

PETROLEUM DEVELOPMENT CORP Weld County CO

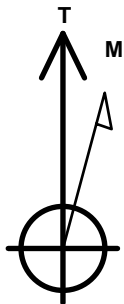
Well Name: **Becker Ranch 5J-443**

Surface Location: Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4820.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339314.86	3256478.94	40.261170	-104.580970	
RKB - 15' WELL @ 4835.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 223'FNL & 913'FWL	1.0	0.0	0.0	Point
BHL 500'FSL & 785'FWL	7042.0	-4604.8	-100.5	Point



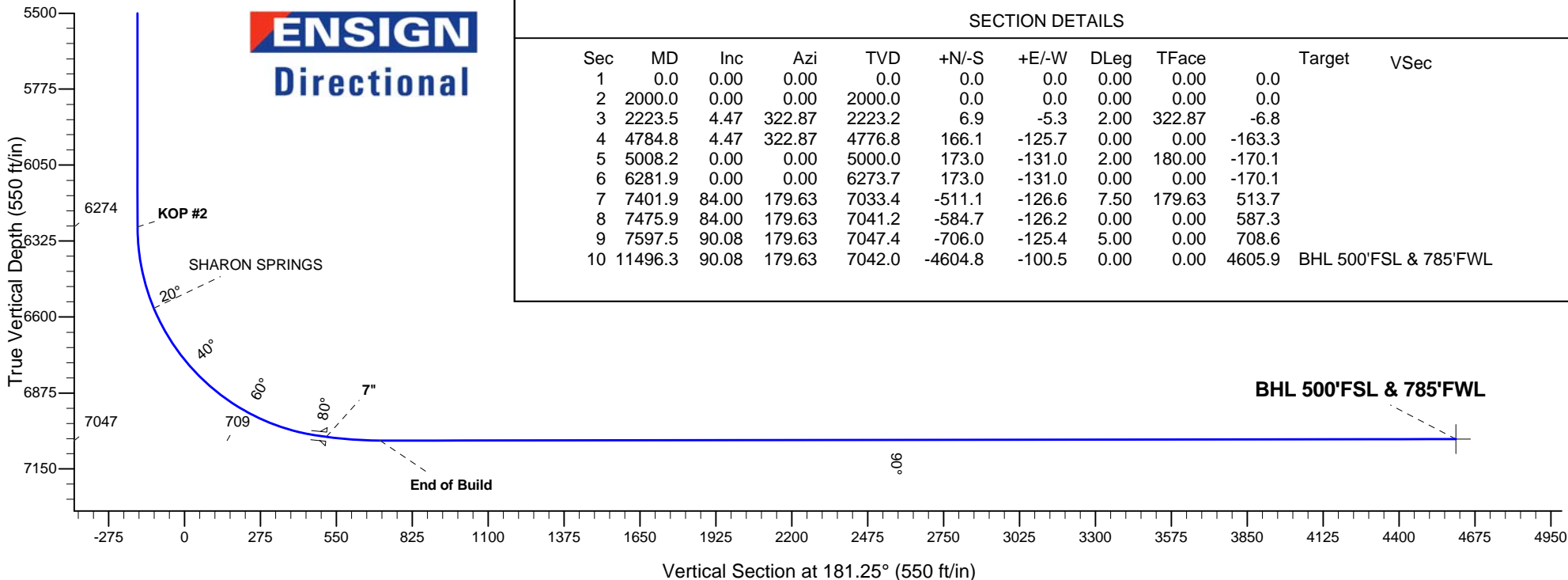
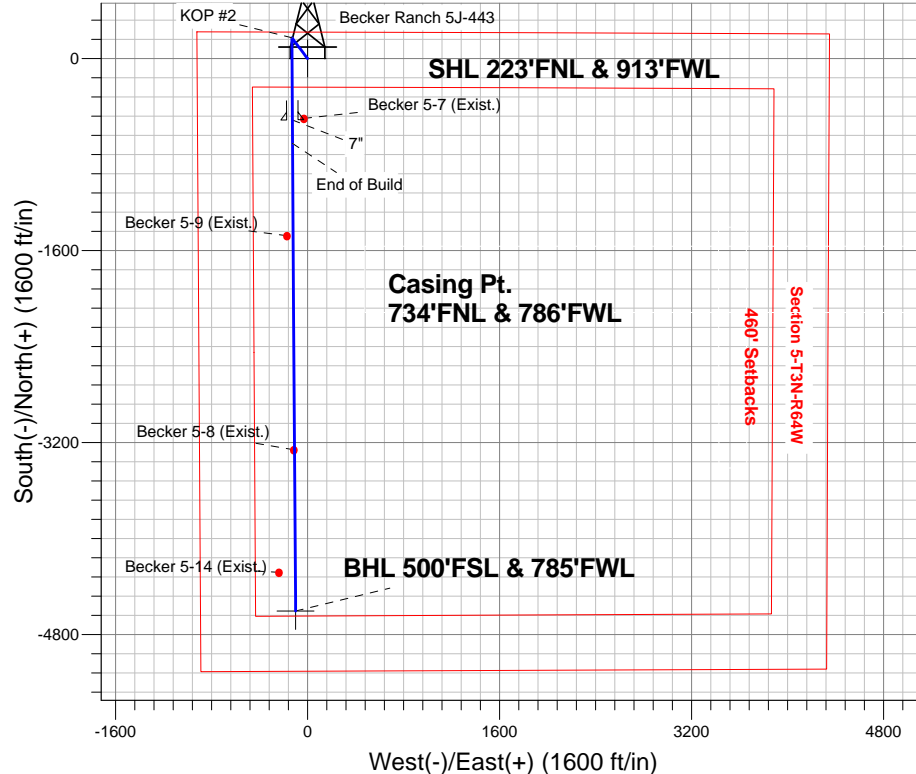
Azimuths to True North
Magnetic North: 8.42°

Magnetic Field
Strength: 52821.0snT
Dip Angle: 66.88°
Date: 11/22/2013
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
2000.0	2000.0	KOP #1
6273.7	6281.9	KOP #2
7047.4	7597.5	End of Build

Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W
Becker Ranch 5J-443
Plan #1 (11-22-13)
10:01, December 12 2013



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2223.5	4.47	322.87	2223.2	6.9	-5.3	2.00	322.87	-6.8	
4	4784.8	4.47	322.87	4776.8	166.1	-125.7	0.00	0.00	-163.3	
5	5008.2	0.00	0.00	5000.0	173.0	-131.0	2.00	180.00	-170.1	
6	6281.9	0.00	0.00	6273.7	173.0	-131.0	0.00	0.00	-170.1	
7	7401.9	84.00	179.63	7033.4	-511.1	-126.6	7.50	179.63	513.7	
8	7475.9	84.00	179.63	7041.2	-584.7	-126.2	0.00	0.00	587.3	
9	7597.5	90.08	179.63	7047.4	-706.0	-125.4	5.00	0.00	708.6	
10	11496.3	90.08	179.63	7042.0	-4604.8	-100.5	0.00	0.00	4605.9	BHL 500'FSL & 785'FWL



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.5-T3N-R64W

Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W

Becker Ranch 5J-443

Wellbore #1

Plan: Plan #1 (11-22-13)

Standard Planning Report

12 December, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-22-13)		

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

Site						Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W											
Site Position:						Northing:			1,339,314.26 ft			Latitude:			40.261170		
From:			Lat/Long			Easting:			3,256,420.34 ft			Longitude:			-104.581180		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.59 °		

Well	Becker Ranch 5J-443					
Well Position	+N-S	0.0 ft	Northing:	1,339,314.86 ft	Latitude:	40.261170
	+E-W	58.6 ft	Easting:	3,256,478.94 ft	Longitude:	-104.580970
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,820.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/22/2013	8.43	66.88	52,821

Design	Plan #1 (11-22-13)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	181.25

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,223.5	4.47	322.87	2,223.2	6.9	-5.3	2.00	2.00	0.00	322.87	
4,784.8	4.47	322.87	4,776.8	166.1	-125.7	0.00	0.00	0.00	0.00	
5,008.2	0.00	0.00	5,000.0	173.0	-131.0	2.00	-2.00	0.00	180.00	
6,281.9	0.00	0.00	6,273.7	173.0	-131.0	0.00	0.00	0.00	0.00	
7,401.9	84.00	179.63	7,033.4	-511.1	-126.6	7.50	7.50	0.00	179.63	
7,475.9	84.00	179.63	7,041.2	-584.7	-126.2	0.00	0.00	0.00	0.00	
7,597.5	90.08	179.63	7,047.4	-706.0	-125.4	5.00	5.00	0.00	0.00	
11,496.3	90.08	179.63	7,042.0	-4,604.8	-100.5	0.00	0.00	0.00	0.00	BHL 500'FSL & 78°

