

# PETROLEUM DEVELOPMENT CORP Weld County CO

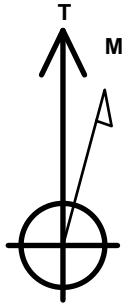
Well Name: **Becker Ranch 5U-443**

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	1339356.32	3260103.96	40.261180	-104.567980	
RKB - 12.5' WELL @ 4796.5ft (RKB - 12.5')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 206'FNL, 730'FEL	1.0	0.0	0.0	Point
BHL 500'FSL, 377'FEL	6985.0	-4590.2	332.2	Point



Azimuths to True North  
 Magnetic North: 8.35°

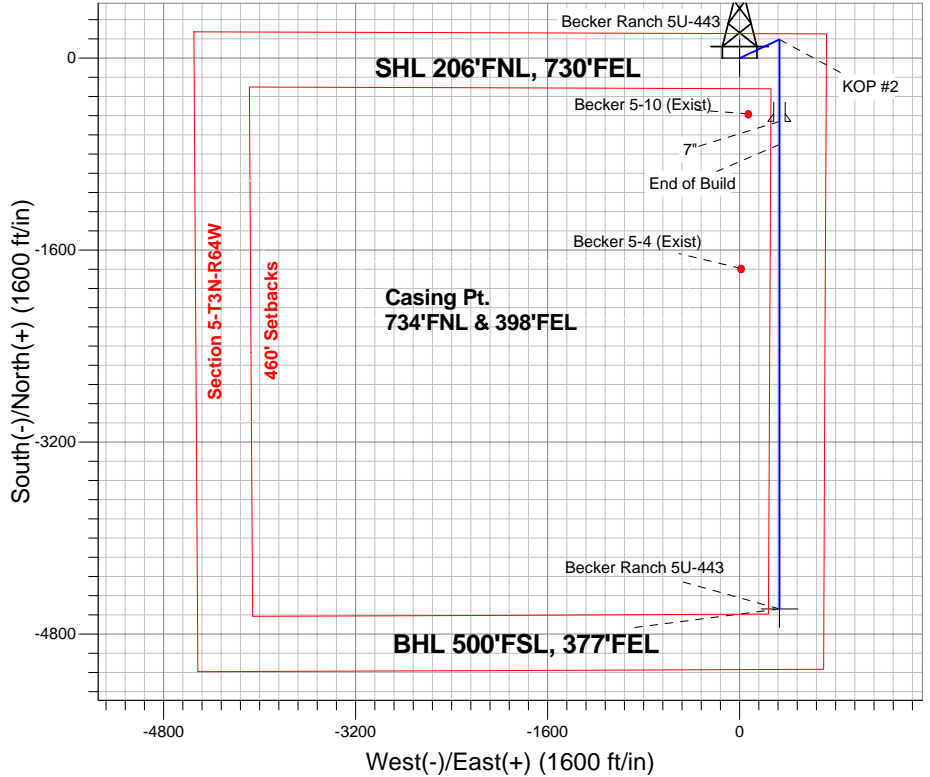
Magnetic Field  
 Strength: 52768.6snT  
 Dip Angle: 66.87°  
 Date: 5/28/2014  
 Model: IGRF2010

## ANNOTATIONS

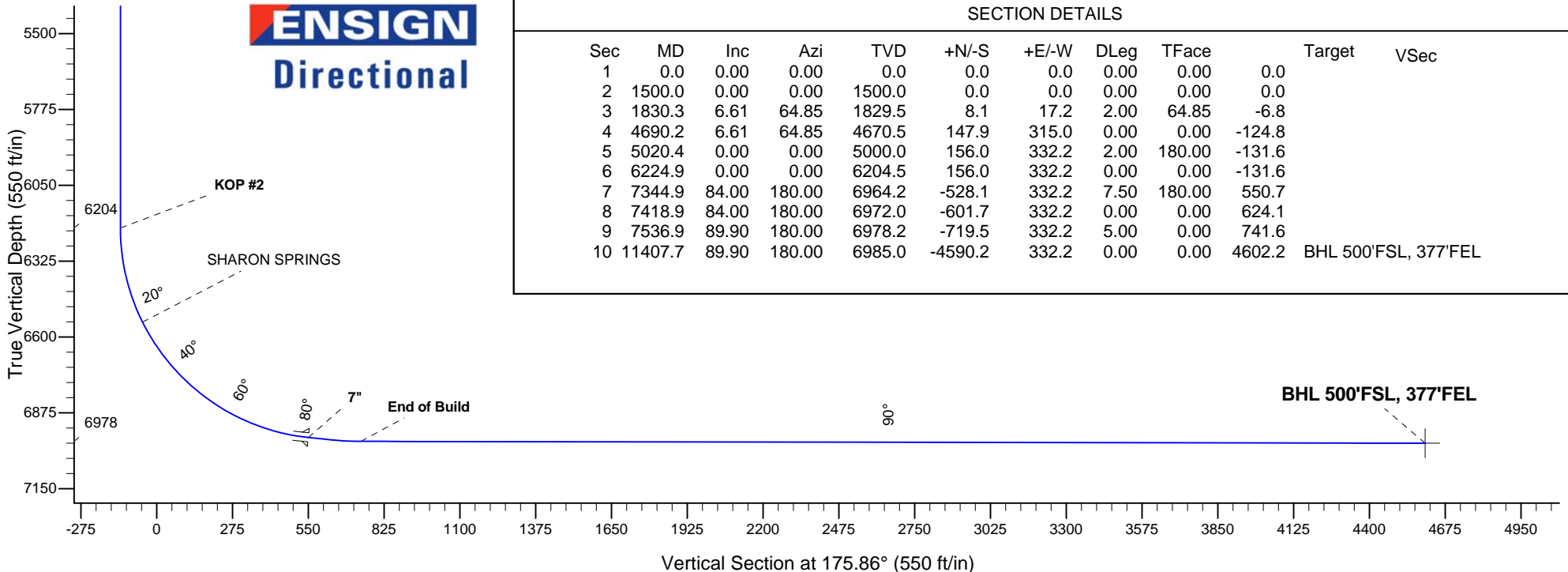
TVD	MD	Annotation
1500.0	1500.0	KOP #1
6204.5	6224.9	KOP #2
6978.2	7536.9	End of Build

Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W  
 Becker Ranch 5U-443  
 Plan #2 (5-28-14)  
 8:32, June 02 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	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1830.3	6.61	64.85	1829.5	8.1	17.2	2.00	64.85	-6.8	
4	4690.2	6.61	64.85	4670.5	147.9	315.0	0.00	0.00	-124.8	
5	5020.4	0.00	0.00	5000.0	156.0	332.2	2.00	180.00	-131.6	
6	6224.9	0.00	0.00	6204.5	156.0	332.2	0.00	0.00	-131.6	
7	7344.9	84.00	180.00	6964.2	-528.1	332.2	7.50	180.00	550.7	
8	7418.9	84.00	180.00	6972.0	-601.7	332.2	0.00	0.00	624.1	
9	7536.9	89.90	180.00	6978.2	-719.5	332.2	5.00	0.00	741.6	
10	11407.7	89.90	180.00	6985.0	-4590.2	332.2	0.00	0.00	4602.2	BHL 500'FSL, 377'FEL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.5-T3N-R64W**

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

**Becker Ranch 5U-443**

**Wellbore #1**

**Plan: Plan #2 (5-28-14)**

## **Standard Planning Report**

**02 June, 2014**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (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-443					
Well Position	+N-S	0.0 ft	Northing:	1,339,356.32 ft	Latitude:	40.261180
	+E-W	58.6 ft	Easting:	3,260,103.96 ft	Longitude:	-104.567980
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 #2 (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	175.86

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,830.3	6.61	64.85	1,829.5	8.1	17.2	2.00	2.00	0.00	64.85	
4,690.2	6.61	64.85	4,670.5	147.9	315.0	0.00	0.00	0.00	0.00	
5,020.4	0.00	0.00	5,000.0	156.0	332.2	2.00	-2.00	0.00	180.00	
6,224.9	0.00	0.00	6,204.5	156.0	332.2	0.00	0.00	0.00	0.00	
7,344.9	84.00	180.00	6,964.2	-528.1	332.2	7.50	7.50	0.00	180.00	
7,418.9	84.00	180.00	6,972.0	-601.7	332.2	0.00	0.00	0.00	0.00	
7,536.9	89.90	180.00	6,978.2	-719.5	332.2	5.00	5.00	0.00	0.00	
11,407.7	89.90	180.00	6,985.0	-4,590.2	332.2	0.00	0.00	0.00	0.00	BHL 500'FSL, 377°F

