

# PETROLEUM DEVELOPMENT CORP Weld County CO

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

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

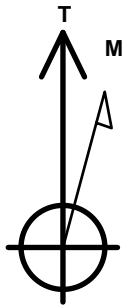
Ground Elevation: 4815.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339258.89	3257754.99	40.260980	-104.576400	

RKB - 15' WELL @ 4830.0ft (RKB - 15')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 287'FNL & 2189'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 2105'FWL	6795.0	-4528.3	-55.8	Point



Azimuths to True North  
Magnetic North: 8.26°

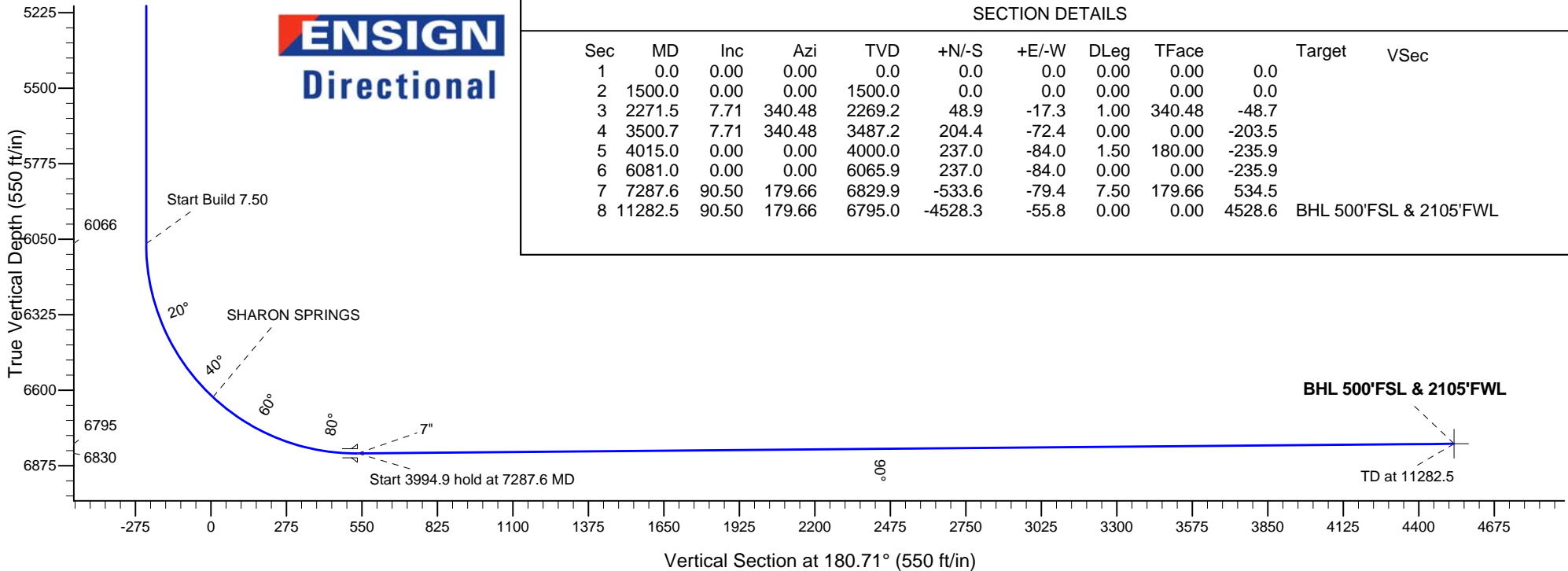
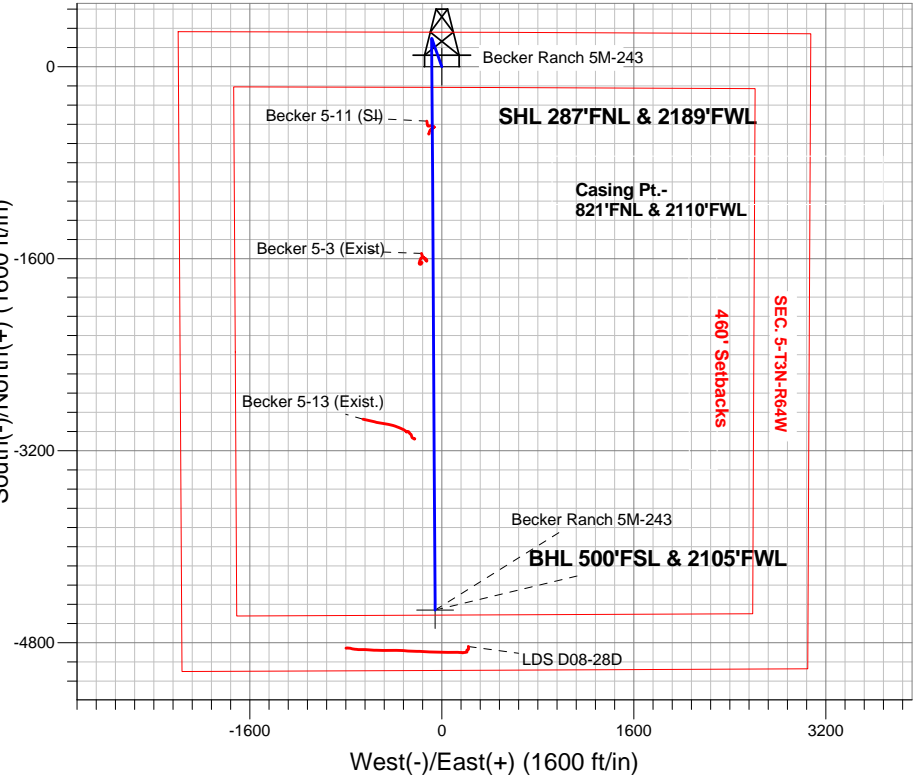
Magnetic Field  
Strength: 52696.8snT  
Dip Angle: 66.84°  
Date: 1/27/2015  
Model: IGRF2010

Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W  
Becker Ranch 5M-243  
Plan #2 (1-23-15)  
7:35, January 27 2015

## ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP - Start Build 1.00
3487.2	3500.7	Start Drop -1.50
6066.0	6081.0	Start Build 7.50
6829.9	7287.6	Start 3994.9 hold at 7287.6 MD
6795.0	11282.5	TD at 11282.5

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



## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	2271.5	7.71	340.48	2269.2	48.9	-17.3	1.00	340.48	-48.7	
4	3500.7	7.71	340.48	3487.2	204.4	-72.4	0.00	0.00	-203.5	
5	4015.0	0.00	0.00	4000.0	237.0	-84.0	1.50	180.00	-235.9	
6	6081.0	0.00	0.00	6065.9	237.0	-84.0	0.00	0.00	-235.9	
7	7287.6	90.50	179.66	6829.9	-533.6	-79.4	7.50	179.66	534.5	
8	11282.5	90.50	179.66	6795.0	-4528.3	-55.8	0.00	0.00	4528.6	BHL 500'FSL & 2105'FWL



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.5-T3N-R64W**

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

**Becker Ranch 5M-243**

**Wellbore #1**

**Plan: Plan #2 (1-23-15)**

## **Standard Planning Report**

**27 January, 2015**

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5M-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (1-23-15)		

<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 5M-HZ Pad Sec.5-T3N-R64W											
<b>Site Position:</b>						<b>Northing:</b>			1,339,320.83ft			<b>Latitude:</b>			40.261150		
<b>From:</b>			Lat/Long			<b>Easting:</b>			3,257,754.34ft			<b>Longitude:</b>			-104.576400		
<b>Position Uncertainty:</b>			0.0 ft			<b>Slot Radius:</b>			"			<b>Grid Convergence:</b>			0.60 °		

Well	Becker Ranch 5M-243					
Well Position	+N/-S	-61.9 ft	Northing:	1,339,258.89 ft	Latitude:	40.260980
	+E/-W	0.0 ft	Easting:	3,257,754.99 ft	Longitude:	-104.576400
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,815.0 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	1/27/2015	8.26	66.84	52,697

<b>Design</b>	Plan #2 (1-23-15)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	180.71

<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	
2,271.5	7.71	340.48	2,269.2	48.9	-17.3	1.00	1.00	0.00	340.48	
3,500.7	7.71	340.48	3,487.2	204.4	-72.4	0.00	0.00	0.00	0.00	
4,015.0	0.00	0.00	4,000.0	237.0	-84.0	1.50	-1.50	0.00	180.00	
6,081.0	0.00	0.00	6,065.9	237.0	-84.0	0.00	0.00	0.00	0.00	
7,287.6	90.50	179.66	6,829.9	-533.6	-79.4	7.50	7.50	0.00	179.66	
11,282.5	90.50	179.66	6,795.0	-4,528.3	-55.8	0.00	0.00	0.00	0.00	BHL 500'FSL & 21C

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<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5M-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (1-23-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 287°FNL & 2189°FWL									
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
KOP - Start Build 1.00									
1,600.0	1.00	340.48	1,600.0	0.8	-0.3	-0.8	1.00	1.00	0.00
1,700.0	2.00	340.48	1,700.0	3.3	-1.2	-3.3	1.00	1.00	0.00
1,800.0	3.00	340.48	1,799.9	7.4	-2.6	-7.4	1.00	1.00	0.00
1,900.0	4.00	340.48	1,899.7	13.2	-4.7	-13.1	1.00	1.00	0.00
2,000.0	5.00	340.48	1,999.4	20.6	-7.3	-20.5	1.00	1.00	0.00
2,100.0	6.00	340.48	2,098.9	29.6	-10.5	-29.5	1.00	1.00	0.00
2,200.0	7.00	340.48	2,198.3	40.3	-14.3	-40.1	1.00	1.00	0.00
2,271.5	7.71	340.48	2,269.2	48.9	-17.3	-48.7	1.00	1.00	0.00
2,300.0	7.71	340.48	2,297.4	52.5	-18.6	-52.3	0.00	0.00	0.00
2,400.0	7.71	340.48	2,396.5	65.1	-23.1	-64.9	0.00	0.00	0.00
2,500.0	7.71	340.48	2,495.6	77.8	-27.6	-77.5	0.00	0.00	0.00
2,600.0	7.71	340.48	2,594.7	90.4	-32.1	-90.0	0.00	0.00	0.00
2,700.0	7.71	340.48	2,693.8	103.1	-36.5	-102.6	0.00	0.00	0.00
2,800.0	7.71	340.48	2,792.9	115.8	-41.0	-115.2	0.00	0.00	0.00
2,900.0	7.71	340.48	2,892.0	128.4	-45.5	-127.8	0.00	0.00	0.00
3,000.0	7.71	340.48	2,991.1	141.1	-50.0	-140.4	0.00	0.00	0.00
3,100.0	7.71	340.48	3,090.2	153.7	-54.5	-153.0	0.00	0.00	0.00
3,200.0	7.71	340.48	3,189.3	166.4	-59.0	-165.6	0.00	0.00	0.00
3,300.0	7.71	340.48	3,288.4	179.0	-63.4	-178.2	0.00	0.00	0.00
3,400.0	7.71	340.48	3,387.5	191.7	-67.9	-190.8	0.00	0.00	0.00
3,500.0	7.71	340.48	3,486.6	204.3	-72.4	-203.4	0.00	0.00	0.00
3,500.7	7.71	340.48	3,487.2	204.4	-72.5	-203.5	0.00	0.00	0.00
Start Drop -1.50									
3,600.0	6.23	340.48	3,585.8	215.8	-76.5	-214.8	1.50	-1.50	0.00
3,700.0	4.73	340.48	3,685.3	224.8	-79.7	-223.8	1.50	-1.50	0.00
3,714.7	4.50	340.48	3,700.0	225.9	-80.1	-224.9	1.50	-1.50	0.00
PARKMAN									
3,800.0	3.23	340.48	3,785.1	231.3	-82.0	-230.3	1.50	-1.50	0.00
3,900.0	1.73	340.48	3,885.0	235.4	-83.4	-234.3	1.50	-1.50	0.00
4,000.0	0.23	340.48	3,985.0	237.0	-84.0	-235.9	1.50	-1.50	0.00
4,015.0	0.00	0.00	4,000.0	237.0	-84.0	-235.9	1.50	-1.50	0.00
4,100.0	0.00	0.00	4,085.0	237.0	-84.0	-235.9	0.00	0.00	0.00
4,200.0	0.00	0.00	4,185.0	237.0	-84.0	-235.9	0.00	0.00	0.00
4,300.0	0.00	0.00	4,285.0	237.0	-84.0	-235.9	0.00	0.00	0.00