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Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-22-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 223'FNL & 913'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
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
2,100.0	2.00	322.87	2,100.0	1.4	-1.1	-1.4	2.00	2.00	0.00
2,200.0	4.00	322.87	2,199.8	5.6	-4.2	-5.5	2.00	2.00	0.00
2,223.5	4.47	322.87	2,223.2	6.9	-5.3	-6.8	2.00	2.00	0.00
2,300.0	4.47	322.87	2,299.5	11.7	-8.9	-11.5	0.00	0.00	0.00
2,400.0	4.47	322.87	2,399.2	17.9	-13.6	-17.6	0.00	0.00	0.00
2,500.0	4.47	322.87	2,498.9	24.1	-18.3	-23.7	0.00	0.00	0.00
2,600.0	4.47	322.87	2,598.6	30.3	-23.0	-29.8	0.00	0.00	0.00
2,700.0	4.47	322.87	2,698.3	36.5	-27.7	-35.9	0.00	0.00	0.00
2,800.0	4.47	322.87	2,798.0	42.8	-32.4	-42.0	0.00	0.00	0.00
2,900.0	4.47	322.87	2,897.7	49.0	-37.1	-48.2	0.00	0.00	0.00
3,000.0	4.47	322.87	2,997.4	55.2	-41.8	-54.3	0.00	0.00	0.00
3,100.0	4.47	322.87	3,097.1	61.4	-46.5	-60.4	0.00	0.00	0.00
3,200.0	4.47	322.87	3,196.8	67.6	-51.2	-66.5	0.00	0.00	0.00
3,300.0	4.47	322.87	3,296.5	73.8	-55.9	-72.6	0.00	0.00	0.00
3,400.0	4.47	322.87	3,396.2	80.0	-60.6	-78.7	0.00	0.00	0.00
3,500.0	4.47	322.87	3,495.9	86.2	-65.3	-84.8	0.00	0.00	0.00
3,600.0	4.47	322.87	3,595.6	92.5	-70.0	-90.9	0.00	0.00	0.00
3,700.0	4.47	322.87	3,695.3	98.7	-74.7	-97.0	0.00	0.00	0.00
3,704.7	4.47	322.87	3,700.0	99.0	-74.9	-97.3	0.00	0.00	0.00
PARKMAN									
3,800.0	4.47	322.87	3,795.0	104.9	-79.4	-103.1	0.00	0.00	0.00
3,900.0	4.47	322.87	3,894.7	111.1	-84.1	-109.2	0.00	0.00	0.00
4,000.0	4.47	322.87	3,994.4	117.3	-88.8	-115.3	0.00	0.00	0.00
4,100.0	4.47	322.87	4,094.1	123.5	-93.5	-121.4	0.00	0.00	0.00
4,200.0	4.47	322.87	4,193.8	129.7	-98.2	-127.6	0.00	0.00	0.00
4,300.0	4.47	322.87	4,293.5	135.9	-102.9	-133.7	0.00	0.00	0.00
4,400.0	4.47	322.87	4,393.2	142.2	-107.6	-139.8	0.00	0.00	0.00
4,406.9	4.47	322.87	4,400.0	142.6	-108.0	-140.2	0.00	0.00	0.00
SUSSEX									

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Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-22-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.0	4.47	322.87	4,492.9	148.4	-112.3	-145.9	0.00	0.00	0.00
4,600.0	4.47	322.87	4,592.5	154.6	-117.0	-152.0	0.00	0.00	0.00
4,700.0	4.47	322.87	4,692.2	160.8	-121.8	-158.1	0.00	0.00	0.00
4,784.8	4.47	322.87	4,776.8	166.1	-125.7	-163.3	0.00	0.00	0.00
4,800.0	4.16	322.87	4,791.9	167.0	-126.4	-164.2	2.00	-2.00	0.00
4,900.0	2.16	322.87	4,891.8	171.4	-129.8	-168.5	2.00	-2.00	0.00
5,000.0	0.16	322.87	4,991.8	173.0	-131.0	-170.1	2.00	-2.00	0.00
5,008.2	0.00	0.00	5,000.0	173.0	-131.0	-170.1	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,091.8	173.0	-131.0	-170.1	0.00	0.00	0.00
5,108.2	0.00	0.00	5,100.0	173.0	-131.0	-170.1	0.00	0.00	0.00
SHANNON									
5,200.0	0.00	0.00	5,191.8	173.0	-131.0	-170.1	0.00	0.00	0.00
5,300.0	0.00	0.00	5,291.8	173.0	-131.0	-170.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,391.8	173.0	-131.0	-170.1	0.00	0.00	0.00
5,500.0	0.00	0.00	5,491.8	173.0	-131.0	-170.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,591.8	173.0	-131.0	-170.1	0.00	0.00	0.00
5,700.0	0.00	0.00	5,691.8	173.0	-131.0	-170.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,791.8	173.0	-131.0	-170.1	0.00	0.00	0.00
5,900.0	0.00	0.00	5,891.8	173.0	-131.0	-170.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,991.8	173.0	-131.0	-170.1	0.00	0.00	0.00
6,100.0	0.00	0.00	6,091.8	173.0	-131.0	-170.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,191.8	173.0	-131.0	-170.1	0.00	0.00	0.00
6,281.9	0.00	0.00	6,273.7	173.0	-131.0	-170.1	0.00	0.00	0.00
KOP #2									
6,300.0	1.36	179.63	6,291.8	172.8	-131.0	-169.9	7.49	7.49	0.00
6,400.0	8.86	179.63	6,391.3	163.9	-130.9	-161.0	7.50	7.50	0.00
6,500.0	16.36	179.63	6,488.8	142.1	-130.8	-139.2	7.50	7.50	0.00
6,584.1	22.66	179.63	6,568.0	114.0	-130.6	-111.1	7.50	7.50	0.00
SHARON SPRINGS									
6,600.0	23.86	179.63	6,582.6	107.7	-130.6	-104.9	7.50	7.50	0.00
6,700.0	31.36	179.63	6,671.2	61.4	-130.3	-58.6	7.50	7.50	0.00
6,800.0	38.86	179.63	6,752.9	4.0	-129.9	-1.1	7.50	7.50	0.00
6,900.0	46.36	179.63	6,826.5	-63.7	-129.5	66.5	7.50	7.50	0.00
7,000.0	53.86	179.63	6,890.6	-140.4	-129.0	143.1	7.50	7.50	0.00
7,100.0	61.36	179.63	6,944.1	-224.7	-128.5	227.5	7.50	7.50	0.00
7,200.0	68.86	179.63	6,986.2	-315.4	-127.9	318.1	7.50	7.50	0.00
7,300.0	76.36	179.63	7,016.1	-410.7	-127.3	413.4	7.50	7.50	0.00
7,400.0	83.86	179.63	7,033.2	-509.2	-126.6	511.8	7.50	7.50	0.00
7,401.9	84.00	179.63	7,033.4	-511.1	-126.6	513.7	7.50	7.50	0.00
7"									
7,475.9	84.00	179.63	7,041.2	-584.7	-126.2	587.3	0.00	0.00	0.00
7,500.0	85.20	179.63	7,043.4	-608.6	-126.0	611.3	5.00	5.00	0.00
7,597.5	90.08	179.63	7,047.4	-706.0	-125.4	708.6	5.00	5.00	0.00
End of Build									
7,600.0	90.08	179.63	7,047.4	-708.5	-125.4	711.1	0.03	0.03	0.00
7,700.0	90.08	179.63	7,047.3	-808.5	-124.7	811.1	0.00	0.00	0.00
7,800.0	90.08	179.63	7,047.2	-908.5	-124.1	911.0	0.00	0.00	0.00
7,900.0	90.08	179.63	7,047.0	-1,008.5	-123.5	1,011.0	0.00	0.00	0.00
8,000.0	90.08	179.63	7,046.9	-1,108.5	-122.8	1,110.9	0.00	0.00	0.00
8,100.0	90.08	179.63	7,046.7	-1,208.5	-122.2	1,210.9	0.00	0.00	0.00
8,200.0	90.08	179.63	7,046.6	-1,308.5	-121.5	1,310.9	0.00	0.00	0.00
8,300.0	90.08	179.63	7,046.5	-1,408.5	-120.9	1,410.8	0.00	0.00	0.00