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (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, 730'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
<b>KOP #1</b>									
1,600.0	2.00	64.85	1,600.0	0.7	1.6	-0.6	2.00	2.00	0.00
1,700.0	4.00	64.85	1,699.8	3.0	6.3	-2.5	2.00	2.00	0.00
1,800.0	6.00	64.85	1,799.5	6.7	14.2	-5.6	2.00	2.00	0.00
1,830.3	6.61	64.85	1,829.5	8.1	17.2	-6.8	2.00	2.00	0.00
1,900.0	6.61	64.85	1,898.8	11.5	24.5	-9.7	0.00	0.00	0.00
2,000.0	6.61	64.85	1,998.1	16.4	34.9	-13.8	0.00	0.00	0.00
2,100.0	6.61	64.85	2,097.5	21.3	45.3	-17.9	0.00	0.00	0.00
2,200.0	6.61	64.85	2,196.8	26.2	55.7	-22.1	0.00	0.00	0.00
2,300.0	6.61	64.85	2,296.2	31.1	66.1	-26.2	0.00	0.00	0.00
2,400.0	6.61	64.85	2,395.5	35.9	76.5	-30.3	0.00	0.00	0.00
2,500.0	6.61	64.85	2,494.8	40.8	86.9	-34.4	0.00	0.00	0.00
2,600.0	6.61	64.85	2,594.2	45.7	97.4	-38.6	0.00	0.00	0.00
2,700.0	6.61	64.85	2,693.5	50.6	107.8	-42.7	0.00	0.00	0.00
2,800.0	6.61	64.85	2,792.8	55.5	118.2	-46.8	0.00	0.00	0.00
2,900.0	6.61	64.85	2,892.2	60.4	128.6	-50.9	0.00	0.00	0.00
3,000.0	6.61	64.85	2,991.5	65.3	139.0	-55.1	0.00	0.00	0.00
3,100.0	6.61	64.85	3,090.8	70.2	149.4	-59.2	0.00	0.00	0.00
3,200.0	6.61	64.85	3,190.2	75.1	159.8	-63.3	0.00	0.00	0.00
3,300.0	6.61	64.85	3,289.5	79.9	170.2	-67.4	0.00	0.00	0.00
3,400.0	6.61	64.85	3,388.8	84.8	180.7	-71.6	0.00	0.00	0.00
3,500.0	6.61	64.85	3,488.2	89.7	191.1	-75.7	0.00	0.00	0.00
3,600.0	6.61	64.85	3,587.5	94.6	201.5	-79.8	0.00	0.00	0.00
3,700.0	6.61	64.85	3,686.9	99.5	211.9	-83.9	0.00	0.00	0.00
3,713.2	6.61	64.85	3,700.0	100.1	213.3	-84.5	0.00	0.00	0.00
<b>PARKMAN</b>									
3,800.0	6.61	64.85	3,786.2	104.4	222.3	-88.1	0.00	0.00	0.00
3,900.0	6.61	64.85	3,885.5	109.3	232.7	-92.2	0.00	0.00	0.00
4,000.0	6.61	64.85	3,984.9	114.2	243.1	-96.3	0.00	0.00	0.00
4,100.0	6.61	64.85	4,084.2	119.1	253.5	-100.4	0.00	0.00	0.00
4,200.0	6.61	64.85	4,183.5	123.9	263.9	-104.6	0.00	0.00	0.00
4,300.0	6.61	64.85	4,282.9	128.8	274.4	-108.7	0.00	0.00	0.00
4,400.0	6.61	64.85	4,382.2	133.7	284.8	-112.8	0.00	0.00	0.00
4,417.9	6.61	64.85	4,400.0	134.6	286.6	-113.6	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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (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	6.61	64.85	4,481.5	138.6	295.2	-117.0	0.00	0.00	0.00
4,600.0	6.61	64.85	4,580.9	143.5	305.6	-121.1	0.00	0.00	0.00
4,690.2	6.61	64.85	4,670.5	147.9	315.0	-124.8	0.00	0.00	0.00
4,700.0	6.41	64.85	4,680.2	148.4	316.0	-125.2	2.00	-2.00	0.00
4,800.0	4.41	64.85	4,779.8	152.4	324.5	-128.6	2.00	-2.00	0.00
4,900.0	2.41	64.85	4,879.6	154.9	329.9	-130.7	2.00	-2.00	0.00
5,000.0	0.41	64.85	4,979.6	156.0	332.1	-131.6	2.00	-2.00	0.00
5,020.4	0.00	0.00	5,000.0	156.0	332.2	-131.6	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,079.6	156.0	332.2	-131.6	0.00	0.00	0.00
5,120.4	0.00	0.00	5,100.0	156.0	332.2	-131.6	0.00	0.00	0.00
SHANNON									
5,200.0	0.00	0.00	5,179.6	156.0	332.2	-131.6	0.00	0.00	0.00
5,300.0	0.00	0.00	5,279.6	156.0	332.2	-131.6	0.00	0.00	0.00
5,400.0	0.00	0.00	5,379.6	156.0	332.2	-131.6	0.00	0.00	0.00
5,500.0	0.00	0.00	5,479.6	156.0	332.2	-131.6	0.00	0.00	0.00
5,600.0	0.00	0.00	5,579.6	156.0	332.2	-131.6	0.00	0.00	0.00
5,700.0	0.00	0.00	5,679.6	156.0	332.2	-131.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,779.6	156.0	332.2	-131.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,879.6	156.0	332.2	-131.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,979.6	156.0	332.2	-131.6	0.00	0.00	0.00
6,100.0	0.00	0.00	6,079.6	156.0	332.2	-131.6	0.00	0.00	0.00
6,200.0	0.00	0.00	6,179.6	156.0	332.2	-131.6	0.00	0.00	0.00
6,224.9	0.00	0.00	6,204.5	156.0	332.2	-131.6	0.00	0.00	0.00
KOP #2									
6,300.0	5.63	180.00	6,279.4	152.3	332.2	-127.9	7.50	7.50	0.00
6,400.0	13.13	180.00	6,378.0	136.0	332.2	-111.7	7.50	7.50	0.00
6,500.0	20.63	180.00	6,473.6	107.0	332.2	-82.8	7.50	7.50	0.00
6,579.0	26.55	180.00	6,546.0	75.4	332.2	-51.2	7.50	7.50	0.00
SHARON SPRINGS									
6,600.0	28.13	180.00	6,564.7	65.8	332.2	-41.6	7.50	7.50	0.00
6,700.0	35.63	180.00	6,649.5	13.0	332.2	11.0	7.50	7.50	0.00
6,800.0	43.13	180.00	6,726.8	-50.4	332.2	74.3	7.50	7.50	0.00
6,900.0	50.63	180.00	6,795.1	-123.4	332.2	147.0	7.50	7.50	0.00
7,000.0	58.13	180.00	6,853.3	-204.6	332.2	228.0	7.50	7.50	0.00
7,100.0	65.63	180.00	6,900.4	-292.7	332.2	315.9	7.50	7.50	0.00
7,200.0	73.13	180.00	6,935.5	-386.3	332.2	409.2	7.50	7.50	0.00
7,300.0	80.63	180.00	6,958.2	-483.6	332.2	506.3	7.50	7.50	0.00
7,344.9	84.00	180.00	6,964.2	-528.1	332.2	550.7	7.50	7.50	0.00
7"									
7,400.0	84.00	180.00	6,970.0	-582.9	332.2	605.3	0.00	0.00	0.00
7,418.9	84.00	180.00	6,972.0	-601.7	332.2	624.1	0.00	0.00	0.00
7,500.0	88.05	180.00	6,977.6	-682.6	332.2	704.8	5.00	5.00	0.00
7,536.9	89.90	180.00	6,978.2	-719.4	332.2	741.5	5.00	5.00	0.00
End of Build									
7,600.0	89.90	180.00	6,978.4	-782.5	332.2	804.5	0.00	0.00	0.00
7,700.0	89.90	180.00	6,978.5	-882.5	332.2	904.2	0.00	0.00	0.00
7,800.0	89.90	180.00	6,978.7	-982.5	332.2	1,004.0	0.00	0.00	0.00
7,900.0	89.90	180.00	6,978.9	-1,082.5	332.2	1,103.7	0.00	0.00	0.00
8,000.0	89.90	180.00	6,979.1	-1,182.5	332.2	1,203.4	0.00	0.00	0.00
8,100.0	89.90	180.00	6,979.2	-1,282.5	332.2	1,303.2	0.00	0.00	0.00
8,200.0	89.90	180.00	6,979.4	-1,382.5	332.2	1,402.9	0.00	0.00	0.00
8,300.0	89.90	180.00	6,979.6	-1,482.5	332.2	1,502.7	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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (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)
8,400.0	89.90	180.00	6,979.8	-1,582.5	332.2	1,602.4	0.00	0.00	0.00
8,500.0	89.90	180.00	6,979.9	-1,682.5	332.2	1,702.1	0.00	0.00	0.00
8,600.0	89.90	180.00	6,980.1	-1,782.5	332.2	1,801.9	0.00	0.00	0.00
8,700.0	89.90	180.00	6,980.3	-1,882.5	332.2	1,901.6	0.00	0.00	0.00
8,800.0	89.90	180.00	6,980.4	-1,982.5	332.2	2,001.3	0.00	0.00	0.00
8,900.0	89.90	180.00	6,980.6	-2,082.5	332.2	2,101.1	0.00	0.00	0.00
9,000.0	89.90	180.00	6,980.8	-2,182.5	332.2	2,200.8	0.00	0.00	0.00
9,100.0	89.90	180.00	6,981.0	-2,282.5	332.2	2,300.6	0.00	0.00	0.00
9,200.0	89.90	180.00	6,981.1	-2,382.5	332.2	2,400.3	0.00	0.00	0.00
9,300.0	89.90	180.00	6,981.3	-2,482.5	332.2	2,500.0	0.00	0.00	0.00
9,400.0	89.90	180.00	6,981.5	-2,582.5	332.2	2,599.8	0.00	0.00	0.00
9,500.0	89.90	180.00	6,981.7	-2,682.5	332.2	2,699.5	0.00	0.00	0.00
9,600.0	89.90	180.00	6,981.8	-2,782.5	332.2	2,799.3	0.00	0.00	0.00
9,700.0	89.90	180.00	6,982.0	-2,882.5	332.2	2,899.0	0.00	0.00	0.00
9,800.0	89.90	180.00	6,982.2	-2,982.5	332.2	2,998.7	0.00	0.00	0.00
9,900.0	89.90	180.00	6,982.4	-3,082.5	332.2	3,098.5	0.00	0.00	0.00
10,000.0	89.90	180.00	6,982.5	-3,182.5	332.2	3,198.2	0.00	0.00	0.00
10,100.0	89.90	180.00	6,982.7	-3,282.5	332.2	3,298.0	0.00	0.00	0.00
10,200.0	89.90	180.00	6,982.9	-3,382.5	332.2	3,397.7	0.00	0.00	0.00
10,300.0	89.90	180.00	6,983.1	-3,482.5	332.2	3,497.4	0.00	0.00	0.00
10,400.0	89.90	180.00	6,983.2	-3,582.5	332.2	3,597.2	0.00	0.00	0.00
10,500.0	89.90	180.00	6,983.4	-3,682.5	332.2	3,696.9	0.00	0.00	0.00
10,600.0	89.90	180.00	6,983.6	-3,782.5	332.2	3,796.7	0.00	0.00	0.00
10,700.0	89.90	180.00	6,983.8	-3,882.5	332.2	3,896.4	0.00	0.00	0.00
10,800.0	89.90	180.00	6,983.9	-3,982.5	332.2	3,996.1	0.00	0.00	0.00
10,900.0	89.90	180.00	6,984.1	-4,082.5	332.2	4,095.9	0.00	0.00	0.00
11,000.0	89.90	180.00	6,984.3	-4,182.5	332.2	4,195.6	0.00	0.00	0.00
11,100.0	89.90	180.00	6,984.5	-4,282.5	332.2	4,295.3	0.00	0.00	0.00
11,200.0	89.90	180.00	6,984.6	-4,382.5	332.2	4,395.1	0.00	0.00	0.00
11,300.0	89.90	180.00	6,984.8	-4,482.5	332.2	4,494.8	0.00	0.00	0.00
11,400.0	89.90	180.00	6,985.0	-4,582.5	332.2	4,594.6	0.00	0.00	0.00
11,407.7	89.90	180.00	6,985.0	-4,590.2	332.2	4,602.2	0.00	0.00	0.00

BHL 500'FSL, 377'FEL

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,344.9	6,964.2	7"	7	7-1/2

## Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,713.2	3,700.0	PARKMAN			
4,417.9	4,400.0	SUSSEX			
5,120.4	5,100.0	SHANNON			
6,579.0	6,546.0	SHARON SPRINGS			

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (5-28-14)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.0	1,500.0	0.0	0.0	KOP #1
6,224.9	6,204.5	156.0	332.2	KOP #2
7,536.9	6,978.2	-719.4	332.2	End of Build



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.5-T3N-R64W**

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

**Becker Ranch 5U-443**

**Wellbore #1**

**Plan #2 (5-28-14)**

## **Anticollision Report**

**02 June, 2014**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2 (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>Depth Range:</b>	Unlimited
<b>Results Limited by:</b>	Maximum center-center distance of 1,000.0ft
<b>Warning Levels Evaluated at:</b>	2.00 Sigma
<b>Error Model:</b>	ISCWSA
<b>Scan Method:</b>	Closest Approach 3D
<b>Error Surface:</b>	Elliptical Conic

Survey Tool Program		Date	6/2/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,407.7	Plan #2 (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
Offset Well - Wellbore - Design						
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	89.3	85.0	20.935	CC, ES
Becker Ranch 5R-203 - Wellbore #1 - Plan #2 (5-28-14)	11,407.7	11,250.6	813.3	640.0	4.692	SF
Becker Ranch 5R-323 - Wellbore #1 - Plan #2 (5-28-14)	1,500.0	1,499.0	58.6	52.1	8.995	CC, ES
Becker Ranch 5R-323 - Wellbore #1 - Plan #2 (5-28-14)	11,407.7	11,327.4	588.6	413.8	3.366	SF
Becker Ranch 5U-243 - Wellbore #1 - Plan #1 (5-28-14)	1,500.0	1,500.0	30.7	24.2	4.710	CC, ES
Becker Ranch 5U-243 - Wellbore #1 - Plan #1 (5-28-14)	11,407.7	11,240.3	305.4	175.0	2.342	SF
Becker Ranch 5U-303 - Wellbore #1 - Plan #2 (5-28-14)	1,000.0	999.0	30.7	26.4	7.193	CC, ES
Becker Ranch 5U-303 - Wellbore #1 - Plan #2 (5-28-14)	11,407.7	11,346.2	248.4	92.9	1.598	SF
Existing Wells Sec.5-T3N-R64W						
Becker 5-10 (Exist) - Wellbore #1 - Wellbore #1	7,278.7	6,935.0	259.6	103.3	1.661	CC, ES, SF
Becker 5-4 (Exist) - Wellbore #1 - Wellbore #1	8,569.7	6,955.5	321.0	144.8	1.822	CC, ES, SF

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
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	-89.99	0.0	-89.3	89.3				
100.0	100.0	98.0	98.0	0.1	0.1	-89.99	0.0	-89.3	89.3	89.1	0.22	401.352	
200.0	200.0	198.0	198.0	0.3	0.3	-89.99	0.0	-89.3	89.3	88.6	0.67	133.338	
300.0	300.0	298.0	298.0	0.6	0.6	-89.99	0.0	-89.3	89.3	88.2	1.12	79.788	
400.0	400.0	398.0	398.0	0.8	0.8	-89.99	0.0	-89.3	89.3	87.7	1.57	56.926	
500.0	500.0	498.0	498.0	1.0	1.0	-89.99	0.0	-89.3	89.3	87.3	2.02	44.248	
600.0	600.0	598.0	598.0	1.2	1.2	-89.99	0.0	-89.3	89.3	86.8	2.47	36.188	
700.0	700.0	698.0	698.0	1.5	1.5	-89.99	0.0	-89.3	89.3	86.4	2.92	30.612	
800.0	800.0	798.0	798.0	1.7	1.7	-89.99	0.0	-89.3	89.3	85.9	3.37	26.525	
900.0	900.0	898.0	898.0	1.9	1.9	-89.99	0.0	-89.3	89.3	85.5	3.82	23.401	
1,000.0	1,000.0	998.0	998.0	2.1	2.1	-89.99	0.0	-89.3	89.3	85.0	4.27	20.935	CC, ES
1,100.0	1,100.0	1,095.2	1,095.2	2.4	2.3	-89.60	0.6	-90.8	90.8	86.1	4.70	19.311	
1,200.0	1,200.0	1,192.2	1,192.1	2.6	2.6	-88.45	2.6	-95.2	95.4	90.3	5.14	18.584	
1,300.0	1,300.0	1,289.5	1,289.1	2.8	2.8	-86.76	5.8	-102.6	103.2	97.6	5.58	18.492	
1,400.0	1,400.0	1,389.1	1,388.2	3.0	3.0	-85.12	9.5	-111.0	111.9	105.8	6.04	18.529	