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<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5M-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (1-23-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,400.0	0.00	0.00	4,385.0	237.0	-84.0	-235.9	0.00	0.00	0.00
4,415.0	0.00	0.00	4,400.0	237.0	-84.0	-235.9	0.00	0.00	0.00
<b>SUSSEX</b>									
4,500.0	0.00	0.00	4,485.0	237.0	-84.0	-235.9	0.00	0.00	0.00
4,600.0	0.00	0.00	4,585.0	237.0	-84.0	-235.9	0.00	0.00	0.00
4,700.0	0.00	0.00	4,685.0	237.0	-84.0	-235.9	0.00	0.00	0.00
4,800.0	0.00	0.00	4,785.0	237.0	-84.0	-235.9	0.00	0.00	0.00
4,900.0	0.00	0.00	4,885.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,000.0	0.00	0.00	4,985.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,100.0	0.00	0.00	5,085.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,115.0	0.00	0.00	5,100.0	237.0	-84.0	-235.9	0.00	0.00	0.00
<b>SHANNON</b>									
5,200.0	0.00	0.00	5,185.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,300.0	0.00	0.00	5,285.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,400.0	0.00	0.00	5,385.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,500.0	0.00	0.00	5,485.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,585.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,685.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,785.0	237.0	-84.0	-235.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,885.0	237.0	-84.0	-235.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,985.0	237.0	-84.0	-235.9	0.00	0.00	0.00
6,081.0	0.00	0.00	6,066.0	237.0	-84.0	-235.9	0.00	0.00	0.00
<b>Start Build 7.50</b>									
6,100.0	1.43	179.66	6,085.0	236.8	-84.0	-235.7	7.52	7.52	0.00
6,200.0	8.93	179.66	6,184.5	227.7	-83.9	-226.7	7.50	7.50	0.00
6,300.0	16.43	179.66	6,282.0	205.8	-83.8	-204.8	7.50	7.50	0.00
6,400.0	23.93	179.66	6,375.8	171.3	-83.6	-170.3	7.50	7.50	0.00
6,500.0	31.43	179.66	6,464.3	124.9	-83.3	-123.9	7.50	7.50	0.00
6,600.0	38.93	179.66	6,546.0	67.4	-83.0	-66.3	7.50	7.50	0.00
6,700.0	46.43	179.66	6,619.4	-0.4	-82.6	1.4	7.50	7.50	0.00
6,708.1	47.04	179.66	6,625.0	-6.3	-82.6	7.3	7.50	7.50	0.00
<b>SHARON SPRINGS</b>									
6,800.0	53.93	179.66	6,683.4	-77.1	-82.1	78.1	7.50	7.50	0.00
6,900.0	61.43	179.66	6,736.9	-161.6	-81.6	162.6	7.50	7.50	0.00
7,000.0	68.93	179.66	6,778.8	-252.3	-81.1	253.3	7.50	7.50	0.00
7,100.0	76.43	179.66	6,808.6	-347.7	-80.5	348.6	7.50	7.50	0.00
7,200.0	83.93	179.66	6,825.6	-446.1	-80.0	447.1	7.50	7.50	0.00
7,287.6	90.50	179.66	6,829.9	-533.6	-79.4	534.5	7.50	7.50	0.00
<b>Start 3994.9 hold at 7287.6 MD - 7"</b>									
7,300.0	90.50	179.66	6,829.8	-546.0	-79.4	546.9	0.01	0.01	0.00
7,400.0	90.50	179.66	6,828.9	-646.0	-78.8	646.9	0.00	0.00	0.00
7,500.0	90.50	179.66	6,828.0	-746.0	-78.2	746.9	0.00	0.00	0.00
7,600.0	90.50	179.66	6,827.1	-846.0	-77.6	846.9	0.00	0.00	0.00
7,700.0	90.50	179.66	6,826.3	-946.0	-77.0	946.8	0.00	0.00	0.00
7,800.0	90.50	179.66	6,825.4	-1,045.9	-76.4	1,046.8	0.00	0.00	0.00
7,900.0	90.50	179.66	6,824.5	-1,145.9	-75.8	1,146.8	0.00	0.00	0.00
8,000.0	90.50	179.66	6,823.6	-1,245.9	-75.2	1,246.8	0.00	0.00	0.00
8,100.0	90.50	179.66	6,822.8	-1,345.9	-74.6	1,346.7	0.00	0.00	0.00
8,200.0	90.50	179.66	6,821.9	-1,445.9	-74.1	1,446.7	0.00	0.00	0.00
8,300.0	90.50	179.66	6,821.0	-1,545.9	-73.5	1,546.7	0.00	0.00	0.00
8,400.0	90.50	179.66	6,820.2	-1,645.9	-72.9	1,646.7	0.00	0.00	0.00
8,500.0	90.50	179.66	6,819.3	-1,745.9	-72.3	1,746.7	0.00	0.00	0.00

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<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5M-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (1-23-15)		

## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,600.0	90.50	179.66	6,818.4	-1,845.9	-71.7	1,846.6	0.00	0.00	0.00
8,700.0	90.50	179.66	6,817.5	-1,945.9	-71.1	1,946.6	0.00	0.00	0.00
8,800.0	90.50	179.66	6,816.7	-2,045.9	-70.5	2,046.6	0.00	0.00	0.00
8,900.0	90.50	179.66	6,815.8	-2,145.9	-69.9	2,146.6	0.00	0.00	0.00
9,000.0	90.50	179.66	6,814.9	-2,245.9	-69.3	2,246.6	0.00	0.00	0.00
9,100.0	90.50	179.66	6,814.0	-2,345.9	-68.7	2,346.5	0.00	0.00	0.00
9,200.0	90.50	179.66	6,813.2	-2,445.9	-68.1	2,446.5	0.00	0.00	0.00
9,300.0	90.50	179.66	6,812.3	-2,545.9	-67.5	2,546.5	0.00	0.00	0.00
9,400.0	90.50	179.66	6,811.4	-2,645.9	-67.0	2,646.5	0.00	0.00	0.00
9,500.0	90.50	179.66	6,810.6	-2,745.9	-66.4	2,746.5	0.00	0.00	0.00
9,600.0	90.50	179.66	6,809.7	-2,845.8	-65.8	2,846.4	0.00	0.00	0.00
9,700.0	90.50	179.66	6,808.8	-2,945.8	-65.2	2,946.4	0.00	0.00	0.00
9,800.0	90.50	179.66	6,807.9	-3,045.8	-64.6	3,046.4	0.00	0.00	0.00
9,900.0	90.50	179.66	6,807.1	-3,145.8	-64.0	3,146.4	0.00	0.00	0.00
10,000.0	90.50	179.66	6,806.2	-3,245.8	-63.4	3,246.4	0.00	0.00	0.00
10,100.0	90.50	179.66	6,805.3	-3,345.8	-62.8	3,346.3	0.00	0.00	0.00
10,200.0	90.50	179.66	6,804.4	-3,445.8	-62.2	3,446.3	0.00	0.00	0.00
10,300.0	90.50	179.66	6,803.6	-3,545.8	-61.6	3,546.3	0.00	0.00	0.00
10,400.0	90.50	179.66	6,802.7	-3,645.8	-61.0	3,646.3	0.00	0.00	0.00
10,500.0	90.50	179.66	6,801.8	-3,745.8	-60.5	3,746.3	0.00	0.00	0.00
10,600.0	90.50	179.66	6,801.0	-3,845.8	-59.9	3,846.2	0.00	0.00	0.00
10,700.0	90.50	179.66	6,800.1	-3,945.8	-59.3	3,946.2	0.00	0.00	0.00
10,800.0	90.50	179.66	6,799.2	-4,045.8	-58.7	4,046.2	0.00	0.00	0.00
10,900.0	90.50	179.66	6,798.3	-4,145.8	-58.1	4,146.2	0.00	0.00	0.00
11,000.0	90.50	179.66	6,797.5	-4,245.8	-57.5	4,246.2	0.00	0.00	0.00
11,100.0	90.50	179.66	6,796.6	-4,345.8	-56.9	4,346.1	0.00	0.00	0.00
11,200.0	90.50	179.66	6,795.7	-4,445.8	-56.3	4,446.1	0.00	0.00	0.00
11,282.5	90.50	179.66	6,795.0	-4,528.3	-55.8	4,528.6	0.00	0.00	0.00

TD at 11282.5 - BHL 500'FSL & 2105'FWL

## Targets

### Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SHL 287'FNL & 2189' - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,339,258.89	3,257,754.99	40.260980	-104.576400
BHL 500'FSL & 2105'I - plan hits target center - Point	0.00	0.00	6,795.0	-4,528.3	-55.8	1,334,730.49	3,257,746.33	40.248550	-104.576600

## Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,287.6	6,829.9	7"	7	7-1/2

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Project:</b>	SEC.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Becker Ranch 5M-243	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2 (1-23-15)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,714.7	3,700.0	PARKMAN		0.00		
4,415.0	4,400.0	SUSSEX		0.00		
5,115.0	5,100.0	SHANNON		0.00		
6,708.1	6,625.0	SHARON SPRINGS		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,500.0	1,500.0	0.0	0.0	KOP - Start Build 1.00	
3,500.7	3,487.2	204.4	-72.5	Start Drop -1.50	
6,081.0	6,066.0	237.0	-84.0	Start Build 7.50	
7,287.6	6,829.9	-533.6	-79.4	Start 3994.9 hold at 7287.6 MD	
11,282.5	6,795.0	-4,528.3	-55.8	TD at 11282.5	



# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.5-T3N-R64W**

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

**Becker Ranch 5M-243**

**Wellbore #1**

**Plan #2 (1-23-15)**

## **Anticollision Report**

**27 January, 2015**





<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2 (1-23-15)		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<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> 1/27/2015			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,282.5	Plan #2 (1-23-15) (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 5M-HZ Pad Sec.5-T3N-R64W						
Becker Ranch 5J-203 - Wellbore #1 - Plan #2 (1-23-15)	200.0	200.0	61.9	61.3	91.852	CC
Becker Ranch 5J-203 - Wellbore #1 - Plan #2 (1-23-15)	300.0	299.7	62.1	61.0	55.746	ES
Becker Ranch 5J-203 - Wellbore #1 - Plan #2 (1-23-15)	11,282.5	11,333.6	661.6	482.8	3.699	SF
Becker Ranch 5J-323 - Wellbore #1 - Plan #2 (1-23-15)	1,200.0	1,200.0	29.1	24.0	5.637	CC
Becker Ranch 5J-323 - Wellbore #1 - Plan #2 (1-23-15)	1,300.0	1,299.8	29.5	23.9	5.264	ES
Becker Ranch 5J-323 - Wellbore #1 - Plan #2 (1-23-15)	11,282.5	11,404.3	345.5	173.8	2.012	SF
Becker Ranch 5M-303 - Wellbore #1 - Plan #2 (1-23-15)	1,500.0	1,501.0	29.1	22.6	4.468	CC, ES
Becker Ranch 5M-303 - Wellbore #1 - Plan #2 (1-23-15)	11,282.5	11,463.2	341.7	170.0	1.990	SF
<b>Existing Wells Sec.5-T3N-R64W</b>						
Becker 5-11 (SI) - Wellbore #1 - Wellbore #1	7,231.7	6,812.2	41.7	-73.0	0.363	Level 1, CC, ES, SF
Becker 5-13 (Exist.) - Wellbore #1 - Wellbore #1	9,708.2	6,679.4	518.1	444.0	6.993	CC, ES
Becker 5-13 (Exist.) - Wellbore #1 - Wellbore #1	9,800.0	6,675.0	526.2	450.5	6.953	SF
Becker 5-3 (Exist) - Wellbore #1 - Wellbore #1	8,321.3	6,793.9	92.0	45.8	1.991	CC, ES, SF
<b>LDS D08-30D Pad Sec.5-T3N-R64W</b>						
LDS D08-28D - Wellbore #1 - Wellbore #1	11,282.5	6,875.2	418.6	314.3	4.011	CC, ES, SF

<b>Offset Design</b> Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-203 - Wellbore #1 - Plan #2 (1-23-15)											
Survey Program: 0-MWD											
<b>Reference</b>		<b>Offset</b>		<b>Semi Major Axis</b>			<b>Distance</b>				
<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Reference (ft)</b>	<b>Offset (ft)</b>	<b>Highside Toolface (°)</b>	<b>Offset Wellbore Centre +N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Between Centres (ft)</b>	<b>Between Ellipses (ft)</b>	<b>Minimum Separation (ft)</b>
0.0	0.0	0.0	0.0	0.0	0.0	0.00	61.9	0.0	61.9		
100.0	100.0	100.0	100.0	0.1	0.1	0.00	61.9	0.0	61.9	61.7	0.22
200.0	200.0	200.0	200.0	0.3	0.3	0.00	61.9	0.0	61.9	61.3	0.67
300.0	300.0	299.7	299.7	0.6	0.6	-0.78	62.1	-0.8	62.1	61.0	1.11
400.0	400.0	399.4	399.4	0.8	0.8	-3.08	62.7	-3.4	62.8	61.3	1.56
500.0	500.0	499.0	498.8	1.0	1.0	-6.79	63.7	-7.6	64.2	62.2	2.01
600.0	600.0	598.4	598.0	1.2	1.2	-11.68	65.1	-13.5	66.5	64.1	2.47
700.0	700.0	697.5	696.9	1.5	1.5	-17.42	66.9	-21.0	70.2	67.3	2.95
800.0	800.0	796.3	795.3	1.7	1.7	-23.57	69.1	-30.2	75.6	72.1	3.43
900.0	900.0	894.8	893.1	1.9	2.0	-29.73	71.7	-40.9	82.8	78.9	3.93
1,000.0	1,000.0	992.9	990.4	2.1	2.3	-35.53	74.6	-53.3	92.2	87.8	4.43