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Wellbore:	Wellbore #1		
Design:	Plan #1 (11-22-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,400.0	90.08	179.63	7,046.3	-1,508.5	-120.3	1,510.8	0.00	0.00	0.00
8,500.0	90.08	179.63	7,046.2	-1,608.5	-119.6	1,610.7	0.00	0.00	0.00
8,600.0	90.08	179.63	7,046.0	-1,708.5	-119.0	1,710.7	0.00	0.00	0.00
8,700.0	90.08	179.63	7,045.9	-1,808.5	-118.3	1,810.7	0.00	0.00	0.00
8,800.0	90.08	179.63	7,045.8	-1,908.5	-117.7	1,910.6	0.00	0.00	0.00
8,900.0	90.08	179.63	7,045.6	-2,008.5	-117.1	2,010.6	0.00	0.00	0.00
9,000.0	90.08	179.63	7,045.5	-2,108.5	-116.4	2,110.5	0.00	0.00	0.00
9,100.0	90.08	179.63	7,045.3	-2,208.5	-115.8	2,210.5	0.00	0.00	0.00
9,200.0	90.08	179.63	7,045.2	-2,308.5	-115.2	2,310.5	0.00	0.00	0.00
9,300.0	90.08	179.63	7,045.1	-2,408.5	-114.5	2,410.4	0.00	0.00	0.00
9,400.0	90.08	179.63	7,044.9	-2,508.5	-113.9	2,510.4	0.00	0.00	0.00
9,500.0	90.08	179.63	7,044.8	-2,608.5	-113.2	2,610.3	0.00	0.00	0.00
9,600.0	90.08	179.63	7,044.6	-2,708.5	-112.6	2,710.3	0.00	0.00	0.00
9,700.0	90.08	179.63	7,044.5	-2,808.5	-112.0	2,810.3	0.00	0.00	0.00
9,800.0	90.08	179.63	7,044.4	-2,908.5	-111.3	2,910.2	0.00	0.00	0.00
9,900.0	90.08	179.63	7,044.2	-3,008.5	-110.7	3,010.2	0.00	0.00	0.00
10,000.0	90.08	179.63	7,044.1	-3,108.5	-110.0	3,110.1	0.00	0.00	0.00
10,100.0	90.08	179.63	7,043.9	-3,208.5	-109.4	3,210.1	0.00	0.00	0.00
10,200.0	90.08	179.63	7,043.8	-3,308.5	-108.8	3,310.1	0.00	0.00	0.00
10,300.0	90.08	179.63	7,043.7	-3,408.5	-108.1	3,410.0	0.00	0.00	0.00
10,400.0	90.08	179.63	7,043.5	-3,508.5	-107.5	3,510.0	0.00	0.00	0.00
10,500.0	90.08	179.63	7,043.4	-3,608.5	-106.9	3,609.9	0.00	0.00	0.00
10,600.0	90.08	179.63	7,043.3	-3,708.5	-106.2	3,709.9	0.00	0.00	0.00
10,700.0	90.08	179.63	7,043.1	-3,808.5	-105.6	3,809.9	0.00	0.00	0.00
10,800.0	90.08	179.63	7,043.0	-3,908.5	-104.9	3,909.8	0.00	0.00	0.00
10,900.0	90.08	179.63	7,042.8	-4,008.5	-104.3	4,009.8	0.00	0.00	0.00
11,000.0	90.08	179.63	7,042.7	-4,108.5	-103.7	4,109.7	0.00	0.00	0.00
11,100.0	90.08	179.63	7,042.6	-4,208.5	-103.0	4,209.7	0.00	0.00	0.00
11,200.0	90.08	179.63	7,042.4	-4,308.5	-102.4	4,309.7	0.00	0.00	0.00
11,300.0	90.08	179.63	7,042.3	-4,408.5	-101.7	4,409.6	0.00	0.00	0.00
11,400.0	90.08	179.63	7,042.1	-4,508.5	-101.1	4,509.6	0.00	0.00	0.00
11,496.3	90.08	179.63	7,042.0	-4,604.8	-100.5	4,605.9	0.00	0.00	0.00
BHL 500'FSL & 785'FWL									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 500'FSL & 785'F	0.00	0.00	7,042.0	-4,604.8	-100.5	1,334,709.49	3,256,426.18	40.248530	-104.581330
- plan hits target center									
- Point									
SHL 223'FNL & 913'F	0.00	0.00	1.0	0.0	0.0	1,339,314.86	3,256,478.94	40.261170	-104.580970
- plan hits target center									
- Point									

Database:	Landmark	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-22-13)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,401.9	7,033.4	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,704.7	3,700.0	PARKMAN		0.00	
4,406.9	4,400.0	SUSSEX		0.00	
5,108.2	5,100.0	SHANNON		0.00	
6,584.1	6,568.0	SHARON SPRINGS		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP #1
6,281.9	6,273.7	173.0	-131.0	KOP #2
7,597.5	7,047.4	-706.0	-125.4	End of Build



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.5-T3N-R64W

Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W

Becker Ranch 5J-443

Wellbore #1

Plan #1 (11-22-13)