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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
1,500.0	1,500.0	1,488.7	1,487.4	3.3	3.2	-83.71		13.2	-119.5	120.7	114.2	6.50	18.554	
1,600.0	1,600.0	1,588.1	1,586.4	3.5	3.5	-147.65		16.8	-127.9	131.0	124.1	6.89	19.022	
1,700.0	1,699.8	1,687.2	1,685.1	3.7	3.7	-147.59		20.5	-136.3	144.2	136.9	7.31	19.734	
1,800.0	1,799.5	1,785.9	1,783.3	3.9	4.0	-148.15		24.1	-144.6	160.4	152.7	7.73	20.757	
1,900.0	1,898.8	1,884.1	1,881.1	4.1	4.3	-149.14		27.8	-153.0	178.9	170.7	8.16	21.920	
2,000.0	1,998.1	1,982.4	1,978.9	4.4	4.5	-150.02		31.4	-161.3	197.5	188.9	8.60	22.963	
2,100.0	2,097.5	2,080.6	2,076.7	4.6	4.8	-150.74		35.0	-169.6	216.1	207.1	9.05	23.895	
2,200.0	2,196.8	2,178.8	2,174.5	4.9	5.0	-151.35		38.6	-177.9	234.8	225.3	9.49	24.732	
2,300.0	2,296.2	2,277.0	2,272.3	5.2	5.3	-151.87		42.3	-186.2	253.5	243.6	9.95	25.488	
2,400.0	2,395.5	2,375.2	2,370.1	5.4	5.6	-152.32		45.9	-194.5	272.3	261.9	10.40	26.172	
2,500.0	2,494.8	2,473.4	2,467.9	5.7	5.8	-152.71		49.5	-202.9	291.0	280.1	10.86	26.793	
2,600.0	2,594.2	2,571.6	2,565.6	6.0	6.1	-153.06		53.1	-211.2	309.8	298.4	11.32	27.360	
2,700.0	2,693.5	2,669.8	2,663.4	6.3	6.4	-153.36		56.8	-219.5	328.5	316.7	11.78	27.880	
2,800.0	2,792.8	2,768.0	2,761.2	6.5	6.7	-153.63		60.4	-227.8	347.3	335.0	12.25	28.356	
2,900.0	2,892.2	2,866.2	2,859.0	6.8	6.9	-153.88		64.0	-236.1	366.1	353.3	12.71	28.795	
3,000.0	2,991.5	2,964.5	2,956.8	7.1	7.2	-154.10		67.6	-244.4	384.8	371.7	13.18	29.201	
3,100.0	3,090.8	3,062.7	3,054.6	7.4	7.5	-154.30		71.3	-252.7	403.6	390.0	13.65	29.577	
3,200.0	3,190.2	3,160.9	3,152.4	7.7	7.7	-154.48		74.9	-261.1	422.4	408.3	14.12	29.926	
3,300.0	3,289.5	3,259.1	3,250.2	8.0	8.0	-154.64		78.5	-269.4	441.2	426.6	14.59	30.250	
3,400.0	3,388.8	3,357.3	3,348.0	8.3	8.3	-154.80		82.1	-277.7	460.0	444.9	15.06	30.553	
3,500.0	3,488.2	3,455.5	3,445.8	8.6	8.6	-154.94		85.8	-286.0	478.8	463.3	15.53	30.836	
3,600.0	3,587.5	3,553.7	3,543.6	8.9	8.8	-155.07		89.4	-294.3	497.6	481.6	16.00	31.101	
3,700.0	3,686.9	3,651.9	3,641.3	9.2	9.1	-155.19		93.0	-302.6	516.4	499.9	16.47	31.350	
3,800.0	3,786.2	3,750.1	3,739.1	9.5	9.4	-155.30		96.6	-311.0	535.2	518.3	16.95	31.584	
3,900.0	3,885.5	3,848.3	3,836.9	9.8	9.7	-155.41		100.3	-319.3	554.0	536.6	17.42	31.804	
4,000.0	3,984.9	3,946.6	3,934.7	10.1	9.9	-155.50		103.9	-327.6	572.8	554.9	17.89	32.012	
4,100.0	4,084.2	4,044.8	4,032.5	10.4	10.2	-155.59		107.5	-335.9	591.6	573.3	18.37	32.208	
4,200.0	4,183.5	4,143.0	4,130.3	10.7	10.5	-155.68		111.1	-344.2	610.5	591.6	18.84	32.394	
4,300.0	4,282.9	4,241.2	4,228.1	11.0	10.8	-155.76		114.8	-352.5	629.3	609.9	19.32	32.570	
4,400.0	4,382.2	4,339.4	4,325.9	11.3	11.0	-155.84		118.4	-360.8	648.1	628.3	19.80	32.736	
4,500.0	4,481.5	4,437.6	4,423.7	11.6	11.3	-155.91		122.0	-369.2	666.9	646.6	20.27	32.895	
4,600.0	4,580.9	4,535.8	4,521.5	11.9	11.6	-155.98		125.6	-377.5	685.7	665.0	20.75	33.046	
4,700.0	4,680.2	4,634.0	4,619.3	12.2	11.9	-156.05		129.3	-385.8	704.5	683.3	21.23	33.183	
4,800.0	4,779.8	4,732.6	4,717.4	12.4	12.1	-156.19		132.9	-394.1	721.5	699.7	21.71	33.232	
4,900.0	4,879.6	4,831.6	4,816.0	12.6	12.4	-156.18		136.6	-402.5	735.2	713.1	22.16	33.173	
5,000.0	4,979.6	4,931.0	4,915.0	12.8	12.7	-156.04		140.2	-410.9	745.9	723.3	22.59	33.014	
5,100.0	5,079.6	5,030.6	5,014.1	12.9	13.0	-90.92		143.9	-419.4	754.3	731.3	23.02	32.770	
5,200.0	5,179.6	5,130.1	5,113.2	13.1	13.3	-90.63		147.6	-427.8	762.8	739.3	23.46	32.509	
5,300.0	5,279.6	5,229.7	5,212.4	13.3	13.5	-90.35		151.3	-436.2	771.2	747.3	23.91	32.257	
5,400.0	5,379.6	5,354.7	5,337.0	13.5	13.8	-90.06		155.2	-445.2	778.4	754.0	24.37	31.941	
5,500.0	5,479.6	5,487.9	5,470.1	13.7	14.0	-89.93		156.9	-449.3	781.5	756.7	24.81	31.494	
5,600.0	5,579.6	5,595.4	5,577.6	13.9	14.2	-89.93		157.0	-449.4	781.6	756.4	25.22	30.988	
5,700.0	5,679.6	5,695.4	5,677.6	14.1	14.4	-89.93		157.0	-449.4	781.6	756.0	25.64	30.489	
5,800.0	5,779.6	5,795.4	5,777.6	14.3	14.6	-89.93		157.0	-449.4	781.6	755.6	26.05	30.005	
5,900.0	5,879.6	5,895.4	5,877.6	14.5	14.8	-89.93		157.0	-449.4	781.6	755.1	26.47	29.534	
6,000.0	5,979.6	5,995.4	5,977.6	14.7	15.0	-89.93		157.0	-449.4	781.6	754.7	26.88	29.076	
6,100.0	6,079.6	6,095.4	6,077.6	14.9	15.2	-89.96		156.6	-449.4	781.6	754.3	27.29	28.637	
6,118.7	6,098.2	6,114.0	6,096.2	14.9	15.2	-90.02		155.8	-449.4	781.6	754.2	27.36	28.564	
6,200.0	6,179.6	6,194.4	6,176.1	15.1	15.3	-90.66		146.9	-449.4	781.7	754.0	27.65	28.272	
6,300.0	6,279.4	6,290.3	6,269.5	15.2	15.4	87.99		125.5	-449.4	782.1	754.2	27.93	28.006	
6,400.0	6,378.0	6,384.0	6,357.5	15.3	15.5	86.66		93.5	-449.4	783.0	754.9	28.13	27.835	

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,500.0	6,473.6	6,475.8	6,439.3	15.4	15.6	85.39	85.39	51.8	-449.4	784.2	755.9	28.31	27.702	
6,600.0	6,564.7	6,566.0	6,514.1	15.5	15.7	84.20	84.20	1.7	-449.4	785.7	757.2	28.51	27.560	
6,700.0	6,649.5	6,654.6	6,581.5	15.6	15.8	83.11	83.11	-55.8	-449.4	787.4	758.6	28.80	27.338	
6,800.0	6,726.8	6,742.0	6,640.9	15.7	15.9	82.14	82.14	-119.8	-449.4	789.1	759.9	29.24	26.988	
6,900.0	6,795.1	6,828.4	6,692.1	15.9	16.2	81.28	81.28	-189.3	-449.4	790.9	761.0	29.89	26.460	
7,000.0	6,853.3	6,913.8	6,734.7	16.3	16.6	80.56	80.56	-263.3	-449.4	792.4	761.6	30.79	25.739	
7,100.0	6,900.4	7,000.0	6,769.1	16.8	17.1	79.97	79.97	-342.3	-449.4	793.8	761.8	31.98	24.822	
7,200.0	6,935.5	7,082.8	6,793.5	17.5	17.8	79.55	79.55	-421.3	-449.4	794.8	761.4	33.45	23.760	
7,300.0	6,958.2	7,166.6	6,809.4	18.5	18.6	79.27	79.27	-503.6	-449.4	795.5	760.3	35.21	22.592	
7,400.0	6,970.0	7,250.0	6,816.1	19.5	19.6	79.03	79.03	-586.7	-449.4	796.2	759.0	37.21	21.399	
7,500.0	6,977.6	7,343.5	6,815.4	20.7	20.7	78.43	78.43	-680.2	-449.4	797.9	758.4	39.50	20.199	
7,600.0	6,978.4	7,443.5	6,813.9	22.0	22.0	78.26	78.26	-780.2	-449.4	798.3	756.2	42.09	18.968	
7,700.0	6,978.5	7,543.5	6,812.4	23.4	23.4	78.14	78.14	-880.1	-449.4	798.6	753.8	44.84	17.809	
7,800.0	6,978.7	7,643.5	6,811.0	24.9	24.8	78.03	78.03	-980.1	-449.4	799.0	751.2	47.74	16.738	
7,900.0	6,978.9	7,743.4	6,809.5	26.4	26.3	77.91	77.91	-1,080.1	-449.4	799.3	748.6	50.74	15.754	
8,000.0	6,979.1	7,843.4	6,808.1	27.9	27.9	77.80	77.80	-1,180.1	-449.4	799.7	745.8	53.83	14.855	
8,100.0	6,979.2	7,943.4	6,806.6	29.5	29.5	77.68	77.68	-1,280.0	-449.4	800.0	743.0	57.00	14.035	
8,200.0	6,979.4	8,043.4	6,805.1	31.2	31.1	77.57	77.57	-1,380.0	-449.4	800.4	740.1	60.23	13.288	
8,300.0	6,979.6	8,143.4	6,803.7	32.8	32.8	77.46	77.46	-1,480.0	-449.4	800.7	737.2	63.52	12.606	
8,400.0	6,979.8	8,243.4	6,802.2	34.5	34.5	77.34	77.34	-1,580.0	-449.4	801.1	734.2	66.85	11.983	
8,500.0	6,979.9	8,343.4	6,800.7	36.2	36.2	77.23	77.23	-1,679.9	-449.4	801.4	731.2	70.22	11.413	
8,600.0	6,980.1	8,443.3	6,799.3	38.0	38.0	77.11	77.11	-1,779.9	-449.4	801.8	728.2	73.62	10.891	
8,700.0	6,980.3	8,543.3	6,797.8	39.7	39.7	77.00	77.00	-1,879.9	-449.4	802.2	725.1	77.05	10.411	
8,800.0	6,980.4	8,643.3	6,796.3	41.5	41.5	76.88	76.88	-1,979.9	-449.4	802.5	722.0	80.51	9.969	
8,900.0	6,980.6	8,743.3	6,794.9	43.3	43.3	76.77	76.77	-2,079.8	-449.4	802.9	718.9	83.98	9.561	
9,000.0	6,980.8	8,843.3	6,793.4	45.1	45.1	76.66	76.66	-2,179.8	-449.4	803.3	715.8	87.47	9.184	
9,100.0	6,981.0	8,943.3	6,791.9	46.9	46.9	76.54	76.54	-2,279.8	-449.4	803.7	712.7	90.97	8.834	
9,200.0	6,981.1	9,043.3	6,790.5	48.7	48.7	76.43	76.43	-2,379.8	-449.4	804.1	709.6	94.49	8.509	
9,300.0	6,981.3	9,143.2	6,789.0	50.5	50.5	76.31	76.31	-2,479.8	-449.4	804.4	706.4	98.02	8.207	
9,400.0	6,981.5	9,243.2	6,787.5	52.3	52.3	76.20	76.20	-2,579.7	-449.4	804.8	703.3	101.56	7.925	
9,500.0	6,981.7	9,343.2	6,786.1	54.2	54.1	76.09	76.09	-2,679.7	-449.4	805.2	700.1	105.11	7.661	
9,600.0	6,981.8	9,443.2	6,784.6	56.0	56.0	75.97	75.97	-2,779.7	-449.4	805.6	697.0	108.66	7.414	
9,700.0	6,982.0	9,543.2	6,783.1	57.8	57.8	75.86	75.86	-2,879.7	-449.4	806.0	693.8	112.22	7.182	
9,800.0	6,982.2	9,643.2	6,781.7	59.7	59.7	75.75	75.75	-2,979.6	-449.4	806.4	690.6	115.79	6.965	
9,900.0	6,982.4	9,743.2	6,780.2	61.5	61.5	75.64	75.64	-3,079.6	-449.4	806.8	687.5	119.35	6.760	
10,000.0	6,982.5	9,843.2	6,778.7	63.4	63.4	75.52	75.52	-3,179.6	-449.4	807.2	684.3	122.93	6.567	
10,100.0	6,982.7	9,943.1	6,777.3	65.2	65.2	75.41	75.41	-3,279.6	-449.4	807.6	681.1	126.50	6.384	
10,200.0	6,982.9	10,043.1	6,775.8	67.1	67.1	75.30	75.30	-3,379.5	-449.4	808.1	678.0	130.08	6.212	
10,300.0	6,983.1	10,143.1	6,774.3	69.0	69.0	75.19	75.19	-3,479.5	-449.4	808.5	674.8	133.66	6.049	
10,400.0	6,983.2	10,243.1	6,772.9	70.8	70.8	75.07	75.07	-3,579.5	-449.4	808.9	671.7	137.24	5.894	
10,500.0	6,983.4	10,343.1	6,771.4	72.7	72.7	74.96	74.96	-3,679.5	-449.4	809.3	668.5	140.82	5.747	
10,600.0	6,983.6	10,443.1	6,769.9	74.6	74.6	74.85	74.85	-3,779.4	-449.4	809.7	665.3	144.41	5.607	
10,700.0	6,983.8	10,543.1	6,768.5	76.5	76.5	74.74	74.74	-3,879.4	-449.4	810.2	662.2	147.99	5.475	
10,800.0	6,983.9	10,643.0	6,767.0	78.3	78.3	74.62	74.62	-3,979.4	-449.4	810.6	659.0	151.57	5.348	
10,900.0	6,984.1	10,743.0	6,765.5	80.2	80.2	74.51	74.51	-4,079.4	-449.4	811.0	655.9	155.15	5.227	
11,000.0	6,984.3	10,843.0	6,764.1	82.1	82.1	74.40	74.40	-4,179.3	-449.4	811.5	652.8	158.73	5.112	
11,100.0	6,984.5	10,943.0	6,762.6	84.0	84.0	74.29	74.29	-4,279.3	-449.4	811.9	649.6	162.32	5.002	
11,200.0	6,984.6	11,043.0	6,761.1	85.9	85.9	74.18	74.18	-4,379.3	-449.4	812.4	646.5	165.90	4.897	
11,300.0	6,984.8	11,143.0	6,759.7	87.8	87.8	74.07	74.07	-4,479.3	-449.4	812.8	643.3	169.47	4.796	
11,400.0	6,985.0	11,243.0	6,758.2	89.7	89.6	73.96	73.96	-4,579.2	-449.4	813.3	640.2	173.05	4.700	
11,407.7	6,985.0	11,250.6	6,758.1	89.8	89.8	73.95	73.95	-4,586.9	-449.4	813.3	640.0	173.32	4.692 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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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	-58.6	58.6				
100.0	100.0	99.0	99.0	0.1	0.1	-90.00	-90.00	0.0	-58.6	58.6	58.4	0.22	262.066	
200.0	200.0	199.0	199.0	0.3	0.3	-90.00	-90.00	0.0	-58.6	58.6	57.9	0.67	87.210	
300.0	300.0	299.0	299.0	0.6	0.6	-90.00	-90.00	0.0	-58.6	58.6	57.5	1.12	52.256	
400.0	400.0	399.0	399.0	0.8	0.8	-90.00	-90.00	0.0	-58.6	58.6	57.0	1.57	37.304	
500.0	500.0	499.0	499.0	1.0	1.0	-90.00	-90.00	0.0	-58.6	58.6	56.6	2.02	29.005	
600.0	600.0	599.0	599.0	1.2	1.2	-90.00	-90.00	0.0	-58.6	58.6	56.1	2.47	23.727	
700.0	700.0	699.0	699.0	1.5	1.5	-90.00	-90.00	0.0	-58.6	58.6	55.7	2.92	20.074	
800.0	800.0	799.0	799.0	1.7	1.7	-90.00	-90.00	0.0	-58.6	58.6	55.2	3.37	17.395	
900.0	900.0	899.0	899.0	1.9	1.9	-90.00	-90.00	0.0	-58.6	58.6	54.8	3.82	15.348	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-90.00	-90.00	0.0	-58.6	58.6	54.3	4.27	13.731	
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	-90.00	-90.00	0.0	-58.6	58.6	53.9	4.72	12.423	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	-90.00	-90.00	0.0	-58.6	58.6	53.4	5.17	11.342	
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	-90.00	-90.00	0.0	-58.6	58.6	53.0	5.62	10.435	
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	-90.00	-90.00	0.0	-58.6	58.6	52.5	6.07	9.661	
1,500.0	1,500.0	1,499.0	1,499.0	3.3	3.3	-90.00	-90.00	0.0	-58.6	58.6	52.1	6.52	8.995 CC, ES	
1,600.0	1,600.0	1,599.0	1,599.0	3.5	3.5	-155.54	-155.54	0.0	-58.6	60.2	53.2	6.95	8.655	
1,700.0	1,699.8	1,698.8	1,698.8	3.7	3.7	-157.41	-157.41	0.0	-58.6	65.0	57.6	7.38	8.806	
1,800.0	1,799.5	1,798.5	1,798.5	3.9	3.9	-159.98	-159.98	0.0	-58.6	73.1	65.3	7.80	9.374	
1,900.0	1,898.8	1,897.8	1,897.8	4.1	4.2	-162.61	-162.61	0.0	-58.6	83.9	75.6	8.23	10.192	
2,000.0	1,998.1	1,997.1	1,997.1	4.4	4.4	-164.69	-164.69	0.0	-58.6	94.9	86.3	8.67	10.951	
2,100.0	2,097.5	2,096.5	2,096.5	4.6	4.6	-166.33	-166.33	0.0	-58.6	106.1	97.0	9.11	11.645	
2,200.0	2,196.8	2,195.8	2,195.8	4.9	4.8	-167.66	-167.66	0.0	-58.6	117.3	107.7	9.55	12.280	
2,300.0	2,296.2	2,295.2	2,295.2	5.2	5.0	-168.75	-168.75	0.0	-58.6	128.5	118.5	9.99	12.861	
2,400.0	2,395.5	2,394.5	2,394.5	5.4	5.3	-169.67	-169.67	0.0	-58.6	139.8	129.4	10.44	13.394	
2,500.0	2,494.8	2,493.8	2,493.8	5.7	5.5	-170.45	-170.45	0.0	-58.6	151.2	140.3	10.89	13.885	
2,600.0	2,594.2	2,593.2	2,593.2	6.0	5.7	-171.12	-171.12	0.0	-58.6	162.5	151.2	11.34	14.338	
2,700.0	2,693.5	2,692.5	2,692.5	6.3	5.9	-171.71	-171.71	0.0	-58.6	173.9	162.1	11.78	14.757	
2,800.0	2,792.8	2,791.8	2,791.8	6.5	6.2	-172.22	-172.22	0.0	-58.6	185.3	173.1	12.23	15.145	
2,900.0	2,892.2	2,891.2	2,891.2	6.8	6.4	-172.68	-172.68	0.0	-58.6	196.7	184.0	12.69	15.506	
3,000.0	2,991.5	2,990.5	2,990.5	7.1	6.6	-173.08	-173.08	0.0	-58.6	208.1	195.0	13.14	15.842	
3,100.0	3,090.8	3,086.4	3,086.4	7.4	6.8	-173.14	-173.14	0.9	-59.6	220.2	206.7	13.58	16.220	
3,200.0	3,190.2	3,181.5	3,181.4	7.7	7.0	-172.52	-172.52	3.7	-63.0	234.1	220.0	14.02	16.700	
3,300.0	3,289.5	3,275.9	3,275.5	8.0	7.2	-171.35	-171.35	8.7	-68.7	249.7	235.2	14.45	17.274	
3,400.0	3,388.8	3,372.5	3,371.5	8.3	7.5	-169.83	-169.83	15.4	-76.5	266.8	251.9	14.90	17.907	
3,500.0	3,488.2	3,470.7	3,469.1	8.6	7.7	-168.43	-168.43	22.3	-84.6	284.3	269.0	15.36	18.514	
3,600.0	3,587.5	3,568.9	3,566.8	8.9	7.9	-167.19	-167.19	29.3	-92.7	301.9	286.1	15.82	19.091	
3,700.0	3,686.9	3,667.2	3,664.4	9.2	8.2	-166.09	-166.09	36.2	-100.8	319.7	303.4	16.28	19.638	
3,800.0	3,786.2	3,765.4	3,762.1	9.5	8.4	-165.10	-165.10	43.2	-108.9	337.5	320.8	16.75	20.158	
3,900.0	3,885.5	3,863.6	3,859.8	9.8	8.6	-164.22	-164.22	50.2	-116.9	355.5	338.3	17.21	20.650	
4,000.0	3,984.9	3,961.9	3,957.4	10.1	8.9	-163.41	-163.41	57.1	-125.0	373.5	355.8	17.69	21.118	
4,100.0	4,084.2	4,060.1	4,055.1	10.4	9.1	-162.69	-162.69	64.1	-133.1	391.6	373.4	18.16	21.562	
4,200.0	4,183.5	4,158.3	4,152.7	10.7	9.4	-162.02	-162.02	71.1	-141.2	409.7	391.1	18.64	21.984	
4,300.0	4,282.9	4,256.6	4,250.4	11.0	9.6	-161.41	-161.41	78.0	-149.3	427.9	408.8	19.12	22.385	
4,400.0	4,382.2	4,354.8	4,348.0	11.3	9.9	-160.86	-160.86	85.0	-157.4	446.1	426.5	19.60	22.767	
4,500.0	4,481.5	4,453.1	4,445.7	11.6	10.2	-160.34	-160.34	92.0	-165.5	464.4	444.3	20.08	23.130	
4,600.0	4,580.9	4,551.3	4,543.3	11.9	10.4	-159.87	-159.87	98.9	-173.6	482.7	462.1	20.56	23.477	
4,700.0	4,680.2	4,649.5	4,641.0	12.2	10.7	-159.44	-159.44	105.9	-181.7	501.0	480.0	21.05	23.804	
4,800.0	4,779.8	4,748.1	4,738.9	12.4	10.9	-159.06	-159.06	112.9	-189.9	517.4	495.9	21.52	24.042	
4,900.0	4,879.6	4,847.0	4,837.3	12.6	11.2	-158.56	-158.56	119.9	-198.0	530.7	508.7	21.97	24.150	
5,000.0	4,979.6	4,946.3	4,936.0	12.8	11.5	-157.92	-157.92	126.9	-206.2	540.8	518.4	22.40	24.138	