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Survey Program: 0-MWD												Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-203 - Wellbore #1 - Plan #2 (1-23-15)		Offset Site Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance								
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		
1,100.0	1,100.0	1,090.8	1,087.2	2.4	2.7	-40.77	77.9	-67.2	103.7	98.8	4.94	20.987			
1,200.0	1,200.0	1,189.6	1,184.9	2.6	3.0	-45.13	81.4	-81.8	116.4	111.0	5.45	21.358			
1,300.0	1,300.0	1,288.4	1,282.6	2.8	3.3	-48.63	84.9	-96.4	129.6	123.7	5.95	21.776			
1,400.0	1,400.0	1,387.3	1,380.3	3.0	3.7	-51.47	88.4	-111.0	143.3	136.8	6.45	22.202			
1,500.0	1,500.0	1,486.1	1,478.0	3.3	4.0	-53.82	91.9	-125.6	157.2	150.2	6.95	22.617			
1,600.0	1,600.0	1,585.0	1,575.7	3.5	4.4	-36.37	95.3	-140.2	170.6	163.4	7.18	23.763			
1,700.0	1,700.0	1,684.0	1,673.6	3.7	4.7	-38.45	98.8	-154.9	182.9	175.2	7.64	23.950			
1,800.0	1,799.9	1,783.2	1,771.5	3.9	5.1	-40.60	102.3	-169.5	194.1	186.0	8.09	23.994			
1,900.0	1,899.7	1,882.3	1,869.5	4.2	5.4	-42.85	105.8	-184.1	204.2	195.7	8.54	23.924			
2,000.0	1,999.4	1,981.5	1,967.6	4.4	5.8	-45.20	109.3	-198.8	213.5	204.5	8.98	23.760			
2,100.0	2,098.9	2,080.7	2,065.6	4.6	6.2	-47.68	112.8	-213.5	221.9	212.4	9.43	23.518			
2,200.0	2,198.3	2,179.8	2,163.6	4.9	6.5	-50.30	116.3	-228.1	229.6	219.7	9.89	23.212			
2,271.5	2,269.2	2,250.6	2,233.6	5.1	6.8	-52.27	118.8	-238.6	234.7	224.5	10.22	22.959			
2,300.0	2,297.4	2,278.9	2,261.5	5.1	6.9	-53.08	119.8	-242.7	236.7	226.4	10.36	22.853			
2,400.0	2,396.5	2,377.9	2,359.4	5.4	7.2	-55.81	123.2	-257.4	244.2	233.4	10.85	22.515			
2,500.0	2,495.6	2,477.0	2,457.3	5.7	7.6	-58.38	126.7	-272.0	252.2	240.9	11.35	22.222			
2,600.0	2,594.7	2,576.0	2,555.2	5.9	8.0	-60.79	130.2	-286.6	260.7	248.8	11.87	21.964			
2,700.0	2,693.8	2,675.1	2,653.1	6.2	8.3	-63.05	133.7	-301.3	269.6	257.2	12.40	21.737			
2,800.0	2,792.9	2,774.1	2,751.0	6.5	8.7	-65.16	137.2	-315.9	278.9	265.9	12.95	21.536			
2,900.0	2,892.0	2,873.2	2,848.9	6.8	9.0	-67.13	140.7	-330.5	288.5	275.0	13.51	21.357			
3,000.0	2,991.1	2,972.2	2,946.8	7.1	9.4	-68.97	144.2	-345.2	298.5	284.4	14.08	21.198			
3,100.0	3,090.2	3,071.3	3,044.7	7.4	9.8	-70.70	147.7	-359.8	308.8	294.1	14.66	21.056			
3,200.0	3,189.3	3,170.4	3,142.7	7.7	10.1	-72.31	151.1	-374.4	319.3	304.0	15.25	20.930			
3,300.0	3,288.4	3,269.4	3,240.6	8.0	10.5	-73.82	154.6	-389.1	330.0	314.2	15.85	20.817			
3,400.0	3,387.5	3,368.5	3,338.5	8.3	10.8	-75.23	158.1	-403.7	341.0	324.5	16.46	20.717			
3,500.7	3,487.2	3,468.2	3,437.0	8.6	11.2	-76.57	161.6	-418.5	352.2	335.2	17.08	20.627			
3,600.0	3,585.8	3,566.6	3,534.3	8.9	11.6	-77.77	165.1	-433.0	363.8	346.1	17.65	20.615			
3,700.0	3,685.3	3,665.8	3,632.3	9.1	11.9	-78.54	168.6	-447.6	376.0	357.8	18.16	20.707			
3,800.0	3,785.1	3,765.0	3,730.4	9.3	12.3	-78.90	172.1	-462.3	388.8	370.1	18.64	20.859			
3,900.0	3,885.0	3,864.1	3,828.3	9.5	12.7	-78.89	175.6	-476.9	402.1	383.0	19.08	21.069			
4,000.0	3,985.0	3,963.0	3,926.1	9.7	13.0	-78.54	179.0	-491.6	415.9	396.4	19.49	21.334			
4,015.0	4,000.0	3,977.9	3,940.8	9.7	13.1	-97.98	179.6	-493.8	418.0	398.4	19.53	21.398			
4,100.0	4,085.0	4,061.9	4,023.8	9.9	13.4	-97.35	182.5	-506.2	430.0	410.2	19.87	21.639			
4,200.0	4,185.0	4,160.7	4,121.5	10.1	13.7	-96.66	186.0	-520.8	444.3	424.0	20.29	21.895			
4,300.0	4,285.0	4,259.6	4,219.2	10.3	14.1	-96.01	189.5	-535.4	458.6	437.9	20.71	22.141			
4,400.0	4,385.0	4,358.4	4,316.9	10.5	14.5	-95.40	193.0	-550.0	473.0	451.8	21.14	22.377			
4,500.0	4,485.0	4,457.2	4,414.6	10.7	14.8	-94.83	196.4	-564.6	487.4	465.8	21.56	22.604			
4,600.0	4,585.0	4,556.1	4,512.3	10.9	15.2	-94.28	199.9	-579.2	501.9	479.9	21.99	22.822			
4,700.0	4,685.0	4,654.9	4,610.0	11.1	15.6	-93.77	203.4	-593.8	516.4	493.9	22.42	23.031			
4,800.0	4,785.0	4,753.8	4,707.7	11.3	15.9	-93.29	206.9	-608.4	530.9	508.1	22.85	23.233			
4,900.0	4,885.0	4,852.6	4,805.4	11.5	16.3	-92.83	210.3	-623.0	545.5	522.2	23.28	23.427			
5,000.0	4,985.0	4,951.4	4,903.1	11.7	16.6	-92.40	213.8	-637.6	560.1	536.4	23.72	23.613			
5,100.0	5,085.0	5,050.3	5,000.8	11.9	17.0	-91.99	217.3	-652.2	574.7	550.6	24.16	23.793			
5,200.0	5,185.0	5,149.1	5,098.5	12.1	17.4	-91.59	220.8	-666.8	589.4	564.8	24.59	23.966			
5,300.0	5,285.0	5,248.0	5,196.1	12.3	17.7	-91.22	224.3	-681.4	604.1	579.1	25.03	24.132			
5,400.0	5,385.0	5,346.8	5,293.8	12.5	18.1	-90.87	227.7	-696.0	618.8	593.4	25.47	24.293			
5,500.0	5,485.0	5,459.5	5,405.4	12.7	18.4	-90.50	231.5	-711.7	632.8	606.9	25.91	24.421			
5,600.0	5,585.0	5,578.2	5,523.3	12.9	18.7	-90.21	234.6	-724.9	643.9	617.5	26.34	24.448			
5,700.0	5,685.0	5,697.5	5,642.2	13.1	18.9	-90.01	236.9	-734.5	651.9	625.2	26.76	24.366			
5,800.0	5,785.0	5,817.4	5,761.9	13.4	19.1	-89.88	238.4	-740.6	657.0	629.8	27.17	24.180			
5,900.0	5,885.0	5,937.5	5,882.0	13.6	19.3	-89.83	238.9	-743.0	659.0	631.4	27.58	23.891			

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-203 - Wellbore #1 - Plan #2 (1-23-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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
6,000.0	5,985.0	6,040.5	5,985.0	13.8	19.4	-89.83	-89.83	238.9	-743.0	659.0	631.0	27.98	23.553	
6,081.0	6,065.9	6,121.5	6,065.9	13.9	19.6	-89.83	-89.83	238.9	-743.0	659.0	630.7	28.30	23.284	
6,100.0	6,085.0	6,140.6	6,085.1	14.0	19.6	90.52	90.52	238.8	-743.0	659.0	630.6	28.39	23.214	
6,150.0	6,134.9	6,191.0	6,135.4	14.1	19.6	90.54	90.54	236.2	-743.0	659.0	630.5	28.53	23.096	
6,200.0	6,184.5	6,241.4	6,185.4	14.1	19.7	90.57	90.57	230.3	-743.0	659.0	630.4	28.65	23.001	
6,250.0	6,233.6	6,291.8	6,235.0	14.1	19.7	90.59	90.59	221.1	-742.9	659.0	630.3	28.75	22.926	
6,300.0	6,282.0	6,342.2	6,283.9	14.2	19.8	90.61	90.61	208.7	-742.8	659.0	630.2	28.82	22.867	
6,350.0	6,329.5	6,392.7	6,331.8	14.2	19.8	90.63	90.63	193.0	-742.8	659.0	630.2	28.88	22.820	
6,400.0	6,375.8	6,443.1	6,378.6	14.2	19.8	90.64	90.64	174.3	-742.7	659.1	630.1	28.93	22.779	
6,450.0	6,420.8	6,493.6	6,424.1	14.2	19.9	90.65	90.65	152.4	-742.5	659.1	630.1	28.99	22.737	
6,500.0	6,464.3	6,544.1	6,468.1	14.2	19.9	90.66	90.66	127.6	-742.4	659.1	630.0	29.05	22.687	
6,550.0	6,506.1	6,594.6	6,510.3	14.3	19.9	90.67	90.67	100.0	-742.3	659.1	630.0	29.14	22.621	
6,600.0	6,546.0	6,645.1	6,550.6	14.3	20.0	90.67	90.67	69.6	-742.1	659.1	629.9	29.25	22.531	
6,650.0	6,583.8	6,695.6	6,588.9	14.3	20.0	90.67	90.67	36.6	-741.9	659.1	629.7	29.41	22.410	
6,700.0	6,619.4	6,746.0	6,624.8	14.4	20.1	90.67	90.67	1.2	-741.7	659.2	629.5	29.62	22.250	
6,750.0	6,652.7	6,796.5	6,658.4	14.5	20.1	90.66	90.66	-36.5	-741.5	659.2	629.3	29.90	22.047	
6,800.0	6,683.4	6,847.0	6,689.3	14.6	20.2	90.65	90.65	-76.4	-741.3	659.2	628.9	30.24	21.795	
6,850.0	6,711.5	6,897.5	6,717.6	14.8	20.3	90.64	90.64	-118.2	-741.1	659.2	628.5	30.67	21.494	
6,900.0	6,736.9	6,948.0	6,743.1	15.1	20.5	90.63	90.63	-161.8	-740.9	659.2	628.1	31.18	21.144	
6,950.0	6,759.3	6,998.4	6,765.6	15.3	20.6	90.61	90.61	-206.9	-740.6	659.3	627.5	31.78	20.747	
7,000.0	6,778.8	7,048.9	6,785.0	15.7	20.8	90.59	90.59	-253.4	-740.4	659.3	626.8	32.46	20.308	
7,050.0	6,795.2	7,099.3	6,801.4	16.1	21.1	90.57	90.57	-301.1	-740.1	659.3	626.1	33.24	19.835	
7,100.0	6,808.6	7,149.7	6,814.6	16.5	21.4	90.54	90.54	-349.8	-739.8	659.3	625.2	34.10	19.334	
7,150.0	6,818.7	7,200.1	6,824.5	16.9	21.7	90.52	90.52	-399.2	-739.6	659.4	624.3	35.05	18.814	
7,200.0	6,825.6	7,250.5	6,831.2	17.4	22.1	90.49	90.49	-449.1	-739.3	659.4	623.3	36.06	18.283	
7,250.0	6,829.3	7,300.9	6,834.5	18.0	22.5	90.46	90.46	-499.3	-739.0	659.4	622.3	37.15	17.749	
7,287.6	6,829.9	7,338.7	6,834.9	18.4	22.8	90.43	90.43	-537.2	-738.8	659.4	621.4	38.01	17.349	
7,300.0	6,829.8	7,351.1	6,834.8	18.5	23.0	90.43	90.43	-549.6	-738.8	659.4	621.1	38.30	17.217	
7,400.0	6,828.9	7,451.1	6,833.9	19.8	24.0	90.43	90.43	-649.6	-738.2	659.5	618.7	40.77	16.176	
7,500.0	6,828.0	7,551.1	6,833.0	21.1	25.1	90.43	90.43	-749.5	-737.7	659.5	616.1	43.43	15.186	
7,600.0	6,827.1	7,651.1	6,832.1	22.5	26.4	90.43	90.43	-849.5	-737.2	659.6	613.3	46.26	14.259	
7,700.0	6,826.3	7,751.1	6,831.3	24.0	27.7	90.43	90.43	-949.5	-736.6	659.6	610.4	49.22	13.401	
7,800.0	6,825.4	7,851.1	6,830.4	25.5	29.1	90.43	90.43	-1,049.5	-736.1	659.7	607.4	52.30	12.613	
7,900.0	6,824.5	7,951.1	6,829.5	27.1	30.6	90.43	90.43	-1,149.5	-735.6	659.8	604.3	55.48	11.893	
8,000.0	6,823.6	8,051.1	6,828.6	28.8	32.1	90.43	90.43	-1,249.5	-735.0	659.8	601.1	58.73	11.235	
8,100.0	6,822.8	8,151.1	6,827.8	30.4	33.7	90.43	90.43	-1,349.5	-734.5	659.9	597.8	62.05	10.634	
8,200.0	6,821.9	8,251.1	6,826.9	32.1	35.3	90.43	90.43	-1,449.5	-733.9	659.9	594.5	65.43	10.086	
8,300.0	6,821.0	8,351.1	6,826.0	33.8	36.9	90.43	90.43	-1,549.5	-733.4	660.0	591.1	68.86	9.585	
8,400.0	6,820.2	8,451.1	6,825.2	35.6	38.5	90.43	90.43	-1,649.5	-732.9	660.0	587.7	72.33	9.126	
8,500.0	6,819.3	8,551.1	6,824.3	37.3	40.2	90.43	90.43	-1,749.5	-732.3	660.1	584.3	75.83	8.705	
8,600.0	6,818.4	8,651.1	6,823.4	39.1	41.9	90.43	90.43	-1,849.5	-731.8	660.1	580.8	79.37	8.318	
8,700.0	6,817.5	8,751.1	6,822.5	40.9	43.6	90.43	90.43	-1,949.5	-731.3	660.2	577.3	82.93	7.961	
8,800.0	6,816.7	8,851.1	6,821.7	42.7	45.3	90.43	90.43	-2,049.5	-730.7	660.2	573.7	86.51	7.632	
8,900.0	6,815.8	8,951.1	6,820.8	44.5	47.1	90.43	90.43	-2,149.5	-730.2	660.3	570.2	90.12	7.327	
9,000.0	6,814.9	9,051.1	6,819.9	46.3	48.8	90.43	90.43	-2,249.5	-729.6	660.4	566.6	93.75	7.044	
9,100.0	6,814.0	9,151.1	6,819.0	48.1	50.6	90.43	90.43	-2,349.5	-729.1	660.4	563.0	97.39	6.781	
9,200.0	6,813.2	9,251.1	6,818.2	50.0	52.4	90.43	90.43	-2,449.5	-728.6	660.5	559.4	101.05	6.536	
9,300.0	6,812.3	9,351.1	6,817.3	51.8	54.2	90.43	90.43	-2,549.5	-728.0	660.5	555.8	104.72	6.308	
9,400.0	6,811.4	9,451.1	6,816.4	53.6	56.0	90.43	90.43	-2,649.4	-727.5	660.6	552.2	108.40	6.094	
9,500.0	6,810.6	9,551.1	6,815.6	55.5	57.8	90.43	90.43	-2,749.4	-727.0	660.6	548.5	112.09	5.894	
9,600.0	6,809.7	9,651.1	6,814.7	57.3	59.6	90.43	90.43	-2,849.4	-726.4	660.7	544.9	115.80	5.706	