Anticollision Report

12 December, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5E-323 - Wellbore #1 - Plan #1 (11-22-13)													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	1,500.0	1,500.0	3.3	3.3	-90.00	-90.00	0.0	-30.7	30.7	24.2	6.52	4.710	CC, ES
1,600.0	1,600.0	1,599.0	1,599.0	3.5	3.5	-88.86	-88.86	0.6	-32.3	32.3	25.4	6.96	4.644	
1,700.0	1,700.0	1,697.7	1,697.6	3.7	3.7	-86.05	-86.05	2.6	-37.0	37.2	29.8	7.39	5.032	
1,800.0	1,800.0	1,796.0	1,795.5	3.9	3.9	-82.73	-82.73	5.7	-44.9	45.5	37.6	7.83	5.806	
1,900.0	1,900.0	1,893.7	1,892.5	4.2	4.1	-79.71	-79.71	10.1	-55.7	57.1	48.9	8.27	6.907	
2,000.0	2,000.0	1,992.8	1,990.7	4.4	4.4	-77.49	-77.49	15.1	-68.0	70.3	61.6	8.72	8.061	
2,100.0	2,100.0	2,092.1	2,089.1	4.6	4.6	-39.46	-39.46	20.1	-80.4	82.2	73.1	9.13	9.003	
2,200.0	2,199.8	2,191.7	2,187.8	4.8	4.9	-40.16	-40.16	25.1	-92.7	91.5	81.9	9.56	9.565	
2,223.5	2,223.2	2,215.1	2,210.9	4.9	5.0	-40.51	-40.51	26.3	-95.6	93.2	83.6	9.66	9.650	
2,300.0	2,299.5	2,291.4	2,286.5	5.1	5.2	-41.75	-41.75	30.1	-105.1	98.9	88.9	10.00	9.884	
2,400.0	2,399.2	2,391.1	2,385.3	5.3	5.5	-43.17	-43.17	35.1	-117.5	106.3	95.8	10.45	10.168	
2,500.0	2,498.9	2,490.8	2,484.1	5.5	5.8	-44.40	-44.40	40.1	-129.9	113.7	102.8	10.91	10.429	
2,600.0	2,598.6	2,590.4	2,582.9	5.7	6.1	-45.48	-45.48	45.1	-142.3	121.2	109.9	11.36	10.668	
2,700.0	2,698.3	2,690.1	2,681.7	6.0	6.4	-46.44	-46.44	50.1	-154.7	128.8	117.0	11.83	10.888	
2,800.0	2,798.0	2,789.8	2,780.5	6.2	6.7	-47.29	-47.29	55.1	-167.0	136.4	124.1	12.30	11.090	
2,900.0	2,897.7	2,889.5	2,879.3	6.5	7.0	-48.05	-48.05	60.1	-179.4	144.0	131.2	12.77	11.276	
3,000.0	2,997.4	2,989.2	2,978.1	6.7	7.3	-48.73	-48.73	65.1	-191.8	151.6	138.4	13.24	11.448	
3,100.0	3,097.1	3,088.9	3,076.9	7.0	7.6	-49.35	-49.35	70.1	-204.2	159.2	145.5	13.72	11.606	
3,200.0	3,196.8	3,188.6	3,175.7	7.2	7.9	-49.91	-49.91	75.1	-216.6	166.9	152.7	14.20	11.752	
3,300.0	3,296.5	3,288.3	3,274.5	7.4	8.2	-50.42	-50.42	80.1	-229.0	174.6	159.9	14.68	11.888	
3,400.0	3,396.2	3,388.0	3,373.3	7.7	8.5	-50.89	-50.89	85.1	-241.4	182.3	167.1	15.17	12.014	
3,500.0	3,495.9	3,487.7	3,472.1	7.9	8.9	-51.32	-51.32	90.2	-253.7	190.0	174.3	15.66	12.131	
3,600.0	3,595.6	3,587.4	3,570.9	8.2	9.2	-51.72	-51.72	95.2	-266.1	197.7	181.5	16.15	12.240	
3,700.0	3,695.3	3,687.1	3,669.7	8.4	9.5	-52.09	-52.09	100.2	-278.5	205.4	188.8	16.64	12.342	
3,800.0	3,795.0	3,786.8	3,768.5	8.7	9.8	-52.43	-52.43	105.2	-290.9	213.1	196.0	17.14	12.437	
3,900.0	3,894.7	3,886.5	3,867.3	9.0	10.2	-52.74	-52.74	110.2	-303.3	220.9	203.2	17.63	12.526	
4,000.0	3,994.4	3,986.1	3,966.0	9.2	10.5	-53.04	-53.04	115.2	-315.7	228.6	210.5	18.13	12.609	
4,100.0	4,094.1	4,085.8	4,064.8	9.5	10.8	-53.32	-53.32	120.2	-328.0	236.3	217.7	18.63	12.687	
4,200.0	4,193.8	4,185.5	4,163.6	9.7	11.1	-53.58	-53.58	125.2	-340.4	244.1	225.0	19.13	12.761	
4,300.0	4,293.5	4,285.2	4,262.4	10.0	11.5	-53.82	-53.82	130.2	-352.8	251.9	232.2	19.63	12.830	
4,400.0	4,393.2	4,384.9	4,361.2	10.2	11.8	-54.05	-54.05	135.2	-365.2	259.6	239.5	20.13	12.896	
4,500.0	4,492.9	4,484.6	4,460.0	10.5	12.1	-54.26	-54.26	140.2	-377.6	267.4	246.7	20.64	12.957	
4,600.0	4,592.5	4,584.3	4,558.8	10.7	12.4	-54.46	-54.46	145.2	-390.0	275.1	254.0	21.14	13.016	
4,700.0	4,692.2	4,684.0	4,657.6	11.0	12.8	-54.66	-54.66	150.2	-402.3	282.9	261.3	21.64	13.071	
4,784.8	4,776.8	4,768.5	4,741.4	11.2	13.1	-54.81	-54.81	154.5	-412.8	289.5	267.4	22.07	13.116	
4,800.0	4,791.9	4,783.7	4,756.4	11.3	13.1	-54.85	-54.85	155.2	-414.7	290.7	268.6	22.15	13.127	
4,900.0	4,891.8	4,883.3	4,855.1	11.4	13.4	-54.81	-54.81	160.2	-427.1	299.8	277.2	22.58	13.278	
5,008.2	5,000.0	4,995.8	4,966.7	11.6	13.8	-91.35	-91.35	165.7	-440.7	311.5	288.5	22.98	13.554	
5,100.0	5,091.8	5,097.5	5,067.8	11.8	14.0	-90.63	-90.63	169.5	-450.0	319.9	296.5	23.33	13.710	
5,200.0	5,191.8	5,208.9	5,179.0	12.0	14.2	-90.17	-90.17	172.0	-456.3	325.6	301.8	23.74	13.717	
5,300.0	5,291.8	5,320.7	5,290.8	12.2	14.4	-90.00	-90.00	173.0	-458.7	327.7	303.5	24.14	13.574	
5,400.0	5,391.8	5,421.7	5,391.8	12.4	14.6	-90.00	-90.00	173.0	-458.7	327.7	303.2	24.55	13.350	
5,500.0	5,491.8	5,521.7	5,491.8	12.6	14.7	-90.00	-90.00	173.0	-458.7	327.7	302.7	24.96	13.127	
5,600.0	5,591.8	5,621.7	5,591.8	12.9	14.9	-90.00	-90.00	173.0	-458.7	327.7	302.3	25.38	12.911	
5,700.0	5,691.8	5,721.7	5,691.8	13.1	15.1	-90.00	-90.00	173.0	-458.7	327.7	301.9	25.80	12.701	
5,800.0	5,791.8	5,821.7	5,791.8	13.3	15.3	-90.00	-90.00	173.0	-458.7	327.7	301.5	26.22	12.497	
5,900.0	5,891.8	5,921.7	5,891.8	13.5	15.5	-90.00	-90.00	173.0	-458.7	327.7	301.1	26.64	12.300	
6,000.0	5,991.8	6,021.7	5,991.8	13.7	15.7	-90.00	-90.00	173.0	-458.7	327.7	300.6	27.07	12.108	
6,100.0	6,091.8	6,121.7	6,091.8	13.9	15.8	-90.00	-90.00	173.0	-458.7	327.7	300.2	27.49	11.922	
6,200.0	6,191.8	6,221.7	6,191.8	14.1	16.0	-90.03	-90.03	172.8	-458.7	327.7	299.8	27.91	11.742	
6,237.6	6,229.4	6,259.3	6,229.4	14.2	16.1	-90.35	-90.35	171.0	-458.7	327.7	299.6	28.06	11.676	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5E-323 - Wellbore #1 - Plan #1 (11-22-13)													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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,281.9	6,273.7	6,303.3	6,273.1	14.3	16.1	-91.12		166.6	-458.7	327.7	299.5	28.25	11.602	
6,300.0	6,291.8	6,321.1	6,290.7	14.4	16.1	88.84		164.1	-458.6	327.8	299.4	28.33	11.570	
6,350.0	6,341.7	6,370.0	6,338.8	14.4	16.2	87.73		155.1	-458.6	328.0	299.5	28.50	11.509	
6,400.0	6,391.3	6,418.6	6,385.9	14.5	16.2	86.64		143.2	-458.5	328.3	299.6	28.64	11.463	
6,450.0	6,440.4	6,466.8	6,431.7	14.5	16.3	85.56		128.4	-458.4	328.7	300.0	28.76	11.430	
6,500.0	6,488.8	6,514.6	6,476.2	14.6	16.3	84.51		110.9	-458.3	329.2	300.4	28.86	11.408	
6,550.0	6,536.3	6,562.1	6,519.2	14.6	16.3	83.49		90.8	-458.2	329.9	300.9	28.95	11.396	
6,600.0	6,582.6	6,609.2	6,560.6	14.7	16.4	82.50		68.2	-458.1	330.6	301.6	29.02	11.391	
