

# PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Becker Ranch 5U-243**

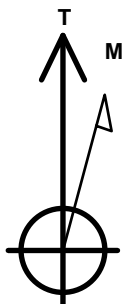
Surface Location: Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4784.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339355.99	3260073.26	40.261180	-104.568090	

RKB - 12.5' WELL @ 4796.5ft (RKB - 12.5')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 206'FNL & 760'FEL	1.0	0.0	0.0	Point
BHL 500'FSL, 584'FEL	6760.0	-4590.2	156.3	Point



Azimuths to True North  
 Magnetic North: 8.35°

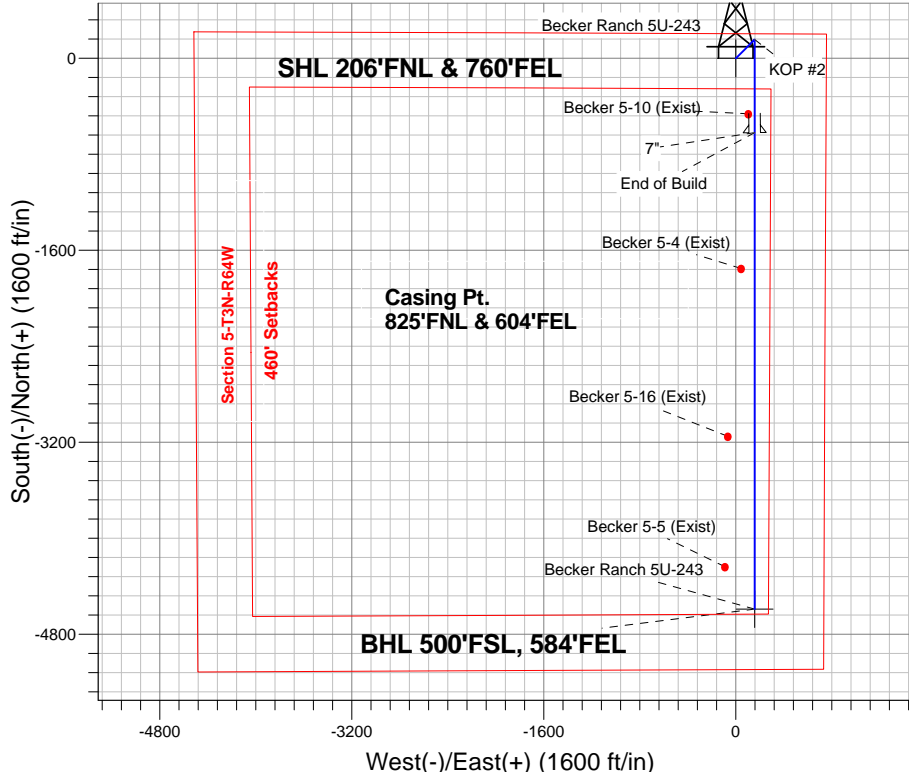
Magnetic Field  
 Strength: 52768.6snT  
 Dip Angle: 66.87°  
 Date: 5/28/2014  
 Model: IGRF2010

## ANNOTATIONS

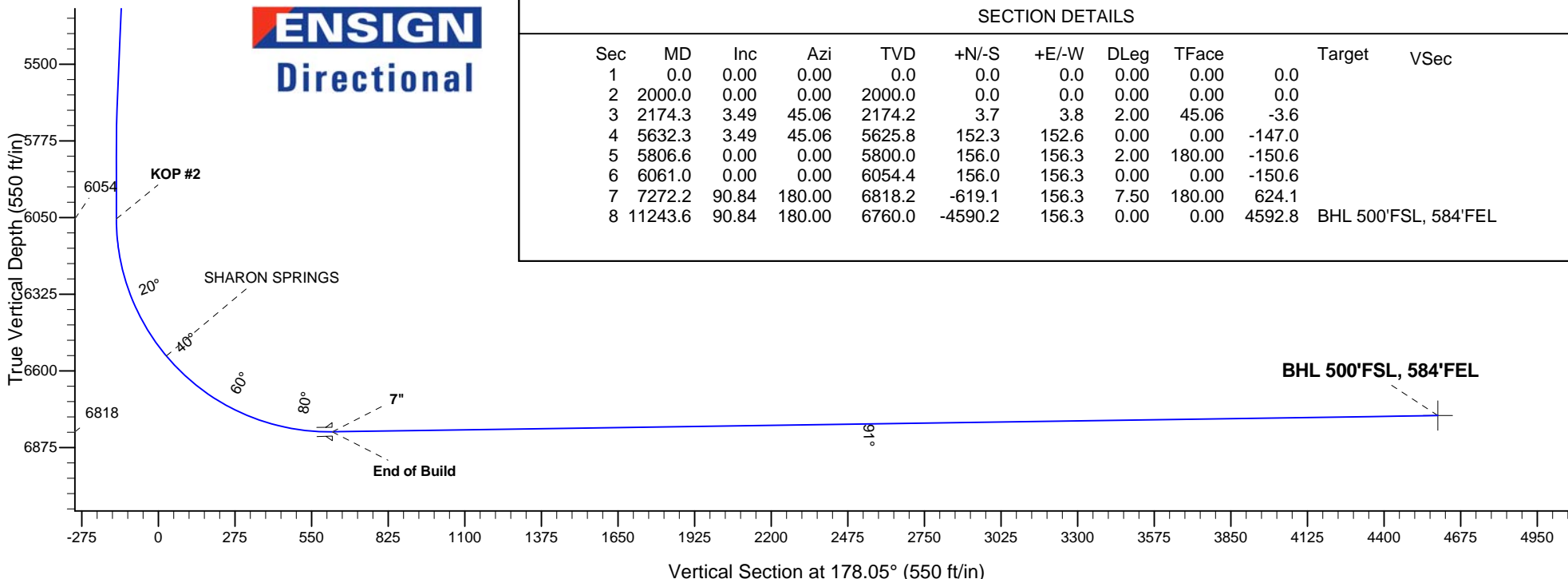
TVD	MD	Annotation
2000.0	2000.0	KOP #1
6054.4	6061.0	KOP #2
6818.2	7272.2	End of Build

Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W  
 Becker Ranch 5U-243  
 Plan #1 (5-28-14)  
 9:36, May 30 2014

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



**ENSIGN**  
 Directional



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2174.3	3.49	45.06	2174.2	3.7	3.8	2.00	45.06	-3.6	
4	5632.3	3.49	45.06	5625.8	152.3	152.6	0.00	0.00	-147.0	
5	5806.6	0.00	0.00	5800.0	156.0	156.3	2.00	180.00	-150.6	
6	6061.0	0.00	0.00	6054.4	156.0	156.3	0.00	0.00	-150.6	
7	7272.2	90.84	180.00	6818.2	-619.1	156.3	7.50	180.00	624.1	
8	11243.6	90.84	180.00	6760.0	-4590.2	156.3	0.00	0.00	4592.8	BHL 500'FSL, 584'FEL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.5-T3N-R64W**

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

**Becker Ranch 5U-243**

**Wellbore #1**

**Plan: Plan #1 (5-28-14)**

## **Standard Planning Report**

**30 May, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-28-14)		

<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-243					
Well Position	+N/-S	0.0 ft	Northing:	1,339,355.99 ft	Latitude:	40.261180
	+E/-W	27.9 ft	Easting:	3,260,073.26 ft	Longitude:	-104.568090
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,784.0 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	5/28/2014	8.35	66.87	52,769

<b>Design</b>	Plan #1 (5-28-14)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	178.05

<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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,174.3	3.49	45.06	2,174.2	3.7	3.8	2.00	2.00	0.00	45.06	
5,632.3	3.49	45.06	5,625.8	152.3	152.6	0.00	0.00	0.00	0.00	
5,806.6	0.00	0.00	5,800.0	156.0	156.3	2.00	-2.00	0.00	180.00	
6,061.0	0.00	0.00	6,054.4	156.0	156.3	0.00	0.00	0.00	0.00	
7,272.2	90.84	180.00	6,818.2	-619.1	156.3	7.50	7.50	0.00	180.00	
11,243.6	90.84	180.00	6,760.0	-4,590.2	156.3	0.00	0.00	0.00	0.00	BHL 500'FSL, 584°F

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-28-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>SHL 206'FNL &amp; 760'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
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP #1</b>									
2,100.0	2.00	45.06	2,100.0	1.2	1.2	-1.2	2.00	2.00	0.00
2,174.3	3.49	45.06	2,174.2	3.7	3.8	-3.6	2.00	2.00	0.00
2,200.0	3.49	45.06	2,199.8	4.8	4.9	-4.7	0.00	0.00	0.00
2,300.0	3.49	45.06	2,299.7	9.1	9.2	-8.8	0.00	0.00	0.00
2,400.0	3.49	45.06	2,399.5	13.4	13.5	-13.0	0.00	0.00	0.00
2,500.0	3.49	45.06	2,499.3	17.7	17.8	-17.1	0.00	0.00	0.00
2,600.0	3.49	45.06	2,599.1	22.0	22.1	-21.3	0.00	0.00	0.00
2,700.0	3.49	45.06	2,698.9	26.3	26.4	-25.4	0.00	0.00	0.00
2,800.0	3.49	45.06	2,798.7	30.6	30.7	-29.6	0.00	0.00	0.00
2,900.0	3.49	45.06	2,898.5	34.9	35.0	-33.7	0.00	0.00	0.00
3,000.0	3.49	45.06	2,998.4	39.2	39.3	-37.8	0.00	0.00	0.00
3,100.0	3.49	45.06	3,098.2	43.5	43.6	-42.0	0.00	0.00	0.00
3,200.0	3.49	45.06	3,198.0	47.8	47.9	-46.1	0.00	0.00	0.00
3,300.0	3.49	45.06	3,297.8	52.1	52.2	-50.3	0.00	0.00	0.00
3,400.0	3.49	45.06	3,397.6	56.4	56.5	-54.4	0.00	0.00	0.00
3,500.0	3.49	45.06	3,497.4	60.7	60.8	-58.6	0.00	0.00	0.00
3,600.0	3.49	45.06	3,597.3	65.0	65.1	-62.7	0.00	0.00	0.00
3,700.0	3.49	45.06	3,697.1	69.3	69.4	-66.9	0.00	0.00	0.00
3,702.9	3.49	45.06	3,700.0	69.4	69.5	-67.0	0.00	0.00	0.00
<b>PARKMAN</b>									
3,800.0	3.49	45.06	3,796.9	73.6	73.7	-71.0	0.00	0.00	0.00
3,900.0	3.49	45.06	3,896.7	77.9	78.0	-75.2	0.00	0.00	0.00
4,000.0	3.49	45.06	3,996.5	82.2	82.3	-79.3	0.00	0.00	0.00
4,100.0	3.49	45.06	4,096.3	86.4	86.6	-83.4	0.00	0.00	0.00
4,200.0	3.49	45.06	4,196.1	90.7	90.9	-87.6	0.00	0.00	0.00
4,300.0	3.49	45.06	4,296.0	95.0	95.2	-91.7	0.00	0.00	0.00
4,400.0	3.49	45.06	4,395.8	99.3	99.5	-95.9	0.00	0.00	0.00
4,404.2	3.49	45.06	4,400.0	99.5	99.7	-96.1	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 @ 4796.5ft (RKB - 12.5')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-28-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	3.49	45.06	4,495.6	103.6	103.8	-100.0	0.00	0.00	0.00
4,600.0	3.49	45.06	4,595.4	107.9	108.1	-104.2	0.00	0.00	0.00
4,700.0	3.49	45.06	4,695.2	112.2	112.4	-108.3	0.00	0.00	0.00
4,800.0	3.49	45.06	4,795.0	116.5	116.8	-112.5	0.00	0.00	0.00
4,900.0	3.49	45.06	4,894.9	120.8	121.1	-116.6	0.00	0.00	0.00
5,000.0	3.49	45.06	4,994.7	125.1	125.4	-120.8	0.00	0.00	0.00
5,100.0	3.49	45.06	5,094.5	129.4	129.7	-124.9	0.00	0.00	0.00
5,105.5	3.49	45.06	5,100.0	129.6	129.9	-125.1	0.00	0.00	0.00
SHANNON									
5,200.0	3.49	45.06	5,194.3	133.7	134.0	-129.1	0.00	0.00	0.00
5,300.0	3.49	45.06	5,294.1	138.0	138.3	-133.2	0.00	0.00	0.00
5,400.0	3.49	45.06	5,393.9	142.3	142.6	-137.3	0.00	0.00	0.00
5,500.0	3.49	45.06	5,493.7	146.6	146.9	-141.5	0.00	0.00	0.00
5,600.0	3.49	45.06	5,593.6	150.9	151.2	-145.6	0.00	0.00	0.00
5,632.3	3.49	45.06	5,625.8	152.3	152.6	-147.0	0.00	0.00	0.00
5,700.0	2.13	45.06	5,693.4	154.6	154.9	-149.2	2.00	-2.00	0.00
5,800.0	0.13	45.06	5,793.4	156.0	156.3	-150.6	2.00	-2.00	0.00
5,806.6	0.00	0.00	5,800.0	156.0	156.3	-150.6	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,893.4	156.0	156.3	-150.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,993.4	156.0	156.3	-150.6	0.00	0.00	0.00
6,061.0	0.00	0.00	6,054.4	156.0	156.3	-150.6	0.00	0.00	0.00
KOP #2									
6,100.0	2.93	180.00	6,093.4	155.0	156.3	-149.6	7.51	7.51	0.00
6,200.0	10.43	180.00	6,192.6	143.4	156.3	-138.0	7.50	7.50	0.00
6,300.0	17.93	180.00	6,289.5	118.9	156.3	-113.5	7.50	7.50	0.00
6,400.0	25.43	180.00	6,382.4	82.0	156.3	-76.6	7.50	7.50	0.00
6,500.0	32.93	180.00	6,469.6	33.3	156.3	-27.9	7.50	7.50	0.00
6,595.1	40.06	180.00	6,546.0	-23.2	156.3	28.5	7.50	7.50	0.00
SHARON SPRINGS									
6,600.0	40.43	180.00	6,549.8	-26.4	156.3	31.7	7.50	7.50	0.00
6,700.0	47.93	180.00	6,621.4	-96.0	156.3	101.3	7.50	7.50	0.00
6,800.0	55.43	180.00	6,683.4	-174.4	156.3	179.7	7.50	7.50	0.00
6,900.0	62.93	180.00	6,734.6	-260.3	156.3	265.4	7.50	7.50	0.00
7,000.0	70.43	180.00	6,774.2	-352.0	156.3	357.1	7.50	7.50	0.00
7,100.0	77.93	180.00	6,801.4	-448.2	156.3	453.2	7.50	7.50	0.00
7,200.0	85.43	180.00	6,815.9	-547.0	156.3	552.0	7.50	7.50	0.00
7,272.2	90.84	180.00	6,818.2	-619.2	156.3	624.1	7.50	7.50	0.00
End of Build - 7"									
7,300.0	90.84	180.00	6,817.8	-647.0	156.3	651.9	0.00	0.00	0.00
7,400.0	90.84	180.00	6,816.3	-747.0	156.3	751.8	0.00	0.00	0.00
7,500.0	90.84	180.00	6,814.9	-846.9	156.3	851.8	0.00	0.00	0.00
7,600.0	90.84	180.00	6,813.4	-946.9	156.3	951.7	0.00	0.00	0.00
7,700.0	90.84	180.00	6,812.0	-1,046.9	156.3	1,051.6	0.00	0.00	0.00
7,800.0	90.84	180.00	6,810.5	-1,146.9	156.3	1,151.6	0.00	0.00	0.00
7,900.0	90.84	180.00	6,809.0	-1,246.9	156.3	1,251.5	0.00	0.00	0.00
8,000.0	90.84	180.00	6,807.6	-1,346.9	156.3	1,351.4	0.00	0.00	0.00
8,100.0	90.84	180.00	6,806.1	-1,446.9	156.3	1,451.4	0.00	0.00	0.00
8,200.0	90.84	180.00	6,804.6	-1,546.9	156.3	1,551.3	0.00	0.00	0.00
8,300.0	90.84	180.00	6,803.2	-1,646.9	156.3	1,651.2	0.00	0.00	0.00
8,400.0	90.84	180.00	6,801.7	-1,746.8	156.3	1,751.2	0.00	0.00	0.00
8,500.0	90.84	180.00	6,800.2	-1,846.8	156.3	1,851.1	0.00	0.00	0.00
8,600.0	90.84	180.00	6,798.8	-1,946.8	156.3	1,951.0	0.00	0.00	0.00