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-203 - Wellbore #1 - Plan #2 (1-23-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,700.0	6,808.8	9,751.1	6,813.8	59.2	61.4	90.43	90.43	-2,949.4	-725.9	660.7	541.2	119.51	5.529	
9,800.0	6,807.9	9,851.1	6,812.9	61.1	63.3	90.43	90.43	-3,049.4	-725.4	660.8	537.6	123.23	5.362	
9,900.0	6,807.1	9,951.1	6,812.1	62.9	65.1	90.43	90.43	-3,149.4	-724.8	660.8	533.9	126.95	5.205	
10,000.0	6,806.2	10,051.1	6,811.2	64.8	66.9	90.43	90.43	-3,249.4	-724.3	660.9	530.2	130.69	5.057	
10,100.0	6,805.3	10,151.1	6,810.3	66.7	68.8	90.43	90.43	-3,349.4	-723.7	661.0	526.5	134.43	4.917	
10,200.0	6,804.4	10,251.1	6,809.4	68.5	70.6	90.43	90.43	-3,449.4	-723.2	661.0	522.8	138.17	4.784	
10,300.0	6,803.6	10,351.1	6,808.6	70.4	72.5	90.43	90.43	-3,549.4	-722.7	661.1	519.1	141.92	4.658	
10,400.0	6,802.7	10,451.1	6,807.7	72.3	74.3	90.43	90.43	-3,649.4	-722.1	661.1	515.4	145.68	4.538	
10,500.0	6,801.8	10,551.1	6,806.8	74.2	76.2	90.43	90.43	-3,749.4	-721.6	661.2	511.7	149.43	4.425	
10,600.0	6,801.0	10,651.1	6,806.0	76.1	78.0	90.43	90.43	-3,849.4	-721.1	661.2	508.0	153.20	4.316	
10,700.0	6,800.1	10,751.1	6,805.1	78.0	79.9	90.43	90.43	-3,949.4	-720.5	661.3	504.3	156.96	4.213	
10,800.0	6,799.2	10,851.1	6,804.2	79.8	81.8	90.43	90.43	-4,049.4	-720.0	661.3	500.6	160.74	4.114	
10,900.0	6,798.3	10,951.1	6,803.3	81.7	83.6	90.43	90.43	-4,149.4	-719.5	661.4	496.9	164.51	4.020	
11,000.0	6,797.5	11,051.1	6,802.5	83.6	85.5	90.43	90.43	-4,249.4	-718.9	661.4	493.2	168.29	3.931	
11,100.0	6,796.6	11,151.1	6,801.6	85.5	87.4	90.43	90.43	-4,349.4	-718.4	661.5	489.4	172.07	3.844	
11,200.0	6,795.7	11,251.1	6,800.7	87.4	89.2	90.43	90.43	-4,449.4	-717.8	661.6	485.7	175.85	3.762	
11,282.5	6,795.0	11,333.6	6,800.0	89.0	90.7	90.43	90.43	-4,531.9	-717.4	661.6	482.8	178.85	3.699 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-323 - Wellbore #1 - Plan #2 (1-23-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	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	0.00	29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	29.1	0.0	29.1	28.9	0.22	129.647		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	29.1	0.0	29.1	28.5	0.67	43.216		
300.0	300.0	300.0	300.0	0.6	0.6	0.00	29.1	0.0	29.1	28.0	1.12	25.929		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	29.1	0.0	29.1	27.6	1.57	18.521		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	29.1	0.0	29.1	27.1	2.02	14.405		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	29.1	0.0	29.1	26.7	2.47	11.786		
700.0	700.0	700.0	700.0	1.5	1.5	0.00	29.1	0.0	29.1	26.2	2.92	9.973		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	29.1	0.0	29.1	25.8	3.37	8.643		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	29.1	0.0	29.1	25.3	3.82	7.626		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	29.1	0.0	29.1	24.9	4.27	6.824		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.00	29.1	0.0	29.1	24.4	4.72	6.174		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.00	29.1	0.0	29.1	24.0	5.17	5.637 CC		
1,300.0	1,300.0	1,299.8	1,299.8	2.8	2.8	-1.51	29.5	-0.8	29.5	23.9	5.61	5.264 ES		
1,400.0	1,400.0	1,399.5	1,399.4	3.0	3.0	-5.78	30.7	-3.1	30.9	24.8	6.05	5.102		
1,500.0	1,500.0	1,499.0	1,498.9	3.3	3.2	-12.07	32.6	-7.0	33.4	26.9	6.49	5.145		
1,600.0	1,600.0	1,598.5	1,598.2	3.5	3.5	0.20	35.3	-12.4	36.6	29.7	6.93	5.284		
1,700.0	1,700.0	1,697.8	1,697.2	3.7	3.7	-7.56	38.8	-19.3	40.0	32.6	7.37	5.425		
1,800.0	1,799.9	1,796.9	1,795.8	3.9	3.9	-15.66	43.0	-27.8	43.8	36.0	7.81	5.609		
1,900.0	1,899.7	1,895.9	1,894.2	4.2	4.2	-23.86	48.0	-37.7	48.4	40.1	8.25	5.867		
2,000.0	1,999.4	1,994.6	1,992.1	4.4	4.4	-31.85	53.7	-49.2	54.0	45.3	8.68	6.216		
2,100.0	2,098.9	2,093.1	2,089.5	4.6	4.7	-39.38	60.2	-62.1	60.8	51.7	9.12	6.661		
2,200.0	2,198.3	2,192.1	2,187.2	4.9	5.0	-46.32	67.3	-76.3	68.6	59.0	9.58	7.163		
2,271.5	2,269.2	2,263.1	2,257.3	5.1	5.2	-50.98	72.5	-86.6	74.2	64.2	9.92	7.477		
2,300.0	2,297.4	2,291.4	2,285.2	5.1	5.3	-52.77	74.5	-90.7	76.4	66.3	10.06	7.594		
2,400.0	2,396.5	2,390.8	2,383.3	5.4	5.6	-58.27	81.7	-105.1	84.7	74.2	10.57	8.016		
2,500.0	2,495.6	2,490.1	2,481.3	5.7	6.0	-62.75	88.9	-119.5	93.7	82.6	11.10	8.442		
2,600.0	2,594.7	2,589.5	2,579.3	5.9	6.3	-66.44	96.1	-133.9	103.1	91.5	11.64	8.856		
2,700.0	2,693.8	2,688.8	2,677.4	6.2	6.6	-69.50	103.3	-148.3	112.9	100.7	12.21	9.251		
2,800.0	2,792.9	2,788.2	2,775.4	6.5	7.0	-72.07	110.5	-162.6	123.0	110.2	12.78	9.623		
2,900.0	2,892.0	2,887.5	2,873.5	6.8	7.3	-74.25	117.7	-177.0	133.2	119.9	13.36	9.970		
3,000.0	2,991.1	2,986.9	2,971.5	7.1	7.7	-76.11	124.8	-191.4	143.7	129.7	13.96	10.293		
3,100.0	3,090.2	3,086.3	3,069.6	7.4	8.0	-77.72	132.0	-205.8	154.2	139.7	14.56	10.593		
3,200.0	3,189.3	3,185.6	3,167.6	7.7	8.4	-79.13	139.2	-220.2	164.9	149.7	15.17	10.872		
3,300.0	3,288.4	3,285.0	3,265.7	8.0	8.7	-80.36	146.4	-234.6	175.7	159.9	15.78	11.131		
3,400.0	3,387.5	3,384.3	3,363.7	8.3	9.1	-81.45	153.6	-248.9	186.5	170.1	16.40	11.371		
3,500.7	3,487.2	3,484.3	3,462.4	8.6	9.4	-82.43	160.9	-263.4	197.4	180.4	17.03	11.596		
3,600.0	3,585.8	3,583.0	3,559.8	8.9	9.8	-83.10	168.0	-277.7	208.5	190.9	17.60	11.843		
3,700.0	3,685.3	3,682.4	3,657.8	9.1	10.2	-83.05	175.2	-292.1	219.9	201.8	18.11	12.140		
3,800.0	3,785.1	3,781.6	3,755.8	9.3	10.5	-82.38	182.4	-306.5	231.6	213.0	18.58	12.465		
3,900.0	3,885.0	3,880.7	3,853.5	9.5	10.9	-81.19	189.5	-320.8	243.8	224.8	19.01	12.826		
4,000.0	3,985.0	3,979.6	3,951.1	9.7	11.2	-79.57	196.7	-335.1	256.6	237.2	19.39	13.230		
4,015.0	4,000.0	3,994.4	3,965.7	9.7	11.3	-98.81	197.8	-337.3	258.6	239.1	19.43	13.305		
4,100.0	4,085.0	4,078.3	4,048.5	9.9	11.6	-97.12	203.8	-349.4	269.9	250.2	19.75	13.669		
4,200.0	4,185.0	4,176.9	4,145.9	10.1	12.0	-95.31	211.0	-363.7	283.6	263.5	20.14	14.082		
4,300.0	4,285.0	4,280.1	4,247.8	10.3	12.3	-93.66	218.2	-378.1	297.0	276.5	20.53	14.471		
4,400.0	4,385.0	4,386.6	4,353.4	10.5	12.6	-92.35	224.4	-390.6	308.4	287.5	20.90	14.759		
4,500.0	4,485.0	4,493.8	4,460.0	10.7	12.8	-91.38	229.4	-400.4	317.5	296.2	21.27	14.925		
4,600.0	4,585.0	4,601.6	4,567.4	10.9	13.1	-90.71	233.0	-407.7	324.2	302.5	21.65	14.970		
4,700.0	4,685.0	4,709.7	4,675.4	11.1	13.3	-90.31	235.2	-412.2	328.3	306.3	22.04	14.898		
4,800.0	4,785.0	4,818.0	4,783.7	11.3	13.4	-90.15	236.1	-414.0	330.0	307.5	22.43	14.714		

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-323 - Wellbore #1 - Plan #2 (1-23-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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
4,900.0	4,885.0	4,919.3	4,885.0	11.5	13.6	-90.15		236.1	-414.0	330.0	307.2	22.82	14.462	
5,000.0	4,985.0	5,019.3	4,985.0	11.7	13.8	-90.15		236.1	-414.0	330.0	306.8	23.22	14.211	
5,100.0	5,085.0	5,119.3	5,085.0	11.9	13.9	-90.15		236.1	-414.0	330.0	306.4	23.63	13.967	
5,200.0	5,185.0	5,219.3	5,185.0	12.1	14.1	-90.15		236.1	-414.0	330.0	306.0	24.03	13.731	
5,300.0	5,285.0	5,319.3	5,285.0	12.3	14.3	-90.15		236.1	-414.0	330.0	305.6	24.44	13.501	
5,400.0	5,385.0	5,419.3	5,385.0	12.5	14.5	-90.15		236.1	-414.0	330.0	305.1	24.85	13.279	
5,500.0	5,485.0	5,519.3	5,485.0	12.7	14.6	-90.15		236.1	-414.0	330.0	304.7	25.26	13.062	
5,600.0	5,585.0	5,619.3	5,585.0	12.9	14.8	-90.15		236.1	-414.0	330.0	304.3	25.68	12.853	
5,700.0	5,685.0	5,719.3	5,685.0	13.1	15.0	-90.15		236.1	-414.0	330.0	303.9	26.09	12.649	
5,800.0	5,785.0	5,819.3	5,785.0	13.4	15.2	-90.15		236.1	-414.0	330.0	303.5	26.50	12.451	
5,900.0	5,885.0	5,919.3	5,885.0	13.6	15.4	-90.15		236.1	-414.0	330.0	303.1	26.92	12.258	
6,000.0	5,985.0	6,019.3	5,985.0	13.8	15.6	-90.15		236.1	-414.0	330.0	302.7	27.34	12.071	
6,081.0	6,065.9	6,100.2	6,065.9	13.9	15.7	-90.15		236.1	-414.0	330.0	302.3	27.68	11.924	
6,100.0	6,085.0	6,119.3	6,085.0	14.0	15.7	90.23		236.1	-414.0	330.0	302.2	27.76	11.887	
6,150.0	6,134.9	6,169.2	6,134.9	14.1	15.8	90.73		236.1	-414.0	330.0	302.1	27.91	11.823	
6,200.0	6,184.5	6,219.0	6,184.7	14.1	15.9	91.74		235.9	-414.0	330.2	302.1	28.02	11.781	
6,250.0	6,233.6	6,269.5	6,235.1	14.1	16.0	92.87		233.1	-414.0	330.4	302.3	28.10	11.760	
6,300.0	6,282.0	6,320.4	6,285.6	14.2	16.0	93.99		226.8	-413.9	330.8	302.7	28.14	11.756	
6,350.0	6,329.5	6,371.7	6,336.0	14.2	16.1	95.10		217.1	-413.9	331.3	303.2	28.17	11.764	
6,400.0	6,375.8	6,423.5	6,386.1	14.2	16.1	96.18		203.9	-413.8	332.0	303.8	28.18	11.782	
6,450.0	6,420.8	6,475.8	6,435.6	14.2	16.2	97.24		187.2	-413.7	332.7	304.5	28.18	11.806	
6,500.0	6,464.3	6,528.6	6,484.3	14.2	16.2	98.26		166.9	-413.6	333.5	305.4	28.19	11.833	
6,550.0	6,506.1	6,581.8	6,531.9	14.3	16.2	99.25		143.1	-413.5	334.5	306.3	28.20	11.859	
6,600.0	6,546.0	6,635.5	6,578.1	14.3	16.2	100.20		115.8	-413.3	335.4	307.2	28.24	11.878	
6,650.0	6,583.8	6,689.6	6,622.6	14.3	16.2	101.10		85.1	-413.2	336.4	308.1	28.30	11.887	
6,700.0	6,619.4	6,744.1	6,665.2	14.4	16.3	101.96		50.9	-413.0	337.5	309.1	28.41	11.879	
6,750.0	6,652.7	6,799.1	6,705.5	14.5	16.3	102.75		13.6	-412.8	338.5	310.0	28.57	11.850	
6,800.0	6,683.4	6,854.5	6,743.4	14.6	16.4	103.49		-26.9	-412.6	339.6	310.8	28.79	11.795	
6,850.0	6,711.5	6,910.3	6,778.4	14.8	16.4	104.16		-70.3	-412.3	340.5	311.5	29.08	11.710	
6,900.0	6,736.9	6,966.5	6,810.3	15.1	16.5	104.76		-116.5	-412.1	341.5	312.0	29.46	11.593	
6,950.0	6,759.3	7,022.9	6,838.9	15.3	16.7	105.30		-165.1	-411.8	342.4	312.4	29.92	11.443	
7,000.0	6,778.8	7,079.7	6,864.0	15.7	16.9	105.76		-216.0	-411.5	343.1	312.7	30.48	11.260	
7,050.0	6,795.2	7,136.6	6,885.3	16.1	17.2	106.15		-268.8	-411.2	343.8	312.7	31.13	11.046	
7,100.0	6,808.6	7,193.9	6,902.6	16.5	17.6	106.47		-323.3	-411.0	344.4	312.5	31.87	10.805	
7,150.0	6,818.7	7,251.2	6,915.9	16.9	18.1	106.70		-379.1	-410.6	344.8	312.1	32.72	10.540	
7,200.0	6,825.6	7,308.7	6,924.9	17.4	18.6	106.86		-435.9	-410.3	345.1	311.5	33.66	10.255	
7,250.0	6,829.3	7,366.3	6,929.7	18.0	19.2	106.93		-493.2	-410.0	345.3	310.6	34.68	9.958	
7,287.6	6,829.9	7,409.5	6,930.4	18.4	19.7	106.93		-536.4	-409.8	345.3	309.8	35.49	9.729	
7,300.0	6,829.8	7,421.8	6,930.3	18.5	19.8	106.93		-548.8	-409.7	345.3	309.6	35.78	9.653	
7,400.0	6,828.9	7,521.8	6,929.3	19.8	21.0	106.91		-648.8	-409.2	345.3	307.2	38.13	9.056	
7,500.0	6,828.0	7,621.8	6,928.3	21.1	22.3	106.88		-748.8	-408.6	345.3	304.6	40.69	8.487	
7,600.0	6,827.1	7,721.8	6,927.3	22.5	23.7	106.86		-848.8	-408.1	345.3	301.9	43.41	7.955	
7,700.0	6,826.3	7,821.8	6,926.3	24.0	25.1	106.83		-948.8	-407.5	345.3	299.1	46.27	7.463	
7,800.0	6,825.4	7,921.8	6,925.3	25.5	26.7	106.81		-1,048.8	-407.0	345.3	296.1	49.25	7.013	
7,900.0	6,824.5	8,021.8	6,924.2	27.1	28.2	106.79		-1,148.8	-406.5	345.4	293.0	52.32	6.601	
8,000.0	6,823.6	8,121.8	6,923.2	28.8	29.8	106.76		-1,248.7	-405.9	345.4	289.9	55.46	6.227	
8,100.0	6,822.8	8,221.8	6,922.2	30.4	31.5	106.74		-1,348.7	-405.4	345.4	286.7	58.68	5.886	
8,200.0	6,821.9	8,321.8	6,921.2	32.1	33.1	106.71		-1,448.7	-404.8	345.4	283.4	61.95	5.575	
8,300.0	6,821.0	8,421.8	6,920.2	33.8	34.8	106.69		-1,548.7	-404.3	345.4	280.1	65.26	5.292	
8,400.0	6,820.2	8,521.8	6,919.2	35.6	36.5	106.66		-1,648.7	-403.7	345.4	276.8	68.62	5.033	
8,500.0	6,819.3	8,621.8	6,918.2	37.3	38.3	106.64		-1,748.7	-403.2	345.4	273.4	72.02	4.796	