6,650.0	6,627.7	6,656.1	6,600.3	14.7	16.4	81.55		43.3	-457.9	331.4	302.3	29.09	11.390	
6,700.0	6,671.2	6,702.6	6,638.1	14.8	16.4	80.64		16.2	-457.8	332.2	303.1	29.17	11.390	
6,750.0	6,713.0	6,750.0	6,674.9	14.8	16.5	79.75		-13.7	-457.6	333.1	303.9	29.26	11.385	
6,800.0	6,752.9	6,794.9	6,707.9	14.9	16.5	78.94		-44.1	-457.4	334.0	304.7	29.37	11.372	
6,850.0	6,790.8	6,840.7	6,739.7	14.9	16.6	78.17		-77.1	-457.2	335.0	305.4	29.52	11.348	
6,900.0	6,826.5	6,886.3	6,769.4	15.0	16.7	77.44		-111.7	-457.0	335.9	306.2	29.70	11.308	
6,950.0	6,859.8	6,931.7	6,796.8	15.1	16.8	76.77		-147.8	-456.8	336.8	306.9	29.95	11.247	
7,000.0	6,890.6	6,976.8	6,821.9	15.3	16.9	76.15		-185.4	-456.5	337.7	307.4	30.25	11.163	
7,050.0	6,918.7	7,021.8	6,844.6	15.5	17.0	75.59		-224.2	-456.3	338.5	307.9	30.63	11.053	
7,100.0	6,944.1	7,066.7	6,865.0	15.8	17.2	75.08		-264.2	-456.1	339.3	308.2	31.09	10.916	
7,150.0	6,966.6	7,111.4	6,882.9	16.1	17.5	74.63		-305.1	-455.8	340.1	308.4	31.63	10.751	
7,200.0	6,986.2	7,156.0	6,898.4	16.5	17.8	74.24		-346.9	-455.6	340.7	308.4	32.26	10.561	
7,250.0	7,002.7	7,200.0	6,911.2	16.9	18.1	73.91		-389.0	-455.3	341.3	308.3	32.98	10.347	
7,300.0	7,016.1	7,244.9	6,921.8	17.3	18.5	73.64		-432.7	-455.0	341.8	307.9	33.81	10.109	
7,350.0	7,026.3	7,289.3	6,929.7	17.8	18.9	73.43		-476.3	-454.8	342.1	307.4	34.72	9.855	
7,401.9	7,033.4	7,335.3	6,935.3	18.3	19.3	73.28		-522.0	-454.5	342.4	306.7	35.75	9.578	
7,475.9	7,041.2	7,400.0	6,938.4	19.2	20.0	72.69		-586.6	-454.1	343.7	306.5	37.18	9.244	
7,500.0	7,043.4	7,422.9	6,938.2	19.5	20.3	72.29		-609.5	-454.0	344.4	306.7	37.69	9.139	
7,597.5	7,047.4	7,520.3	6,937.2	20.7	21.4	71.42		-706.8	-453.4	346.0	306.0	40.02	8.648	
7,600.0	7,047.4	7,522.8	6,937.2	20.7	21.5	71.42		-709.3	-453.4	346.1	306.0	40.08	8.635	
7,700.0	7,047.3	7,622.7	6,936.1	22.1	22.8	71.27		-809.3	-452.8	346.4	303.8	42.63	8.125	
7,800.0	7,047.2	7,722.7	6,935.0	23.5	24.2	71.12		-909.3	-452.2	346.7	301.4	45.33	7.649	
7,900.0	7,047.0	7,822.7	6,933.9	25.0	25.6	70.98		-1,009.3	-451.6	347.1	298.9	48.15	7.207	
8,000.0	7,046.9	7,922.7	6,932.8	26.5	27.1	70.83		-1,109.3	-451.0	347.4	296.3	51.07	6.802	
8,100.0	7,046.7	8,022.7	6,931.7	28.1	28.7	70.69		-1,209.3	-450.4	347.7	293.7	54.08	6.431	
8,200.0	7,046.6	8,122.7	6,930.7	29.8	30.3	70.54		-1,309.2	-449.8	348.1	290.9	57.15	6.091	
8,300.0	7,046.5	8,222.7	6,929.6	31.4	31.9	70.40		-1,409.2	-449.2	348.4	288.2	60.28	5.781	
8,400.0	7,046.3	8,322.7	6,928.5	33.1	33.6	70.26		-1,509.2	-448.6	348.8	285.3	63.45	5.497	
8,500.0	7,046.2	8,422.7	6,927.4	34.8	35.3	70.11		-1,609.2	-447.9	349.1	282.5	66.67	5.237	
8,600.0	7,046.0	8,522.7	6,926.3	36.6	37.0	69.97		-1,709.2	-447.3	349.5	279.6	69.91	4.999	
8,700.0	7,045.9	8,622.7	6,925.3	38.3	38.7	69.83		-1,809.2	-446.7	349.9	276.7	73.19	4.780	
8,800.0	7,045.8	8,722.7	6,924.2	40.1	40.5	69.68		-1,909.2	-446.1	350.2	273.7	76.49	4.579	
8,900.0	7,045.6	8,822.7	6,923.1	41.9	42.3	69.54		-2,009.2	-445.5	350.6	270.8	79.81	4.393	
9,000.0	7,045.5	8,922.7	6,922.0	43.7	44.0	69.40		-2,109.1	-444.9	350.9	267.8	83.14	4.221	
9,100.0	7,045.3	9,022.7	6,920.9	45.5	45.8	69.26		-2,209.1	-444.3	351.3	264.8	86.49	4.062	
9,200.0	7,045.2	9,122.7	6,919.8	47.3	47.6	69.12		-2,309.1	-443.7	351.7	261.8	89.85	3.914	
9,300.0	7,045.1	9,222.7	6,918.8	49.1	49.4	68.97		-2,409.1	-443.1	352.0	258.8	93.22	3.776	
9,400.0	7,044.9	9,322.7	6,917.7	50.9	51.3	68.83		-2,509.1	-442.5	352.4	255.8	96.60	3.648	
9,500.0	7,044.8	9,422.7	6,916.6	52.8	53.1	68.69		-2,609.1	-441.9	352.8	252.8	99.99	3.528	
9,600.0	7,044.6	9,522.7	6,915.5	54.6	54.9	68.55		-2,709.1	-441.3	353.2	249.8	103.38	3.416	
9,700.0	7,044.5	9,622.7	6,914.4	56.5	56.8	68.41		-2,809.1	-440.7	353.5	246.8	106.77	3.311	
9,800.0	7,044.4	9,722.7	6,913.4	58.3	58.6	68.27		-2,909.1	-440.1	353.9	243.8	110.17	3.213	
9,900.0	7,044.2	9,822.6	6,912.3	60.2	60.4	68.13		-3,009.0	-439.5	354.3	240.7	113.57	3.120	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design										Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5E-323 - Wellbore #1 - Plan #1 (11-22-13)				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)					
10,000.0	7,044.1	9,922.6	6,911.2	62.0	62.3	67.99	-3,109.0	-438.9	354.7	237.7	116.97	3.032				
10,100.0	7,043.9	10,022.6	6,910.1	63.9	64.1	67.86	-3,209.0	-438.3	355.1	234.7	120.37	2.950				
10,200.0	7,043.8	10,122.6	6,909.0	65.8	66.0	67.72	-3,309.0	-437.7	355.5	231.7	123.77	2.872				
10,300.0	7,043.7	10,222.6	6,907.9	67.6	67.9	67.58	-3,409.0	-437.1	355.9	228.7	127.17	2.798				
10,400.0	7,043.5	10,322.6	6,906.9	69.5	69.7	67.44	-3,509.0	-436.5	356.3	225.7	130.57	2.728				
10,500.0	7,043.4	10,422.6	6,905.8	71.4	71.6	67.30	-3,609.0	-435.9	356.7	222.7	133.97	2.662				
10,600.0	7,043.3	10,522.6	6,904.7	73.3	73.5	67.17	-3,709.0	-435.3	357.0	219.7	137.37	2.599				
10,700.0	7,043.1	10,622.6	6,903.6	75.1	75.4	67.03	-3,808.9	-434.7	357.4	216.7	140.76	2.539				
10,800.0	7,043.0	10,722.6	6,902.5	77.0	77.2	66.89	-3,908.9	-434.1	357.8	213.7	144.15	2.482				
10,900.0	7,042.8	10,822.6	6,901.4	78.9	79.1	66.76	-4,008.9	-433.5	358.3	210.7	147.54	2.428				
11,000.0	7,042.7	10,922.6	6,900.4	80.8	81.0	66.62	-4,108.9	-432.9	358.7	207.7	150.93	2.376				
11,100.0	7,042.6	11,022.6	6,899.3	82.7	82.9	66.48	-4,208.9	-432.3	359.1	204.8	154.31	2.327				
11,200.0	7,042.4	11,122.6	6,898.2	84.6	84.8	66.35	-4,308.9	-431.7	359.5	201.8	157.69	2.280				
11,300.0	7,042.3	11,222.6	6,897.1	86.5	86.6	66.21	-4,408.9	-431.1	359.9	198.8	161.06	2.234				
11,400.0	7,042.1	11,322.6	6,896.0	88.3	88.5	66.08	-4,508.9	-430.5	360.3	195.9	164.43	2.191				
11,496.3	7,042.0	11,418.5	6,895.0	89.8	90.3	65.95	-4,604.8	-429.9	360.7	193.4	167.34	2.156 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5E-403 - Wellbore #1 - Plan #1 (11-22-13)													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	100.0	100.0	0.1	0.1	-90.00	-90.00	0.0	-58.6	58.6	58.4	0.22	260.758	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	-90.00	0.0	-58.6	58.6	57.9	0.67	86.919	