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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
5,100.0	5,079.6	5,045.7	5,034.8	12.9	11.8	-92.31		134.0	-214.4	548.8	525.9	22.84	24.024	
5,200.0	5,179.6	5,145.1	5,133.6	13.1	12.0	-91.55		141.0	-222.6	556.8	533.5	23.30	23.895	
5,300.0	5,279.6	5,252.2	5,240.1	13.3	12.3	-90.78		148.3	-231.1	564.6	540.8	23.77	23.757	
5,400.0	5,379.6	5,369.4	5,357.1	13.5	12.6	-90.23		153.7	-237.3	569.9	545.7	24.22	23.535	
5,500.0	5,479.6	5,487.2	5,474.7	13.7	12.8	-90.01		155.9	-239.9	572.1	547.5	24.64	23.220	
5,600.0	5,579.6	5,591.0	5,578.6	13.9	13.0	-90.00		156.0	-240.0	572.2	547.2	25.04	22.848	
5,700.0	5,679.6	5,691.0	5,678.6	14.1	13.2	-90.00		156.0	-240.0	572.2	546.7	25.47	22.469	
5,800.0	5,779.6	5,791.0	5,778.6	14.3	13.4	-90.00		156.0	-240.0	572.2	546.3	25.89	22.099	
5,900.0	5,879.6	5,891.0	5,878.6	14.5	13.6	-90.00		156.0	-240.0	572.2	545.9	26.32	21.741	
6,000.0	5,979.6	5,991.0	5,978.6	14.7	13.8	-90.00		156.0	-240.0	572.2	545.5	26.75	21.394	
6,100.0	6,079.6	6,091.0	6,078.6	14.9	14.0	-90.00		156.0	-240.0	572.2	545.0	27.17	21.058	
6,152.1	6,131.7	6,143.1	6,130.7	15.0	14.1	-90.00		156.0	-240.0	572.2	544.8	27.40	20.886	
6,200.0	6,179.6	6,190.9	6,178.5	15.1	14.2	-90.13		154.7	-240.0	572.2	544.6	27.58	20.750	
6,300.0	6,279.4	6,289.9	6,276.6	15.2	14.3	-89.01		142.6	-240.0	572.3	544.4	27.87	20.531	
6,400.0	6,378.0	6,387.6	6,371.2	15.3	14.4	-88.14		118.3	-240.0	572.5	544.4	28.08	20.386	
6,500.0	6,473.6	6,484.4	6,461.1	15.4	14.5	-87.30		82.5	-240.0	572.9	544.6	28.26	20.274	
6,600.0	6,564.7	6,580.2	6,544.8	15.5	14.6	-86.51		36.2	-240.0	573.3	544.8	28.44	20.154	
6,700.0	6,649.5	6,675.1	6,621.5	15.6	14.7	-85.78		-19.6	-240.0	573.8	545.1	28.72	19.981	
6,800.0	6,726.8	6,769.2	6,690.1	15.7	14.8	-85.12		-84.0	-240.0	574.3	545.2	29.14	19.706	
6,900.0	6,795.1	6,862.7	6,749.9	15.9	15.1	-84.54		-155.8	-240.0	574.8	545.0	29.79	19.296	
7,000.0	6,853.3	6,955.6	6,800.2	16.3	15.6	-84.05		-233.8	-240.0	575.3	544.6	30.71	18.734	
7,100.0	6,900.4	7,048.1	6,840.5	16.8	16.2	-83.66		-317.0	-240.0	575.7	543.8	31.94	18.026	
7,200.0	6,935.5	7,140.2	6,870.4	17.5	17.0	-83.37		-404.0	-240.0	576.1	542.6	33.49	17.204	
7,300.0	6,958.2	7,232.0	6,889.5	18.5	17.9	-83.18		-493.8	-240.0	576.3	541.0	35.33	16.313	
7,400.0	6,970.0	7,323.7	6,897.8	19.5	18.9	-82.92		-585.0	-240.0	576.6	539.2	37.43	15.407	
7,500.0	6,977.6	7,420.2	6,897.2	20.7	20.1	-82.11		-681.5	-240.0	577.7	537.9	39.75	14.532	
7,600.0	6,978.4	7,520.1	6,895.9	22.0	21.4	-81.90		-781.5	-240.0	578.0	535.6	42.36	13.646	
7,700.0	6,978.5	7,620.1	6,894.6	23.4	22.9	-81.75		-881.5	-240.0	578.2	533.1	45.14	12.809	
7,800.0	6,978.7	7,720.1	6,893.3	24.9	24.3	-81.61		-981.4	-240.0	578.4	530.4	48.06	12.035	
7,900.0	6,978.9	7,820.1	6,892.0	26.4	25.9	-81.46		-1,081.4	-240.0	578.6	527.5	51.09	11.325	
8,000.0	6,979.1	7,920.1	6,890.7	27.9	27.5	-81.32		-1,181.4	-240.0	578.9	524.6	54.22	10.677	
8,100.0	6,979.2	8,020.1	6,889.4	29.5	29.1	-81.17		-1,281.4	-240.0	579.1	521.7	57.42	10.085	
8,200.0	6,979.4	8,120.1	6,888.1	31.2	30.7	-81.03		-1,381.4	-240.0	579.3	518.6	60.68	9.546	
8,300.0	6,979.6	8,220.1	6,886.7	32.8	32.4	-80.88		-1,481.3	-240.0	579.5	515.5	64.01	9.055	
8,400.0	6,979.8	8,320.1	6,885.4	34.5	34.1	-80.74		-1,581.3	-240.0	579.8	512.4	67.37	8.606	
8,500.0	6,979.9	8,420.0	6,884.1	36.2	35.9	-80.59		-1,681.3	-240.0	580.0	509.2	70.78	8.195	
8,600.0	6,980.1	8,520.0	6,882.8	38.0	37.6	-80.45		-1,781.3	-240.0	580.3	506.1	74.21	7.819	
8,700.0	6,980.3	8,620.0	6,881.5	39.7	39.4	-80.30		-1,881.3	-240.0	580.5	502.8	77.68	7.473	
8,800.0	6,980.4	8,720.0	6,880.2	41.5	41.2	-80.16		-1,981.2	-240.0	580.8	499.6	81.16	7.155	
8,900.0	6,980.6	8,820.0	6,878.9	43.3	43.0	-80.02		-2,081.2	-240.0	581.0	496.3	84.67	6.862	
9,000.0	6,980.8	8,920.0	6,877.6	45.1	44.8	-79.87		-2,181.2	-240.0	581.3	493.1	88.20	6.591	
9,100.0	6,981.0	9,020.0	6,876.3	46.9	46.6	-79.73		-2,281.2	-240.0	581.5	489.8	91.74	6.339	
9,200.0	6,981.1	9,120.0	6,875.0	48.7	48.4	-79.58		-2,381.2	-240.0	581.8	486.5	95.29	6.105	
9,300.0	6,981.3	9,220.0	6,873.7	50.5	50.2	-79.44		-2,481.1	-240.0	582.1	483.2	98.86	5.888	
9,400.0	6,981.5	9,319.9	6,872.3	52.3	52.1	-79.30		-2,581.1	-240.0	582.4	479.9	102.43	5.685	
9,500.0	6,981.7	9,419.9	6,871.0	54.2	53.9	-79.15		-2,681.1	-240.0	582.6	476.6	106.02	5.496	
9,600.0	6,981.8	9,519.9	6,869.7	56.0	55.7	-79.01		-2,781.1	-240.0	582.9	473.3	109.61	5.318	
9,700.0	6,982.0	9,619.9	6,868.4	57.8	57.6	-78.87		-2,881.1	-240.0	583.2	470.0	113.20	5.152	
9,800.0	6,982.2	9,719.9	6,867.1	59.7	59.4	-78.73		-2,981.0	-240.0	583.5	466.7	116.80	4.996	
9,900.0	6,982.4	9,819.9	6,865.8	61.5	61.3	-78.58		-3,081.0	-240.0	583.8	463.4	120.41	4.848	
10,000.0	6,982.5	9,919.9	6,864.5	63.4	63.2	-78.44		-3,181.0	-240.0	584.1	460.1	124.01	4.710	