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-323 - Wellbore #1 - Plan #2 (1-23-15)		Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
8,600.0	6,818.4	8,721.8	6,917.2	39.1	40.0	106.61	-1,848.7	-402.6	345.4	269.9	75.44	4.578				
8,700.0	6,817.5	8,821.8	6,916.2	40.9	41.8	106.59	-1,948.7	-402.1	345.4	266.5	78.89	4.378				
8,800.0	6,816.7	8,921.8	6,915.1	42.7	43.6	106.57	-2,048.7	-401.5	345.4	263.0	82.37	4.193				
8,900.0	6,815.8	9,021.8	6,914.1	44.5	45.3	106.54	-2,148.7	-401.0	345.4	259.5	85.86	4.023				
9,000.0	6,814.9	9,121.8	6,913.1	46.3	47.1	106.52	-2,248.7	-400.5	345.4	256.0	89.38	3.865				
9,100.0	6,814.0	9,221.8	6,912.1	48.1	49.0	106.49	-2,348.7	-399.9	345.4	252.5	92.91	3.718				
9,200.0	6,813.2	9,321.8	6,911.1	50.0	50.8	106.47	-2,448.7	-399.4	345.4	249.0	96.45	3.581				
9,300.0	6,812.3	9,421.8	6,910.1	51.8	52.6	106.44	-2,548.7	-398.8	345.4	245.4	100.01	3.454				
9,400.0	6,811.4	9,521.8	6,909.1	53.6	54.4	106.42	-2,648.7	-398.3	345.4	241.8	103.58	3.335				
9,500.0	6,810.6	9,621.8	6,908.1	55.5	56.3	106.40	-2,748.6	-397.7	345.4	238.3	107.16	3.223				
9,600.0	6,809.7	9,721.8	6,907.0	57.3	58.1	106.37	-2,848.6	-397.2	345.4	234.7	110.75	3.119				
9,700.0	6,808.8	9,821.8	6,906.0	59.2	59.9	106.35	-2,948.6	-396.6	345.4	231.1	114.35	3.021				
9,800.0	6,807.9	9,921.8	6,905.0	61.1	61.8	106.32	-3,048.6	-396.1	345.4	227.5	117.96	2.928				
9,900.0	6,807.1	10,021.8	6,904.0	62.9	63.7	106.30	-3,148.6	-395.6	345.4	223.9	121.58	2.841				
10,000.0	6,806.2	10,121.8	6,903.0	64.8	65.5	106.27	-3,248.6	-395.0	345.4	220.2	125.20	2.759				
10,100.0	6,805.3	10,221.8	6,902.0	66.7	67.4	106.25	-3,348.6	-394.5	345.5	216.6	128.83	2.681				
10,200.0	6,804.4	10,321.8	6,901.0	68.5	69.2	106.22	-3,448.6	-393.9	345.5	213.0	132.47	2.608				
10,300.0	6,803.6	10,421.8	6,900.0	70.4	71.1	106.20	-3,548.6	-393.4	345.5	209.4	136.11	2.538				
10,400.0	6,802.7	10,521.8	6,898.9	72.3	73.0	106.18	-3,648.6	-392.8	345.5	205.7	139.75	2.472				
10,500.0	6,801.8	10,621.8	6,897.9	74.2	74.9	106.15	-3,748.6	-392.3	345.5	202.1	143.40	2.409				
10,600.0	6,801.0	10,721.8	6,896.9	76.1	76.7	106.13	-3,848.6	-391.7	345.5	198.4	147.06	2.349				
10,700.0	6,800.1	10,821.8	6,895.9	78.0	78.6	106.10	-3,948.6	-391.2	345.5	194.8	150.72	2.292				
10,800.0	6,799.2	10,921.8	6,894.9	79.8	80.5	106.08	-4,048.6	-390.6	345.5	191.1	154.38	2.238				
10,900.0	6,798.3	11,021.8	6,893.9	81.7	82.4	106.05	-4,148.6	-390.1	345.5	187.4	158.05	2.186				
11,000.0	6,797.5	11,121.8	6,892.9	83.6	84.3	106.03	-4,248.5	-389.6	345.5	183.8	161.72	2.136				
11,100.0	6,796.6	11,221.8	6,891.9	85.5	86.1	106.01	-4,348.5	-389.0	345.5	180.1	165.40	2.089				
11,200.0	6,795.7	11,321.8	6,890.8	87.4	88.0	105.98	-4,448.5	-388.5	345.5	176.5	169.00	2.044				
11,282.5	6,795.0	11,404.3	6,890.0	89.0	89.2	105.96	-4,531.0	-388.0	345.5	173.8	171.75	2.012 SF				

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5M-303 - Wellbore #1 - Plan #2 (1-23-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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
0.0	0.0	1.0	1.0	0.0	0.0	180.00	180.00	-29.1	0.0	29.1	29.1	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	180.00	180.00	-29.1	0.0	29.1	28.9	0.23	128.326	
200.0	200.0	201.0	201.0	0.3	0.3	180.00	180.00	-29.1	0.0	29.1	28.5	0.68	43.060	
300.0	300.0	301.0	301.0	0.6	0.6	180.00	180.00	-29.1	0.0	29.1	28.0	1.13	25.870	
400.0	400.0	401.0	401.0	0.8	0.8	180.00	180.00	-29.1	0.0	29.1	27.6	1.58	18.489	
500.0	500.0	501.0	501.0	1.0	1.0	180.00	180.00	-29.1	0.0	29.1	27.1	2.03	14.385	
600.0	600.0	601.0	601.0	1.2	1.2	180.00	180.00	-29.1	0.0	29.1	26.7	2.47	11.772	
700.0	700.0	701.0	701.0	1.5	1.5	180.00	180.00	-29.1	0.0	29.1	26.2	2.92	9.962	
800.0	800.0	801.0	801.0	1.7	1.7	180.00	180.00	-29.1	0.0	29.1	25.8	3.37	8.635	
900.0	900.0	901.0	901.0	1.9	1.9	180.00	180.00	-29.1	0.0	29.1	25.3	3.82	7.620	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	180.00	180.00	-29.1	0.0	29.1	24.9	4.27	6.818	
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	180.00	180.00	-29.1	0.0	29.1	24.4	4.72	6.169	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	180.00	180.00	-29.1	0.0	29.1	24.0	5.17	5.633	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	180.00	180.00	-29.1	0.0	29.1	23.5	5.62	5.182	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	180.00	180.00	-29.1	0.0	29.1	23.1	6.07	4.799	
1,500.0	1,500.0	1,501.0	1,501.0	3.3	3.3	180.00	180.00	-29.1	0.0	29.1	22.6	6.52	4.468 CC, ES	
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-161.04	180.00	-29.1	0.0	30.0	23.0	6.97	4.299	
1,700.0	1,700.0	1,701.0	1,701.0	3.7	3.7	-162.53	180.00	-29.1	0.0	32.4	25.0	7.41	4.375	
1,800.0	1,799.9	1,800.9	1,800.9	3.9	3.9	-164.57	180.00	-29.1	0.0	36.6	28.8	7.86	4.660	
1,900.0	1,899.7	1,900.7	1,900.7	4.2	4.2	-166.74	180.00	-29.1	0.0	42.5	34.2	8.30	5.125	
2,000.0	1,999.4	2,000.4	2,000.4	4.4	4.4	-168.78	180.00	-29.1	0.0	50.2	41.5	8.74	5.744	
2,100.0	2,098.9	2,100.5	2,100.5	4.6	4.6	-171.25	180.00	-28.5	0.6	59.1	49.9	9.18	6.442	
2,200.0	2,198.3	2,200.6	2,200.6	4.9	4.8	-174.45	180.00	-26.5	2.4	68.9	59.3	9.61	7.169	
2,271.5	2,269.2	2,272.1	2,272.0	5.1	5.0	-176.97	180.00	-24.4	4.4	76.4	66.5	9.91	7.711	
2,300.0	2,297.4	2,300.6	2,300.5	5.1	5.0	-178.00	180.00	-23.3	5.3	79.5	69.5	10.04	7.924	
2,400.0	2,396.5	2,400.6	2,400.3	5.4	5.3	178.31	178.31	-18.8	9.5	90.1	79.6	10.49	8.593	
2,500.0	2,495.6	2,500.6	2,499.9	5.7	5.5	174.48	174.48	-13.1	14.8	100.3	89.4	10.94	9.168	
2,600.0	2,594.7	2,600.5	2,599.4	5.9	5.7	170.52	170.52	-6.0	21.3	110.3	98.9	11.41	9.670	
2,700.0	2,693.8	2,700.2	2,698.4	6.2	6.0	166.44	166.44	2.3	29.0	120.3	108.4	11.88	10.121	
2,800.0	2,792.9	2,799.7	2,797.1	6.5	6.2	162.25	162.25	11.8	37.8	130.4	118.1	12.38	10.537	
2,900.0	2,892.0	2,898.9	2,895.2	6.8	6.5	158.03	158.03	22.6	47.6	141.0	128.1	12.89	10.936	
3,000.0	2,991.1	2,997.8	2,993.0	7.1	6.7	154.26	154.26	33.6	57.8	152.2	138.8	13.42	11.338	
3,100.0	3,090.2	3,096.7	3,090.8	7.4	7.0	151.02	151.02	44.6	67.9	164.0	150.0	13.97	11.739	
3,200.0	3,189.3	3,195.6	3,188.5	7.7	7.3	148.21	148.21	55.6	78.0	176.2	161.7	14.52	12.133	
3,300.0	3,288.4	3,294.5	3,286.3	8.0	7.6	145.77	145.77	66.5	88.2	188.8	173.7	15.09	12.515	
3,400.0	3,387.5	3,393.4	3,384.1	8.3	7.9	143.64	143.64	77.5	98.3	201.7	186.0	15.66	12.882	
3,500.7	3,487.2	3,493.0	3,482.5	8.6	8.2	141.76	141.76	88.6	108.5	214.9	198.7	16.24	13.235	
3,600.0	3,585.8	3,591.3	3,579.7	8.9	8.5	140.02	140.02	99.5	118.6	227.1	210.3	16.80	13.517	
3,700.0	3,685.3	3,690.4	3,677.6	9.1	8.8	138.03	138.03	110.6	128.7	237.8	220.4	17.34	13.710	
3,800.0	3,785.1	3,789.5	3,775.6	9.3	9.1	135.80	135.80	121.6	138.9	246.8	228.9	17.87	13.811	
3,900.0	3,885.0	3,888.5	3,873.5	9.5	9.4	133.30	133.30	132.6	149.0	254.4	236.1	18.38	13.840	
4,000.0	3,985.0	3,987.5	3,971.3	9.7	9.7	130.52	130.52	143.6	159.1	260.9	242.0	18.88	13.816	
4,015.0	4,000.0	4,002.3	3,986.0	9.7	9.8	110.56	110.56	145.2	160.7	261.7	242.8	18.95	13.810	
4,100.0	4,085.0	4,086.3	4,069.0	9.9	10.1	108.03	108.03	154.6	169.3	266.9	247.5	19.38	13.772	
4,200.0	4,185.0	4,185.2	4,166.7	10.1	10.4	105.17	105.17	165.6	179.4	273.6	253.7	19.89	13.756	
4,300.0	4,285.0	4,284.0	4,264.4	10.3	10.7	102.46	102.46	176.6	189.5	280.9	260.5	20.39	13.779	
4,400.0	4,385.0	4,382.9	4,362.2	10.5	11.0	99.89	99.89	187.5	199.6	288.9	268.0	20.88	13.836	
4,500.0	4,485.0	4,481.7	4,459.9	10.7	11.4	97.46	97.46	198.5	209.8	297.4	276.1	21.36	13.922	
4,600.0	4,585.0	4,582.4	4,559.4	10.9	11.7	95.15	95.15	209.6	220.0	306.3	284.5	21.83	14.032	
4,700.0	4,685.0	4,686.9	4,663.1	11.1	12.0	93.21	93.21	219.4	229.0	314.3	292.1	22.26	14.123	
4,800.0	4,785.0	4,792.1	4,767.7	11.3	12.2	91.75	91.75	227.2	236.2	320.9	298.2	22.67	14.154	