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	-90.00	0.0	-58.6	58.6	57.5	1.12	52.152	
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	-90.00	0.0	-58.6	58.6	57.0	1.57	37.251	
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	-90.00	0.0	-58.6	58.6	56.6	2.02	28.973	
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	-90.00	0.0	-58.6	58.6	56.1	2.47	23.705	
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	-90.00	0.0	-58.6	58.6	55.7	2.92	20.058	
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	-90.00	0.0	-58.6	58.6	55.2	3.37	17.384 CC, ES	
900.0	900.0	898.0	898.0	1.9	1.9	-89.63	-89.63	0.4	-60.2	60.3	56.5	3.81	15.833	
1,000.0	1,000.0	995.8	995.6	2.1	2.1	-88.64	-88.64	1.6	-65.1	65.3	61.0	4.24	15.400	
1,100.0	1,100.0	1,093.1	1,092.6	2.4	2.3	-87.29	-87.29	3.5	-73.2	73.6	69.0	4.68	15.741	
1,200.0	1,200.0	1,189.8	1,188.6	2.6	2.6	-85.85	-85.85	6.1	-84.4	85.4	80.2	5.13	16.652	
1,300.0	1,300.0	1,286.9	1,284.6	2.8	2.8	-84.50	-84.50	9.5	-98.5	100.2	94.6	5.59	17.926	
1,400.0	1,400.0	1,385.6	1,382.1	3.0	3.1	-83.44	-83.44	13.0	-113.5	115.6	109.5	6.06	19.085	
1,500.0	1,500.0	1,484.4	1,479.7	3.3	3.4	-82.64	-82.64	16.6	-128.4	131.0	124.5	6.53	20.058	
1,600.0	1,600.0	1,583.2	1,577.3	3.5	3.8	-82.00	-82.00	20.1	-143.4	146.5	139.5	7.02	20.880	
1,700.0	1,700.0	1,682.0	1,674.9	3.7	4.1	-81.49	-81.49	23.7	-158.3	162.0	154.5	7.51	21.582	
1,800.0	1,800.0	1,780.8	1,772.5	3.9	4.4	-81.06	-81.06	27.2	-173.3	177.5	169.5	8.00	22.186	
1,900.0	1,900.0	1,879.6	1,870.0	4.2	4.8	-80.71	-80.71	30.8	-188.2	193.0	184.5	8.50	22.710	
2,000.0	2,000.0	1,978.3	1,967.6	4.4	5.1	-80.40	-80.40	34.4	-203.2	208.6	199.6	9.00	23.169	
2,100.0	2,100.0	2,077.3	2,065.4	4.6	5.5	-43.12	-43.12	37.9	-218.1	222.8	213.7	9.18	24.275	
2,200.0	2,199.8	2,176.6	2,163.5	4.8	5.8	-43.59	-43.59	41.5	-233.2	234.6	224.9	9.63	24.349	
2,223.5	2,223.2	2,199.9	2,186.5	4.9	5.9	-43.78	-43.78	42.3	-236.7	237.0	227.2	9.74	24.329	
2,300.0	2,299.5	2,276.0	2,261.7	5.1	6.2	-44.53	-44.53	45.1	-248.2	244.6	234.5	10.09	24.233	
2,400.0	2,399.2	2,375.4	2,359.9	5.3	6.5	-45.44	-45.44	48.6	-263.2	254.6	244.1	10.56	24.114	
2,500.0	2,498.9	2,474.8	2,458.1	5.5	6.9	-46.28	-46.28	52.2	-278.3	264.7	253.7	11.03	24.002	
2,600.0	2,598.6	2,574.2	2,556.3	5.7	7.2	-47.07	-47.07	55.8	-293.3	274.8	263.3	11.50	23.896	
2,700.0	2,698.3	2,673.7	2,654.5	6.0	7.6	-47.79	-47.79	59.4	-308.4	285.0	273.1	11.98	23.795	
2,800.0	2,798.0	2,773.1	2,752.7	6.2	8.0	-48.47	-48.47	62.9	-323.4	295.3	282.8	12.46	23.699	
2,900.0	2,897.7	2,872.5	2,850.9	6.5	8.3	-49.10	-49.10	66.5	-338.5	305.5	292.6	12.94	23.607	
3,000.0	2,997.4	2,971.9	2,949.1	6.7	8.7	-49.69	-49.69	70.1	-353.5	315.8	302.4	13.43	23.520	
3,100.0	3,097.1	3,071.3	3,047.3	7.0	9.0	-50.24	-50.24	73.7	-368.6	326.1	312.2	13.92	23.436	
3,200.0	3,196.8	3,170.8	3,145.5	7.2	9.4	-50.76	-50.76	77.2	-383.6	336.5	322.1	14.41	23.356	
3,300.0	3,296.5	3,270.2	3,243.7	7.4	9.8	-51.25	-51.25	80.8	-398.7	346.9	332.0	14.90	23.279	
3,400.0	3,396.2	3,369.6	3,341.9	7.7	10.1	-51.70	-51.70	84.4	-413.7	357.3	341.9	15.40	23.206	
3,500.0	3,495.9	3,469.0	3,440.1	7.9	10.5	-52.14	-52.14	88.0	-428.8	367.7	351.8	15.89	23.135	
3,600.0	3,595.6	3,568.4	3,538.4	8.2	10.9	-52.55	-52.55	91.5	-443.8	378.2	361.8	16.39	23.068	
3,700.0	3,695.3	3,667.8	3,636.6	8.4	11.2	-52.93	-52.93	95.1	-458.9	388.6	371.7	16.89	23.003	
3,800.0	3,795.0	3,767.3	3,734.8	8.7	11.6	-53.30	-53.30	98.7	-473.9	399.1	381.7	17.40	22.941	
3,900.0	3,894.7	3,866.7	3,833.0	9.0	12.0	-53.65	-53.65	102.3	-488.9	409.6	391.7	17.90	22.881	
4,000.0	3,994.4	3,966.1	3,931.2	9.2	12.3	-53.98	-53.98	105.8	-504.0	420.1	401.7	18.41	22.824	
4,100.0	4,094.1	4,065.5	4,029.4	9.5	12.7	-54.29	-54.29	109.4	-519.0	430.6	411.7	18.91	22.768	
4,200.0	4,193.8	4,164.9	4,127.6	9.7	13.1	-54.59	-54.59	113.0	-534.1	441.2	421.7	19.42	22.715	
4,300.0	4,293.5	4,264.3	4,225.8	10.0	13.4	-54.88	-54.88	116.6	-549.1	451.7	431.8	19.93	22.664	
4,400.0	4,393.2	4,363.8	4,324.0	10.2	13.8	-55.15	-55.15	120.1	-564.2	462.3	441.8	20.44	22.615	
4,500.0	4,492.9	4,463.2	4,422.2	10.5	14.2	-55.41	-55.41	123.7	-579.2	472.8	451.9	20.95	22.567	
4,600.0	4,592.5	4,562.6	4,520.4	10.7	14.5	-55.66	-55.66	127.3	-594.3	483.4	461.9	21.46	22.521	
4,700.0	4,692.2	4,662.0	4,618.6	11.0	14.9	-55.90	-55.90	130.9	-609.3	494.0	472.0	21.98	22.477	
4,784.8	4,776.8	4,746.3	4,701.9	11.2	15.2	-56.09	-56.09	133.9	-622.1	503.0	480.6	22.41	22.441	
4,800.0	4,791.9	4,761.4	4,716.8	11.3	15.3	-56.15	-56.15	134.4	-624.4	504.6	482.1	22.49	22.440	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5E-403 - Wellbore #1 - Plan #1 (11-22-13)													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	4,891.8	4,860.7	4,814.9	11.4	15.6	-56.36		138.0	-639.4	516.5	493.5	22.93	22.528	
5,008.2	5,000.0	4,967.9	4,920.8	11.6	16.0	-93.40		141.9	-655.6	531.5	508.1	23.34	22.769	
5,100.0	5,091.8	5,058.5	5,010.3	11.8	16.4	-92.96		145.1	-669.3	545.2	521.4	23.73	22.978	
5,200.0	5,191.8	5,157.3	5,107.9	12.0	16.7	-92.52		148.7	-684.3	560.1	536.0	24.17	23.177	
5,300.0	5,291.8	5,256.1	5,205.5	12.2	17.1	-92.09		152.2	-699.2	575.1	550.5	24.61	23.369	
5,400.0	5,391.8	5,354.9	5,303.0	12.4	17.5	-91.69		155.8	-714.2	590.1	565.1	25.05	23.554	
5,500.0	5,491.8	5,453.6	5,400.6	12.6	17.8	-91.31		159.3	-729.1	605.2	579.7	25.50	23.733	
5,600.0	5,591.8	5,552.4	5,498.2	12.9	18.2	-90.94		162.9	-744.1	620.3	594.3	25.95	23.906	
5,700.0	5,691.8	5,662.7	5,607.2	13.1	18.6	-90.57		166.7	-760.3	635.0	608.6	26.41	24.046	
5,800.0	5,791.8	5,789.6	5,733.3	13.3	18.9	-90.26		170.1	-774.5	646.2	619.3	26.86	24.053	
5,900.0	5,891.8	5,917.6	5,860.9	13.5	19.1	-90.07		172.2	-783.3	653.1	625.7	27.30	23.918	
6,000.0	5,991.8	6,046.1	5,989.4	13.7	19.3	-90.00		173.0	-786.6	655.6	627.9	27.74	23.636	
6,100.0	6,091.8	6,148.5	6,091.8	13.9	19.5	-90.00		173.0	-786.6	655.6	627.5	28.14	23.296	