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,100.0	6,982.7	10,019.9	6,863.2	65.2	65.0	78.30	-3,281.0	-240.0	584.4	456.8	127.62	4.579	
10,200.0	6,982.9	10,119.9	6,861.9	67.1	66.9	78.16	-3,381.0	-240.0	584.7	453.4	131.24	4.455	
10,300.0	6,983.1	10,219.8	6,860.6	69.0	68.8	78.01	-3,480.9	-240.0	585.0	450.1	134.85	4.338	
10,400.0	6,983.2	10,319.8	6,859.3	70.8	70.6	77.87	-3,580.9	-240.0	585.3	446.8	138.47	4.227	
10,500.0	6,983.4	10,419.8	6,858.0	72.7	72.5	77.73	-3,680.9	-240.0	585.6	443.5	142.08	4.122	
10,600.0	6,983.6	10,519.8	6,856.6	74.6	74.4	77.59	-3,780.9	-240.0	585.9	440.2	145.70	4.022	
10,700.0	6,983.8	10,619.8	6,855.3	76.5	76.3	77.45	-3,880.9	-240.0	586.3	436.9	149.31	3.926	
10,800.0	6,983.9	10,719.8	6,854.0	78.3	78.2	77.30	-3,980.8	-240.0	586.6	433.6	152.93	3.836	
10,900.0	6,984.1	10,819.8	6,852.7	80.2	80.0	77.16	-4,080.8	-240.0	586.9	430.4	156.54	3.749	
11,000.0	6,984.3	10,919.8	6,851.4	82.1	81.9	77.02	-4,180.8	-240.1	587.2	427.1	160.15	3.667	
11,100.0	6,984.5	11,019.8	6,850.1	84.0	83.8	76.88	-4,280.8	-240.1	587.6	423.8	163.77	3.588	
11,200.0	6,984.6	11,119.7	6,848.8	85.9	85.7	76.74	-4,380.8	-240.1	587.9	420.5	167.38	3.513	
11,300.0	6,984.8	11,219.7	6,847.5	87.8	87.6	76.60	-4,480.7	-240.1	588.3	417.3	170.98	3.440	
11,400.0	6,985.0	11,319.7	6,846.2	89.7	89.5	76.46	-4,580.7	-240.1	588.6	414.0	174.59	3.371	
11,407.7	6,985.0	11,327.4	6,846.1	89.8	89.6	76.45	-4,588.4	-240.1	588.6	413.8	174.87	3.366 SF	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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	-90.02	-90.02	0.0	-30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	-90.02	-90.02	0.0	-30.7	30.7	30.5	0.22	136.588	
200.0	200.0	200.0	200.0	0.3	0.3	-90.02	-90.02	0.0	-30.7	30.7	30.0	0.67	45.529	
300.0	300.0	300.0	300.0	0.6	0.6	-90.02	-90.02	0.0	-30.7	30.7	29.6	1.12	27.318	
400.0	400.0	400.0	400.0	0.8	0.8	-90.02	-90.02	0.0	-30.7	30.7	29.1	1.57	19.513	
500.0	500.0	500.0	500.0	1.0	1.0	-90.02	-90.02	0.0	-30.7	30.7	28.7	2.02	15.176	
600.0	600.0	600.0	600.0	1.2	1.2	-90.02	-90.02	0.0	-30.7	30.7	28.2	2.47	12.417	
700.0	700.0	700.0	700.0	1.5	1.5	-90.02	-90.02	0.0	-30.7	30.7	27.8	2.92	10.507	
800.0	800.0	800.0	800.0	1.7	1.7	-90.02	-90.02	0.0	-30.7	30.7	27.3	3.37	9.106	
900.0	900.0	900.0	900.0	1.9	1.9	-90.02	-90.02	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	-90.02	-90.02	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	-90.02	-90.02	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	-90.02	-90.02	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	-90.02	-90.02	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	-90.02	-90.02	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	-90.02	-90.02	0.0	-30.7	30.7	24.2	6.52	4.710 CC, ES	
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-156.16	-156.16	0.0	-30.7	32.3	25.3	6.96	4.641	
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	-159.39	-159.39	0.0	-30.7	37.1	29.8	7.38	5.030	
1,800.0	1,799.5	1,799.5	1,799.5	3.9	3.9	-163.22	-163.22	0.0	-30.7	45.4	37.6	7.80	5.819	
1,900.0	1,898.8	1,898.8	1,898.8	4.1	4.2	-166.53	-166.53	0.0	-30.7	56.4	48.1	8.23	6.848	
2,000.0	1,998.1	1,998.1	1,998.1	4.4	4.4	-168.80	-168.80	0.0	-30.7	67.6	58.9	8.67	7.799	
2,100.0	2,097.5	2,099.8	2,099.8	4.6	4.6	-169.83	-169.83	1.2	-29.5	77.4	68.3	9.11	8.503	
2,200.0	2,196.8	2,201.4	2,201.2	4.9	4.8	-169.46	-169.46	4.9	-25.8	84.3	74.8	9.54	8.836	
2,300.0	2,296.2	2,301.2	2,300.9	5.2	5.0	-168.85	-168.85	9.2	-21.5	90.4	80.4	9.98	9.057	
2,400.0	2,395.5	2,401.0	2,400.5	5.4	5.3	-168.32	-168.32	13.5	-17.2	96.5	86.1	10.43	9.257	
2,500.0	2,494.8	2,500.8	2,500.1	5.7	5.5	-167.85	-167.85	17.8	-12.9	102.6	91.7	10.87	9.438	
2,600.0	2,594.2	2,600.6	2,599.7	6.0	5.7	-167.43	-167.43	22.0	-8.6	108.7	97.4	11.32	9.604	
2,700.0	2,693.5	2,700.5	2,699.4	6.3	6.0	-167.06	-167.06	26.3	-4.3	114.8	103.1	11.77	9.755	
2,800.0	2,792.8	2,800.3	2,799.0	6.5	6.2	-166.72	-166.72	30.6	0.0	120.9	108.7	12.22	9.894	
2,900.0	2,892.2	2,900.1	2,898.6	6.8	6.4	-166.42	-166.42	34.9	4.3	127.1	114.4	12.68	10.022	
3,000.0	2,991.5	2,999.9	2,998.2	7.1	6.6	-166.15	-166.15	39.2	8.6	133.2	120.0	13.13	10.140	
3,100.0	3,090.8	3,099.7	3,097.9	7.4	6.9	-165.90	-165.90	43.5	12.9	139.3	125.7	13.59	10.249	
3,200.0	3,190.2	3,199.5	3,197.5	7.7	7.1	-165.67	-165.67	47.8	17.2	145.4	131.4	14.05	10.350	
3,300.0	3,289.5	3,299.3	3,297.1	8.0	7.4	-165.45	-165.45	52.1	21.5	151.6	137.0	14.51	10.443	
3,400.0	3,388.8	3,399.1	3,396.8	8.3	7.6	-165.26	-165.26	56.3	25.8	157.7	142.7	14.97	10.530	
3,500.0	3,488.2	3,498.9	3,496.4	8.6	7.8	-165.08	-165.08	60.6	30.1	163.8	148.4	15.44	10.612	
3,600.0	3,587.5	3,598.7	3,596.0	8.9	8.1	-164.91	-164.91	64.9	34.4	170.0	154.1	15.90	10.688	
3,700.0	3,686.9	3,698.6	3,695.6	9.2	8.3	-164.76	-164.76	69.2	38.6	176.1	159.7	16.37	10.759	
3,800.0	3,786.2	3,798.4	3,795.3	9.5	8.5	-164.61	-164.61	73.5	42.9	182.2	165.4	16.83	10.825	
3,900.0	3,885.5	3,898.2	3,894.9	9.8	8.8	-164.48	-164.48	77.8	47.2	188.4	171.1	17.30	10.888	
4,000.0	3,984.9	3,998.0	3,994.5	10.1	9.0	-164.35	-164.35	82.1	51.5	194.5	176.7	17.77	10.947	
4,100.0	4,084.2	4,097.8	4,094.1	10.4	9.3	-164.23	-164.23	86.3	55.8	200.6	182.4	18.24	11.002	
4,200.0	4,183.5	4,197.6	4,193.8	10.7	9.5	-164.12	-164.12	90.6	60.1	206.8	188.1	18.71	11.055	
4,300.0	4,282.9	4,297.4	4,293.4	11.0	9.7	-164.01	-164.01	94.9	64.4	212.9	193.7	19.17	11.104	
4,400.0	4,382.2	4,397.2	4,393.0	11.3	10.0	-163.91	-163.91	99.2	68.7	219.1	199.4	19.65	11.151	
4,500.0	4,481.5	4,497.0	4,492.6	11.6	10.2	-163.82	-163.82	103.5	73.0	225.2	205.1	20.12	11.195	
4,600.0	4,580.9	4,596.9	4,592.3	11.9	10.5	-163.73	-163.73	107.8	77.3	231.3	210.8	20.59	11.238	
4,700.0	4,680.2	4,696.7	4,691.9	12.2	10.7	-163.65	-163.65	112.1	81.6	237.5	216.4	21.06	11.276	
4,800.0	4,779.8	4,796.6	4,791.6	12.4	11.0	-163.45	-163.45	116.4	85.9	241.6	220.1	21.51	11.232	
4,900.0	4,879.6	4,896.5	4,891.4	12.6	11.2	-163.00	-163.00	120.6	90.2	242.4	220.5	21.94	11.048	
5,000.0	4,979.6	4,996.5	4,991.1	12.8	11.4	-162.29	-162.29	124.9	94.5	239.9	217.6	22.35	10.733	