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5M-303 - Wellbore #1 - Plan #2 (1-23-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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
4,900.0	4,885.0	4,897.7	4,873.0	11.5	12.4	90.72		232.9	241.4	325.7	302.6	23.07	14.117	
5,000.0	4,985.0	5,003.7	4,978.9	11.7	12.6	90.09		236.5	244.7	328.8	305.3	23.47	14.010	
5,100.0	5,085.0	5,109.9	5,085.1	11.9	12.8	89.85		237.8	246.0	330.0	306.1	23.86	13.832	
5,200.0	5,185.0	5,210.8	5,186.0	12.1	13.0	89.85		237.9	246.0	330.0	305.8	24.25	13.609	
5,300.0	5,285.0	5,310.8	5,286.0	12.3	13.2	89.85		237.9	246.0	330.0	305.3	24.66	13.384	
5,400.0	5,385.0	5,410.8	5,386.0	12.5	13.4	89.85		237.9	246.0	330.0	304.9	25.07	13.165	
5,500.0	5,485.0	5,510.8	5,486.0	12.7	13.6	89.85		237.9	246.0	330.0	304.5	25.48	12.952	
5,600.0	5,585.0	5,610.8	5,586.0	12.9	13.8	89.85		237.9	246.0	330.0	304.1	25.89	12.746	
5,700.0	5,685.0	5,710.8	5,686.0	13.1	13.9	89.85		237.9	246.0	330.0	303.7	26.30	12.545	
5,800.0	5,785.0	5,810.8	5,786.0	13.4	14.1	89.85		237.9	246.0	330.0	303.3	26.72	12.350	
5,900.0	5,885.0	5,910.8	5,886.0	13.6	14.3	89.85		237.9	246.0	330.0	302.9	27.14	12.161	
6,000.0	5,985.0	6,010.8	5,986.0	13.8	14.5	89.85		237.9	246.0	330.0	302.4	27.55	11.977	
6,081.0	6,065.9	6,091.8	6,066.9	13.9	14.7	89.85		237.9	246.0	330.0	302.1	27.89	11.832	
6,100.0	6,085.0	6,110.8	6,086.0	14.0	14.7	-89.85		237.9	246.0	330.0	302.0	27.96	11.803	
6,121.5	6,106.5	6,132.3	6,107.5	14.0	14.8	-90.00		237.9	246.0	330.0	302.0	28.03	11.772	
6,150.0	6,134.9	6,160.7	6,135.9	14.1	14.8	-90.35		237.9	246.0	330.0	301.9	28.12	11.734	
6,200.0	6,184.5	6,210.3	6,185.5	14.1	14.9	-91.40		237.9	246.0	330.1	301.8	28.26	11.680	
6,250.0	6,233.6	6,259.4	6,234.6	14.1	15.0	-92.97		237.9	246.0	330.5	302.1	28.38	11.646	
6,300.0	6,282.0	6,309.7	6,284.9	14.2	15.1	-94.82		236.2	246.0	331.2	302.8	28.45	11.644	
6,350.0	6,329.5	6,360.8	6,335.7	14.2	15.2	-96.65		231.1	246.0	332.3	303.9	28.48	11.669	
6,400.0	6,375.8	6,412.7	6,386.8	14.2	15.2	-98.46		222.5	246.1	333.8	305.3	28.48	11.719	
6,450.0	6,420.8	6,465.3	6,438.0	14.2	15.2	-100.23		210.3	246.2	335.6	307.1	28.46	11.791	
6,500.0	6,464.3	6,518.9	6,489.1	14.2	15.3	-101.96		194.2	246.3	337.6	309.2	28.42	11.882	
6,550.0	6,506.1	6,573.3	6,539.7	14.3	15.3	-103.62		174.3	246.4	339.9	311.6	28.36	11.988	
6,600.0	6,546.0	6,628.6	6,589.5	14.3	15.3	-105.23		150.4	246.5	342.5	314.2	28.29	12.105	
6,650.0	6,583.8	6,684.7	6,638.3	14.3	15.3	-106.76		122.5	246.7	345.1	316.9	28.23	12.226	
6,700.0	6,619.4	6,741.8	6,685.5	14.4	15.3	-108.20		90.5	246.9	347.9	319.7	28.18	12.345	
6,750.0	6,652.7	6,799.7	6,731.0	14.5	15.3	-109.56		54.6	247.1	350.7	322.6	28.16	12.454	
6,800.0	6,683.4	6,858.5	6,774.2	14.6	15.3	-110.82		14.7	247.3	353.6	325.4	28.19	12.541	
6,850.0	6,711.5	6,918.2	6,814.7	14.8	15.3	-111.97		-29.0	247.5	356.3	328.0	28.28	12.599	
6,900.0	6,736.9	6,978.6	6,852.2	15.1	15.3	-113.02		-76.5	247.8	359.0	330.5	28.44	12.623	
6,950.0	6,759.3	7,039.8	6,886.2	15.3	15.4	-113.95		-127.3	248.1	361.4	332.7	28.69	12.596	
7,000.0	6,778.8	7,101.7	6,916.3	15.7	15.7	-114.76		-181.3	248.4	363.7	334.6	29.05	12.519	
7,050.0	6,795.2	7,164.2	6,942.2	16.1	16.0	-115.45		-238.2	248.8	365.6	336.1	29.53	12.383	
7,100.0	6,808.6	7,227.2	6,963.5	16.5	16.4	-116.01		-297.5	249.1	367.3	337.1	30.12	12.192	
7,150.0	6,818.7	7,290.7	6,979.9	16.9	17.0	-116.44		-358.7	249.5	368.5	337.7	30.84	11.948	
7,200.0	6,825.6	7,354.4	6,991.3	17.4	17.5	-116.73		-421.5	249.8	369.4	337.7	31.69	11.657	
7,250.0	6,829.3	7,418.4	6,997.4	18.0	18.2	-116.90		-485.1	250.2	369.9	337.3	32.67	11.325	
7,287.6	6,829.9	7,466.6	6,998.5	18.4	18.7	-116.93		-533.3	250.5	370.0	336.6	33.47	11.055	
7,300.0	6,829.8	7,482.0	6,998.2	18.5	18.9	-116.91		-548.7	250.5	370.0	336.2	33.76	10.959	
7,400.0	6,828.9	7,582.0	6,995.4	19.8	20.0	-116.65		-648.7	251.1	369.1	333.1	36.00	10.252	
7,500.0	6,828.0	7,682.0	6,992.6	21.1	21.3	-116.38		-748.6	251.7	368.2	329.8	38.44	9.579	
7,600.0	6,827.1	7,782.0	6,989.8	22.5	22.7	-116.11		-848.6	252.3	367.4	326.3	41.05	8.949	
7,700.0	6,826.3	7,882.0	6,987.0	24.0	24.1	-115.84		-948.5	252.9	366.5	322.7	43.81	8.367	
7,800.0	6,825.4	7,982.0	6,984.2	25.5	25.6	-115.57		-1,048.4	253.4	365.7	319.0	46.68	7.833	
7,900.0	6,824.5	8,081.9	6,981.4	27.1	27.2	-115.30		-1,148.4	254.0	364.8	315.2	49.66	7.347	
8,000.0	6,823.6	8,181.9	6,978.6	28.8	28.8	-115.03		-1,248.3	254.6	364.0	311.3	52.73	6.904	
8,100.0	6,822.8	8,281.9	6,975.8	30.4	30.4	-114.76		-1,348.3	255.2	363.2	307.3	55.87	6.500	
8,200.0	6,821.9	8,381.9	6,973.0	32.1	32.1	-114.48		-1,448.2	255.8	362.4	303.3	59.08	6.134	
8,300.0	6,821.0	8,481.9	6,970.2	33.8	33.8	-114.21		-1,548.2	256.3	361.6	299.2	62.35	5.799	
8,400.0	6,820.2	8,581.8	6,967.5	35.6	35.5	-113.93		-1,648.1	256.9	360.8	295.1	65.66	5.494	