6,200.0	6,191.8	6,248.5	6,191.8	14.1	19.6	-90.00		173.0	-786.6	655.6	627.1	28.55	22.964	
6,281.9	6,273.7	6,330.4	6,273.7	14.3	19.7	-90.00		173.0	-786.6	655.6	626.7	28.88	22.698	
6,300.0	6,291.8	6,348.6	6,291.8	14.4	19.8	90.37		172.8	-786.6	655.6	626.6	28.97	22.632	
6,350.0	6,341.7	6,398.8	6,342.0	14.4	19.8	90.36		169.9	-786.6	655.6	626.5	29.12	22.515	
6,400.0	6,391.3	6,449.0	6,391.8	14.5	19.9	90.36		163.8	-786.6	655.6	626.4	29.25	22.417	
6,450.0	6,440.4	6,499.2	6,441.1	14.5	19.9	90.36		154.4	-786.5	655.6	626.3	29.35	22.336	
6,500.0	6,488.8	6,549.4	6,489.7	14.6	20.0	90.35		141.8	-786.4	655.6	626.2	29.44	22.267	
6,550.0	6,536.3	6,599.7	6,537.4	14.6	20.0	90.34		126.0	-786.4	655.7	626.1	29.53	22.207	
6,600.0	6,582.6	6,649.9	6,583.9	14.7	20.0	90.33		107.2	-786.3	655.7	626.1	29.60	22.150	
6,650.0	6,627.7	6,700.1	6,629.1	14.7	20.0	90.32		85.3	-786.2	655.7	626.0	29.68	22.090	
6,700.0	6,671.2	6,750.3	6,672.7	14.8	20.1	90.31		60.5	-786.0	655.7	626.0	29.78	22.021	
6,750.0	6,713.0	6,800.4	6,714.6	14.8	20.1	90.30		32.9	-785.9	655.8	625.9	29.90	21.936	
6,800.0	6,752.9	6,850.6	6,754.6	14.9	20.1	90.29		2.6	-785.7	655.8	625.8	30.05	21.827	
6,850.0	6,790.8	6,900.8	6,792.5	14.9	20.2	90.27		-30.2	-785.6	655.9	625.6	30.24	21.689	
6,900.0	6,826.5	6,950.9	6,828.2	15.0	20.2	90.25		-65.5	-785.4	655.9	625.4	30.49	21.514	
6,950.0	6,859.8	7,001.1	6,861.5	15.1	20.3	90.23		-103.0	-785.2	655.9	625.2	30.80	21.300	
7,000.0	6,890.6	7,051.2	6,892.2	15.3	20.4	90.22		-142.6	-785.0	656.0	624.8	31.18	21.042	
7,050.0	6,918.7	7,101.3	6,920.3	15.5	20.5	90.20		-184.1	-784.8	656.0	624.4	31.63	20.739	
7,100.0	6,944.1	7,151.5	6,945.5	15.8	20.6	90.18		-227.3	-784.6	656.1	623.9	32.17	20.393	
7,150.0	6,966.6	7,201.6	6,967.9	16.1	20.8	90.15		-272.1	-784.3	656.2	623.4	32.80	20.006	
7,200.0	6,986.2	7,251.6	6,987.3	16.5	21.0	90.13		-318.3	-784.1	656.2	622.7	33.51	19.583	
7,250.0	7,002.7	7,301.7	7,003.6	16.9	21.2	90.11		-365.6	-783.8	656.3	622.0	34.31	19.129	
7,300.0	7,016.1	7,351.8	7,016.8	17.3	21.5	90.09		-413.9	-783.6	656.3	621.1	35.19	18.652	
7,350.0	7,026.3	7,401.8	7,026.8	17.8	21.8	90.06		-462.9	-783.3	656.4	620.2	36.15	18.158	
7,401.9	7,033.4	7,453.8	7,033.8	18.3	22.2	90.04		-514.4	-783.1	656.5	619.2	37.22	17.637	
7,475.9	7,041.2	7,527.8	7,041.5	19.2	22.8	90.04		-588.0	-782.7	656.5	617.7	38.87	16.890	
7,500.0	7,043.4	7,551.9	7,043.7	19.5	23.1	90.03		-612.0	-782.6	656.6	617.1	39.44	16.646	
7,597.5	7,047.4	7,649.4	7,047.4	20.7	24.1	90.00		-709.4	-782.1	656.7	614.8	41.85	15.692	
7,600.0	7,047.4	7,651.9	7,047.4	20.7	24.1	90.00		-711.9	-782.1	656.7	614.8	41.91	15.668	
7,700.0	7,047.3	7,751.9	7,047.3	22.1	25.2	90.00		-811.9	-781.6	656.8	612.2	44.59	14.732	
7,800.0	7,047.2	7,851.9	7,047.2	23.5	26.5	90.00		-911.9	-781.0	657.0	609.5	47.41	13.857	
7,900.0	7,047.0	7,951.9	7,047.0	25.0	27.8	90.00		-1,011.9	-780.5	657.1	606.7	50.37	13.046	
8,000.0	7,046.9	8,051.9	7,046.9	26.5	29.2	90.00		-1,111.9	-780.0	657.2	603.8	53.44	12.298	
8,100.0	7,046.7	8,151.9	7,046.7	28.1	30.6	90.00		-1,211.9	-779.5	657.3	600.7	56.60	11.613	
8,200.0	7,046.6	8,251.9	7,046.6	29.8	32.1	90.00		-1,311.9	-779.0	657.5	597.6	59.85	10.985	
8,300.0	7,046.5	8,351.9	7,046.5	31.4	33.7	90.00		-1,411.9	-778.5	657.6	594.4	63.16	10.411	
8,400.0	7,046.3	8,451.9	7,046.3	33.1	35.3	90.00		-1,511.9	-778.0	657.7	591.2	66.53	9.886	
8,500.0	7,046.2	8,551.9	7,046.2	34.8	36.9	90.00		-1,611.9	-777.4	657.8	587.9	69.95	9.405	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design										Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5E-403 - Wellbore #1 - Plan #1 (11-22-13)				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 +N/-S	Offset Wellbore Centre +E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
8,600.0	7,046.0	8,651.9	7,046.0	36.6	38.5	90.00	-1,711.9	-776.9	658.0	584.5	73.41	8.963				
8,700.0	7,045.9	8,751.9	7,045.9	38.3	40.2	90.00	-1,811.9	-776.4	658.1	581.2	76.90	8.557				
8,800.0	7,045.8	8,851.9	7,045.8	40.1	41.9	90.00	-1,911.9	-775.9	658.2	577.8	80.43	8.183				
8,900.0	7,045.6	8,951.9	7,045.6	41.9	43.6	90.00	-2,011.9	-775.4	658.3	574.3	83.99	7.838				
9,000.0	7,045.5	9,051.9	7,045.5	43.7	45.4	90.00	-2,111.9	-774.9	658.5	570.9	87.57	7.519				
9,100.0	7,045.3	9,151.9	7,045.3	45.5	47.1	90.00	-2,211.9	-774.4	658.6	567.4	91.17	7.224				
9,200.0	7,045.2	9,251.9	7,045.2	47.3	48.9	90.00	-2,311.9	-773.8	658.7	563.9	94.79	6.949				
9,300.0	7,045.1	9,351.9	7,045.1	49.1	50.6	90.00	-2,411.9	-773.3	658.8	560.4	98.43	6.694				
9,400.0	7,044.9	9,451.9	7,044.9	50.9	52.4	90.00	-2,511.9	-772.8	659.0	556.9	102.08	6.455				
9,500.0	7,044.8	9,551.9	7,044.8	52.8	54.2	90.00	-2,611.9	-772.3	659.1	553.3	105.74	6.233				
9,600.0	7,044.6	9,651.9	7,044.6	54.6	56.0	90.00	-2,711.9	-771.8	659.2	549.8	109.42	6.024				
9,700.0	7,044.5	9,751.9	7,044.5	56.5	57.8	90.00	-2,811.9	-771.3	659.3	546.2	113.11	5.829				
9,800.0	7,044.4	9,851.9	7,044.4	58.3	59.6	90.00	-2,911.9	-770.8	659.5	542.6	116.81	5.646				
9,900.0	7,044.2	9,951.9	7,044.2	60.2	61.4	90.00	-3,011.9	-770.3	659.6	539.1	120.52	5.473				
10,000.0	7,044.1	10,051.9	7,044.1	62.0	63.3	90.00	-3,111.9	-769.7	659.7	535.5	124.23	5.310				
10,100.0	7,043.9	10,151.9	7,043.9	63.9	65.1	90.00	-3,211.9	-769.2	659.8	531.9	127.96	5.157				
10,200.0	7,043.8	10,251.9	7,043.8	65.8	66.9	90.00	-3,311.9	-768.7	660.0	528.3	131.69	5.012				
10,300.0	7,043.7	10,351.9	7,043.7	67.6	68.8	90.00	-3,411.9	-768.2	660.1	524.7	135.42	4.874				
10,400.0	7,043.5	10,451.9	7,043.5	69.5	70.6	90.00	-3,511.9	-767.7	660.2	521.0	139.16	4.744				
10,500.0	7,043.4	10,551.9	7,043.4	71.4	72.5	90.00	-3,611.9	-767.2	660.3	517.4	142.91	4.621				
10,600.0	7,043.3	10,651.9	7,043.3	73.3	74.3	90.00	-3,711.9	-766.7	660.5	513.8	146.66	4.503				
10,700.0	7,043.1	10,751.9	7,043.1	75.1	76.2	90.00	-3,811.9	-766.1	660.6	510.2	150.42	4.392				
10,800.0	7,043.0	10,851.9	7,043.0	77.0	78.0	90.00	-3,911.9	-765.6	660.7	506.5	154.18	4.285				