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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	5,079.6	5,096.3	5,090.8	12.9	11.7	-96.54		129.2	98.8	235.2	212.4	22.79	10.320	
5,200.0	5,179.6	5,196.1	5,190.4	13.1	11.9	-95.61		133.5	103.1	230.5	207.2	23.25	9.912	
5,300.0	5,279.6	5,295.9	5,290.0	13.3	12.2	-94.63		137.8	107.4	225.8	202.1	23.72	9.520	
5,400.0	5,379.6	5,395.7	5,389.7	13.5	12.4	-93.61		142.1	111.7	221.2	197.0	24.18	9.146	
5,500.0	5,479.6	5,495.5	5,489.3	13.7	12.7	-92.55		146.4	116.0	216.7	192.0	24.65	8.788	
5,600.0	5,579.6	5,595.4	5,588.9	13.9	12.9	-91.44		150.7	120.3	212.2	187.1	25.13	8.445	
5,700.0	5,679.6	5,692.1	5,685.5	14.1	13.1	-90.45		154.4	124.0	208.3	182.7	25.57	8.145	
5,800.0	5,779.6	5,787.2	5,780.5	14.3	13.3	-90.02		155.9	125.6	206.6	180.7	25.96	7.958	
5,841.9	5,821.5	5,828.1	5,821.5	14.4	13.4	-90.00		156.0	125.6	206.6	180.5	26.13	7.906	
5,900.0	5,879.6	5,886.2	5,879.6	14.5	13.5	-90.00		156.0	125.6	206.6	180.2	26.36	7.836	
6,000.0	5,979.6	5,986.2	5,979.6	14.7	13.7	-90.00		156.0	125.6	206.6	179.8	26.79	7.712	
6,061.8	6,041.3	6,047.9	6,041.3	14.8	13.8	-90.00		156.0	125.6	206.6	179.5	27.05	7.637	
6,100.0	6,079.6	6,086.2	6,079.5	14.9	13.9	-90.12		155.6	125.6	206.6	179.4	27.20	7.595	
6,200.0	6,179.6	6,185.1	6,177.9	15.1	14.0	-92.79		145.9	125.6	206.8	179.3	27.49	7.525	
6,300.0	6,279.4	6,280.9	6,271.2	15.2	14.2	82.17		124.6	125.6	208.6	180.9	27.65	7.543	
6,400.0	6,378.0	6,374.5	6,359.1	15.3	14.2	77.28		92.6	125.6	211.9	184.2	27.77	7.631	
6,500.0	6,473.6	6,466.2	6,440.8	15.4	14.3	72.80		51.0	125.6	216.5	188.7	27.87	7.769	
6,600.0	6,564.7	6,556.2	6,515.6	15.5	14.4	68.78		1.0	125.6	222.0	194.0	27.95	7.943	
6,700.0	6,649.5	6,644.8	6,583.0	15.6	14.6	65.26		-56.4	125.6	227.9	199.9	27.99	8.140	
6,800.0	6,726.8	6,732.1	6,642.4	15.7	14.8	62.25		-120.3	125.6	233.8	205.8	28.04	8.340	
6,900.0	6,795.1	6,818.4	6,693.6	15.9	15.2	59.75		-189.7	125.6	239.5	211.4	28.11	8.520	
7,000.0	6,853.3	6,903.8	6,736.3	16.3	15.7	57.72		-263.6	125.6	244.6	216.3	28.28	8.650	
7,100.0	6,900.4	6,988.5	6,770.2	16.8	16.3	56.15		-341.2	125.6	248.9	220.3	28.62	8.699	
7,200.0	6,935.5	7,072.7	6,795.2	17.5	17.1	55.02		-421.6	125.6	252.2	223.0	29.19	8.640	
7,300.0	6,958.2	7,156.5	6,811.2	18.5	17.9	54.31		-503.8	125.6	254.4	224.3	30.06	8.463	
7,400.0	6,970.0	7,240.0	6,818.0	19.5	18.9	53.73		-587.0	125.6	256.5	225.1	31.40	8.168	
7,500.0	6,977.6	7,333.2	6,817.3	20.7	20.1	52.23		-680.2	125.6	261.5	228.8	32.63	8.012	
7,600.0	6,978.4	7,433.2	6,815.9	22.0	21.4	51.81		-780.2	125.6	262.8	228.3	34.53	7.612	
7,700.0	6,978.5	7,533.2	6,814.4	23.4	22.8	51.53		-880.1	125.6	263.9	227.1	36.71	7.188	
7,800.0	6,978.7	7,633.2	6,812.9	24.9	24.3	51.25		-980.1	125.6	264.9	225.9	38.99	6.794	
7,900.0	6,978.9	7,733.2	6,811.5	26.4	25.8	50.98		-1,080.1	125.6	265.9	224.6	41.35	6.431	
8,000.0	6,979.1	7,833.1	6,810.0	27.9	27.4	50.70		-1,180.1	125.6	266.9	223.2	43.78	6.098	
8,100.0	6,979.2	7,933.1	6,808.5	29.5	29.1	50.43		-1,280.0	125.6	268.0	221.7	46.26	5.793	
8,200.0	6,979.4	8,033.1	6,807.1	31.2	30.7	50.16		-1,380.0	125.6	269.0	220.3	48.78	5.515	
8,300.0	6,979.6	8,133.1	6,805.6	32.8	32.4	49.90		-1,480.0	125.6	270.1	218.8	51.33	5.261	
8,400.0	6,979.8	8,233.1	6,804.1	34.5	34.1	49.63		-1,580.0	125.6	271.1	217.2	53.91	5.030	
8,500.0	6,979.9	8,333.1	6,802.7	36.2	35.9	49.37		-1,679.9	125.6	272.2	215.7	56.50	4.817	
8,600.0	6,980.1	8,433.1	6,801.2	38.0	37.6	49.11		-1,779.9	125.6	273.3	214.2	59.11	4.623	
8,700.0	6,980.3	8,533.1	6,799.7	39.7	39.4	48.85		-1,879.9	125.6	274.4	212.6	61.73	4.444	
8,800.0	6,980.4	8,633.0	6,798.3	41.5	41.2	48.59		-1,979.9	125.6	275.4	211.1	64.35	4.280	
8,900.0	6,980.6	8,733.0	6,796.8	43.3	43.0	48.34		-2,079.8	125.6	276.5	209.5	66.98	4.128	
9,000.0	6,980.8	8,833.0	6,795.3	45.1	44.8	48.08		-2,179.8	125.6	277.6	208.0	69.61	3.988	
9,100.0	6,981.0	8,933.0	6,793.9	46.9	46.6	47.83		-2,279.8	125.6	278.7	206.5	72.23	3.859	
9,200.0	6,981.1	9,033.0	6,792.4	48.7	48.4	47.58		-2,379.8	125.6	279.8	205.0	74.85	3.738	
9,300.0	6,981.3	9,133.0	6,790.9	50.5	50.2	47.34		-2,479.8	125.6	280.9	203.5	77.47	3.626	
9,400.0	6,981.5	9,233.0	6,789.5	52.3	52.1	47.09		-2,579.7	125.6	282.0	202.0	80.08	3.522	
9,500.0	6,981.7	9,332.9	6,788.0	54.2	53.9	46.85		-2,679.7	125.6	283.2	200.5	82.69	3.424	
9,600.0	6,981.8	9,432.9	6,786.5	56.0	55.8	46.61		-2,779.7	125.6	284.3	199.0	85.29	3.333	
9,700.0	6,982.0	9,532.9	6,785.1	57.8	57.6	46.37		-2,879.7	125.6	285.4	197.5	87.87	3.248	
9,800.0	6,982.2	9,632.9	6,783.6	59.7	59.5	46.13		-2,979.6	125.6	286.6	196.1	90.45	3.168	
9,900.0	6,982.4	9,732.9	6,782.1	61.5	61.3	45.89		-3,079.6	125.6	287.7	194.7	93.02	3.093	

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-243 - Wellbore #1 - Plan #1 (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	6,982.5	9,832.9	6,780.7	63.4	63.2	45.66	-3,179.6	125.6	288.8	193.3	95.58	3.022					
10,100.0	6,982.7	9,932.9	6,779.2	65.2	65.0	45.43	-3,279.6	125.6	290.0	191.9	98.13	2.955					
10,200.0	6,982.9	10,032.9	6,777.8	67.1	66.9	45.20	-3,379.5	125.6	291.1	190.5	100.67	2.892					
10,300.0	6,983.1	10,132.8	6,776.3	69.0	68.8	44.97	-3,479.5	125.6	292.3	189.1	103.20	2.832					
10,400.0	6,983.2	10,232.8	6,774.8	70.8	70.7	44.74	-3,579.5	125.6	293.5	187.7	105.72	2.776					
10,500.0	6,983.4	10,332.8	6,773.4	72.7	72.5	44.52	-3,679.5	125.6	294.6	186.4	108.22	2.722					
10,600.0	6,983.6	10,432.8	6,771.9	74.6	74.4	44.30	-3,779.4	125.6	295.8	185.1	110.71	2.672					
10,700.0	6,983.8	10,532.8	6,770.4	76.5	76.3	44.08	-3,879.4	125.6	297.0	183.8	113.19	2.624					
10,800.0	6,983.9	10,632.8	6,769.0	78.3	78.2	43.86	-3,979.4	125.6	298.2	182.5	115.66	2.578					
10,900.0	6,984.1	10,732.8	6,767.5	80.2	80.1	43.64	-4,079.4	125.6	299.3	181.2	118.12	2.534					
11,000.0	6,984.3	10,832.7	6,766.0	82.1	82.0	43.42	-4,179.3	125.6	300.5	180.0	120.57	2.493					
11,100.0	6,984.5	10,932.7	6,764.6	84.0	83.8	43.21	-4,279.3	125.6	301.7	178.7	123.00	2.453					
11,200.0	6,984.6	11,032.7	6,763.1	85.9	85.7	43.00	-4,379.3	125.6	302.9	177.5	125.42	2.415					
11,300.0	6,984.8	11,132.7	6,761.6	87.8	87.6	42.79	-4,479.3	125.6	304.1	176.3	127.83	2.379					
11,400.0	6,985.0	11,232.7	6,760.2	89.7	89.5	42.58	-4,579.2	125.6	305.3	175.1	130.23	2.345					
11,407.7	6,985.0	11,240.3	6,760.0	89.8	89.7	42.56	-4,586.9	125.6	305.4	175.0	130.41	2.342 SF					

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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	90.01	90.01	0.0	30.7	30.7				
100.0	100.0	99.0	99.0	0.1	0.1	90.01	90.01	0.0	30.7	30.7	30.5	0.22	137.273	
200.0	200.0	199.0	199.0	0.3	0.3	90.01	90.01	0.0	30.7	30.7	30.0	0.67	45.681	
300.0	300.0	299.0	299.0	0.6	0.6	90.01	90.01	0.0	30.7	30.7	29.6	1.12	27.372	
400.0	400.0	399.0	399.0	0.8	0.8	90.01	90.01	0.0	30.7	30.7	29.1	1.57	19.540	
500.0	500.0	499.0	499.0	1.0	1.0	90.01	90.01	0.0	30.7	30.7	28.7	2.02	15.193	
600.0	600.0	599.0	599.0	1.2	1.2	90.01	90.01	0.0	30.7	30.7	28.2	2.47	12.428	
700.0	700.0	699.0	699.0	1.5	1.5	90.01	90.01	0.0	30.7	30.7	27.8	2.92	10.515	
800.0	800.0	799.0	799.0	1.7	1.7	90.01	90.01	0.0	30.7	30.7	27.3	3.37	9.112	
900.0	900.0	899.0	899.0	1.9	1.9	90.01	90.01	0.0	30.7	30.7	26.9	3.82	8.039	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.01	90.01	0.0	30.7	30.7	26.4	4.27	7.193 CC, ES	
1,100.0	1,100.0	1,098.0	1,097.9	2.4	2.3	89.14	89.14	0.5	32.3	32.3	27.6	4.71	6.867	
1,200.0	1,200.0	1,196.7	1,196.5	2.6	2.6	86.97	86.97	2.0	37.2	37.3	32.1	5.14	7.252	
1,300.0	1,300.0	1,294.9	1,294.4	2.8	2.8	84.41	84.41	4.4	45.2	45.7	40.1	5.59	8.173	
1,400.0	1,400.0	1,393.0	1,391.8	3.0	3.0	82.10	82.10	7.8	56.3	57.3	51.3	6.04	9.482	
1,500.0	1,500.0	1,492.2	1,490.2	3.3	3.3	80.46	80.46	11.5	68.4	69.9	63.4	6.52	10.729	
1,600.0	1,600.0	1,591.6	1,588.7	3.5	3.5	14.72	14.72	15.2	80.5	80.9	74.0	6.88	11.753	
1,700.0	1,699.8	1,691.3	1,687.6	3.7	3.8	14.60	14.60	18.9	92.7	88.5	81.2	7.31	12.118	
1,800.0	1,799.5	1,791.2	1,786.7	3.9	4.1	15.05	15.05	22.6	104.9	92.8	85.1	7.73	12.007	
1,900.0	1,898.8	1,891.1	1,885.9	4.1	4.4	15.91	15.91	26.3	117.0	94.5	86.3	8.16	11.576	
2,000.0	1,998.1	1,991.1	1,985.0	4.4	4.7	16.77	16.77	30.1	129.2	96.1	87.5	8.61	11.156	
2,100.0	2,097.5	2,091.1	2,084.2	4.6	5.0	17.60	17.60	33.8	141.4	97.7	88.6	9.07	10.775	
2,200.0	2,196.8	2,191.1	2,183.4	4.9	5.3	18.40	18.40	37.5	153.6	99.3	89.8	9.53	10.428	
2,300.0	2,296.2	2,291.1	2,282.5	5.2	5.6	19.18	19.18	41.2	165.8	101.0	91.0	9.99	10.109	
2,400.0	2,395.5	2,391.0	2,381.7	5.4	5.9	19.93	19.93	44.9	178.0	102.6	92.2	10.46	9.817	
2,500.0	2,494.8	2,491.0	2,480.8	5.7	6.2	20.65	20.65	48.7	190.2	104.3	93.4	10.93	9.548	
2,600.0	2,594.2	2,591.0	2,580.0	6.0	6.5	21.36	21.36	52.4	202.4	106.0	94.6	11.40	9.300	
2,700.0	2,693.5	2,691.0	2,679.2	6.3	6.9	22.04	22.04	56.1	214.5	107.7	95.9	11.88	9.069	
2,800.0	2,792.8	2,790.9	2,778.3	6.5	7.2	22.70	22.70	59.8	226.7	109.5	97.1	12.36	8.856	
2,900.0	2,892.2	2,890.9	2,877.5	6.8	7.5	23.34	23.34	63.5	238.9	111.2	98.4	12.85	8.657	
3,000.0	2,991.5	2,990.9	2,976.7	7.1	7.8	23.96	23.96	67.2	251.1	113.0	99.6	13.33	8.472	
3,100.0	3,090.8	3,090.9	3,075.8	7.4	8.1	24.56	24.56	71.0	263.3	114.7	100.9	13.83	8.299	
3,200.0	3,190.2	3,190.9	3,175.0	7.7	8.4	25.14	25.14	74.7	275.5	116.5	102.2	14.32	8.137	
3,300.0	3,289.5	3,290.8	3,274.1	8.0	8.8	25.71	25.71	78.4	287.7	118.3	103.5	14.82	7.985	
3,400.0	3,388.8	3,390.8	3,373.3	8.3	9.1	26.25	26.25	82.1	299.9	120.1	104.8	15.32	7.842	
3,500.0	3,488.2	3,490.8	3,472.5	8.6	9.4	26.79	26.79	85.8	312.0	121.9	106.1	15.82	7.708	
3,600.0	3,587.5	3,590.8	3,571.6	8.9	9.7	27.30	27.30	89.6	324.2	123.8	107.4	16.32	7.581	
3,700.0	3,686.9	3,690.7	3,670.8	9.2	10.0	27.80	27.80	93.3	336.4	125.6	108.8	16.83	7.461	
3,800.0	3,786.2	3,790.7	3,769.9	9.5	10.4	28.29	28.29	97.0	348.6	127.4	110.1	17.34	7.348	
3,900.0	3,885.5	3,890.7	3,869.1	9.8	10.7	28.76	28.76	100.7	360.8	129.3	111.4	17.85	7.241	
4,000.0	3,984.9	3,990.7	3,968.3	10.1	11.0	29.22	29.22	104.4	373.0	131.1	112.8	18.37	7.140	
4,100.0	4,084.2	4,090.6	4,067.4	10.4	11.3	29.67	29.67	108.1	385.2	133.0	114.1	18.88	7.044	
4,200.0	4,183.5	4,190.6	4,166.6	10.7	11.7	30.10	30.10	111.9	397.4	134.9	115.5	19.40	6.952	
4,300.0	4,282.9	4,290.6	4,265.8	11.0	12.0	30.52	30.52	115.6	409.5	136.8	116.9	19.92	6.865	
4,400.0	4,382.2	4,390.6	4,364.9	11.3	12.3	30.93	30.93	119.3	421.7	138.7	118.2	20.45	6.782	
4,500.0	4,481.5	4,490.6	4,464.1	11.6	12.6	31.33	31.33	123.0	433.9	140.6	119.6	20.97	6.703	
4,600.0	4,580.9	4,590.5	4,563.2	11.9	13.0	31.72	31.72	126.7	446.1	142.5	121.0	21.50	6.628	
4,700.0	4,680.2	4,690.5	4,662.4	12.2	13.3	32.10	32.10	130.5	458.3	144.4	122.4	22.02	6.557	
4,800.0	4,779.8	4,790.4	4,761.5	12.4	13.6	32.07	32.07	134.2	470.5	148.1	125.6	22.48	6.588	
4,900.0	4,879.6	4,890.2	4,860.5	12.6	13.9	31.39	31.39	137.9	482.6	154.7	131.9	22.87	6.767	
5,000.0	4,979.6	4,989.7	4,959.1	12.8	14.3	30.19	30.19	141.6	494.8	164.4	141.2	23.19	7.089	