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<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-28-14)		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,700.0	90.84	180.00	6,797.3	-2,046.8	156.3	2,051.0	0.00	0.00	0.00
8,800.0	90.84	180.00	6,795.8	-2,146.8	156.3	2,150.9	0.00	0.00	0.00
8,900.0	90.84	180.00	6,794.4	-2,246.8	156.3	2,250.8	0.00	0.00	0.00
9,000.0	90.84	180.00	6,792.9	-2,346.8	156.3	2,350.7	0.00	0.00	0.00
9,100.0	90.84	180.00	6,791.4	-2,446.8	156.3	2,450.7	0.00	0.00	0.00
9,200.0	90.84	180.00	6,790.0	-2,546.8	156.3	2,550.6	0.00	0.00	0.00
9,300.0	90.84	180.00	6,788.5	-2,646.8	156.3	2,650.5	0.00	0.00	0.00
9,400.0	90.84	180.00	6,787.0	-2,746.7	156.3	2,750.5	0.00	0.00	0.00
9,500.0	90.84	180.00	6,785.6	-2,846.7	156.3	2,850.4	0.00	0.00	0.00
9,600.0	90.84	180.00	6,784.1	-2,946.7	156.3	2,950.3	0.00	0.00	0.00
9,700.0	90.84	180.00	6,782.6	-3,046.7	156.3	3,050.3	0.00	0.00	0.00
9,800.0	90.84	180.00	6,781.2	-3,146.7	156.3	3,150.2	0.00	0.00	0.00
9,900.0	90.84	180.00	6,779.7	-3,246.7	156.3	3,250.1	0.00	0.00	0.00
10,000.0	90.84	180.00	6,778.2	-3,346.7	156.3	3,350.1	0.00	0.00	0.00
10,100.0	90.84	180.00	6,776.8	-3,446.7	156.3	3,450.0	0.00	0.00	0.00
10,200.0	90.84	180.00	6,775.3	-3,546.7	156.3	3,549.9	0.00	0.00	0.00
10,300.0	90.84	180.00	6,773.8	-3,646.6	156.3	3,649.9	0.00	0.00	0.00
10,400.0	90.84	180.00	6,772.4	-3,746.6	156.3	3,749.8	0.00	0.00	0.00
10,500.0	90.84	180.00	6,770.9	-3,846.6	156.3	3,849.7	0.00	0.00	0.00
10,600.0	90.84	180.00	6,769.4	-3,946.6	156.3	3,949.6	0.00	0.00	0.00
10,700.0	90.84	180.00	6,768.0	-4,046.6	156.3	4,049.6	0.00	0.00	0.00
10,800.0	90.84	180.00	6,766.5	-4,146.6	156.3	4,149.5	0.00	0.00	0.00
10,900.0	90.84	180.00	6,765.0	-4,246.6	156.3	4,249.4	0.00	0.00	0.00
11,000.0	90.84	180.00	6,763.6	-4,346.6	156.3	4,349.4	0.00	0.00	0.00
11,100.0	90.84	180.00	6,762.1	-4,446.6	156.3	4,449.3	0.00	0.00	0.00
11,200.0	90.84	180.00	6,760.6	-4,546.5	156.3	4,549.2	0.00	0.00	0.00
11,243.6	90.84	180.00	6,760.0	-4,590.2	156.3	4,592.8	0.00	0.00	0.00
BHL 500'FSL, 584'FEL									

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,272.2	6,818.2	7"	7	7-1/2

## Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,702.9	3,700.0	PARKMAN		0.00	
4,404.2	4,400.0	SUSSEX		0.00	
5,105.5	5,100.0	SHANNON		0.00	
6,595.1	6,546.0	SHARON SPRINGS		0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5U-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (5-28-14)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP #1
6,061.0	6,054.4	156.0	156.3	KOP #2
7,272.2	6,818.2	-619.2	156.3	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-243**

**Wellbore #1**

**Plan #1 (5-28-14)**

## **Anticollision Report**

**30 May, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1 (5-28-14)		
<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> 5/30/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,243.6	Plan #1 (5-28-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W						
Becker Ranch 5R-203 - Wellbore #1 - Plan #2 (5-28-14)	1,000.0	998.0	58.6	54.3	13.739	CC, ES
Becker Ranch 5R-203 - Wellbore #1 - Plan #2 (5-28-14)	11,243.6	11,254.6	575.0	395.6	3.205	SF
Becker Ranch 5R-323 - Wellbore #1 - Plan #2 (5-28-14)	2,000.0	1,999.0	27.9	19.1	3.185	CC, ES
Becker Ranch 5R-323 - Wellbore #1 - Plan #2 (5-28-14)	11,243.6	11,330.3	375.9	200.7	2.146	SF
Becker Ranch 5U-303 - Wellbore #1 - Plan #2 (5-28-14)	1,000.0	999.0	61.4	57.1	14.385	CC, ES
Becker Ranch 5U-303 - Wellbore #1 - Plan #2 (5-28-14)	11,243.6	11,351.2	422.2	246.6	2.405	SF
Becker Ranch 5U-443 - Wellbore #1 - Plan #2 (5-28-14)	1,500.0	1,500.0	30.7	24.2	4.710	CC, ES
Becker Ranch 5U-443 - Wellbore #1 - Plan #2 (5-28-14)	11,243.6	11,395.4	305.4	174.7	2.337	SF
<b>Existing Wells Sec.5-T3N-R64W</b>						
Becker 5-10 (Exist) - Wellbore #1 - Wellbore #1	7,114.8	6,784.9	53.1	-100.0	0.347	Level 1, CC, ES, SF
Becker 5-16 (Exist) - Wellbore #1 - Wellbore #1	9,804.5	6,725.6	223.3	26.2	1.133	Level 2, CC, ES, SF
Becker 5-4 (Exist) - Wellbore #1 - Wellbore #1	8,405.4	6,777.1	114.5	-58.1	0.663	Level 1, CC, ES, SF
Becker 5-5 (Exist) - Wellbore #1 - Wellbore #1	10,890.2	6,694.7	248.4	31.5	1.145	Level 2, CC, ES
Becker 5-5 (Exist) - Wellbore #1 - Wellbore #1	10,900.0	6,694.5	248.6	31.6	1.145	Level 2, SF