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5M-303 - Wellbore #1 - Plan #2 (1-23-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	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
8,500.0	6,819.3	8,681.8	6,964.7	37.3	37.3	-113.65	-113.65	-1,748.0	257.5	360.0	291.0	69.03	5.215	
8,600.0	6,818.4	8,781.8	6,961.9	39.1	39.0	-113.37	-113.37	-1,848.0	258.1	359.2	286.8	72.43	4.959	
8,700.0	6,817.5	8,881.8	6,959.1	40.9	40.8	-113.09	-113.09	-1,947.9	258.6	358.4	282.6	75.88	4.724	
8,800.0	6,816.7	8,981.8	6,956.3	42.7	42.6	-112.81	-112.81	-2,047.9	259.2	357.7	278.3	79.35	4.508	
8,900.0	6,815.8	9,081.8	6,953.5	44.5	44.4	-112.52	-112.52	-2,147.8	259.8	356.9	274.1	82.86	4.308	
9,000.0	6,814.9	9,181.7	6,950.7	46.3	46.2	-112.24	-112.24	-2,247.7	260.4	356.2	269.8	86.39	4.123	
9,100.0	6,814.0	9,281.7	6,947.9	48.1	48.0	-111.95	-111.95	-2,347.7	261.0	355.5	265.5	89.95	3.951	
9,200.0	6,813.2	9,381.7	6,945.1	50.0	49.8	-111.67	-111.67	-2,447.6	261.5	354.7	261.2	93.54	3.792	
9,300.0	6,812.3	9,481.7	6,942.3	51.8	51.6	-111.38	-111.38	-2,547.6	262.1	354.0	256.9	97.15	3.644	
9,400.0	6,811.4	9,581.7	6,939.5	53.6	53.5	-111.09	-111.09	-2,647.5	262.7	353.3	252.5	100.78	3.506	
9,500.0	6,810.6	9,681.6	6,936.7	55.5	55.3	-110.80	-110.80	-2,747.4	263.3	352.6	248.2	104.43	3.376	
9,600.0	6,809.7	9,781.6	6,934.0	57.3	57.2	-110.51	-110.51	-2,847.4	263.8	351.9	243.8	108.10	3.255	
9,700.0	6,808.8	9,881.6	6,931.2	59.2	59.0	-110.22	-110.22	-2,947.3	264.4	351.2	239.4	111.79	3.142	
9,800.0	6,807.9	9,981.6	6,928.4	61.1	60.9	-109.92	-109.92	-3,047.3	265.0	350.6	235.1	115.49	3.035	
9,900.0	6,807.1	10,081.6	6,925.6	62.9	62.7	-109.63	-109.63	-3,147.2	265.6	349.9	230.7	119.22	2.935	
10,000.0	6,806.2	10,181.5	6,922.8	64.8	64.6	-109.33	-109.33	-3,247.1	266.2	349.3	226.3	122.95	2.841	
10,100.0	6,805.3	10,281.5	6,920.0	66.7	66.4	-109.04	-109.04	-3,347.1	266.7	348.6	221.9	126.70	2.751	
10,200.0	6,804.4	10,381.5	6,917.2	68.5	68.3	-108.74	-108.74	-3,447.0	267.3	348.0	217.5	130.47	2.667	
10,300.0	6,803.6	10,481.5	6,914.4	70.4	70.2	-108.44	-108.44	-3,547.0	267.9	347.3	213.1	134.25	2.587	
10,400.0	6,802.7	10,581.5	6,911.6	72.3	72.1	-108.14	-108.14	-3,646.9	268.5	346.7	208.7	138.04	2.512	
10,500.0	6,801.8	10,681.5	6,908.8	74.2	73.9	-107.84	-107.84	-3,746.9	269.0	346.1	204.3	141.84	2.440	
10,600.0	6,801.0	10,781.4	6,906.0	76.1	75.8	-107.53	-107.53	-3,846.8	269.6	345.5	199.9	145.66	2.372	
10,700.0	6,800.1	10,881.4	6,903.2	78.0	77.7	-107.23	-107.23	-3,946.7	270.2	344.9	195.5	149.49	2.308	
10,800.0	6,799.2	10,981.4	6,900.5	79.8	79.6	-106.93	-106.93	-4,046.7	270.8	344.4	191.0	153.33	2.246	
10,900.0	6,798.3	11,081.4	6,897.7	81.7	81.5	-106.62	-106.62	-4,146.6	271.4	343.8	186.6	157.17	2.187	
11,000.0	6,797.5	11,181.4	6,894.9	83.6	83.3	-106.32	-106.32	-4,246.6	271.9	343.2	182.2	161.03	2.132	
11,100.0	6,796.6	11,281.3	6,892.1	85.5	85.2	-106.01	-106.01	-4,346.5	272.5	342.7	177.8	164.90	2.078	
11,200.0	6,795.7	11,381.3	6,889.3	87.4	87.1	-105.70	-105.70	-4,446.4	273.1	342.2	173.4	168.78	2.027	
11,282.5	6,795.0	11,463.2	6,887.0	89.0	88.4	-105.45	-105.45	-4,528.3	273.6	341.7	170.0	171.74	1.990 SF	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-11 (SI) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-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	-169.02	-169.02	-561.0	-108.8	571.8				
100.0	100.0	81.6	81.6	0.1	1.6	-169.03	-169.03	-561.1	-108.7	571.5	569.8	1.74	327.715	
200.0	200.0	181.9	181.9	0.3	5.2	-169.07	-169.07	-561.2	-108.4	571.6	566.0	5.58	102.396	
300.0	300.0	281.6	281.6	0.6	9.2	-169.10	-169.10	-561.3	-108.1	571.6	561.8	9.77	58.519	
400.0	400.0	383.7	383.7	0.8	12.4	-169.13	-169.13	-561.3	-107.7	571.5	558.4	13.14	43.488	
500.0	500.0	487.6	487.6	1.0	14.0	-169.15	-169.15	-560.7	-107.5	570.9	555.9	14.98	38.125	
600.0	600.0	592.5	592.5	1.2	15.3	-169.14	-169.14	-559.2	-107.3	569.5	553.0	16.53	34.454	
700.0	700.0	694.5	694.5	1.5	17.7	-169.14	-169.14	-557.2	-106.8	567.5	548.4	19.12	29.681	
800.0	800.0	796.0	795.9	1.7	20.6	-169.15	-169.15	-554.9	-106.3	565.1	542.9	22.22	25.430	
900.0	900.0	897.8	897.7	1.9	23.7	-169.15	-169.15	-552.2	-105.9	562.5	536.9	25.60	21.976	
1,000.0	1,000.0	1,001.2	1,001.0	2.1	27.3	-169.16	-169.16	-549.1	-105.1	559.4	530.0	29.40	19.029	
1,100.0	1,100.0	1,100.7	1,100.5	2.4	30.9	-169.19	-169.19	-545.9	-104.2	556.0	522.8	33.24	16.729	
1,200.0	1,200.0	1,200.0	1,199.7	2.6	34.6	-169.22	-169.22	-542.7	-103.4	552.8	515.6	37.16	14.875	
1,300.0	1,300.0	1,298.5	1,298.2	2.8	38.4	-169.25	-169.25	-539.9	-102.5	549.7	508.6	41.16	13.357	
1,400.0	1,400.0	1,398.6	1,398.3	3.0	42.4	-169.32	-169.32	-537.1	-101.3	546.8	501.5	45.30	12.069	
1,500.0	1,500.0	1,498.4	1,498.0	3.3	46.3	-169.41	-169.41	-534.3	-99.9	543.8	494.3	49.50	10.987	
1,600.0	1,600.0	1,598.2	1,597.7	3.5	50.3	-150.08	-150.08	-531.7	-98.2	541.7	487.9	53.72	10.083	
1,681.7	1,681.7	1,679.1	1,678.6	3.7	53.6	-150.30	-150.30	-529.6	-96.7	541.1	484.0	57.13	9.472	
1,700.0	1,700.0	1,697.2	1,696.7	3.7	54.3	-150.36	-150.36	-529.2	-96.3	541.1	483.2	57.89	9.348	
1,800.0	1,799.9	1,796.6	1,796.0	3.9	58.2	-150.75	-150.75	-526.9	-94.3	542.2	480.2	62.04	8.741	
1,900.0	1,899.7	1,896.3	1,895.7	4.2	62.1	-151.26	-151.26	-524.6	-91.9	545.0	478.9	66.11	8.244	
2,000.0	1,999.4	1,992.5	1,991.9	4.4	65.6	-151.88	-151.88	-522.9	-89.1	549.6	479.9	69.77	7.878	
2,100.0	2,098.9	2,085.0	2,084.3	4.6	68.4	-152.56	-152.56	-522.1	-86.2	556.9	484.2	72.69	7.661	
2,200.0	2,198.3	2,180.4	2,179.7	4.9	70.6	-153.28	-153.28	-522.2	-83.6	566.7	491.7	75.02	7.555	
2,271.5	2,269.2	2,249.6	2,248.9	5.1	71.6	-153.80	-153.80	-522.6	-82.1	575.1	499.1	76.08	7.560	
2,300.0	2,297.4	2,277.3	2,276.6	5.1	71.9	-154.00	-154.00	-522.8	-81.7	578.7	502.3	76.46	7.569	
2,400.0	2,396.5	2,383.9	2,383.2	5.4	73.9	-154.69	-154.69	-522.9	-80.9	590.9	512.2	78.69	7.509	
2,500.0	2,495.6	2,493.4	2,492.6	5.7	77.6	-155.34	-155.34	-521.1	-80.2	601.4	518.7	82.67	7.275	
2,600.0	2,594.7	2,601.9	2,601.0	5.9	81.7	-156.01	-156.01	-517.7	-78.9	610.4	523.5	86.90	7.024	
2,700.0	2,693.8	2,702.3	2,701.4	6.2	85.5	-156.66	-156.66	-513.7	-77.1	618.7	527.7	90.97	6.801	
2,800.0	2,792.9	2,801.8	2,800.7	6.5	89.4	-157.31	-157.31	-509.7	-75.1	626.9	531.9	95.05	6.596	
2,900.0	2,892.0	2,898.5	2,897.3	6.8	93.2	-157.95	-157.95	-506.1	-72.8	635.5	536.4	99.09	6.413	
3,000.0	2,991.1	2,989.4	2,988.1	7.1	96.8	-158.56	-158.56	-503.4	-70.4	645.0	542.1	102.89	6.268	
3,100.0	3,090.2	3,078.9	3,077.6	7.4	100.0	-159.17	-159.17	-502.1	-67.8	655.9	549.7	106.28	6.171	
3,200.0	3,189.3	3,170.1	3,168.9	7.7	102.2	-159.73	-159.73	-501.9	-65.7	668.3	559.6	108.73	6.147	
3,300.0	3,288.4	3,265.8	3,264.5	8.0	102.4	-160.20	-160.20	-502.6	-64.6	681.7	572.5	109.15	6.245	
3,400.0	3,387.5	3,366.7	3,365.4	8.3	100.0	-160.59	-160.59	-503.4	-64.5	695.1	588.1	107.02	6.495	
3,500.7	3,487.2	3,468.8	3,467.5	8.6	96.3	-160.92	-160.92	-503.8	-65.0	708.3	604.7	103.60	6.836	
3,600.0	3,585.8	3,568.0	3,566.7	8.9	92.7	-161.25	-161.25	-504.0	-65.5	719.8	619.4	100.46	7.166	
3,700.0	3,685.3	3,670.6	3,669.3	9.1	89.7	-161.48	-161.48	-504.0	-66.3	728.9	631.1	97.77	7.455	
3,800.0	3,785.1	3,773.4	3,772.1	9.3	87.8	-161.57	-161.57	-503.5	-67.9	735.0	638.8	96.15	7.644	
3,900.0	3,885.0	3,873.5	3,872.2	9.5	86.6	-161.56	-161.56	-502.8	-69.5	738.3	643.2	95.09	7.765	
4,000.0	3,985.0	3,973.5	3,972.2	9.7	85.4	-161.47	-161.47	-502.2	-71.3	739.3	645.2	94.08	7.858	
4,015.0	4,000.0	3,988.6	3,987.2	9.7	85.3	-179.04	-179.04	-502.1	-71.6	739.2	645.3	93.93	7.870	
4,100.0	4,085.0	4,075.3	4,074.0	9.9	84.4	-179.18	-179.18	-501.4	-73.4	738.5	645.2	93.26	7.918	
4,200.0	4,185.0	4,178.6	4,177.2	10.1	83.9	-179.38	-179.38	-500.2	-76.1	737.3	644.4	92.89	7.938	
4,300.0	4,285.0	4,280.8	4,279.3	10.3	83.9	-179.59	-179.59	-498.7	-78.8	735.8	642.7	93.13	7.901	
4,400.0	4,385.0	4,380.9	4,379.4	10.5	84.7	-179.77	-179.77	-497.0	-81.1	734.1	640.0	94.10	7.801	
4,500.0	4,485.0	4,480.0	4,478.5	10.7	85.9	-179.91	-179.91	-495.4	-82.9	732.4	636.9	95.52	7.668	
4,600.0	4,585.0	4,578.4	4,576.8	10.9	87.1	-179.95	-179.95	-493.9	-84.7	731.0	634.1	96.91	7.543	
4,700.0	4,685.0	4,677.3	4,675.7	11.1	88.2	-179.81	-179.81	-492.7	-86.4	729.7	631.5	98.25	7.427	

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-11 (SI) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 100-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)			
4,800.0	4,785.0	4,775.3	4,773.7	11.3	89.3	-179.68	-491.6	-88.1	728.6	629.1	99.53	7.321		
4,900.0	4,885.0	4,870.0	4,868.4	11.5	89.5	-179.56	-491.0	-89.6	728.0	628.0	99.99	7.281		
4,923.9	4,908.9	4,892.4	4,890.8	11.5	89.5	-179.53	-491.0	-89.9	728.0	628.0	100.04	7.277		
5,000.0	4,985.0	4,968.4	4,966.7	11.7	88.9	-179.45	-491.0	-91.0	728.1	628.4	99.63	7.308		
5,100.0	5,085.0	5,068.1	5,066.4	11.9	88.2	-179.34	-491.0	-92.4	728.1	629.0	99.13	7.345		
5,200.0	5,185.0	5,167.2	5,165.5	12.1	87.5	-179.20	-491.2	-94.1	728.2	629.6	98.65	7.382		
5,300.0	5,285.0	5,266.5	5,264.9	12.3	86.7	-179.07	-491.4	-95.8	728.5	630.4	98.07	7.428		
5,400.0	5,385.0	5,365.2	5,363.5	12.5	85.7	-178.96	-491.7	-97.3	728.9	631.5	97.30	7.490		
5,500.0	5,485.0	5,463.7	5,462.0	12.7	84.4	-178.84	-492.3	-98.7	729.4	633.3	96.18	7.584		
5,600.0	5,585.0	5,564.9	5,563.2	12.9	82.7	-178.75	-492.9	-99.9	730.1	635.4	94.67	7.712		
5,700.0	5,685.0	5,666.2	5,664.5	13.1	80.2	-178.72	-493.3	-100.4	730.5	638.1	92.41	7.905		
5,800.0	5,785.0	5,766.5	5,764.8	13.4	77.6	-178.70	-493.6	-100.6	730.8	640.8	90.06	8.115		
5,900.0	5,885.0	5,866.6	5,864.8	13.6	76.4	-178.65	-493.9	-101.3	731.1	642.1	89.07	8.209		
6,000.0	5,985.0	5,966.3	5,964.5	13.8	76.3	-178.55	-494.2	-102.5	731.4	642.2	89.22	8.198		
6,081.0	6,065.9	6,047.0	6,045.2	13.9	76.7	-178.43	-494.4	-104.0	731.7	642.0	89.75	8.153		
6,100.0	6,085.0	6,066.0	6,064.2	14.0	76.8	1.94	-494.5	-104.5	731.5	641.8	89.74	8.152		
6,150.0	6,134.9	6,115.3	6,113.5	14.1	77.1	2.05	-494.7	-105.7	728.9	639.4	89.46	8.148		
6,200.0	6,184.5	6,163.2	6,161.4	14.1	77.4	2.19	-494.9	-107.0	723.0	634.2	88.79	8.143		
6,250.0	6,233.6	6,211.8	6,210.1	14.1	77.8	2.36	-495.2	-108.4	714.1	626.2	87.81	8.132		
6,300.0	6,282.0	6,263.5	6,261.7	14.2	78.3	2.57	-495.5	-109.9	701.8	615.1	86.66	8.098		
6,350.0	6,329.5	6,314.4	6,312.6	14.2	79.1	2.84	-495.5	-111.5	686.1	600.8	85.31	8.043		
6,400.0	6,375.8	6,364.7	6,362.8	14.2	80.3	3.15	-495.2	-113.1	667.2	583.2	84.00	7.943		
6,450.0	6,420.8	6,413.2	6,411.3	14.2	81.6	3.53	-494.6	-114.6	645.0	562.6	82.38	7.830		
6,500.0	6,464.3	6,459.7	6,457.8	14.2	83.2	3.97	-493.8	-115.9	619.7	539.1	80.61	7.688		
6,550.0	6,506.1	6,504.1	6,502.2	14.3	84.8	4.49	-492.8	-116.9	591.4	513.0	78.39	7.545		
6,600.0	6,546.0	6,546.6	6,544.7	14.3	86.5	5.12	-491.6	-117.7	560.3	484.4	75.85	7.387		
6,650.0	6,583.8	6,586.4	6,584.4	14.3	88.1	5.92	-490.2	-118.4	526.5	453.6	72.88	7.224		
6,700.0	6,619.4	6,623.5	6,621.5	14.4	89.5	6.95	-488.8	-118.9	490.2	420.6	69.54	7.048		
6,750.0	6,652.7	6,657.7	6,655.6	14.5	90.9	8.31	-487.3	-119.4	451.6	385.6	65.99	6.843		
6,800.0	6,683.4	6,688.5	6,686.4	14.6	92.1	10.18	-485.7	-119.9	410.9	348.4	62.48	6.576		
6,850.0	6,711.5	6,716.0	6,713.9	14.8	93.2	12.80	-484.2	-120.2	368.3	308.8	59.52	6.188		
6,900.0	6,736.9	6,740.1	6,737.9	15.1	94.1	16.61	-482.8	-120.5	324.1	266.0	58.14	5.575		
6,950.0	6,759.3	6,760.8	6,758.5	15.3	94.9	22.36	-481.5	-120.8	278.6	218.4	60.24	4.625		
7,000.0	6,778.8	6,777.9	6,775.6	15.7	95.6	31.23	-480.4	-121.0	232.0	163.6	68.49	3.388		
7,050.0	6,795.2	6,791.6	6,789.3	16.1	96.1	44.58	-479.4	-121.2	184.8	100.7	84.15	2.196		
7,100.0	6,808.6	6,801.7	6,799.4	16.5	96.5	61.94	-478.7	-121.3	137.5	35.6	101.93	1.349 Level 3		
7,150.0	6,818.7	6,808.3	6,806.0	16.9	96.8	78.25	-478.3	-121.4	91.6	-20.4	112.01	0.818 Level 1		
7,200.0	6,825.6	6,811.7	6,809.4	17.4	96.9	87.83	-478.0	-121.4	52.4	-62.0	114.35	0.458 Level 1		
7,231.7	6,828.3	6,812.2	6,809.8	17.8	96.9	89.37	-478.0	-121.4	41.7	-73.0	114.70	0.363 Level 1, CC, ES, SF		
7,250.0	6,829.3	6,811.9	6,809.5	18.0	96.9	88.61	-478.0	-121.4	45.5	-69.4	114.90	0.396 Level 1		
7,287.6	6,829.9	6,809.8	6,807.4	18.4	96.8	83.29	-478.2	-121.4	69.7	-45.1	114.80	0.607 Level 1		
7,300.0	6,829.8	6,808.8	6,806.5	18.5	96.8	81.96	-478.2	-121.4	79.9	-34.7	114.64	0.697 Level 1		
7,400.0	6,828.9	6,800.9	6,798.5	19.8	96.5	71.60	-478.8	-121.3	172.9	61.5	111.48	1.551		
7,500.0	6,828.0	6,793.2	6,790.9	21.1	96.2	62.64	-479.3	-121.2	270.8	164.7	106.08	2.552		
7,600.0	6,827.1	6,785.8	6,783.5	22.5	95.9	55.13	-479.8	-121.1	369.6	269.8	99.80	3.703		
7,700.0	6,826.3	6,778.6	6,776.4	24.0	95.6	48.93	-480.3	-121.0	468.8	375.3	93.52	5.013		
7,800.0	6,825.4	6,771.7	6,769.4	25.5	95.4	43.83	-480.8	-121.0	568.2	480.5	87.72	6.477		
7,900.0	6,824.5	6,764.9	6,762.7	27.1	95.1	39.63	-481.2	-120.9	667.7	585.1	82.59	8.084		
8,000.0	6,823.6	6,758.4	6,756.1	28.8	94.8	36.14	-481.7	-120.8	767.2	689.1	78.15	9.818		
8,100.0	6,822.8	6,752.0	6,749.8	30.4	94.6	33.22	-482.1	-120.7	866.8	792.5	74.34	11.660		
8,200.0	6,821.9	6,745.8	6,743.6	32.1	94.3	30.75	-482.4	-120.6	966.5	895.4	71.10	13.593		