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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	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	5,079.6	5,088.8	5,057.5	12.9	14.6	93.51	145.3	506.8	176.2	152.7	23.53	7.490		
5,200.0	5,179.6	5,189.4	5,157.3	13.1	14.9	92.15	149.0	519.0	188.2	164.3	23.90	7.872		
5,300.0	5,279.6	5,295.7	5,263.0	13.3	15.1	91.12	152.1	529.3	197.8	173.5	24.26	8.151		
5,400.0	5,379.6	5,402.7	5,369.7	13.5	15.3	90.53	154.1	535.9	203.9	179.2	24.64	8.275		
5,500.0	5,479.6	5,510.0	5,477.0	13.7	15.5	90.29	155.0	538.6	206.4	181.4	25.02	8.251		
5,600.0	5,579.6	5,611.5	5,578.6	13.9	15.7	90.28	155.0	538.7	206.5	181.1	25.41	8.125		
5,700.0	5,679.6	5,711.5	5,678.6	14.1	15.8	90.28	155.0	538.7	206.5	180.7	25.82	7.997		
5,800.0	5,779.6	5,811.5	5,778.6	14.3	16.0	90.28	155.0	538.7	206.5	180.3	26.23	7.873		
5,900.0	5,879.6	5,911.5	5,878.6	14.5	16.2	90.28	155.0	538.7	206.5	179.9	26.64	7.752		
6,000.0	5,979.6	6,011.5	5,978.6	14.7	16.4	90.28	155.0	538.7	206.5	179.5	27.05	7.634		
6,100.0	6,079.6	6,111.5	6,078.6	14.9	16.5	90.28	155.0	538.7	206.5	179.0	27.46	7.519		
6,145.8	6,125.3	6,157.3	6,124.3	14.9	16.6	90.28	155.0	538.7	206.5	178.9	27.65	7.468		
6,200.0	6,179.6	6,211.4	6,178.4	15.1	16.7	90.65	153.7	538.7	206.5	178.6	27.88	7.407		
6,300.0	6,279.4	6,310.2	6,276.4	15.2	16.8	-86.96	141.5	538.7	206.8	178.5	28.31	7.305		
6,400.0	6,378.0	6,407.8	6,370.9	15.3	16.9	-84.53	117.2	538.7	207.5	178.8	28.64	7.243		
6,500.0	6,473.6	6,504.4	6,460.5	15.4	17.0	-82.22	81.4	538.7	208.4	179.6	28.88	7.217		
6,600.0	6,564.7	6,600.0	6,544.1	15.5	17.1	-80.07	35.2	538.7	209.7	180.6	29.06	7.215		
6,700.0	6,649.5	6,694.8	6,620.7	15.6	17.2	-78.11	-20.6	538.7	211.1	181.8	29.23	7.220		
6,800.0	6,726.8	6,788.8	6,689.2	15.7	17.3	-76.36	-84.9	538.7	212.5	183.0	29.47	7.211		
6,900.0	6,795.1	6,882.2	6,749.0	15.9	17.5	-74.86	-156.5	538.7	214.0	184.1	29.88	7.160		
7,000.0	6,853.3	6,975.0	6,799.2	16.3	17.8	-73.60	-234.4	538.7	215.3	184.7	30.56	7.044		
7,100.0	6,900.4	7,067.3	6,839.5	16.8	18.3	-72.61	-317.4	538.7	216.4	184.8	31.60	6.848		
7,200.0	6,935.5	7,159.3	6,869.5	17.5	18.9	-71.89	-404.4	538.7	217.3	184.2	33.05	6.574		
7,300.0	6,958.2	7,250.0	6,888.5	18.5	19.7	-71.44	-493.0	538.7	217.8	182.9	34.91	6.240		
7,400.0	6,970.0	7,342.6	6,897.0	19.5	20.6	-70.82	-585.1	538.7	218.7	181.8	36.96	5.917		
7,500.0	6,977.6	7,439.0	6,896.5	20.7	21.7	-68.82	-681.5	538.7	221.5	182.4	39.11	5.663		
7,600.0	6,978.4	7,538.9	6,895.2	22.0	22.9	-68.31	-781.5	538.7	222.3	180.7	41.61	5.342		
7,700.0	6,978.5	7,638.9	6,893.9	23.4	24.3	-67.96	-881.5	538.7	222.8	178.6	44.18	5.043		
7,800.0	6,978.7	7,738.9	6,892.6	24.9	25.7	-67.61	-981.4	538.7	223.4	176.5	46.87	4.765		
7,900.0	6,978.9	7,838.9	6,891.3	26.4	27.1	-67.26	-1,081.4	538.7	223.9	174.3	49.66	4.509		
8,000.0	6,979.1	7,938.9	6,890.0	27.9	28.7	-66.92	-1,181.4	538.7	224.5	172.0	52.52	4.275		
8,100.0	6,979.2	8,038.9	6,888.7	29.5	30.2	-66.57	-1,281.4	538.7	225.1	169.6	55.44	4.060		
8,200.0	6,979.4	8,138.9	6,887.4	31.2	31.8	-66.23	-1,381.4	538.7	225.7	167.3	58.41	3.864		
8,300.0	6,979.6	8,238.9	6,886.2	32.8	33.5	-65.89	-1,481.3	538.7	226.3	164.8	61.42	3.684		
8,400.0	6,979.8	8,338.9	6,884.9	34.5	35.1	-65.55	-1,581.3	538.7	226.9	162.4	64.45	3.520		
8,500.0	6,979.9	8,438.9	6,883.6	36.2	36.8	-65.22	-1,681.3	538.7	227.5	160.0	67.52	3.369		
8,600.0	6,980.1	8,538.8	6,882.3	38.0	38.5	-64.88	-1,781.3	538.7	228.1	157.5	70.60	3.231		
8,700.0	6,980.3	8,638.8	6,881.0	39.7	40.3	-64.55	-1,881.3	538.7	228.7	155.0	73.69	3.104		
8,800.0	6,980.4	8,738.8	6,879.7	41.5	42.0	-64.22	-1,981.3	538.7	229.4	152.6	76.79	2.987		
8,900.0	6,980.6	8,838.8	6,878.4	43.3	43.8	-63.89	-2,081.2	538.7	230.0	150.1	79.90	2.879		
9,000.0	6,980.8	8,938.8	6,877.1	45.1	45.5	-63.56	-2,181.2	538.7	230.7	147.6	83.01	2.779		
9,100.0	6,981.0	9,038.8	6,875.8	46.9	47.3	-63.24	-2,281.2	538.7	231.3	145.2	86.12	2.686		
9,200.0	6,981.1	9,138.8	6,874.5	48.7	49.1	-62.92	-2,381.2	538.7	232.0	142.7	89.23	2.600		
9,300.0	6,981.3	9,238.8	6,873.2	50.5	50.9	-62.60	-2,481.2	538.7	232.6	140.3	92.34	2.519		
9,400.0	6,981.5	9,338.8	6,871.9	52.3	52.7	-62.28	-2,581.1	538.7	233.3	137.9	95.44	2.445		
9,500.0	6,981.7	9,438.7	6,870.7	54.2	54.6	-61.96	-2,681.1	538.7	234.0	135.5	98.54	2.375		
9,600.0	6,981.8	9,538.7	6,869.4	56.0	56.4	-61.64	-2,781.1	538.7	234.7	133.1	101.63	2.309		
9,700.0	6,982.0	9,638.7	6,868.1	57.8	58.2	-61.33	-2,881.1	538.7	235.4	130.7	104.71	2.248		
9,800.0	6,982.2	9,738.7	6,866.8	59.7	60.0	-61.02	-2,981.1	538.7	236.1	128.3	107.78	2.191		
9,900.0	6,982.4	9,838.7	6,865.5	61.5	61.9	-60.71	-3,081.0	538.7	236.8	126.0	110.84	2.137		
10,000.0	6,982.5	9,938.7	6,864.2	63.4	63.7	-60.40	-3,181.0	538.7	237.6	123.7	113.90	2.086		