<b>Offset Design</b> Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-203 - Wellbore #1 - Plan #2 (5-28-14)												<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 0-MWD												<b>Offset Well Error:</b>	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)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-58.6	58.6				
100.0	100.0	98.0	98.0	0.1	0.1	-89.98	0.0	-58.6	58.6	58.4	0.22	263.387	
200.0	200.0	198.0	198.0	0.3	0.3	-89.98	0.0	-58.6	58.6	57.9	0.67	87.503	
300.0	300.0	298.0	298.0	0.6	0.6	-89.98	0.0	-58.6	58.6	57.5	1.12	52.361	
400.0	400.0	398.0	398.0	0.8	0.8	-89.98	0.0	-58.6	58.6	57.0	1.57	37.358	
500.0	500.0	498.0	498.0	1.0	1.0	-89.98	0.0	-58.6	58.6	56.6	2.02	29.038	
600.0	600.0	598.0	598.0	1.2	1.2	-89.98	0.0	-58.6	58.6	56.1	2.47	23.748	
700.0	700.0	698.0	698.0	1.5	1.5	-89.98	0.0	-58.6	58.6	55.7	2.92	20.089	
800.0	800.0	798.0	798.0	1.7	1.7	-89.98	0.0	-58.6	58.6	55.2	3.37	17.407	
900.0	900.0	898.0	898.0	1.9	1.9	-89.98	0.0	-58.6	58.6	54.8	3.82	15.357	
1,000.0	1,000.0	998.0	998.0	2.1	2.1	-89.98	0.0	-58.6	58.6	54.3	4.27	13.739	CC, ES
1,100.0	1,100.0	1,096.2	1,096.1	2.4	2.3	-89.38	0.6	-60.1	60.1	55.4	4.70	12.783	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-203 - Wellbore #1 - Plan #2 (5-28-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,200.0	1,200.0	1,194.0	1,193.9	2.6	2.6	-87.72		2.6	-64.7	64.8	59.7	5.14	12.620	
1,300.0	1,300.0	1,292.0	1,291.5	2.8	2.8	-85.42		5.8	-72.2	72.7	67.2	5.58	13.036	
1,400.0	1,400.0	1,391.5	1,390.6	3.0	3.0	-83.34		9.4	-80.9	81.7	75.7	6.03	13.548	
1,500.0	1,500.0	1,491.1	1,489.7	3.3	3.3	-81.68		13.1	-89.5	90.8	84.3	6.49	13.990	
1,600.0	1,600.0	1,590.7	1,588.8	3.5	3.5	-80.31		16.7	-98.1	100.0	93.0	6.95	14.375	
1,700.0	1,700.0	1,690.2	1,687.9	3.7	3.8	-79.18		20.4	-106.8	109.2	101.7	7.42	14.712	
1,800.0	1,800.0	1,789.8	1,787.1	3.9	4.0	-78.22		24.1	-115.4	118.4	110.5	7.89	15.010	
1,900.0	1,900.0	1,889.3	1,886.2	4.2	4.3	-77.40		27.7	-124.0	127.6	119.3	8.36	15.274	
2,000.0	2,000.0	1,988.9	1,985.3	4.4	4.5	-76.70		31.4	-132.7	136.9	128.1	8.83	15.510	
2,100.0	2,100.0	2,088.4	2,084.3	4.6	4.8	-121.55		35.0	-141.3	147.1	138.0	9.13	16.118	
2,200.0	2,199.8	2,187.6	2,183.1	4.8	5.1	-122.41		38.7	-149.9	159.1	149.5	9.56	16.634	
2,300.0	2,299.7	2,286.7	2,281.8	5.0	5.4	-123.55		42.3	-158.5	171.6	161.6	10.01	17.150	
2,400.0	2,399.5	2,385.9	2,380.5	5.3	5.6	-124.54		45.9	-167.1	184.2	173.8	10.46	17.623	
2,500.0	2,499.3	2,485.1	2,479.3	5.5	5.9	-125.40		49.6	-175.7	196.9	186.0	10.90	18.057	
2,600.0	2,599.1	2,584.2	2,578.0	5.7	6.2	-126.15		53.2	-184.3	209.6	198.2	11.36	18.456	
2,700.0	2,698.9	2,683.4	2,676.7	5.9	6.4	-126.82		56.9	-192.9	222.3	210.5	11.81	18.824	
2,800.0	2,798.7	2,782.5	2,775.4	6.2	6.7	-127.42		60.5	-201.5	235.1	222.8	12.27	19.164	
2,900.0	2,898.5	2,881.7	2,874.1	6.4	7.0	-127.95		64.2	-210.1	247.8	235.1	12.72	19.479	
3,000.0	2,998.4	2,980.8	2,972.8	6.6	7.3	-128.44		67.8	-218.7	260.6	247.4	13.18	19.771	
3,100.0	3,098.2	3,080.0	3,071.6	6.9	7.5	-128.87		71.4	-227.3	273.4	259.8	13.64	20.044	
3,200.0	3,198.0	3,179.2	3,170.3	7.1	7.8	-129.27		75.1	-235.9	286.3	272.2	14.10	20.297	
3,300.0	3,297.8	3,278.3	3,269.0	7.4	8.1	-129.64		78.7	-244.5	299.1	284.5	14.57	20.534	
3,400.0	3,397.6	3,377.5	3,367.7	7.6	8.4	-129.97		82.4	-253.1	311.9	296.9	15.03	20.757	
3,500.0	3,497.4	3,476.6	3,466.4	7.8	8.7	-130.28		86.0	-261.7	324.8	309.3	15.49	20.965	
3,600.0	3,597.3	3,575.8	3,565.1	8.1	8.9	-130.56		89.6	-270.3	337.7	321.7	15.96	21.160	
3,700.0	3,697.1	3,674.9	3,663.8	8.3	9.2	-130.83		93.3	-278.9	350.5	334.1	16.42	21.344	
3,800.0	3,796.9	3,774.1	3,762.6	8.5	9.5	-131.07		96.9	-287.5	363.4	346.5	16.89	21.518	
3,900.0	3,896.7	3,873.2	3,861.3	8.8	9.8	-131.30		100.6	-296.1	376.3	358.9	17.36	21.682	
4,000.0	3,996.5	3,972.4	3,960.0	9.0	10.0	-131.51		104.2	-304.7	389.2	371.4	17.82	21.837	
4,100.0	4,096.3	4,071.6	4,058.7	9.3	10.3	-131.71		107.8	-313.3	402.1	383.8	18.29	21.984	
4,200.0	4,196.1	4,170.7	4,157.4	9.5	10.6	-131.90		111.5	-321.9	415.0	396.2	18.76	22.123	
4,300.0	4,296.0	4,269.9	4,256.1	9.8	10.9	-132.07		115.1	-330.5	427.9	408.7	19.23	22.255	
4,400.0	4,395.8	4,369.0	4,354.8	10.0	11.2	-132.24		118.8	-339.1	440.8	421.1	19.70	22.380	
4,500.0	4,495.6	4,468.2	4,453.6	10.2	11.4	-132.40		122.4	-347.7	453.7	433.5	20.16	22.499	
4,600.0	4,495.4	4,467.3	4,452.3	10.5	11.7	-132.54		126.0	-356.3	466.6	446.0	20.63	22.613	
4,700.0	4,495.2	4,466.5	4,451.0	10.7	12.0	-132.68		129.7	-364.9	479.5	458.4	21.10	22.722	
4,800.0	4,495.0	4,465.6	4,449.7	11.0	12.3	-132.82		133.3	-373.5	492.4	470.9	21.57	22.825	
4,900.0	4,494.9	4,464.8	4,448.4	11.2	12.6	-132.94		137.0	-382.1	505.4	483.3	22.05	22.924	
5,000.0	4,494.7	4,464.0	4,447.1	11.5	12.9	-133.06		140.6	-390.7	518.3	495.8	22.52	23.019	
5,100.0	5,094.5	5,063.1	5,045.9	11.7	13.1	-133.17		144.3	-399.3	531.2	508.2	22.99	23.109	
5,200.0	5,194.3	5,162.3	5,144.6	11.9	13.4	-133.28		147.9	-407.9	544.1	520.7	23.46	23.196	
5,300.0	5,294.1	5,264.3	5,246.2	12.2	13.7	-133.39		151.6	-416.7	557.0	533.1	23.93	23.275	
5,400.0	5,393.9	5,366.0	5,367.5	12.4	13.9	-133.63		154.8	-424.3	567.5	543.1	24.40	23.256	
5,500.0	5,493.7	5,508.3	5,489.9	12.7	14.2	-134.06		156.0	-427.1	574.0	549.2	24.86	23.093	
5,600.0	5,593.6	5,610.0	5,591.6	12.9	14.3	-134.50		156.0	-427.1	578.3	553.0	25.29	22.865	
5,700.0	5,693.4	5,709.9	5,691.4	13.2	14.5	-134.90		156.0	-427.1	582.0	556.3	25.74	22.614	
5,800.0	5,793.4	5,809.9	5,791.4	13.3	14.7	-135.06		156.0	-427.1	583.4	557.3	26.14	22.321	
5,900.0	5,893.4	5,909.9	5,891.4	13.5	14.9	-90.00		156.0	-427.1	583.4	556.9	26.54	21.986	
6,000.0	5,993.4	6,009.9	5,991.4	13.7	15.1	-90.00		156.0	-427.1	583.4	556.4	26.96	21.643	
6,100.0	6,093.4	6,109.9	6,091.4	13.9	15.3	90.00		155.0	-427.1	583.4	556.0	27.35	21.328	
6,200.0	6,192.6	6,210.1	6,190.8	14.1	15.4	90.00		143.4	-427.1	583.4	555.8	27.63	21.118	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-203 - Wellbore #1 - Plan #2 (5-28-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,300.0	6,289.5	6,310.2	6,287.8	14.2	15.5	90.00	90.00	118.8	-427.0	583.3	555.5	27.83	20.962	
6,400.0	6,382.4	6,410.3	6,380.8	14.3	15.6	90.00	90.00	81.8	-427.0	583.3	555.3	28.01	20.824	
6,500.0	6,469.6	6,510.4	6,468.1	14.4	15.7	90.00	90.00	33.0	-426.9	583.2	554.9	28.24	20.654	
6,600.0	6,549.8	6,610.6	6,548.3	14.5	15.8	90.00	90.00	-26.8	-426.8	583.1	554.5	28.58	20.399	
6,700.0	6,621.4	6,710.7	6,620.0	14.7	15.9	90.01	90.01	-96.6	-426.6	583.0	553.8	29.14	20.006	
6,800.0	6,683.4	6,810.8	6,681.9	15.1	16.2	90.01	90.01	-175.1	-426.5	582.8	552.8	29.97	19.446	
6,900.0	6,734.6	6,910.8	6,733.1	15.7	16.6	90.01	90.01	-261.0	-426.3	582.7	551.5	31.14	18.713	
7,000.0	6,774.2	7,010.9	6,772.5	16.4	17.3	90.01	90.01	-352.9	-426.2	582.5	549.9	32.65	17.839	
7,100.0	6,801.4	7,110.9	6,799.7	17.3	18.1	90.01	90.01	-449.1	-426.0	582.3	547.8	34.51	16.873	
7,200.0	6,815.9	7,211.0	6,814.0	18.4	19.2	90.01	90.01	-548.1	-425.8	582.2	545.5	36.67	15.874	
7,300.0	6,817.8	7,311.0	6,815.9	19.6	20.3	90.01	90.01	-648.0	-425.7	582.0	542.9	39.08	14.893	
7,400.0	6,816.3	7,411.0	6,814.4	20.9	21.6	90.01	90.01	-748.0	-425.5	581.8	540.1	41.69	13.955	
7,500.0	6,814.9	7,511.0	6,812.9	22.3	22.9	90.01	90.01	-848.0	-425.3	581.6	537.1	44.48	13.075	
7,600.0	6,813.4	7,611.0	6,811.5	23.8	24.4	90.01	90.01	-948.0	-425.1	581.5	534.0	47.42	12.261	
7,700.0	6,812.0	7,711.0	6,810.0	25.3	25.9	90.01	90.01	-1,048.0	-425.0	581.3	530.8	50.48	11.514	
7,800.0	6,810.5	7,811.0	6,808.5	26.9	27.4	90.01	90.01	-1,147.9	-424.8	581.1	527.5	53.64	10.833	
7,900.0	6,809.0	7,911.0	6,807.1	28.5	29.0	90.01	90.01	-1,247.9	-424.6	580.9	524.0	56.89	10.212	
8,000.0	6,807.6	8,011.0	6,805.6	30.2	30.6	90.01	90.01	-1,347.9	-424.4	580.8	520.6	60.20	9.647	
8,100.0	6,806.1	8,111.0	6,804.1	31.8	32.3	90.01	90.01	-1,447.9	-424.3	580.6	517.0	63.57	9.133	
8,200.0	6,804.6	8,211.0	6,802.7	33.6	34.0	90.01	90.01	-1,547.9	-424.1	580.4	513.4	66.99	8.663	
8,300.0	6,803.2	8,311.0	6,801.2	35.3	35.7	90.01	90.01	-1,647.9	-423.9	580.2	509.8	70.46	8.235	
8,400.0	6,801.7	8,411.0	6,799.7	37.0	37.4	90.01	90.01	-1,747.9	-423.7	580.0	506.1	73.96	7.843	
8,500.0	6,800.2	8,511.0	6,798.3	38.8	39.2	90.01	90.01	-1,847.9	-423.5	579.9	502.4	77.50	7.483	
8,600.0	6,798.8	8,611.0	6,796.8	40.6	40.9	90.01	90.01	-1,947.9	-423.4	579.7	498.6	81.06	7.152	
8,700.0	6,797.3	8,711.0	6,795.3	42.4	42.7	90.01	90.01	-2,047.8	-423.2	579.5	494.9	84.64	6.847	
8,800.0	6,795.8	8,811.0	6,793.9	44.2	44.5	90.01	90.01	-2,147.8	-423.0	579.3	491.1	88.25	6.565	
8,900.0	6,794.4	8,911.0	6,792.4	46.0	46.3	90.01	90.01	-2,247.8	-422.8	579.2	487.3	91.88	6.304	
9,000.0	6,792.9	9,011.0	6,790.9	47.8	48.1	90.01	90.01	-2,347.8	-422.7	579.0	483.5	95.52	6.062	
9,100.0	6,791.4	9,111.0	6,789.5	49.6	49.9	90.01	90.01	-2,447.8	-422.5	578.8	479.6	99.18	5.836	
9,200.0	6,790.0	9,211.0	6,788.0	51.5	51.7	90.01	90.01	-2,547.8	-422.3	578.6	475.8	102.85	5.626	
9,300.0	6,788.5	9,311.0	6,786.5	53.3	53.6	90.01	90.01	-2,647.8	-422.1	578.5	471.9	106.53	5.430	
9,400.0	6,787.0	9,411.0	6,785.1	55.1	55.4	90.01	90.01	-2,747.8	-422.0	578.3	468.1	110.22	5.247	
9,500.0	6,785.6	9,511.0	6,783.6	57.0	57.3	90.01	90.01	-2,847.8	-421.8	578.1	464.2	113.92	5.075	
9,600.0	6,784.1	9,611.0	6,782.1	58.8	59.1	90.01	90.01	-2,947.7	-421.6	577.9	460.3	117.63	4.913	
9,700.0	6,782.6	9,711.0	6,780.7	60.7	61.0	90.01	90.01	-3,047.7	-421.4	577.8	456.4	121.35	4.761	
9,800.0	6,781.2	9,811.0	6,779.2	62.6	62.8	90.01	90.01	-3,147.7	-421.3	577.6	452.5	125.08	4.618	
9,900.0	6,779.7	9,911.0	6,777.7	64.4	64.7	90.01	90.01	-3,247.7	-421.1	577.4	448.6	128.81	4.482	
10,000.0	6,778.2	10,011.0	6,776.3	66.3	66.5	90.01	90.01	-3,347.7	-420.9	577.2	444.7	132.55	4.355	
10,100.0	6,776.8	10,111.0	6,774.8	68.2	68.4	90.01	90.01	-3,447.7	-420.7	577.0	440.8	136.30	4.234	
10,200.0	6,775.3	10,211.0	6,773.3	70.0	70.3	90.01	90.01	-3,547.7	-420.6	576.9	436.8	140.05	4.119	
10,300.0	6,773.8	10,311.0	6,771.9	71.9	72.1	90.01	90.01	-3,647.7	-420.4	576.7	432.9	143.80	4.010	
10,400.0	6,772.4	10,411.0	6,770.4	73.8	74.0	90.01	90.01	-3,747.7	-420.2	576.5	429.0	147.56	3.907	
10,500.0	6,770.9	10,511.0	6,768.9	75.7	75.9	90.01	90.01	-3,847.6	-420.0	576.3	425.0	151.32	3.809	
10,600.0	6,769.4	10,611.0	6,767.5	77.6	77.8	90.01	90.01	-3,947.6	-419.8	576.2	421.1	155.09	3.715	
10,700.0	6,768.0	10,711.0	6,766.0	79.4	79.6	90.01	90.01	-4,047.6	-419.7	576.0	417.1	158.86	3.626	
10,800.0	6,766.5	10,811.0	6,764.5	81.3	81.5	90.01	90.01	-4,147.6	-419.5	575.8	413.2	162.63	3.541	
10,900.0	6,765.0	10,911.0	6,763.1	83.2	83.4	90.01	90.01	-4,247.6	-419.3	575.6	409.2	166.40	3.459	
11,000.0	6,763.6	11,011.0	6,761.6	85.1	85.3	90.01	90.01	-4,347.6	-419.1	575.5	405.3	170.18	3.381	
11,100.0	6,762.1	11,111.0	6,760.1	87.0	87.2	90.01	90.01	-4,447.6	-419.0	575.3	401.3	173.96	3.307	
11,200.0	6,760.6	11,211.0	6,758.7	88.9	89.1	90.01	90.01	-4,547.6	-418.8	575.1	397.4	177.75	3.236	
11,243.6	6,760.0	11,254.6	6,758.0	89.7	89.9	90.01	90.01	-4,591.2	-418.7	575.0	395.6	179.40	3.205 SF	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<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 #2 (5-28-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	-89.98	0.0	-27.9	27.9				
100.0	100.0	99.0	99.0	0.1	0.1	-89.98	-89.98	0.0	-27.9	27.9	27.7	0.22	124.793	
200.0	200.0	199.0	199.0	0.3	0.3	-89.98	-89.98	0.0	-27.9	27.9	27.2	0.67	41.529	
300.0	300.0	299.0	299.0	0.6	0.6	-89.98	-89.98	0.0	-27.9	27.9	26.8	1.12	24.884	
400.0	400.0	399.0	399.0	0.8	0.8	-89.98	-89.98	0.0	-27.9	27.9	26.3	1.57	17.764	
500.0	500.0	499.0	499.0	1.0	1.0	-89.98	-89.98	0.0	-27.9	27.9	25.9	2.02	13.812	
600.0	600.0	599.0	599.0	1.2	1.2	-89.98	-89.98	0.0	-27.9	27.9	25.4	2.47	11.299	
700.0	700.0	699.0	699.0	1.5	1.5	-89.98	-89.98	0.0	-27.9	27.9	25.0	2.92	9.559	
800.0	800.0	799.0	799.0	1.7	1.7	-89.98	-89.98	0.0	-27.9	27.9	24.5	3.37	8.284	
900.0	900.0	899.0	899.0	1.9	1.9	-89.98	-89.98	0.0	-27.9	27.9	24.1	3.82	7.308	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-89.98	-89.98	0.0	-27.9	27.9	23.6	4.27	6.539	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	-89.98	-89.98	0.0	-27.9	27.9	23.2	4.72	5.916	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	-89.98	-89.98	0.0	-27.9	27.9	22.7	5.17	5.401	
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	-89.98	-89.98	0.0	-27.9	27.9	22.3	5.62	4.969	
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	-89.98	-89.98	0.0	-27.9	27.9	21.8	6.07	4.601	
1,500.0	1,500.0	1,499.0	1,499.0	3.3	3.3	-89.98	-89.98	0.0	-27.9	27.9	21.4	6.52	4.283	
1,600.0	1,600.0	1,599.0	1,599.0	3.5	3.5	-89.98	-89.98	0.0	-27.9	27.9	20.9	6.97	4.007	
1,700.0	1,700.0	1,699.0	1,699.0	3.7	3.7	-89.98	-89.98	0.0	-27.9	27.9	20.5	7.42	3.764	
1,800.0	1,800.0	1,799.0	1,799.0	3.9	3.9	-89.98	-89.98	0.0	-27.9	27.9	20.0	7.86	3.549	
1,900.0	1,900.0	1,899.0	1,899.0	4.2	4.2	-89.98	-89.98	0.0	-27.9	27.9	19.6	8.31	3.357	
2,000.0	2,000.0	1,999.0	1,999.0	4.4	4.4	-89.98	-89.98	0.0	-27.9	27.9	19.1	8.76	3.185 CC, ES	
2,100.0	2,100.0	2,099.0	2,099.0	4.6	4.6	-137.45	-137.45	0.0	-27.9	29.2	20.0	9.21	3.169	
2,200.0	2,199.8	2,198.8	2,198.8	4.8	4.8	-143.41	-143.41	0.0	-27.9	33.1	23.5	9.64	3.436	
2,300.0	2,299.7	2,298.7	2,298.7	5.0	5.1	-148.85	-148.85	0.0	-27.9	38.2	28.1	10.08	3.788	
2,400.0	2,399.5	2,398.5	2,398.5	5.3	5.3	-153.00	-153.00	0.0	-27.9	43.5	33.0	10.52	4.135	
2,500.0	2,499.3	2,498.3	2,498.3	5.5	5.5	-156.23	-156.23	0.0	-27.9	49.0	38.0	10.96	4.469	
2,600.0	2,599.1	2,598.1	2,598.1	5.7	5.7	-158.80	-158.80	0.0	-27.9	54.6	43.2	11.41	4.788	
2,700.0	2,698.9	2,697.9	2,697.9	5.9	6.0	-160.89	-160.89	0.0	-27.9	60.3	48.5	11.85	5.090	
2,800.0	2,798.7	2,797.7	2,797.7	6.2	6.2	-162.61	-162.61	0.0	-27.9	66.1	53.8	12.30	5.376	
2,900.0	2,898.5	2,897.5	2,897.5	6.4	6.4	-164.06	-164.06	0.0	-27.9	71.9	59.2	12.74	5.645	
3,000.0	2,998.4	2,997.4	2,997.4	6.6	6.6	-165.29	-165.29	0.0	-27.9	77.8	64.6	13.19	5.899	
3,100.0	3,098.2	3,096.3	3,096.3	6.9	6.8	-165.29	-165.29	1.1	-29.1	84.2	70.6	13.63	6.179	
3,200.0	3,198.0	3,194.9	3,194.8	7.1	7.1	-163.27	-163.27	4.3	-32.9	91.8	77.7	14.06	6.527	
3,300.0	3,297.8	3,293.0	3,292.5	7.4	7.3	-159.80	-159.80	9.8	-39.3	100.9	86.4	14.50	6.954	
3,400.0	3,397.6	3,391.9	3,390.8	7.6	7.5	-155.84	-155.84	16.7	-47.4	111.3	96.4	14.95	7.446	
3,500.0	3,497.4	3,491.1	3,489.4	7.8	7.7	-152.52	-152.52	23.8	-55.5	122.3	106.9	15.40	7.938	
3,600.0	3,597.3	3,590.3	3,588.0	8.1	8.0	-149.76	-149.76	30.8	-63.7	133.5	117.7	15.86	8.422	
3,700.0	3,697.1	3,689.4	3,686.6	8.3	8.2	-147.43	-147.43	37.8	-71.9	145.1	128.8	16.31	8.893	
3,800.0	3,796.9	3,788.6	3,785.2	8.5	8.4	-145.45	-145.45	44.9	-80.1	156.8	140.0	16.77	9.350	
3,900.0	3,896.7	3,887.8	3,883.8	8.8	8.7	-143.74	-143.74	51.9	-88.2	168.7	151.5	17.23	9.790	
4,000.0	3,996.5	3,987.0	3,982.4	9.0	8.9	-142.26	-142.26	58.9	-96.4	180.7	163.0	17.70	10.213	
4,100.0	4,096.3	4,086.1	4,080.9	9.3	9.2	-140.96	-140.96	66.0	-104.6	192.8	174.7	18.16	10.620	
4,200.0	4,196.1	4,185.3	4,179.5	9.5	9.5	-139.82	-139.82	73.0	-112.8	205.1	186.4	18.63	11.010	
4,300.0	4,296.0	4,284.5	4,278.1	9.8	9.7	-138.80	-138.80	80.0	-120.9	217.3	198.3	19.09	11.384	
4,400.0	4,395.8	4,383.7	4,376.7	10.0	10.0	-137.90	-137.90	87.0	-129.1	229.7	210.1	19.56	11.742	
4,500.0	4,495.6	4,482.8	4,475.3	10.2	10.2	-137.08	-137.08	94.1	-137.3	242.1	222.1	20.03	12.086	
4,600.0	4,595.4	4,582.0	4,573.9	10.5	10.5	-136.35	-136.35	101.1	-145.5	254.5	234.0	20.50	12.415	
4,700.0	4,695.2	4,681.2	4,672.4	10.7	10.8	-135.69	-135.69	108.1	-153.6	267.0	246.0	20.97	12.731	
4,800.0	4,795.0	4,780.4	4,771.0	11.0	11.0	-135.08	-135.08	115.2	-161.8	279.5	258.1	21.45	13.034	
4,900.0	4,894.9	4,879.5	4,869.6	11.2	11.3	-134.53	-134.53	122.2	-170.0	292.1	270.1	21.92	13.324	
5,000.0	4,994.7	4,978.7	4,968.2	11.5	11.6	-134.02	-134.02	129.2	-178.2	304.6	282.2	22.39	13.603	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,094.5	5,077.9	5,066.8	11.7	11.8	-133.55		136.3	-186.3	317.2	294.3	22.87	13.871	
5,200.0	5,194.3	5,177.0	5,165.4	11.9	12.1	-133.12		143.3	-194.5	329.8	306.5	23.34	14.129	
5,300.0	5,294.1	5,284.0	5,271.8	12.2	12.4	-132.81		150.1	-202.4	341.6	317.7	23.82	14.342	
5,400.0	5,393.9	5,394.0	5,381.6	12.4	12.6	-132.94		154.4	-207.5	350.4	326.2	24.26	14.443	
5,500.0	5,493.7	5,504.4	5,492.0	12.7	12.8	-133.48		156.0	-209.3	356.3	331.6	24.70	14.427	
5,600.0	5,593.6	5,605.0	5,592.6	12.9	13.0	-134.19		156.0	-209.3	360.5	335.4	25.13	14.347	
5,700.0	5,693.4	5,704.8	5,692.4	13.2	13.2	-134.82		156.0	-209.3	364.2	338.7	25.58	14.241	
5,800.0	5,793.4	5,804.8	5,792.4	13.3	13.4	-135.06		156.0	-209.3	365.6	339.6	25.98	14.075	
5,900.0	5,893.4	5,904.8	5,892.4	13.5	13.6	-90.00		156.0	-209.3	365.6	339.2	26.39	13.857	
6,000.0	5,993.4	6,004.8	5,992.4	13.7	13.8	-90.00		156.0	-209.3	365.6	338.8	26.82	13.634	
6,052.9	6,046.3	6,057.8	6,045.3	13.8	13.9	90.11		156.0	-209.3	365.6	338.6	27.04	13.522	
6,100.0	6,093.4	6,104.8	6,092.4	13.9	14.0	90.16		156.0	-209.3	365.6	338.4	27.24	13.424	
6,200.0	6,192.6	6,204.9	6,192.4	14.1	14.2	91.62		153.8	-209.3	365.8	338.2	27.55	13.277	
6,300.0	6,289.5	6,306.4	6,292.8	14.2	14.4	93.25		139.3	-209.3	366.2	338.5	27.77	13.190	
6,400.0	6,382.4	6,409.4	6,391.8	14.3	14.5	94.83		111.2	-209.3	366.9	339.0	27.93	13.136	
6,500.0	6,469.6	6,513.9	6,487.5	14.4	14.6	96.33		69.4	-209.3	367.9	339.8	28.11	13.088	
6,600.0	6,549.8	6,619.7	6,577.6	14.5	14.7	97.72		14.1	-209.3	369.0	340.6	28.36	13.009	
6,700.0	6,621.4	6,727.0	6,660.3	14.7	14.8	98.97		-54.1	-209.3	370.2	341.4	28.79	12.860	
6,800.0	6,683.4	6,835.5	6,733.4	15.1	15.0	100.06		-134.1	-209.3	371.4	341.9	29.47	12.600	
6,900.0	6,734.6	6,945.1	6,795.0	15.7	15.5	100.97		-224.6	-209.3	372.5	342.0	30.49	12.215	
7,000.0	6,774.2	7,055.6	6,843.3	16.4	16.2	101.67		-323.9	-209.3	373.4	341.5	31.90	11.705	
7,100.0	6,801.4	7,166.8	6,877.0	17.3	17.2	102.16		-429.8	-209.3	374.0	340.3	33.70	11.098	
7,200.0	6,815.9	7,278.4	6,895.1	18.4	18.4	102.42		-539.9	-209.3	374.4	338.5	35.87	10.438	
7,300.0	6,817.8	7,386.7	6,897.7	19.6	19.7	102.47		-648.0	-209.3	374.5	336.2	38.29	9.779	
7,400.0	6,816.3	7,486.7	6,896.3	20.9	21.0	102.49		-748.0	-209.3	374.5	333.7	40.85	9.168	
7,500.0	6,814.9	7,586.7	6,895.0	22.3	22.4	102.51		-848.0	-209.3	374.5	331.0	43.58	8.595	
7,600.0	6,813.4	7,686.7	6,893.7	23.8	23.8	102.54		-948.0	-209.3	374.6	328.1	46.45	8.065	
7,700.0	6,812.0	7,786.7	6,892.4	25.3	25.4	102.56		-1,048.0	-209.3	374.6	325.2	49.44	7.578	
7,800.0	6,810.5	7,886.7	6,891.1	26.9	26.9	102.59		-1,148.0	-209.3	374.6	322.1	52.52	7.133	
7,900.0	6,809.0	7,986.7	6,889.8	28.5	28.5	102.61		-1,248.0	-209.3	374.7	319.0	55.69	6.728	
8,000.0	6,807.6	8,086.7	6,888.5	30.2	30.2	102.63		-1,348.0	-209.3	374.7	315.8	58.93	6.359	
8,100.0	6,806.1	8,186.7	6,887.2	31.8	31.9	102.66		-1,448.0	-209.3	374.7	312.5	62.23	6.022	
8,200.0	6,804.6	8,286.7	6,885.9	33.6	33.6	102.68		-1,547.9	-209.3	374.8	309.2	65.57	5.716	
8,300.0	6,803.2	8,386.7	6,884.6	35.3	35.3	102.70		-1,647.9	-209.3	374.8	305.9	68.96	5.436	
8,400.0	6,801.7	8,486.7	6,883.3	37.0	37.0	102.73		-1,747.9	-209.3	374.9	302.5	72.38	5.179	
8,500.0	6,800.2	8,586.7	6,881.9	38.8	38.8	102.75		-1,847.9	-209.3	374.9	299.1	75.83	4.944	
8,600.0	6,798.8	8,686.7	6,880.6	40.6	40.6	102.77		-1,947.9	-209.3	374.9	295.6	79.31	4.727	
8,700.0	6,797.3	8,786.7	6,879.3	42.4	42.4	102.80		-2,047.9	-209.3	375.0	292.2	82.81	4.528	
8,800.0	6,795.8	8,886.7	6,878.0	44.2	44.2	102.82		-2,147.9	-209.3	375.0	288.7	86.33	4.344	
8,900.0	6,794.4	8,986.7	6,876.7	46.0	46.0	102.84		-2,247.9	-209.3	375.0	285.2	89.87	4.173	
9,000.0	6,792.9	9,086.7	6,875.4	47.8	47.8	102.87		-2,347.9	-209.3	375.1	281.6	93.43	4.014	
9,100.0	6,791.4	9,186.7	6,874.1	49.6	49.6	102.89		-2,447.9	-209.3	375.1	278.1	97.00	3.867	
9,200.0	6,790.0	9,286.7	6,872.8	51.5	51.5	102.91		-2,547.9	-209.3	375.1	274.6	100.58	3.730	
9,300.0	6,788.5	9,386.7	6,871.5	53.3	53.3	102.94		-2,647.8	-209.3	375.2	271.0	104.18	3.601	
9,400.0	6,787.0	9,486.7	6,870.2	55.1	55.1	102.96		-2,747.8	-209.3	375.2	267.4	107.78	3.481	
9,500.0	6,785.6	9,586.7	6,868.9	57.0	57.0	102.98		-2,847.8	-209.3	375.3	263.9	111.39	3.369	
9,600.0	6,784.1	9,686.7	6,867.5	58.8	58.8	103.01		-2,947.8	-209.3	375.3	260.3	115.01	3.263	
9,700.0	6,782.6	9,786.7	6,866.2	60.7	60.7	103.03		-3,047.8	-209.3	375.3	256.7	118.64	3.163	
9,800.0	6,781.2	9,886.7	6,864.9	62.6	62.6	103.05		-3,147.8	-209.3	375.4	253.1	122.28	3.070	
9,900.0	6,779.7	9,986.7	6,863.6	64.4	64.4	103.08		-3,247.8	-209.3	375.4	249.5	125.92	2.981	
10,000.0	6,778.2	10,086.7	6,862.3	66.3	66.3	103.10		-3,347.8	-209.3	375.4	245.9	129.56	2.898	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-323 - Wellbore #1 - Plan #2 (5-28-14)													<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,100.0	6,776.8	10,186.7	6,861.0	68.2	68.2	103.12	-3,447.8	-209.3	375.5	242.3	133.21	2.819		
10,200.0	6,775.3	10,286.7	6,859.7	70.0	70.0	103.15	-3,547.8	-209.3	375.5	238.6	136.87	2.744		
10,300.0	6,773.8	10,386.7	6,858.4	71.9	71.9	103.17	-3,647.8	-209.3	375.5	235.0	140.52	2.672		
10,400.0	6,772.4	10,486.7	6,857.1	73.8	73.8	103.19	-3,747.8	-209.3	375.6	231.4	144.19	2.605		