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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<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 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Wells Sec.5-T3N-R64W - Becker 5-13 (Exist.) - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 ft
<b>Survey Program:</b> 100-NS-GYRO-MS												<b>Offset Well Error:</b>	0.0 ft
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)					
8,900.0	6,815.8	6,718.7	6,693.1	44.5	15.9	84.41	-2,954.8	-582.3	959.3	899.3	59.97	15.996	
9,000.0	6,814.9	6,713.8	6,688.3	46.3	15.9	83.87	-2,955.0	-581.4	876.9	815.1	61.72	14.206	
9,100.0	6,814.0	6,709.0	6,683.5	48.1	15.9	83.34	-2,955.2	-580.6	798.5	735.0	63.48	12.578	
9,200.0	6,813.2	6,704.1	6,678.7	50.0	15.9	82.80	-2,955.4	-579.8	725.4	660.1	65.23	11.119	
9,300.0	6,812.3	6,699.3	6,674.0	51.8	15.9	82.26	-2,955.6	-578.9	659.3	592.3	66.99	9.843	
9,400.0	6,811.4	6,694.4	6,669.2	53.6	15.8	81.73	-2,955.7	-578.1	602.7	534.0	68.73	8.768	
9,500.0	6,810.6	6,689.5	6,664.4	55.5	15.8	81.19	-2,955.9	-577.2	558.3	487.8	70.48	7.922	
9,600.0	6,809.7	6,684.7	6,659.6	57.3	15.8	80.65	-2,956.1	-576.4	529.3	457.1	72.22	7.329	
9,700.0	6,808.8	6,679.8	6,654.8	59.2	15.8	80.12	-2,956.3	-575.6	518.2	444.2	73.95	7.007	
9,708.2	6,808.7	6,679.4	6,654.4	59.4	15.8	80.07	-2,956.3	-575.5	518.1	444.0	74.09	6.993 CC, ES	
9,800.0	6,807.9	6,675.0	6,650.0	61.1	15.8	79.58	-2,956.5	-574.7	526.2	450.5	75.68	6.953 SF	
9,900.0	6,807.1	6,670.1	6,645.3	62.9	15.8	79.04	-2,956.7	-573.9	552.4	475.0	77.40	7.137	
10,000.0	6,806.2	6,665.2	6,640.5	64.8	15.8	78.51	-2,956.9	-573.0	594.4	515.3	79.11	7.514	
10,100.0	6,805.3	6,660.4	6,635.7	66.7	15.7	77.97	-2,957.1	-572.2	649.3	568.5	80.81	8.035	
10,200.0	6,804.4	6,655.5	6,630.9	68.5	15.7	77.43	-2,957.3	-571.4	713.9	631.4	82.50	8.654	
10,300.0	6,803.6	6,650.6	6,626.1	70.4	15.7	76.90	-2,957.4	-570.5	786.0	701.8	84.18	9.337	
10,400.0	6,802.7	6,645.8	6,621.3	72.3	15.7	76.36	-2,957.6	-569.7	863.6	777.8	85.85	10.059	
10,500.0	6,801.8	6,640.9	6,616.5	74.2	15.7	75.83	-2,957.8	-568.9	945.4	857.9	87.51	10.803	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Existing Wells Sec.5-T3N-R64W - Becker 5-3 (Exist) - Wellbore #1 - Wellbore #1													<b>Offset Site Error:</b>	0.0 ft
Survey Program: 100-NS-GYRO-MS													<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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
7,400.0	6,828.9	6,847.9	6,843.2	19.8	12.2	118.84	-1,564.7	-166.6	923.9	895.5	28.49	32.433		
7,500.0	6,828.0	6,843.2	6,838.5	21.1	12.2	116.60	-1,564.9	-166.5	824.7	794.5	30.17	27.336		
7,600.0	6,827.1	6,838.2	6,833.6	22.5	12.1	114.16	-1,565.2	-166.4	725.6	693.6	31.98	22.690		
7,700.0	6,826.3	6,833.0	6,828.4	24.0	12.1	111.47	-1,565.5	-166.3	626.7	592.8	33.90	18.488		
7,800.0	6,825.4	6,827.6	6,823.0	25.5	12.1	108.53	-1,565.8	-166.2	528.2	492.3	35.90	14.712		
7,900.0	6,824.5	6,821.8	6,817.2	27.1	12.1	105.32	-1,566.1	-166.1	430.3	392.3	37.96	11.333		
8,000.0	6,823.6	6,815.8	6,811.2	28.8	12.1	101.80	-1,566.4	-165.9	333.5	293.4	40.05	8.327		
8,100.0	6,822.8	6,809.4	6,804.8	30.4	12.1	97.98	-1,566.8	-165.7	239.2	197.1	42.10	5.681		
8,200.0	6,821.9	6,802.6	6,798.0	32.1	12.1	93.84	-1,567.2	-165.6	152.0	108.0	44.07	3.450		
8,300.0	6,821.0	6,795.5	6,790.9	33.8	12.1	89.43	-1,567.7	-165.4	94.5	48.6	45.87	2.059		
8,321.3	6,820.8	6,793.9	6,789.4	34.2	12.1	88.48	-1,567.8	-165.3	92.0	45.8	46.24	1.991 CC, ES, SF		
8,400.0	6,820.2	6,788.3	6,783.7	35.6	12.0	84.96	-1,568.1	-165.2	120.9	73.5	47.47	2.548		
8,500.0	6,819.3	6,781.0	6,776.5	37.3	12.0	80.51	-1,568.6	-165.0	200.6	151.8	48.81	4.109		
8,600.0	6,818.4	6,773.7	6,769.2	39.1	12.0	76.12	-1,569.1	-164.8	292.8	242.9	49.90	5.868		
8,700.0	6,817.5	6,766.4	6,761.9	40.9	12.0	71.85	-1,569.5	-164.6	388.7	338.0	50.72	7.664		
8,800.0	6,816.7	6,759.0	6,754.5	42.7	12.0	67.74	-1,570.0	-164.4	486.2	434.9	51.30	9.477		
8,900.0	6,815.8	6,751.5	6,747.1	44.5	12.0	63.82	-1,570.5	-164.2	584.4	532.8	51.67	11.311		
9,000.0	6,814.9	6,744.1	6,739.7	46.3	11.9	60.11	-1,571.0	-164.1	683.1	631.2	51.85	13.176		
9,100.0	6,814.0	6,736.5	6,732.2	48.1	11.9	56.63	-1,571.5	-163.9	782.0	730.2	51.87	15.076		
9,200.0	6,813.2	6,729.0	6,724.6	50.0	11.9	53.37	-1,572.0	-163.7	881.1	829.4	51.78	17.017		
9,300.0	6,812.3	6,721.4	6,717.0	51.8	11.9	50.34	-1,572.5	-163.5	980.4	928.8	51.60	18.998		

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

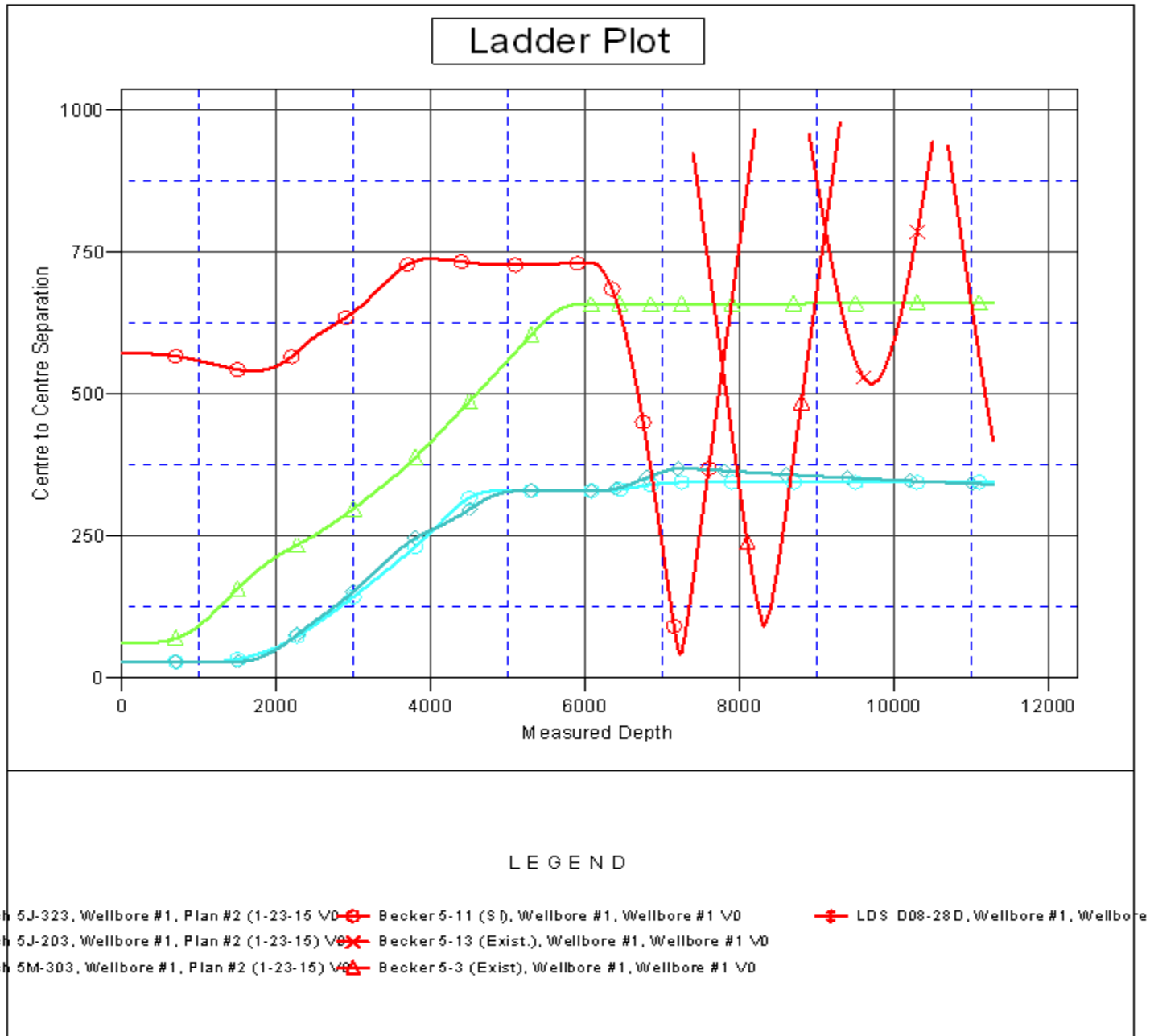
<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 77-Reference												<b>Offset Well Error:</b>	0.0 ft
LDS D08-30D Pad Sec.5-T3N-R64W - LDS D08-28D - Wellbore #1 - Wellbore #1													
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,700.0	6,800.1	6,897.9	6,765.0	78.0	23.6	-97.59	-4,840.7	221.7	938.4	845.7	92.66	10.127	
10,800.0	6,799.2	6,893.9	6,760.9	79.8	23.6	-96.76	-4,840.8	221.7	843.4	748.7	94.70	8.906	
10,900.0	6,798.3	6,889.9	6,757.0	81.7	23.6	-95.94	-4,840.9	221.7	749.7	653.0	96.73	7.751	
11,000.0	6,797.5	6,886.0	6,753.0	83.6	23.6	-95.14	-4,841.0	221.8	657.8	559.1	98.74	6.662	
11,100.0	6,796.6	6,882.1	6,749.2	85.5	23.6	-94.33	-4,841.1	221.8	568.6	467.9	100.75	5.644	
11,200.0	6,795.7	6,878.3	6,745.3	87.4	23.6	-93.54	-4,841.2	221.8	483.7	381.0	102.74	4.708	
11,282.5	6,795.0	6,875.2	6,742.2	89.0	23.6	-92.89	-4,841.3	221.9	418.6	314.3	104.37	4.011 CC, ES, SF	



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4830.0ft (RKB - 15')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Becker Ranch 5M-243  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°



<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Becker Ranch 5M-243
<b>Project:</b>	SEC.5-T3N-R64W	<b>TVD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Reference Site:</b>	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	<b>MD Reference:</b>	WELL @ 4830.0ft (RKB - 15')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Becker Ranch 5M-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 #2 (1-23-15)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4830.0ft (RKB - 15')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Becker Ranch 5M-243  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.60°