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,100.0	6,982.7	10,038.7	6,862.9	65.2	65.6	-60.09	-3,281.0	538.7	238.3	121.3	116.94	2.038	
10,200.0	6,982.9	10,138.7	6,861.6	67.1	67.4	-59.79	-3,381.0	538.7	239.0	119.1	119.96	1.992	
10,300.0	6,983.1	10,238.7	6,860.3	69.0	69.3	-59.49	-3,481.0	538.7	239.8	116.8	122.98	1.950	
10,400.0	6,983.2	10,338.6	6,859.0	70.8	71.2	-59.18	-3,580.9	538.7	240.5	114.5	125.98	1.909	
10,500.0	6,983.4	10,438.6	6,857.7	72.7	73.0	-58.89	-3,680.9	538.7	241.3	112.3	128.97	1.871	
10,600.0	6,983.6	10,538.6	6,856.5	74.6	74.9	-58.59	-3,780.9	538.7	242.0	110.1	131.95	1.834	
10,700.0	6,983.8	10,638.6	6,855.2	76.5	76.8	-58.29	-3,880.9	538.7	242.8	107.9	134.91	1.800	
10,800.0	6,983.9	10,738.6	6,853.9	78.3	78.6	-58.00	-3,980.9	538.7	243.6	105.7	137.86	1.767	
10,900.0	6,984.1	10,838.6	6,852.6	80.2	80.5	-57.71	-4,080.9	538.7	244.4	103.6	140.79	1.736	
11,000.0	6,984.3	10,938.6	6,851.3	82.1	82.4	-57.42	-4,180.8	538.7	245.1	101.4	143.71	1.706	
11,100.0	6,984.5	11,038.6	6,850.0	84.0	84.3	-57.13	-4,280.8	538.7	245.9	99.3	146.62	1.677	
11,200.0	6,984.6	11,138.6	6,848.7	85.9	86.1	-56.85	-4,380.8	538.7	246.7	97.2	149.51	1.650	
11,300.0	6,984.8	11,238.6	6,847.4	87.8	88.0	-56.56	-4,480.8	538.7	247.5	95.2	152.38	1.624	
11,400.0	6,985.0	11,338.5	6,846.1	89.7	89.9	-56.28	-4,580.8	538.7	248.3	93.1	155.24	1.600	
11,407.7	6,985.0	11,346.2	6,846.0	89.8	90.0	-56.26	-4,588.4	538.7	248.4	92.9	155.46	1.598 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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
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	171.09	171.09	-462.6	72.6	468.7				
100.0	100.0	80.5	80.5	0.1	1.6	171.09	171.09	-462.6	72.6	468.3	466.6	1.72	271.862	
200.0	200.0	180.5	180.5	0.3	3.6	171.09	171.09	-462.6	72.6	468.3	464.4	3.95	118.638	
300.0	300.0	280.5	280.5	0.6	5.6	171.09	171.09	-462.6	72.6	468.3	462.1	6.17	75.874	
400.0	400.0	380.5	380.5	0.8	7.6	171.09	171.09	-462.6	72.6	468.3	459.9	8.40	55.771	
500.0	500.0	480.5	480.5	1.0	9.6	171.09	171.09	-462.6	72.6	468.3	457.7	10.62	44.090	
600.0	600.0	580.5	580.5	1.2	11.6	171.09	171.09	-462.6	72.6	468.3	455.5	12.85	36.454	
700.0	700.0	680.5	680.5	1.5	13.6	171.09	171.09	-462.6	72.6	468.3	453.2	15.07	31.073	
800.0	800.0	780.5	780.5	1.7	15.6	171.09	171.09	-462.6	72.6	468.3	451.0	17.30	27.076	
900.0	900.0	880.5	880.5	1.9	17.6	171.09	171.09	-462.6	72.6	468.3	448.8	19.52	23.990	
1,000.0	1,000.0	980.5	980.5	2.1	19.6	171.09	171.09	-462.6	72.6	468.3	446.6	21.75	21.536	
1,100.0	1,100.0	1,080.5	1,080.5	2.4	21.6	171.09	171.09	-462.6	72.6	468.3	444.3	23.97	19.537	
1,200.0	1,200.0	1,180.5	1,180.5	2.6	23.6	171.09	171.09	-462.6	72.6	468.3	442.1	26.19	17.878	
1,300.0	1,300.0	1,280.5	1,280.5	2.8	25.6	171.09	171.09	-462.6	72.6	468.3	439.9	28.42	16.478	
1,400.0	1,400.0	1,380.5	1,380.5	3.0	27.6	171.09	171.09	-462.6	72.6	468.3	437.7	30.64	15.282	
1,500.0	1,500.0	1,480.5	1,480.5	3.3	29.6	171.09	171.09	-462.6	72.6	468.3	435.4	32.87	14.247	
1,600.0	1,600.0	1,580.5	1,580.5	3.5	31.6	106.44	106.44	-462.6	72.6	468.8	433.7	35.08	13.362	
1,700.0	1,699.8	1,680.3	1,680.3	3.7	33.6	107.02	107.02	-462.6	72.6	470.3	433.0	37.29	12.612	
1,800.0	1,799.5	1,780.0	1,780.0	3.9	35.6	107.97	107.97	-462.6	72.6	472.9	433.4	39.49	11.976	
1,900.0	1,898.8	1,879.3	1,879.3	4.1	37.6	109.24	109.24	-462.6	72.6	476.6	434.9	41.70	11.428	
2,000.0	1,998.1	1,978.6	1,978.6	4.4	39.6	110.53	110.53	-462.6	72.6	480.5	436.6	43.93	10.939	
2,100.0	2,097.5	2,078.0	2,078.0	4.6	41.6	111.80	111.80	-462.6	72.6	484.7	438.5	46.16	10.501	
2,200.0	2,196.8	2,177.3	2,177.3	4.9	43.5	113.04	113.04	-462.6	72.6	489.1	440.7	48.39	10.107	
2,300.0	2,296.2	2,276.7	2,276.7	5.2	45.5	114.26	114.26	-462.6	72.6	493.7	443.1	50.63	9.752	
2,400.0	2,395.5	2,376.0	2,376.0	5.4	47.5	115.46	115.46	-462.6	72.6	498.6	445.7	52.87	9.431	
2,500.0	2,494.8	2,475.3	2,475.3	5.7	49.5	116.64	116.64	-462.6	72.6	503.7	448.6	55.11	9.139	
2,600.0	2,594.2	2,574.7	2,574.7	6.0	51.5	117.79	117.79	-462.6	72.6	509.0	451.6	57.36	8.874	
2,700.0	2,693.5	2,674.0	2,674.0	6.3	53.5	118.92	118.92	-462.6	72.6	514.5	454.9	59.60	8.632	
2,800.0	2,792.8	2,773.3	2,773.3	6.5	55.5	120.02	120.02	-462.6	72.6	520.2	458.3	61.85	8.410	
2,900.0	2,892.2	2,872.7	2,872.7	6.8	57.5	121.10	121.10	-462.6	72.6	526.0	461.9	64.09	8.208	
3,000.0	2,991.5	2,972.0	2,972.0	7.1	59.4	122.16	122.16	-462.6	72.6	532.1	465.8	66.33	8.021	
3,100.0	3,090.8	3,071.3	3,071.3	7.4	61.4	123.19	123.19	-462.6	72.6	538.3	469.8	68.58	7.850	
3,200.0	3,190.2	3,170.7	3,170.7	7.7	63.4	124.20	124.20	-462.6	72.6	544.7	473.9	70.82	7.692	
3,300.0	3,289.5	3,270.0	3,270.0	8.0	65.4	125.18	125.18	-462.6	72.6	551.3	478.3	73.06	7.546	
3,400.0	3,388.8	3,369.3	3,369.3	8.3	67.4	126.14	126.14	-462.6	72.6	558.1	482.7	75.30	7.411	
3,500.0	3,488.2	3,468.7	3,468.7	8.6	69.4	127.08	127.08	-462.6	72.6	564.9	487.4	77.54	7.286	
3,600.0	3,587.5	3,568.0	3,568.0	8.9	71.4	127.99	127.99	-462.6	72.6	572.0	492.2	79.78	7.169	
3,700.0	3,686.9	3,667.4	3,667.4	9.2	73.3	128.89	128.89	-462.6	72.6	579.2	497.1	82.02	7.061	
3,800.0	3,786.2	3,766.7	3,766.7	9.5	75.3	129.76	129.76	-462.6	72.6	586.5	502.2	84.25	6.961	
3,900.0	3,885.5	3,866.0	3,866.0	9.8	77.3	130.61	130.61	-462.6	72.6	593.9	507.4	86.49	6.867	
4,000.0	3,984.9	3,965.4	3,965.4	10.1	79.3	131.44	131.44	-462.6	72.6	601.5	512.8	88.72	6.780	
4,100.0	4,084.2	4,064.7	4,064.7	10.4	81.3	132.25	132.25	-462.6	72.6	609.2	518.3	90.95	6.698	
4,200.0	4,183.5	4,164.0	4,164.0	10.7	83.3	133.03	133.03	-462.6	72.6	617.0	523.8	93.18	6.622	
4,300.0	4,282.9	4,263.4	4,263.4	11.0	85.3	133.80	133.80	-462.6	72.6	625.0	529.5	95.41	6.550	
4,400.0	4,382.2	4,362.7	4,362.7	11.3	87.3	134.55	134.55	-462.6	72.6	633.0	535.4	97.64	6.483	
4,500.0	4,481.5	4,462.0	4,462.0	11.6	89.2	135.28	135.28	-462.6	72.6	641.2	541.3	99.87	6.420	
4,600.0	4,580.9	4,561.4	4,561.4	11.9	91.2	135.99	135.99	-462.6	72.6	649.4	547.3	102.10	6.361	
4,700.0	4,680.2	4,660.7	4,660.7	12.2	93.2	136.70	136.70	-462.6	72.6	657.7	553.4	104.34	6.304	
4,800.0	4,779.8	4,760.3	4,760.3	12.4	95.2	137.35	137.35	-462.6	72.6	664.7	558.0	106.67	6.231	
4,900.0	4,879.6	4,860.1	4,860.1	12.6	97.2	137.75	137.75	-462.6	72.6	669.0	560.1	108.94	6.141	
5,000.0	4,979.6	4,960.1	4,960.1	12.8	99.2	137.92	137.92	-462.6	72.6	670.9	559.7	111.14	6.036	

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-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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
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
5,100.0	5,079.6	5,060.1	5,060.1	12.9	101.2	-157.23	-462.6	72.6	670.9	557.6	113.32	5.921		
5,200.0	5,179.6	5,160.1	5,160.1	13.1	103.2	-157.23	-462.6	72.6	670.9	555.4	115.52	5.808		
5,300.0	5,279.6	5,260.1	5,260.1	13.3	105.2	-157.23	-462.6	72.6	670.9	553.2	117.72	5.699		
5,400.0	5,379.6	5,360.1	5,360.1	13.5	107.2	-157.23	-462.6	72.6	670.9	551.0	119.92	5.595		
5,500.0	5,479.6	5,460.1	5,460.1	13.7	109.2	-157.23	-462.6	72.6	670.9	548.8	122.12	5.494		
5,600.0	5,579.6	5,560.1	5,560.1	13.9	111.2	-157.23	-462.6	72.6	670.9	546.6	124.32	5.397		
5,700.0	5,679.6	5,660.1	5,660.1	14.1	113.2	-157.23	-462.6	72.6	670.9	544.4	126.53	5.303		
5,800.0	5,779.6	5,760.1	5,760.1	14.3	115.2	-157.23	-462.6	72.6	670.9	542.2	128.73	5.212		
5,900.0	5,879.6	5,860.1	5,860.1	14.5	117.2	-157.23	-462.6	72.6	670.9	540.0	130.94	5.124		
6,000.0	5,979.6	5,960.1	5,960.1	14.7	119.2	-157.23	-462.6	72.6	670.9	537.8	133.14	5.039		
6,100.0	6,079.6	6,060.1	6,060.1	14.9	121.2	-157.23	-462.6	72.6	670.9	535.6	135.35	4.957		
6,200.0	6,179.6	6,160.1	6,160.1	15.1	123.2	-157.23	-462.6	72.6	670.9	533.4	137.55	4.878		
6,300.0	6,279.4	6,259.9	6,259.9	15.2	125.2	22.99	-462.6	72.6	667.5	528.4	139.12	4.798		
6,400.0	6,378.0	6,358.5	6,358.5	15.3	127.2	24.00	-462.6	72.6	652.5	513.8	138.72	4.704		
6,500.0	6,473.6	6,454.1	6,454.1	15.4	129.1	25.97	-462.6	72.6	626.0	489.6	136.47	4.587		
6,600.0	6,564.7	6,545.2	6,545.2	15.5	130.9	29.13	-462.6	72.6	588.7	455.8	132.94	4.428		
6,700.0	6,649.5	6,630.0	6,630.0	15.6	132.6	33.89	-462.6	72.6	541.9	412.5	129.37	4.189		
6,800.0	6,726.8	6,707.3	6,707.3	15.7	134.1	40.80	-462.6	72.6	487.2	359.2	127.95	3.808		
6,900.0	6,795.1	6,775.6	6,775.6	15.9	135.5	50.34	-462.6	72.6	427.2	295.9	131.37	3.252		
7,000.0	6,853.3	6,833.8	6,833.8	16.3	136.7	62.31	-462.6	72.6	366.1	226.1	140.00	2.615		
7,100.0	6,900.4	6,880.9	6,880.9	16.8	137.6	74.89	-462.6	72.6	310.3	161.0	149.32	2.078		
7,200.0	6,935.5	6,916.0	6,916.0	17.5	138.3	85.12	-462.6	72.6	270.6	116.0	154.63	1.750		
7,278.7	6,954.5	6,935.0	6,935.0	18.3	138.7	90.00	-462.6	72.6	259.6	103.3	156.30	1.661 CC, ES, SF		
7,300.0	6,958.2	6,938.7	6,938.7	18.5	138.8	90.75	-462.6	72.6	260.5	103.9	156.58	1.664		
7,400.0	6,970.0	6,950.5	6,950.5	19.5	139.0	92.77	-462.6	72.6	286.1	128.3	157.79	1.813		
7,500.0	6,977.6	6,958.1	6,958.1	20.7	139.2	91.65	-462.6	72.6	340.2	181.0	159.27	2.136		
7,600.0	6,978.4	6,958.9	6,958.9	22.0	139.2	90.12	-462.6	72.6	412.0	251.3	160.65	2.565		
7,700.0	6,978.5	6,959.0	6,959.0	23.4	139.2	90.16	-462.6	72.6	493.7	331.6	162.06	3.046		
7,800.0	6,978.7	6,959.2	6,959.2	24.9	139.2	90.20	-462.6	72.6	581.1	417.6	163.54	3.553		
7,900.0	6,978.9	6,959.4	6,959.4	26.4	139.2	90.24	-462.6	72.6	672.1	507.0	165.08	4.071		
8,000.0	6,979.1	6,959.6	6,959.6	27.9	139.2	90.28	-462.6	72.6	765.3	598.6	166.67	4.592		
8,100.0	6,979.2	6,959.7	6,959.7	29.5	139.2	90.32	-462.6	72.6	860.0	691.7	168.30	5.110		
8,200.0	6,979.4	6,959.9	6,959.9	31.2	139.2	90.35	-462.6	72.6	955.8	785.9	169.96	5.624		



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (5-28-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Wells Sec.5-T3N-R64W - Becker 5-4 (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
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
7,700.0	6,978.5	6,954.0	6,954.0	23.4	139.1	89.73	-1,752.3	11.2	927.1	765.1	161.95	5.724	
7,800.0	6,978.7	6,954.2	6,954.2	24.9	139.1	89.76	-1,752.3	11.2	834.0	670.6	163.44	5.103	
7,900.0	6,978.9	6,954.4	6,954.4	26.4	139.1	89.79	-1,752.3	11.2	742.7	577.7	164.98	4.502	
8,000.0	6,979.1	6,954.6	6,954.6	27.9	139.1	89.82	-1,752.3	11.2	654.0	487.4	166.56	3.926	
8,100.0	6,979.2	6,954.7	6,954.7	29.5	139.1	89.85	-1,752.3	11.2	569.0	400.8	168.19	3.383	
8,200.0	6,979.4	6,954.9	6,954.9	31.2	139.1	89.88	-1,752.3	11.2	489.7	319.8	169.85	2.883	
8,300.0	6,979.6	6,955.1	6,955.1	32.8	139.1	89.92	-1,752.3	11.2	419.3	247.8	171.55	2.444	
8,400.0	6,979.8	6,955.3	6,955.3	34.5	139.1	89.95	-1,752.3	11.2	363.1	189.9	173.26	2.096	
8,500.0	6,979.9	6,955.4	6,955.4	36.2	139.1	89.98	-1,752.3	11.2	328.5	153.5	175.00	1.877	
8,569.7	6,980.0	6,955.5	6,955.5	37.5	139.1	90.00	-1,752.3	11.2	321.0	144.8	176.22	1.822 CC, ES, SF	
8,600.0	6,980.1	6,955.6	6,955.6	38.0	139.1	90.01	-1,752.3	11.2	322.5	145.7	176.75	1.824	
8,700.0	6,980.3	6,955.8	6,955.8	39.7	139.1	90.04	-1,752.3	11.2	346.4	167.9	178.52	1.941	
8,800.0	6,980.4	6,955.9	6,955.9	41.5	139.1	90.07	-1,752.3	11.2	395.1	214.8	180.31	2.191	
8,900.0	6,980.6	6,956.1	6,956.1	43.3	139.1	90.10	-1,752.3	11.2	460.6	278.5	182.10	2.529	
9,000.0	6,980.8	6,956.3	6,956.3	45.1	139.1	90.13	-1,752.3	11.2	536.8	352.9	183.91	2.919	
9,100.0	6,981.0	6,956.5	6,956.5	46.9	139.1	90.17	-1,752.3	11.2	619.9	434.1	185.72	3.338	
9,200.0	6,981.1	6,956.6	6,956.6	48.7	139.1	90.20	-1,752.3	11.2	707.3	519.8	187.55	3.771	
9,300.0	6,981.3	6,956.8	6,956.8	50.5	139.1	90.23	-1,752.3	11.2	797.7	608.3	189.38	4.212	
9,400.0	6,981.5	6,957.0	6,957.0	52.3	139.1	90.26	-1,752.3	11.2	890.2	698.9	191.22	4.655	
9,500.0	6,981.7	6,957.2	6,957.2	54.2	139.1	90.29	-1,752.3	11.2	984.1	791.0	193.06	5.097	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5U-443
<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-443	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #2 (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-443

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.60°



Coordinates are relative to: Becker Ranch 5U-443  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°