10,500.0	6,770.9	10,586.7	6,855.8	75.7	75.7	103.22	-3,847.7	-209.3	375.6	227.8	147.85	2.540		
10,600.0	6,769.4	10,686.7	6,854.5	77.6	77.5	103.24	-3,947.7	-209.3	375.7	224.1	151.52	2.479		
10,700.0	6,768.0	10,786.7	6,853.1	79.4	79.4	103.26	-4,047.7	-209.3	375.7	220.5	155.19	2.421		
10,800.0	6,766.5	10,886.7	6,851.8	81.3	81.3	103.29	-4,147.7	-209.3	375.7	216.9	158.87	2.365		
10,900.0	6,765.0	10,986.7	6,850.5	83.2	83.2	103.31	-4,247.7	-209.4	375.8	213.2	162.54	2.312		
11,000.0	6,763.6	11,086.7	6,849.2	85.1	85.1	103.33	-4,347.7	-209.4	375.8	209.6	166.22	2.261		
11,100.0	6,762.1	11,186.7	6,847.9	87.0	87.0	103.36	-4,447.7	-209.4	375.8	205.9	169.90	2.212		
11,200.0	6,760.6	11,286.7	6,846.6	88.9	88.9	103.38	-4,547.7	-209.4	375.9	202.3	173.58	2.165		
11,243.6	6,760.0	11,330.3	6,846.0	89.7	89.7	103.39	-4,591.3	-209.4	375.9	200.7	175.19	2.146 SF		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.00	90.00	0.0	61.4	61.4				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	90.00	0.0	61.4	61.4	61.2	0.22	274.546	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	90.00	0.0	61.4	61.4	60.7	0.67	91.363	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	90.00	0.0	61.4	61.4	60.3	1.12	54.745	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	90.00	0.0	61.4	61.4	59.8	1.57	39.081	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	90.00	0.0	61.4	61.4	59.4	2.02	30.387	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	90.00	0.0	61.4	61.4	58.9	2.47	24.857	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	90.00	0.0	61.4	61.4	58.5	2.92	21.030	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	90.00	0.0	61.4	61.4	58.0	3.37	18.224	
900.0	900.0	899.0	899.0	1.9	1.9	90.00	90.00	0.0	61.4	61.4	57.6	3.82	16.079	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.00	90.00	0.0	61.4	61.4	57.1	4.27	14.385 CC, ES	
1,100.0	1,100.0	1,097.0	1,096.9	2.4	2.3	89.58	89.58	0.5	63.0	63.0	58.3	4.70	13.394	
1,200.0	1,200.0	1,194.7	1,194.5	2.6	2.6	88.44	88.44	1.9	67.8	67.9	62.8	5.14	13.224	
1,300.0	1,300.0	1,292.0	1,291.5	2.8	2.8	86.86	86.86	4.2	75.7	76.2	70.6	5.57	13.662	
1,400.0	1,400.0	1,388.7	1,387.5	3.0	3.0	85.15	85.15	7.4	86.7	87.7	81.7	6.02	14.570	
1,500.0	1,500.0	1,487.8	1,485.7	3.3	3.3	83.66	83.66	11.1	99.4	100.9	94.4	6.48	15.565	
1,600.0	1,600.0	1,586.9	1,583.9	3.5	3.5	82.51	82.51	14.8	112.1	114.1	107.1	6.95	16.420	
1,700.0	1,700.0	1,686.0	1,682.1	3.7	3.8	81.59	81.59	18.5	124.9	127.3	119.9	7.42	17.157	
1,800.0	1,800.0	1,785.1	1,780.3	3.9	4.1	80.85	80.85	22.1	137.6	140.6	132.7	7.90	17.795	
1,900.0	1,900.0	1,884.2	1,878.6	4.2	4.4	80.24	80.24	25.8	150.3	153.9	145.5	8.38	18.351	
2,000.0	2,000.0	1,983.3	1,976.8	4.4	4.7	79.73	79.73	29.5	163.0	167.2	158.3	8.87	18.839	
2,100.0	2,100.0	2,082.6	2,075.2	4.6	5.0	34.41	34.41	33.3	175.8	179.0	169.9	9.13	19.614	
2,200.0	2,199.8	2,182.2	2,173.8	4.8	5.3	34.81	34.81	37.0	188.6	188.2	178.6	9.57	19.658	
2,300.0	2,299.7	2,281.8	2,272.6	5.0	5.6	35.40	35.40	40.7	201.3	196.5	186.5	10.02	19.607	
2,400.0	2,399.5	2,381.4	2,371.3	5.3	5.9	35.94	35.94	44.4	214.1	204.9	194.4	10.47	19.557	
2,500.0	2,499.3	2,481.0	2,470.0	5.5	6.3	36.45	36.45	48.1	226.9	213.2	202.3	10.93	19.509	
2,600.0	2,599.1	2,580.7	2,568.8	5.7	6.6	36.91	36.91	51.8	239.7	221.6	210.2	11.39	19.461	
2,700.0	2,698.9	2,680.3	2,667.5	5.9	6.9	37.34	37.34	55.6	252.5	230.0	218.2	11.85	19.415	
2,800.0	2,798.7	2,779.9	2,766.3	6.2	7.2	37.74	37.74	59.3	265.3	238.5	226.2	12.31	19.370	
2,900.0	2,898.5	2,879.6	2,865.0	6.4	7.6	38.12	38.12	63.0	278.1	246.9	234.1	12.77	19.327	
3,000.0	2,998.4	2,979.2	2,963.7	6.6	7.9	38.46	38.46	66.7	290.9	255.3	242.1	13.24	19.285	
3,100.0	3,098.2	3,078.8	3,062.5	6.9	8.2	38.79	38.79	70.4	303.7	263.8	250.1	13.71	19.244	
3,200.0	3,198.0	3,178.5	3,161.2	7.1	8.5	39.10	39.10	74.2	316.5	272.2	258.1	14.18	19.205	
3,300.0	3,297.8	3,278.1	3,259.9	7.4	8.9	39.38	39.38	77.9	329.3	280.7	266.1	14.65	19.167	
3,400.0	3,397.6	3,377.7	3,358.7	7.6	9.2	39.65	39.65	81.6	342.1	289.2	274.1	15.12	19.130	
3,500.0	3,497.4	3,477.4	3,457.4	7.8	9.5	39.91	39.91	85.3	354.9	297.7	282.1	15.59	19.095	
3,600.0	3,597.3	3,577.0	3,556.2	8.1	9.8	40.15	40.15	89.0	367.6	306.1	290.1	16.06	19.061	
3,700.0	3,697.1	3,676.6	3,654.9	8.3	10.2	40.38	40.38	92.8	380.4	314.6	298.1	16.53	19.028	
3,800.0	3,796.9	3,776.3	3,753.6	8.5	10.5	40.59	40.59	96.5	393.2	323.1	306.1	17.01	18.996	
3,900.0	3,896.7	3,875.9	3,852.4	8.8	10.8	40.80	40.80	100.2	406.0	331.6	314.1	17.49	18.965	
4,000.0	3,996.5	3,975.5	3,951.1	9.0	11.2	40.99	40.99	103.9	418.8	340.1	322.2	17.96	18.935	
4,100.0	4,096.3	4,075.2	4,049.8	9.3	11.5	41.18	41.18	107.6	431.6	348.6	330.2	18.44	18.907	
4,200.0	4,196.1	4,174.8	4,148.6	9.5	11.8	41.35	41.35	111.3	444.4	357.1	338.2	18.92	18.879	
4,300.0	4,296.0	4,274.4	4,247.3	9.8	12.2	41.52	41.52	115.1	457.2	365.6	346.2	19.39	18.852	
4,400.0	4,395.8	4,374.0	4,346.0	10.0	12.5	41.68	41.68	118.8	470.0	374.1	354.3	19.87	18.826	
4,500.0	4,495.6	4,473.7	4,444.8	10.2	12.8	41.84	41.84	122.5	482.8	382.7	362.3	20.35	18.801	
4,600.0	4,595.4	4,573.3	4,543.5	10.5	13.1	41.98	41.98	126.2	495.6	391.2	370.4	20.83	18.777	
4,700.0	4,695.2	4,672.9	4,642.3	10.7	13.5	42.12	42.12	129.9	508.4	399.7	378.4	21.31	18.753	
4,800.0	4,795.0	4,772.6	4,741.0	11.0	13.8	42.26	42.26	133.7	521.2	408.2	386.4	21.80	18.730	
4,900.0	4,894.9	4,872.2	4,839.7	11.2	14.1	42.39	42.39	137.4	533.9	416.8	394.5	22.28	18.708	
5,000.0	4,994.7	4,971.8	4,938.5	11.5	14.5	42.51	42.51	141.1	546.7	425.3	402.5	22.76	18.687	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-303 - Wellbore #1 - Plan #2 (5-28-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,094.5	5,071.5	5,037.2	11.7	14.8	42.63		144.8	559.5	433.8	410.6	23.24	18.666	
5,200.0	5,194.3	5,174.5	5,139.3	11.9	15.1	42.75		148.6	572.7	442.3	418.5	23.73	18.641	
5,300.0	5,294.1	5,292.0	5,256.2	12.2	15.4	42.99		152.1	584.6	448.1	423.9	24.20	18.514	
5,400.0	5,393.9	5,409.8	5,373.7	12.4	15.7	43.37		154.2	591.9	449.9	425.2	24.67	18.239	
5,500.0	5,493.7	5,527.6	5,491.5	12.7	15.8	43.91		155.0	594.6	447.8	422.6	25.13	17.820	
5,600.0	5,593.6	5,628.7	5,592.6	12.9	16.0	44.46		155.0	594.6	443.4	417.8	25.57	17.339	
5,700.0	5,693.4	5,728.5	5,692.4	13.2	16.2	44.91		155.0	594.6	439.7	413.7	25.99	16.915	
5,800.0	5,793.4	5,828.5	5,792.4	13.3	16.3	45.07		155.0	594.6	438.3	411.9	26.35	16.633	
5,840.7	5,834.1	5,869.2	5,833.1	13.4	16.4	45.08		155.0	594.6	438.2	411.7	26.51	16.532	
5,900.0	5,893.4	5,928.5	5,892.4	13.5	16.5	90.13		155.0	594.6	438.2	411.5	26.74	16.391	
6,000.0	5,993.4	6,028.5	5,992.4	13.7	16.7	90.13		155.0	594.6	438.2	411.1	27.15	16.141	
6,099.8	6,093.2	6,128.3	6,092.2	13.9	16.8	-90.20		155.0	594.6	438.2	410.7	27.54	15.912	
6,100.0	6,093.4	6,128.5	6,092.4	13.9	16.8	-90.00		155.0	594.6	438.2	410.7	27.55	15.907	
6,200.0	6,192.6	6,228.7	6,192.5	14.1	17.0	-91.22		152.7	594.6	438.3	410.5	27.82	15.756	
6,300.0	6,289.5	6,330.4	6,293.1	14.2	17.1	-92.57		138.1	594.5	438.6	410.6	28.01	15.659	
6,400.0	6,382.4	6,433.6	6,392.2	14.3	17.2	-93.89		109.8	594.3	439.0	410.9	28.17	15.583	
6,500.0	6,469.6	6,538.2	6,487.9	14.4	17.3	-95.15		67.8	594.1	439.6	411.2	28.37	15.494	
6,600.0	6,549.8	6,644.2	6,578.1	14.5	17.4	-96.32		12.2	593.8	440.2	411.5	28.67	15.353	
6,700.0	6,621.4	6,751.5	6,660.7	14.7	17.5	-97.38		-56.1	593.4	440.8	411.6	29.15	15.121	
6,800.0	6,683.4	6,860.1	6,733.7	15.1	17.7	-98.31		-136.4	593.0	441.3	411.5	29.89	14.767	
6,900.0	6,734.6	6,969.7	6,795.1	15.7	18.0	-99.10		-227.1	592.5	441.8	410.8	30.94	14.281	
7,000.0	6,774.2	7,080.2	6,843.2	16.4	18.6	-99.71		-326.4	592.0	442.0	409.7	32.32	13.676	
7,100.0	6,801.4	7,191.4	6,876.7	17.3	19.3	-100.15		-432.3	591.5	442.1	408.0	34.05	12.981	
7,200.0	6,815.9	7,302.9	6,894.5	18.4	20.3	-100.39		-542.4	590.9	441.8	405.7	36.10	12.239	
7,300.0	6,817.8	7,410.9	6,896.9	19.6	21.5	-100.46		-650.3	590.3	441.3	402.9	38.42	11.488	
7,400.0	6,816.3	7,510.9	6,895.6	20.9	22.7	-100.49		-750.3	589.8	440.8	399.9	40.96	10.762	
7,500.0	6,814.9	7,610.9	6,894.3	22.3	24.0	-100.53		-850.3	589.2	440.3	396.7	43.68	10.080	
7,600.0	6,813.4	7,710.9	6,893.0	23.8	25.3	-100.56		-950.3	588.7	439.9	393.3	46.55	9.449	
7,700.0	6,812.0	7,810.9	6,891.7	25.3	26.8	-100.60		-1,050.3	588.2	439.4	389.8	49.54	8.869	
7,800.0	6,810.5	7,910.9	6,890.4	26.9	28.3	-100.63		-1,150.2	587.7	438.9	386.2	52.63	8.339	
7,900.0	6,809.0	8,010.9	6,889.1	28.5	29.8	-100.67		-1,250.2	587.1	438.4	382.6	55.81	7.856	
8,000.0	6,807.6	8,110.9	6,887.8	30.2	31.4	-100.70		-1,350.2	586.6	437.9	378.9	59.05	7.416	
8,100.0	6,806.1	8,210.9	6,886.6	31.8	33.0	-100.74		-1,450.2	586.1	437.4	375.1	62.35	7.015	
8,200.0	6,804.6	8,310.9	6,885.3	33.6	34.7	-100.78		-1,550.2	585.5	436.9	371.2	65.71	6.650	
8,300.0	6,803.2	8,410.9	6,884.0	35.3	36.3	-100.81		-1,650.2	585.0	436.4	367.3	69.10	6.316	
8,400.0	6,801.7	8,510.9	6,882.7	37.0	38.0	-100.85		-1,750.2	584.5	436.0	363.4	72.53	6.011	
8,500.0	6,800.2	8,610.9	6,881.4	38.8	39.7	-100.88		-1,850.2	584.0	435.5	359.5	75.99	5.730	
8,600.0	6,798.8	8,710.9	6,880.1	40.6	41.5	-100.92		-1,950.2	583.4	435.0	355.5	79.48	5.473	
8,700.0	6,797.3	8,810.9	6,878.8	42.4	43.2	-100.95		-2,050.1	582.9	434.5	351.5	83.00	5.235	
8,800.0	6,795.8	8,910.9	6,877.5	44.2	45.0	-100.99		-2,150.1	582.4	434.0	347.5	86.53	5.016	
8,900.0	6,794.4	9,010.9	6,876.2	46.0	46.8	-101.03		-2,250.1	581.8	433.5	343.4	90.08	4.812	
9,000.0	6,792.9	9,110.9	6,874.9	47.8	48.6	-101.06		-2,350.1	581.3	433.0	339.4	93.65	4.624	
9,100.0	6,791.4	9,210.9	6,873.6	49.6	50.4	-101.10		-2,450.1	580.8	432.5	335.3	97.23	4.449	
9,200.0	6,790.0	9,310.9	6,872.4	51.5	52.2	-101.13		-2,550.1	580.2	432.1	331.2	100.83	4.285	
9,300.0	6,788.5	9,410.9	6,871.1	53.3	54.0	-101.17		-2,650.1	579.7	431.6	327.1	104.43	4.133	
9,400.0	6,787.0	9,510.9	6,869.8	55.1	55.8	-101.21		-2,750.1	579.2	431.1	323.0	108.05	3.990	
9,500.0	6,785.6	9,610.9	6,868.5	57.0	57.6	-101.24		-2,850.1	578.7	430.6	318.9	111.67	3.856	
9,600.0	6,784.1	9,710.9	6,867.2	58.8	59.4	-101.28		-2,950.0	578.1	430.1	314.8	115.30	3.730	
9,700.0	6,782.6	9,810.9	6,865.9	60.7	61.3	-101.32		-3,050.0	577.6	429.6	310.7	118.94	3.612	
9,800.0	6,781.2	9,910.9	6,864.6	62.6	63.1	-101.35		-3,150.0	577.1	429.1	306.6	122.58	3.501	
9,900.0	6,779.7	10,010.9	6,863.3	64.4	65.0	-101.39		-3,250.0	576.5	428.7	302.4	126.24	3.396	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-303 - Wellbore #1 - Plan #2 (5-28-14)													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,000.0	6,778.2	10,110.9	6,862.0	66.3	66.8	-101.43	-3,350.0	576.0	428.2	298.3	129.89	3.296		
10,100.0	6,776.8	10,210.9	6,860.7	68.2	68.7	-101.46	-3,450.0	575.5	427.7	294.1	133.55	3.202		
10,200.0	6,775.3	10,310.9	6,859.4	70.0	70.5	-101.50	-3,550.0	575.0	427.2	290.0	137.22	3.113		
10,300.0	6,773.8	10,410.9	6,858.1	71.9	72.4	-101.54	-3,650.0	574.4	426.7	285.8	140.89	3.029		
10,400.0	6,772.4	10,510.9	6,856.9	73.8	74.3	-101.57	-3,749.9	573.9	426.2	281.7	144.56	2.949		
10,500.0	6,770.9	10,610.9	6,855.6	75.7	76.1	-101.61	-3,849.9	573.4	425.8	277.5	148.23	2.872		
10,600.0	6,769.4	10,710.9	6,854.3	77.6	78.0	-101.65	-3,949.9	572.8	425.3	273.4	151.91	2.800		
10,700.0	6,768.0	10,810.9	6,853.0	79.4	79.9	-101.69	-4,049.9	572.3	424.8	269.2	155.59	2.730		
10,800.0	6,766.5	10,910.9	6,851.7	81.3	81.7	-101.72	-4,149.9	571.8	424.3	265.0	159.27	2.664		
10,900.0	6,765.0	11,010.9	6,850.4	83.2	83.6	-101.76	-4,249.9	571.2	423.8	260.9	162.96	2.601		
11,000.0	6,763.6	11,110.9	6,849.1	85.1	85.5	-101.80	-4,349.9	570.7	423.3	256.7	166.64	2.540		
11,100.0	6,762.1	11,210.9	6,847.8	87.0	87.4	-101.84	-4,449.9	570.2	422.9	252.5	170.33	2.483		
11,200.0	6,760.6	11,310.9	6,846.5	88.9	89.2	-101.88	-4,549.9	569.7	422.4	248.4	174.02	2.427		
11,242.7	6,760.0	11,351.2	6,846.0	89.7	90.0	-101.89	-4,590.2	569.4	422.2	246.6	175.55	2.405		
11,243.6	6,760.0	11,351.2	6,846.0	89.7	90.0	-101.89	-4,590.2	569.4	422.2	246.6	175.57	2.405 SF		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.98	89.98	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	89.98	89.98	0.0	30.7	30.7	30.5	0.22	136.588	
200.0	200.0	200.0	200.0	0.3	0.3	89.98	89.98	0.0	30.7	30.7	30.0	0.67	45.529	
300.0	300.0	300.0	300.0	0.6	0.6	89.98	89.98	0.0	30.7	30.7	29.6	1.12	27.318	
400.0	400.0	400.0	400.0	0.8	0.8	89.98	89.98	0.0	30.7	30.7	29.1	1.57	19.513	
500.0	500.0	500.0	500.0	1.0	1.0	89.98	89.98	0.0	30.7	30.7	28.7	2.02	15.176	
600.0	600.0	600.0	600.0	1.2	1.2	89.98	89.98	0.0	30.7	30.7	28.2	2.47	12.417	
700.0	700.0	700.0	700.0	1.5	1.5	89.98	89.98	0.0	30.7	30.7	27.8	2.92	10.507	
800.0	800.0	800.0	800.0	1.7	1.7	89.98	89.98	0.0	30.7	30.7	27.3	3.37	9.106	
900.0	900.0	900.0	900.0	1.9	1.9	89.98	89.98	0.0	30.7	30.7	26.9	3.82	8.035	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	89.98	89.98	0.0	30.7	30.7	26.4	4.27	7.189	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	89.98	89.98	0.0	30.7	30.7	26.0	4.72	6.504	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	89.98	89.98	0.0	30.7	30.7	25.5	5.17	5.939	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	89.98	89.98	0.0	30.7	30.7	25.1	5.62	5.464	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	89.98	89.98	0.0	30.7	30.7	24.6	6.07	5.059	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	89.98	89.98	0.0	30.7	30.7	24.2	6.52	4.710 CC, ES	
1,600.0	1,600.0	1,599.1	1,599.1	3.5	3.5	88.29	88.29	1.0	32.1	32.2	25.2	6.96	4.620	
1,700.0	1,700.0	1,697.9	1,697.8	3.7	3.7	84.05	84.05	3.8	36.4	36.7	29.3	7.40	4.954	
1,800.0	1,800.0	1,797.0	1,796.5	3.9	3.9	79.12	79.12	8.3	43.2	44.1	36.2	7.84	5.621	
1,900.0	1,900.0	1,896.6	1,895.7	4.2	4.1	75.46	75.46	13.1	50.3	52.1	43.9	8.29	6.292	
2,000.0	2,000.0	1,996.2	1,995.0	4.4	4.4	72.78	72.78	17.8	57.5	60.4	51.6	8.74	6.911	
2,100.0	2,100.0	2,096.0	2,094.4	4.6	4.6	26.27	26.27	22.6	64.6	67.1	58.0	9.15	7.335	
2,200.0	2,199.8	2,195.9	2,193.9	4.8	4.9	26.27	26.27	27.4	71.8	70.9	61.3	9.58	7.398	
2,300.0	2,299.7	2,295.9	2,293.5	5.0	5.1	26.63	26.63	32.1	79.0	73.8	63.7	10.02	7.363	
2,400.0	2,399.5	2,395.8	2,393.1	5.3	5.3	26.96	26.96	36.9	86.2	76.7	66.2	10.46	7.328	
2,500.0	2,499.3	2,495.8	2,492.7	5.5	5.6	27.27	27.27	41.7	93.3	79.6	68.6	10.90	7.295	
2,600.0	2,599.1	2,595.7	2,592.3	5.7	5.9	27.55	27.55	46.5	100.5	82.5	71.1	11.35	7.264	
2,700.0	2,698.9	2,695.7	2,691.9	5.9	6.1	27.82	27.82	51.2	107.7	85.3	73.6	11.80	7.234	
2,800.0	2,798.7	2,795.7	2,791.4	6.2	6.4	28.06	28.06	56.0	114.9	88.3	76.0	12.25	7.206	
2,900.0	2,898.5	2,895.6	2,891.0	6.4	6.6	28.30	28.30	60.8	122.1	91.2	78.5	12.70	7.178	
3,000.0	2,998.4	2,995.6	2,990.6	6.6	6.9	28.51	28.51	65.6	129.2	94.1	80.9	13.15	7.152	
3,100.0	3,098.2	3,095.5	3,090.2	6.9	7.1	28.72	28.72	70.3	136.4	97.0	83.4	13.60	7.127	
3,200.0	3,198.0	3,195.5	3,189.8	7.1	7.4	28.91	28.91	75.1	143.6	99.9	85.8	14.06	7.103	
3,300.0	3,297.8	3,295.4	3,289.4	7.4	7.7	29.09	29.09	79.9	150.8	102.8	88.3	14.52	7.081	
3,400.0	3,397.6	3,395.4	3,389.0	7.6	7.9	29.27	29.27	84.7	158.0	105.7	90.7	14.97	7.059	
3,500.0	3,497.4	3,495.4	3,488.5	7.8	8.2	29.43	29.43	89.4	165.1	108.6	93.2	15.43	7.038	
3,600.0	3,597.3	3,595.3	3,588.1	8.1	8.5	29.58	29.58	94.2	172.3	111.5	95.6	15.89	7.018	
3,700.0	3,697.1	3,695.3	3,687.7	8.3	8.7	29.73	29.73	99.0	179.5	114.4	98.1	16.35	6.999	
3,800.0	3,796.9	3,795.2	3,787.3	8.5	9.0	29.87	29.87	103.8	186.7	117.3	100.5	16.81	6.981	
3,900.0	3,896.7	3,895.2	3,886.9	8.8	9.3	30.00	30.00	108.6	193.9	120.2	103.0	17.27	6.963	
4,000.0	3,996.5	3,995.1	3,986.5	9.0	9.5	30.13	30.13	113.3	201.0	123.2	105.4	17.73	6.946	
4,100.0	4,096.3	4,095.1	4,086.0	9.3	9.8	30.25	30.25	118.1	208.2	126.1	107.9	18.19	6.930	
4,200.0	4,196.1	4,195.1	4,185.6	9.5	10.1	30.36	30.36	122.9	215.4	129.0	110.3	18.65	6.915	
4,300.0	4,296.0	4,295.0	4,285.2	9.8	10.3	30.47	30.47	127.7	222.6	131.9	112.8	19.12	6.900	
4,400.0	4,395.8	4,395.0	4,384.8	10.0	10.6	30.58	30.58	132.4	229.8	134.8	115.2	19.58	6.885	
4,500.0	4,495.6	4,494.9	4,484.4	10.2	10.9	30.68	30.68	137.2	236.9	137.7	117.7	20.04	6.871	
4,600.0	4,595.4	4,594.9	4,584.0	10.5	11.1	30.78	30.78	142.0	244.1	140.6	120.1	20.51	6.858	
4,700.0	4,695.2	4,694.8	4,683.6	10.7	11.4	30.87	30.87	146.8	251.3	143.6	122.6	20.97	6.845	
4,800.0	4,795.0	4,796.3	4,784.7	11.0	11.7	30.98	30.98	151.5	258.4	146.3	124.9	21.43	6.827	
4,900.0	4,894.9	4,901.4	4,889.6	11.2	11.9	31.48	31.48	154.8	263.4	146.5	124.6	21.86	6.699	
5,000.0	4,994.7	5,006.3	4,994.4	11.5	12.0	32.52	32.52	156.0	265.2	143.2	120.9	22.29	6.423	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-443 - Wellbore #1 - Plan #2 (5-28-14)													
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
5,100.0	5,094.5	5,106.3	5,094.5	11.7	12.2	33.88	156.0	265.2	138.1	115.4	22.74	6.073	
5,200.0	5,194.3	5,206.2	5,194.3	11.9	12.4	35.34	156.0	265.2	133.1	109.9	23.21	5.735	
5,300.0	5,294.1	5,306.0	5,294.1	12.2	12.6	36.91	156.0	265.2	128.2	104.5	23.68	5.413	
5,400.0	5,393.9	5,405.8	5,393.9	12.4	12.8	38.60	156.0	265.2	123.4	99.2	24.16	5.107	
5,500.0	5,493.7	5,505.6	5,493.7	12.7	13.0	40.43	156.0	265.2	118.7	94.0	24.64	4.817	
5,600.0	5,593.6	5,605.4	5,593.6	12.9	13.2	42.41	156.0	265.2	114.1	89.0	25.13	4.542	
5,700.0	5,693.4	5,705.3	5,693.4	13.2	13.4	44.23	156.0	265.2	110.3	84.7	25.59	4.309	
5,800.0	5,793.4	5,805.3	5,793.4	13.3	13.6	44.93	156.0	265.2	108.9	82.9	25.99	4.189	
5,840.7	5,834.1	5,845.9	5,834.1	13.4	13.7	44.96	156.0	265.2	108.8	82.7	26.15	4.161	
5,900.0	5,893.4	5,905.3	5,893.4	13.5	13.8	90.00	156.0	265.2	108.9	82.5	26.39	4.125	
6,000.0	5,993.4	6,005.3	5,993.4	13.7	14.1	90.00	156.0	265.2	108.9	82.0	26.82	4.059	
6,052.9	6,046.3	6,058.2	6,046.3	13.8	14.2	-90.38	156.0	265.2	108.9	81.8	27.03	4.027	
6,100.0	6,093.4	6,105.2	6,093.4	13.9	14.3	-90.53	156.0	265.2	108.9	81.6	27.23	3.999	
6,200.0	6,192.6	6,204.5	6,192.6	14.1	14.5	-96.51	156.0	265.2	109.6	82.2	27.44	3.994	
6,300.0	6,289.5	6,305.0	6,293.0	14.2	14.6	-106.11	150.9	265.3	113.6	86.1	27.47	4.135	
6,400.0	6,382.4	6,408.5	6,394.6	14.3	14.8	-114.74	132.0	265.7	120.9	93.5	27.35	4.419	
6,500.0	6,469.6	6,514.9	6,495.5	14.4	14.9	-121.99	98.4	266.4	130.5	103.4	27.03	4.828	
6,600.0	6,549.8	6,624.4	6,593.4	14.5	15.0	-127.81	49.6	267.4	141.5	115.0	26.50	5.338	
6,700.0	6,621.4	6,736.9	6,685.6	14.7	15.1	-132.31	-14.5	268.7	153.0	127.1	25.86	5.916	
6,800.0	6,683.4	6,852.3	6,769.5	15.1	15.3	-135.67	-93.7	270.3	164.1	138.9	25.21	6.508	
6,900.0	6,734.6	6,970.5	6,842.0	15.7	15.7	-138.06	-186.9	272.2	174.2	149.5	24.74	7.041	
7,000.0	6,774.2	7,091.2	6,900.3	16.4	16.4	-139.60	-292.4	274.4	182.8	158.2	24.60	7.428	
7,100.0	6,801.4	7,213.7	6,941.7	17.3	17.4	-140.41	-407.6	276.8	189.3	164.4	24.95	7.587	
7,200.0	6,815.9	7,337.3	6,964.3	18.4	18.7	-140.55	-528.9	279.3	193.6	167.7	25.89	7.480	
7,300.0	6,817.8	7,441.1	6,974.8	19.6	19.9	-141.41	-632.1	281.4	201.2	174.4	26.87	7.490	
7,400.0	6,816.3	7,553.1	6,978.3	20.9	21.3	-141.80	-744.1	283.7	206.1	177.5	28.53	7.223	
7,500.0	6,814.9	7,653.1	6,978.5	22.3	22.7	-141.63	-844.0	285.8	208.6	178.2	30.45	6.851	
7,600.0	6,813.4	7,753.1	6,978.6	23.8	24.2	-141.47	-943.9	287.8	211.2	178.7	32.49	6.501	
7,700.0	6,812.0	7,853.0	6,978.8	25.3	25.7	-141.31	-1,043.9	289.9	213.8	179.1	34.63	6.173	
7,800.0	6,810.5	7,953.0	6,979.0	26.9	27.2	-141.16	-1,143.8	291.9	216.3	179.5	36.85	5.870	
7,900.0	6,809.0	8,052.9	6,979.2	28.5	28.8	-141.01	-1,243.8	294.0	218.9	179.7	39.15	5.591	
8,000.0	6,807.6	8,152.9	6,979.3	30.2	30.5	-140.86	-1,343.7	296.1	221.5	180.0	41.51	5.336	
8,100.0	6,806.1	8,252.9	6,979.5	31.8	32.2	-140.72	-1,443.7	298.1	224.0	180.1	43.92	5.101	
8,200.0	6,804.6	8,352.8	6,979.7	33.6	33.9	-140.58	-1,543.6	300.2	226.6	180.2	46.38	4.886	
8,300.0	6,803.2	8,452.8	6,979.9	35.3	35.6	-140.44	-1,643.5	302.2	229.2	180.3	48.88	4.688	
8,400.0	6,801.7	8,552.8	6,980.0	37.0	37.3	-140.31	-1,743.5	304.3	231.8	180.3	51.42	4.507	
8,500.0	6,800.2	8,652.7	6,980.2	38.8	39.1	-140.18	-1,843.4	306.3	234.3	180.3	53.99	4.340	
8,600.0	6,798.8	8,752.7	6,980.4	40.6	40.9	-140.05	-1,943.4	308.4	236.9	180.3	56.59	4.186	
8,700.0	6,797.3	8,852.7	6,980.6	42.4	42.7	-139.92	-2,043.3	310.5	239.5	180.3	59.22	4.044	
8,800.0	6,795.8	8,952.6	6,980.7	44.2	44.5	-139.80	-2,143.3	312.5	242.1	180.2	61.87	3.913	
8,900.0	6,794.4	9,052.6	6,980.9	46.0	46.3	-139.68	-2,243.2	314.6	244.7	180.1	64.54	3.791	
9,000.0	6,792.9	9,152.6	6,981.1	47.8	48.1	-139.56	-2,343.2	316.6	247.2	180.0	67.23	3.678	
9,100.0	6,791.4	9,252.5	6,981.3	49.6	49.9	-139.45	-2,443.1	318.7	249.8	179.9	69.93	3.572	
9,200.0	6,790.0	9,352.5	6,981.4	51.5	51.8	-139.33	-2,543.0	320.7	252.4	179.7	72.66	3.474	
9,300.0	6,788.5	9,452.5	6,981.6	53.3	53.6	-139.22	-2,643.0	322.8	255.0	179.6	75.40	3.382	
9,400.0	6,787.0	9,552.4	6,981.8	55.1	55.4	-139.12	-2,742.9	324.9	257.6	179.4	78.15	3.296	
9,500.0	6,785.6	9,652.4	6,981.9	57.0	57.3	-139.01	-2,842.9	326.9	260.2	179.2	80.92	3.215	
9,600.0	6,784.1	9,752.4	6,982.1	58.8	59.1	-138.91	-2,942.8	329.0	262.8	179.1	83.70	3.139	
9,700.0	6,782.6	9,852.3	6,982.3	60.7	61.0	-138.80	-3,042.8	331.0	265.3	178.8	86.49	3.068	
9,800.0	6,781.2	9,952.3	6,982.5	62.6	62.9	-138.70	-3,142.7	333.1	267.9	178.6	89.29	3.001	
9,900.0	6,779.7	10,052.3	6,982.6	64.4	64.7	-138.60	-3,242.7	335.1	270.5	178.4	92.11	2.937	

