	330.5	302.3	28.27	11.690	
6,400.0	6,355.4	6,379.4	6,366.3	17.1	14.7	97.97		138.7	203.8	332.7	304.1	28.60	11.634	
6,500.0	6,444.4	6,485.5	6,468.1	17.2	14.8	101.11		109.1	203.8	335.9	307.1	28.81	11.660	
6,600.0	6,526.7	6,594.6	6,567.4	17.3	14.9	104.04		64.3	203.8	339.8	310.9	28.92	11.750	
6,700.0	6,600.9	6,706.7	6,661.9	17.4	15.0	106.71		3.9	203.8	344.3	315.2	29.03	11.859	
6,800.0	6,665.8	6,821.9	6,748.5	17.6	15.2	109.05		-71.7	203.8	348.8	319.6	29.27	11.918	
6,900.0	6,720.1	6,939.8	6,824.5	18.0	15.5	111.02		-161.7	203.8	353.2	323.4	29.79	11.857	
7,000.0	6,763.1	7,060.2	6,886.9	18.5	16.2	112.57		-264.6	203.8	356.9	326.2	30.75	11.607	
7,100.0	6,793.9	7,182.6	6,932.9	19.2	17.1	113.69		-377.8	203.8	359.8	327.5	32.27	11.148	
7,200.0	6,812.1	7,306.3	6,960.5	20.0	18.3	114.33		-498.3	203.8	361.5	327.1	34.38	10.514	
7,300.0	6,817.2	7,412.2	6,972.2	21.1	19.5	115.02		-603.5	203.8	363.9	327.2	36.74	9.905	
7,400.0	6,815.8	7,528.0	6,978.2	22.2	20.9	116.11		-719.1	203.8	366.8	327.8	39.04	9.397	
7,500.0	6,814.3	7,628.0	6,978.4	23.5	22.2	116.34		-819.2	203.8	367.6	326.1	41.48	8.861	
7,600.0	6,812.8	7,728.0	6,978.6	24.9	23.7	116.57		-919.1	203.8	368.3	324.3	44.05	8.361	
7,700.0	6,811.4	7,828.0	6,978.8	26.3	25.2	116.80		-1,019.1	203.8	369.0	322.3	46.72	7.899	
7,800.0	6,809.9	7,928.0	6,978.9	27.8	26.7	117.03		-1,119.1	203.8	369.8	320.3	49.48	7.474	
7,900.0	6,808.4	8,028.0	6,979.1	29.3	28.3	117.25		-1,219.1	203.8	370.5	318.2	52.31	7.084	
8,000.0	6,807.0	8,128.0	6,979.3	30.9	29.9	117.48		-1,319.1	203.8	371.3	316.1	55.19	6.727	
8,100.0	6,805.5	8,227.9	6,979.5	32.5	31.6	117.70		-1,419.1	203.8	372.0	313.9	58.12	6.401	
8,200.0	6,804.0	8,327.9	6,979.6	34.1	33.3	117.93		-1,519.1	203.8	372.8	311.7	61.09	6.103	
8,300.0	6,802.6	8,427.9	6,979.8	35.8	35.0	118.15		-1,619.0	203.8	373.6	309.5	64.09	5.829	
8,400.0	6,801.1	8,527.9	6,980.0	37.5	36.7	118.37		-1,719.0	203.8	374.4	307.2	67.11	5.578	
8,500.0	6,799.6	8,627.9	6,980.2	39.2	38.5	118.59		-1,819.0	203.8	375.1	305.0	70.16	5.347	
8,600.0	6,798.2	8,727.9	6,980.3	41.0	40.2	118.81		-1,919.0	203.8	375.9	302.7	73.22	5.135	
8,700.0	6,796.7	8,827.9	6,980.5	42.7	42.0	119.03		-2,019.0	203.8	376.7	300.4	76.29	4.938	
8,800.0	6,795.2	8,927.9	6,980.7	44.5	43.8	119.25		-2,119.0	203.8	377.5	298.2	79.37	4.757	
8,900.0	6,793.8	9,027.8	6,980.9	46.3	45.6	119.46		-2,219.0	203.8	378.3	295.9	82.45	4.588	
9,000.0	6,792.3	9,127.8	6,981.0	48.0	47.4	119.68		-2,319.0	203.8	379.1	293.6	85.54	4.432	
9,100.0	6,790.8	9,227.8	6,981.2	49.8	49.2	119.89		-2,418.9	203.8	379.9	291.3	88.64	4.287	
9,200.0	6,789.4	9,327.8	6,981.4	51.7	51.1	120.11		-2,518.9	203.8	380.8	289.0	91.73	4.151	
9,300.0	6,787.9	9,427.8	6,981.6	53.5	52.9	120.32		-2,618.9	203.8	381.6	286.8	94.83	4.024	
9,400.0	6,786.4	9,527.8	6,981.7	55.3	54.7	120.53		-2,718.9	203.8	382.4	284.5	97.92	3.906	
9,500.0	6,785.0	9,627.8	6,981.9	57.1	56.6	120.74		-2,818.9	203.8	383.3	282.3	101.01	3.794	
9,600.0	6,783.5	9,727.7	6,982.1	58.9	58.4	120.95		-2,918.9	203.8	384.1	280.0	104.09	3.690	
9,700.0	6,782.0	9,827.7	6,982.3	60.8	60.3	121.16		-3,018.9	203.8	384.9	277.8	107.18	3.592	
9,800.0	6,780.6	9,927.7	6,982.4	62.6	62.1	121.37		-3,118.8	203.8	385.8	275.5	110.25	3.499	
9,900.0	6,779.1	10,027.7	6,982.6	64.5	64.0	121.58		-3,218.8	203.8	386.7	273.3	113.32	3.412	
10,000.0	6,777.6	10,127.7	6,982.8	66.3	65.9	121.79		-3,318.8	203.8	387.5	271.1	116.39	3.330	