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<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 #2 (5-28-14)		Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis		Distance									
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
10,000.0	6,778.2	10,152.2	6,982.8	66.3	66.6	-138.51	-3,342.6	337.2	273.1	178.2	94.93	2.877			
10,100.0	6,776.8	10,252.2	6,983.0	68.2	68.5	-138.41	-3,442.5	339.3	275.7	177.9	97.76	2.820			
10,200.0	6,775.3	10,352.2	6,983.2	70.0	70.4	-138.32	-3,542.5	341.3	278.3	177.7	100.60	2.766			
10,300.0	6,773.8	10,452.1	6,983.3	71.9	72.2	-138.23	-3,642.4	343.4	280.9	177.4	103.45	2.715			
10,400.0	6,772.4	10,552.1	6,983.5	73.8	74.1	-138.14	-3,742.4	345.4	283.5	177.2	106.30	2.667			
10,500.0	6,770.9	10,652.0	6,983.7	75.7	76.0	-138.05	-3,842.3	347.5	286.1	176.9	109.17	2.621			
10,600.0	6,769.4	10,752.0	6,983.9	77.6	77.9	-137.97	-3,942.3	349.5	288.7	176.6	112.04	2.577			
10,700.0	6,768.0	10,852.0	6,984.0	79.4	79.8	-137.88	-4,042.2	351.6	291.3	176.4	114.91	2.535			
10,800.0	6,766.5	10,951.9	6,984.2	81.3	81.7	-137.80	-4,142.1	353.7	293.9	176.1	117.80	2.495			
10,900.0	6,765.0	11,051.9	6,984.4	83.2	83.6	-137.72	-4,242.1	355.7	296.5	175.8	120.69	2.457			
11,000.0	6,763.6	11,151.9	6,984.6	85.1	85.5	-137.64	-4,342.0	357.8	299.1	175.5	123.58	2.420			
11,100.0	6,762.1	11,251.8	6,984.7	87.0	87.4	-137.56	-4,442.0	359.8	301.7	175.2	126.48	2.385			
11,200.0	6,760.6	11,351.8	6,984.9	88.9	89.3	-137.48	-4,541.9	361.9	304.3	174.9	129.39	2.352			
11,243.6	6,760.0	11,395.4	6,985.0	89.7	90.1	-137.45	-4,585.5	362.8	305.4	174.7	130.66	2.337 SF			

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Existing Wells Sec.5-T3N-R64W - Becker 5-10 (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft
Survey Program: 7600-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)				
0.0	0.0	0.0	0.0	0.0	0.0	167.42	-462.6	103.3	474.4						
100.0	100.0	80.5	80.5	0.1	1.6	167.42	-462.6	103.3	474.0	472.3	1.72	275.183			
200.0	200.0	180.5	180.5	0.3	3.6	167.42	-462.6	103.3	474.0	470.1	3.95	120.087			
300.0	300.0	280.5	280.5	0.6	5.6	167.42	-462.6	103.3	474.0	467.9	6.17	76.801			
400.0	400.0	380.5	380.5	0.8	7.6	167.42	-462.6	103.3	474.0	465.6	8.40	56.453			
500.0	500.0	480.5	480.5	1.0	9.6	167.42	-462.6	103.3	474.0	463.4	10.62	44.628			
600.0	600.0	580.5	580.5	1.2	11.6	167.42	-462.6	103.3	474.0	461.2	12.85	36.899			
700.0	700.0	680.5	680.5	1.5	13.6	167.42	-462.6	103.3	474.0	459.0	15.07	31.452			
800.0	800.0	780.5	780.5	1.7	15.6	167.42	-462.6	103.3	474.0	456.7	17.30	27.407			
900.0	900.0	880.5	880.5	1.9	17.6	167.42	-462.6	103.3	474.0	454.5	19.52	24.283			
1,000.0	1,000.0	980.5	980.5	2.1	19.6	167.42	-462.6	103.3	474.0	452.3	21.75	21.799			
1,100.0	1,100.0	1,080.5	1,080.5	2.4	21.6	167.42	-462.6	103.3	474.0	450.1	23.97	19.776			
1,200.0	1,200.0	1,180.5	1,180.5	2.6	23.6	167.42	-462.6	103.3	474.0	447.8	26.19	18.096			
1,300.0	1,300.0	1,280.5	1,280.5	2.8	25.6	167.42	-462.6	103.3	474.0	445.6	28.42	16.679			
1,400.0	1,400.0	1,380.5	1,380.5	3.0	27.6	167.42	-462.6	103.3	474.0	443.4	30.64	15.469			
1,500.0	1,500.0	1,480.5	1,480.5	3.3	29.6	167.42	-462.6	103.3	474.0	441.2	32.87	14.422			
1,600.0	1,600.0	1,580.5	1,580.5	3.5	31.6	167.42	-462.6	103.3	474.0	438.9	35.09	13.507			
1,700.0	1,700.0	1,680.5	1,680.5	3.7	33.6	167.42	-462.6	103.3	474.0	436.7	37.32	12.702			
1,800.0	1,800.0	1,780.5	1,780.5	3.9	35.6	167.42	-462.6	103.3	474.0	434.5	39.54	11.987			
1,900.0	1,900.0	1,880.5	1,880.5	4.2	37.6	167.42	-462.6	103.3	474.0	432.3	41.77	11.349			
2,000.0	2,000.0	1,980.5	1,980.5	4.4	39.6	167.42	-462.6	103.3	474.0	430.0	43.99	10.775			
2,100.0	2,100.0	2,080.5	2,080.5	4.6	41.6	122.52	-462.6	103.3	475.0	428.8	46.21	10.279			
2,200.0	2,199.8	2,180.3	2,180.3	4.8	43.6	123.01	-462.6	103.3	477.7	429.3	48.40	9.870			
2,300.0	2,299.7	2,280.2	2,280.2	5.0	45.6	123.61	-462.6	103.3	481.1	430.5	50.62	9.504			
2,400.0	2,399.5	2,380.0	2,380.0	5.3	47.6	124.21	-462.6	103.3	484.5	431.6	52.84	9.169			
2,500.0	2,499.3	2,479.8	2,479.8	5.5	49.6	124.80	-462.6	103.3	487.9	432.9	55.06	8.862			
2,600.0	2,599.1	2,579.6	2,579.6	5.7	51.6	125.38	-462.6	103.3	491.4	434.1	57.28	8.580			
2,700.0	2,698.9	2,679.4	2,679.4	5.9	53.6	125.95	-462.6	103.3	495.0	435.5	59.50	8.319			
2,800.0	2,798.7	2,779.2	2,779.2	6.2	55.6	126.52	-462.6	103.3	498.6	436.8	61.72	8.078			
2,900.0	2,898.5	2,879.0	2,879.0	6.4	57.6	127.08	-462.6	103.3	502.2	438.3	63.95	7.854			
3,000.0	2,998.4	2,978.9	2,978.9	6.6	59.6	127.62	-462.6	103.3	505.9	439.7	66.17	7.646			
3,100.0	3,098.2	3,078.7	3,078.7	6.9	61.6	128.17	-462.6	103.3	509.6	441.3	68.40	7.452			
3,200.0	3,198.0	3,178.5	3,178.5	7.1	63.6	128.70	-462.6	103.3	513.4	442.8	70.62	7.270			
3,300.0	3,297.8	3,278.3	3,278.3	7.4	65.6	129.22	-462.6	103.3	517.3	444.4	72.85	7.101			
3,400.0	3,397.6	3,378.1	3,378.1	7.6	67.6	129.74	-462.6	103.3	521.1	446.1	75.07	6.942			
3,500.0	3,497.4	3,477.9	3,477.9	7.8	69.6	130.25	-462.6	103.3	525.0	447.7	77.30	6.792			
3,600.0	3,597.3	3,577.8	3,577.8	8.1	71.6	130.75	-462.6	103.3	529.0	449.5	79.53	6.652			
3,700.0	3,697.1	3,677.6	3,677.6	8.3	73.6	131.25	-462.6	103.3	533.0	451.2	81.75	6.519			
3,800.0	3,796.9	3,777.4	3,777.4	8.5	75.5	131.73	-462.6	103.3	537.0	453.0	83.98	6.395			
3,900.0	3,896.7	3,877.2	3,877.2	8.8	77.5	132.21	-462.6	103.3	541.1	454.9	86.21	6.277			
4,000.0	3,996.5	3,977.0	3,977.0	9.0	79.5	132.69	-462.6	103.3	545.2	456.8	88.43	6.165			
4,100.0	4,096.3	4,076.8	4,076.8	9.3	81.5	133.15	-462.6	103.3	549.3	458.7	90.66	6.059			
4,200.0	4,196.1	4,176.6	4,176.6	9.5	83.5	133.61	-462.6	103.3	553.5	460.6	92.89	5.959			
4,300.0	4,296.0	4,276.5	4,276.5	9.8	85.5	134.06	-462.6	103.3	557.7	462.6	95.12	5.864			
4,400.0	4,395.8	4,376.3	4,376.3	10.0	87.5	134.51	-462.6	103.3	562.0	464.6	97.34	5.773			
4,500.0	4,495.6	4,476.1	4,476.1	10.2	89.5	134.95	-462.6	103.3	566.3	466.7	99.57	5.687			
4,600.0	4,595.4	4,575.9	4,575.9	10.5	91.5	135.38	-462.6	103.3	570.6	468.8	101.80	5.605			
4,700.0	4,695.2	4,675.7	4,675.7	10.7	93.5	135.80	-462.6	103.3	574.9	470.9	104.03	5.527			
4,800.0	4,795.0	4,775.5	4,775.5	11.0	95.5	136.22	-462.6	103.3	579.3	473.1	106.25	5.452			
4,900.0	4,894.9	4,875.4	4,875.4	11.2	97.5	136.63	-462.6	103.3	583.7	475.2	108.48	5.381			
5,000.0	4,994.7	4,975.2	4,975.2	11.5	99.5	137.04	-462.6	103.3	588.2	477.4	110.71	5.313			