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

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-1												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis 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
10,100.0	6,776.2	10,227.7	6,983.0	68.2	67.7	121.99	-3,418.8	203.8	388.4	268.9	119.45	3.252	
10,200.0	6,774.7	10,327.7	6,983.1	70.0	69.6	122.20	-3,518.8	203.8	389.3	266.8	122.50	3.178	
10,300.0	6,773.2	10,427.7	6,983.3	71.9	71.5	122.40	-3,618.8	203.8	390.1	264.6	125.54	3.108	
10,400.0	6,771.8	10,527.6	6,983.5	73.8	73.3	122.60	-3,718.8	203.8	391.0	262.4	128.58	3.041	
10,500.0	6,770.3	10,627.6	6,983.7	75.6	75.2	122.81	-3,818.7	203.8	391.9	260.3	131.60	2.978	
10,600.0	6,768.8	10,727.6	6,983.8	77.5	77.1	123.01	-3,918.7	203.8	392.8	258.2	134.62	2.918	
10,700.0	6,767.4	10,827.6	6,984.0	79.4	79.0	123.21	-4,018.7	203.8	393.7	256.1	137.63	2.860	
10,800.0	6,765.9	10,927.6	6,984.2	81.3	80.9	123.41	-4,118.7	203.8	394.6	254.0	140.63	2.806	
10,900.0	6,764.4	11,027.6	6,984.4	83.1	82.7	123.60	-4,218.7	203.8	395.5	251.9	143.62	2.754	
11,000.0	6,763.0	11,127.6	6,984.5	85.0	84.6	123.80	-4,318.7	203.8	396.4	249.8	146.61	2.704	
11,100.0	6,761.5	11,227.5	6,984.7	86.9	86.5	124.00	-4,418.7	203.8	397.3	247.7	149.58	2.656	
11,200.0	6,760.0	11,327.5	6,984.9	88.8	88.4	124.19	-4,518.7	203.8	398.2	245.7	152.54	2.611	
11,271.2	6,759.0	11,398.7	6,985.0	90.1	89.7	124.33	-4,589.8	203.8	398.9	244.3	154.64	2.579 SF	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-203
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<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4798.0ft (RKB - 15')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Becker Ranch 5U-203  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-203
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4798.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-203	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (12-03-13)	<b>Offset TVD Reference:</b>	Offset Datum

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