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-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-10 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN												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
5,100.0	5,094.5	5,075.0	5,075.0	11.7	101.5	137.44	-462.6	103.3	592.6	479.7	112.93	5.248	
5,200.0	5,194.3	5,174.8	5,174.8	11.9	103.5	137.84	-462.6	103.3	597.1	482.0	115.16	5.185	
5,300.0	5,294.1	5,274.6	5,274.6	12.2	105.5	138.22	-462.6	103.3	601.6	484.3	117.39	5.125	
5,400.0	5,393.9	5,374.4	5,374.4	12.4	107.5	138.61	-462.6	103.3	606.2	486.6	119.61	5.068	
5,500.0	5,493.7	5,474.2	5,474.2	12.7	109.5	138.98	-462.6	103.3	610.8	488.9	121.84	5.013	
5,600.0	5,593.6	5,574.1	5,574.1	12.9	111.5	139.35	-462.6	103.3	615.4	491.3	124.06	4.960	
5,700.0	5,693.4	5,673.9	5,673.9	13.2	113.5	139.70	-462.6	103.3	619.4	493.0	126.35	4.902	
5,800.0	5,793.4	5,773.9	5,773.9	13.3	115.5	139.84	-462.6	103.3	620.9	492.3	128.56	4.830	
5,900.0	5,893.4	5,873.9	5,873.9	13.5	117.5	-175.10	-462.6	103.3	620.9	490.2	130.75	4.749	
6,000.0	5,993.4	5,973.9	5,973.9	13.7	119.5	-175.10	-462.6	103.3	620.9	487.9	132.97	4.670	
6,100.0	6,093.4	6,073.9	6,073.9	13.9	121.5	4.92	-462.6	103.3	619.9	484.9	134.99	4.592	
6,200.0	6,192.6	6,173.1	6,173.1	14.1	123.5	5.09	-462.6	103.3	608.3	473.3	135.06	4.504	
6,300.0	6,289.5	6,270.0	6,270.0	14.2	125.4	5.48	-462.6	103.3	584.0	451.2	132.76	4.399	
6,400.0	6,382.4	6,362.9	6,362.9	14.3	127.3	6.16	-462.6	103.3	547.2	419.2	128.05	4.273	
6,500.0	6,469.6	6,450.1	6,450.1	14.4	129.0	7.26	-462.6	103.3	498.8	377.7	121.05	4.120	
6,600.0	6,549.8	6,530.3	6,530.3	14.5	130.6	9.08	-462.6	103.3	439.4	327.4	112.06	3.922	
6,700.0	6,621.4	6,601.9	6,601.9	14.7	132.0	12.19	-462.6	103.3	370.4	268.5	101.93	3.634	
6,800.0	6,683.4	6,663.9	6,663.9	15.1	133.3	17.97	-462.6	103.3	293.0	199.6	93.48	3.135	
6,900.0	6,734.6	6,715.1	6,715.1	15.7	134.3	29.94	-462.6	103.3	209.2	112.7	96.57	2.166	
7,000.0	6,774.2	6,754.7	6,754.7	16.4	135.1	55.07	-462.6	103.3	122.7	-5.2	127.91	0.959 Level 1	
7,100.0	6,801.4	6,781.9	6,781.9	17.3	135.6	86.73	-462.6	103.3	55.0	-97.6	152.60	0.360 Level 1	
7,114.8	6,804.4	6,784.9	6,784.9	17.5	135.7	90.00	-462.6	103.3	53.1	-100.0	153.07	0.347 Level 1, CC, ES, SF	
7,200.0	6,815.9	6,796.4	6,796.4	18.4	135.9	97.23	-462.6	103.3	99.7	-53.4	153.08	0.651 Level 1	
7,300.0	6,817.8	6,798.3	6,798.3	19.6	136.0	87.08	-462.6	103.3	191.8	36.6	155.24	1.236 Level 2	
7,400.0	6,816.3	6,796.8	6,796.8	20.9	135.9	85.51	-462.6	103.3	289.2	133.0	156.23	1.851	
7,500.0	6,814.9	6,795.4	6,795.4	22.3	135.9	83.94	-462.6	103.3	388.0	230.8	157.19	2.468	
7,600.0	6,813.4	6,793.9	6,793.9	23.8	135.9	82.38	-462.6	103.3	487.2	329.1	158.11	3.081	
7,700.0	6,812.0	6,792.5	6,792.5	25.3	135.8	80.83	-462.6	103.3	586.7	427.7	158.97	3.691	
7,800.0	6,810.5	6,791.0	6,791.0	26.9	135.8	79.29	-462.6	103.3	686.3	526.6	159.76	4.296	
7,900.0	6,809.0	6,789.5	6,789.5	28.5	135.8	77.77	-462.6	103.3	786.1	625.6	160.47	4.898	
8,000.0	6,807.6	6,788.1	6,788.1	30.2	135.8	76.27	-462.6	103.3	885.8	724.7	161.10	5.499	
8,100.0	6,806.1	6,786.6	6,786.6	31.8	135.7	74.79	-462.6	103.3	985.7	824.0	161.66	6.097	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Existing Wells Sec.5-T3N-R64W - Becker 5-16 (Exist) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 7600-UNKNOWN														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)					
8,900.0	6,794.4	6,738.9	6,738.9	46.0	134.8	93.40	-3,151.2	-67.0	931.6	751.1	180.43	5.163				
9,000.0	6,792.9	6,737.4	6,737.4	47.8	134.7	93.02	-3,151.2	-67.0	834.8	652.6	182.28	4.580				
9,100.0	6,791.4	6,735.9	6,735.9	49.6	134.7	92.65	-3,151.2	-67.0	739.0	554.8	184.13	4.013				
9,200.0	6,790.0	6,734.5	6,734.5	51.5	134.7	92.27	-3,151.2	-67.0	644.4	458.4	185.98	3.465				
9,300.0	6,788.5	6,733.0	6,733.0	53.3	134.7	91.90	-3,151.2	-67.0	551.7	363.8	187.83	2.937				
9,400.0	6,787.0	6,731.5	6,731.5	55.1	134.6	91.52	-3,151.2	-67.0	462.0	272.3	189.68	2.436				
9,500.0	6,785.6	6,730.1	6,730.1	57.0	134.6	91.15	-3,151.2	-67.0	377.6	186.1	191.52	1.971				
9,600.0	6,784.1	6,728.6	6,728.6	58.8	134.6	90.77	-3,151.2	-67.0	302.8	109.4	193.36	1.566				
9,700.0	6,782.6	6,727.1	6,727.1	60.7	134.5	90.39	-3,151.2	-67.0	246.5	51.3	195.20	1.263	Level 3			
9,800.0	6,781.2	6,725.7	6,725.7	62.6	134.5	90.02	-3,151.2	-67.0	223.4	26.3	197.04	1.134	Level 2			
9,804.5	6,781.1	6,725.6	6,725.6	62.7	134.5	90.00	-3,151.2	-67.0	223.3	26.2	197.12	1.133	Level 2, CC, ES, SF			
9,900.0	6,779.7	6,724.2	6,724.2	64.4	134.5	89.64	-3,151.2	-67.0	242.9	44.0	198.87	1.221	Level 2			
10,000.0	6,778.2	6,722.7	6,722.7	66.3	134.5	89.26	-3,151.2	-67.0	296.8	96.1	200.69	1.479	Level 3			
10,100.0	6,776.8	6,721.3	6,721.3	68.2	134.4	88.89	-3,151.2	-67.0	370.4	167.9	202.51	1.829				
10,200.0	6,775.3	6,719.8	6,719.8	70.0	134.4	88.51	-3,151.2	-67.0	454.2	249.8	204.32	2.223				
10,300.0	6,773.8	6,718.3	6,718.3	71.9	134.4	88.14	-3,151.2	-67.0	543.4	337.3	206.13	2.636				
10,400.0	6,772.4	6,716.9	6,716.9	73.8	134.3	87.76	-3,151.2	-67.0	635.9	428.0	207.93	3.058				
10,500.0	6,770.9	6,715.4	6,715.4	75.7	134.3	87.39	-3,151.2	-67.0	730.4	520.7	209.72	3.483				
10,600.0	6,769.4	6,713.9	6,713.9	77.6	134.3	87.01	-3,151.2	-67.0	826.2	614.7	211.50	3.906				
10,700.0	6,768.0	6,712.5	6,712.5	79.4	134.2	86.64	-3,151.2	-67.0	922.8	709.6	213.28	4.327				



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-4 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,500.0	6,814.9	6,790.4	6,790.4	22.3	135.8	96.61	96.61	-1,752.3	41.9	912.5	755.5	157.05	5.810	
7,600.0	6,813.4	6,788.9	6,788.9	23.8	135.8	95.89	95.89	-1,752.3	41.9	813.4	654.7	158.69	5.126	
7,700.0	6,812.0	6,787.5	6,787.5	25.3	135.7	95.16	95.16	-1,752.3	41.9	714.6	554.2	160.38	4.456	
7,800.0	6,810.5	6,786.0	6,786.0	26.9	135.7	94.43	94.43	-1,752.3	41.9	616.1	454.0	162.08	3.801	
7,900.0	6,809.0	6,784.5	6,784.5	28.5	135.7	93.70	93.70	-1,752.3	41.9	518.2	354.4	163.81	3.163	
8,000.0	6,807.6	6,783.1	6,783.1	30.2	135.7	92.97	92.97	-1,752.3	41.9	421.2	255.7	165.55	2.544	
8,100.0	6,806.1	6,781.6	6,781.6	31.8	135.6	92.24	92.24	-1,752.3	41.9	326.1	158.8	167.29	1.949	
8,200.0	6,804.6	6,780.1	6,780.1	33.6	135.6	91.51	91.51	-1,752.3	41.9	235.1	66.1	169.03	1.391 Level 3	
8,300.0	6,803.2	6,778.7	6,778.7	35.3	135.6	90.77	90.77	-1,752.3	41.9	155.6	-15.2	170.77	0.911 Level 1	
8,400.0	6,801.7	6,777.2	6,777.2	37.0	135.5	90.04	90.04	-1,752.3	41.9	114.6	-57.9	172.50	0.664 Level 1	
8,405.4	6,801.6	6,777.1	6,777.1	37.1	135.5	90.00	90.00	-1,752.3	41.9	114.5	-58.1	172.60	0.663 Level 1, CC, ES, SF	
8,500.0	6,800.2	6,775.7	6,775.7	38.8	135.5	89.31	89.31	-1,752.3	41.9	148.5	-25.8	174.22	0.852 Level 1	
8,600.0	6,798.8	6,774.3	6,774.3	40.6	135.5	88.57	88.57	-1,752.3	41.9	225.7	49.8	175.93	1.283 Level 3	
8,700.0	6,797.3	6,772.8	6,772.8	42.4	135.5	87.84	87.84	-1,752.3	41.9	316.0	138.4	177.62	1.779	
8,800.0	6,795.8	6,771.3	6,771.3	44.2	135.4	87.11	87.11	-1,752.3	41.9	410.8	231.5	179.28	2.291	
8,900.0	6,794.4	6,769.9	6,769.9	46.0	135.4	86.38	86.38	-1,752.3	41.9	507.6	326.7	180.93	2.805	
9,000.0	6,792.9	6,768.4	6,768.4	47.8	135.4	85.65	85.65	-1,752.3	41.9	605.4	422.9	182.56	3.316	
9,100.0	6,791.4	6,766.9	6,766.9	49.6	135.3	84.92	84.92	-1,752.3	41.9	703.9	519.7	184.16	3.822	
9,200.0	6,790.0	6,765.5	6,765.5	51.5	135.3	84.19	84.19	-1,752.3	41.9	802.7	617.0	185.74	4.322	
9,300.0	6,788.5	6,764.0	6,764.0	53.3	135.3	83.46	83.46	-1,752.3	41.9	901.8	714.5	187.29	4.815	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Wells Sec.5-T3N-R64W - Becker 5-5 (Exist) - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 7600-UNKNOWN													<b>Offset Well Error:</b>	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,778.2	6,707.7	6,707.7	66.3	134.2	93.01	93.01	-4,236.8	-92.1	924.2	724.0	200.18	4.617	
10,100.0	6,776.8	6,706.3	6,706.3	68.2	134.1	92.67	92.67	-4,236.8	-92.1	828.3	626.2	202.08	4.099	
10,200.0	6,775.3	6,704.8	6,704.8	70.0	134.1	92.33	92.33	-4,236.8	-92.1	733.5	529.6	203.97	3.596	
10,300.0	6,773.8	6,703.3	6,703.3	71.9	134.1	91.99	91.99	-4,236.8	-92.1	640.3	434.5	205.85	3.111	
10,400.0	6,772.4	6,701.9	6,701.9	73.8	134.0	91.66	91.66	-4,236.8	-92.1	549.5	341.8	207.73	2.645	
10,500.0	6,770.9	6,700.4	6,700.4	75.7	134.0	91.32	91.32	-4,236.8	-92.1	462.6	253.0	209.61	2.207	
10,600.0	6,769.4	6,698.9	6,698.9	77.6	134.0	90.98	90.98	-4,236.8	-92.1	382.0	170.5	211.49	1.806	
10,700.0	6,768.0	6,697.5	6,697.5	79.4	133.9	90.64	90.64	-4,236.8	-92.1	312.9	99.5	213.36	1.467	Level 3
10,800.0	6,766.5	6,696.0	6,696.0	81.3	133.9	90.31	90.31	-4,236.8	-92.1	264.3	49.1	215.22	1.228	Level 2
10,890.2	6,765.2	6,694.7	6,694.7	83.0	133.9	90.00	90.00	-4,236.8	-92.1	248.4	31.5	216.90	1.145	Level 2, CC, ES
10,900.0	6,765.0	6,694.5	6,694.5	83.2	133.9	89.97	89.97	-4,236.8	-92.1	248.6	31.6	217.08	1.145	Level 2, SF
11,000.0	6,763.6	6,693.1	6,693.1	85.1	133.9	89.63	89.63	-4,236.8	-92.1	271.6	52.7	218.93	1.241	Level 2
11,100.0	6,762.1	6,691.6	6,691.6	87.0	133.8	89.29	89.29	-4,236.8	-92.1	325.1	104.4	220.77	1.473	Level 3
11,200.0	6,760.6	6,690.1	6,690.1	88.9	133.8	88.95	88.95	-4,236.8	-92.1	397.1	174.4	222.61	1.784	
11,243.6	6,760.0	6,689.5	6,689.5	89.7	133.8	88.81	88.81	-4,236.8	-92.1	432.0	208.5	223.42	1.933	

Reference Depths are relative to WELL @ 4796.5ft (RKB - 12.5')	Coordinates are relative to: Becker Ranch 5U-243
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.60°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Reference Site:</b>	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4796.5ft (RKB - 12.5')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5U-243	<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 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4796.5ft (RKB - 12.5')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Becker Ranch 5U-243

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.60°