10,900.0	7,042.8	10,951.9	7,042.8	78.9	79.9	90.00	-4,011.9	-765.1	660.8	502.9	157.95	4.184				
11,000.0	7,042.7	11,051.9	7,042.7	80.8	81.8	90.00	-4,111.9	-764.6	661.0	499.2	161.72	4.087				
11,100.0	7,042.6	11,151.9	7,042.6	82.7	83.6	90.00	-4,211.9	-764.1	661.1	495.6	165.49	3.995				
11,200.0	7,042.4	11,251.9	7,042.4	84.6	85.5	90.00	-4,311.9	-763.6	661.2	491.9	169.26	3.906				
11,300.0	7,042.3	11,351.9	7,042.3	86.5	87.4	90.00	-4,411.9	-763.1	661.3	488.3	173.04	3.822				
11,400.0	7,042.1	11,451.9	7,042.1	88.3	89.2	90.00	-4,511.8	-762.6	661.5	484.6	176.82	3.741				
11,496.3	7,042.0	11,548.2	7,042.0	89.8	91.0	90.00	-4,608.2	-762.1	661.6	481.5	180.12	3.673 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-103 - Wellbore #1 - Plan #1 (11-22-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.99	89.99	0.0	30.7	30.7				
100.0	100.0	99.0	99.0	0.1	0.1	89.99	89.99	0.0	30.7	30.7	30.5	0.22	137.273	
200.0	200.0	199.0	199.0	0.3	0.3	89.99	89.99	0.0	30.7	30.7	30.0	0.67	45.681	
300.0	300.0	299.0	299.0	0.6	0.6	89.99	89.99	0.0	30.7	30.7	29.6	1.12	27.372	
400.0	400.0	399.0	399.0	0.8	0.8	89.99	89.99	0.0	30.7	30.7	29.1	1.57	19.540	
500.0	500.0	499.0	499.0	1.0	1.0	89.99	89.99	0.0	30.7	30.7	28.7	2.02	15.193	
600.0	600.0	599.0	599.0	1.2	1.2	89.99	89.99	0.0	30.7	30.7	28.2	2.47	12.428	
700.0	700.0	699.0	699.0	1.5	1.5	89.99	89.99	0.0	30.7	30.7	27.8	2.92	10.515	
800.0	800.0	799.0	799.0	1.7	1.7	89.99	89.99	0.0	30.7	30.7	27.3	3.37	9.112	
900.0	900.0	899.0	899.0	1.9	1.9	89.99	89.99	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	89.99	89.99	0.0	30.7	30.7	26.4	4.27	7.193 CC, ES	
1,100.0	1,100.0	1,098.2	1,098.2	2.4	2.4	87.85	87.85	1.2	31.9	31.9	27.2	4.71	6.774	
1,200.0	1,200.0	1,197.3	1,197.2	2.6	2.6	82.30	82.30	4.8	35.5	35.8	30.7	5.15	6.953	
1,300.0	1,300.0	1,297.1	1,296.8	2.8	2.8	76.88	76.88	9.3	40.0	41.1	35.5	5.60	7.336	
1,400.0	1,400.0	1,396.9	1,396.4	3.0	3.0	72.72	72.72	13.8	44.4	46.6	40.6	6.05	7.705	
1,500.0	1,500.0	1,496.7	1,496.0	3.3	3.3	69.45	69.45	18.3	48.9	52.3	45.8	6.50	8.050	
1,600.0	1,600.0	1,596.5	1,595.6	3.5	3.5	66.84	66.84	22.9	53.4	58.2	51.2	6.96	8.368	
1,700.0	1,700.0	1,696.3	1,695.2	3.7	3.7	64.70	64.70	27.4	57.9	64.2	56.7	7.41	8.659	
1,800.0	1,800.0	1,796.1	1,794.7	3.9	4.0	62.93	62.93	31.9	62.4	70.2	62.3	7.87	8.924	
1,900.0	1,900.0	1,895.9	1,894.3	4.2	4.2	61.45	61.45	36.4	66.9	76.3	68.0	8.32	9.167	
2,000.0	2,000.0	1,995.7	1,993.9	4.4	4.4	60.18	60.18	40.9	71.4	82.4	73.6	8.78	9.389	
2,100.0	2,100.0	2,095.5	2,093.5	4.6	4.7	97.22	97.22	45.4	75.9	88.8	79.6	9.18	9.676	
2,200.0	2,199.8	2,195.2	2,193.0	4.8	4.9	99.18	99.18	49.9	80.3	95.7	86.0	9.62	9.942	
2,223.5	2,223.2	2,218.6	2,216.3	4.9	5.0	99.89	99.89	51.0	81.4	97.4	87.6	9.73	10.011	
2,300.0	2,299.5	2,294.8	2,292.4	5.1	5.2	102.31	102.31	54.4	84.8	103.1	93.1	10.07	10.241	
2,400.0	2,399.2	2,394.3	2,391.7	5.3	5.4	105.09	105.09	58.9	89.3	110.9	100.4	10.53	10.537	
2,500.0	2,498.9	2,493.9	2,491.1	5.5	5.7	107.50	107.50	63.4	93.8	118.9	107.9	10.99	10.825	
2,600.0	2,598.6	2,593.5	2,590.5	5.7	5.9	109.60	109.60	67.9	98.2	127.1	115.7	11.45	11.103	
2,700.0	2,698.3	2,693.0	2,689.8	6.0	6.2	111.45	111.45	72.4	102.7	135.5	123.5	11.91	11.370	
2,800.0	2,798.0	2,792.6	2,789.2	6.2	6.4	113.08	113.08	76.9	107.2	143.9	131.5	12.38	11.624	
2,900.0	2,897.7	2,892.1	2,888.5	6.5	6.7	114.53	114.53	81.5	111.7	152.5	139.6	12.85	11.865	
3,000.0	2,997.4	2,991.7	2,987.9	6.7	6.9	115.83	115.83	86.0	116.2	161.1	147.8	13.32	12.095	
3,100.0	3,097.1	3,091.3	3,087.3	7.0	7.1	116.99	116.99	90.5	120.6	169.9	156.1	13.80	12.313	
3,200.0	3,196.8	3,190.8	3,186.6	7.2	7.4	118.04	118.04	95.0	125.1	178.6	164.4	14.27	12.519	
3,300.0	3,296.5	3,290.4	3,286.0	7.4	7.6	118.99	118.99	99.5	129.6	187.5	172.7	14.75	12.715	
3,400.0	3,396.2	3,390.0	3,385.3	7.7	7.9	119.85	119.85	104.0	134.1	196.4	181.2	15.22	12.901	
3,500.0	3,495.9	3,489.5	3,484.7	7.9	8.1	120.64	120.64	108.5	138.5	205.3	189.6	15.70	13.078	
3,600.0	3,595.6	3,589.1	3,584.1	8.2	8.4	121.37	121.37	113.0	143.0	214.3	198.1	16.18	13.246	
3,700.0	3,695.3	3,688.6	3,683.4	8.4	8.6	122.03	122.03	117.5	147.5	223.3	206.6	16.66	13.405	
3,800.0	3,795.0	3,788.2	3,782.8	8.7	8.9	122.65	122.65	122.0	152.0	232.3	215.2	17.13	13.557	
3,900.0	3,894.7	3,887.8	3,882.1	9.0	9.1	123.21	123.21	126.5	156.4	241.3	223.7	17.61	13.701	
4,000.0	3,994.4	3,987.3	3,981.5	9.2	9.4	123.74	123.74	131.0	160.9	250.4	232.3	18.10	13.838	
4,100.0	4,094.1	4,086.9	4,080.9	9.5	9.6	124.23	124.23	135.5	165.4	259.5	240.9	18.58	13.969	
4,200.0	4,193.8	4,186.5	4,180.2	9.7	9.9	124.69	124.69	140.0	169.9	268.6	249.5	19.06	14.095	
4,300.0	4,293.5	4,286.0	4,279.6	10.0	10.1	125.11	125.11	144.5	174.4	277.7	258.2	19.54	14.214	
4,400.0	4,393.2	4,385.6	4,378.9	10.2	10.4	125.51	125.51	149.0	178.8	286.9	266.8	20.02	14.328	
4,500.0	4,492.9	4,485.1	4,478.3	10.5	10.6	125.89	125.89	153.5	183.3	296.0	275.5	20.50	14.437	
4,600.0	4,592.5	4,584.7	4,577.7	10.7	10.9	126.24	126.24	158.0	187.8	305.2	284.2	20.99	14.542	
4,700.0	4,692.2	4,684.3	4,677.0	11.0	11.1	126.57	126.57	162.5	192.3	314.3	292.9	21.47	14.642	
4,784.8	4,776.8	4,768.7	4,761.3	11.2	11.3	126.84	126.84	166.3	196.1	322.1	300.3	21.88	14.724	
4,800.0	4,791.9	4,783.8	4,776.4	11.3	11.4	126.90	126.90	167.0	196.7	323.5	301.6	21.95	14.738	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-103 - Wellbore #1 - Plan #1 (11-22-13)													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	4,891.8	4,888.7	4,881.1	11.4	11.6	127.08		171.3	201.0	330.9	308.5	22.39	14.781	
5,008.2	5,000.0	5,006.6	4,998.9	11.6	11.8	90.00		173.0	202.7	333.7	310.9	22.79	14.641	
5,100.0	5,091.8	5,098.4	5,090.8	11.8	12.0	90.00		173.0	202.7	333.7	310.6	23.14	14.419	
5,200.0	5,191.8	5,198.4	5,190.8	12.0	12.2	90.00		173.0	202.7	333.7	310.1	23.57	14.161	
5,300.0	5,291.8	5,298.4	5,290.8	12.2	12.4	90.00		173.0	202.7	333.7	309.7	23.99	13.911	
5,400.0	5,391.8	5,398.4	5,390.8	12.4	12.6	90.00		173.0	202.7	333.7	309.3	24.41	13.669	
5,500.0	5,491.8	5,498.4	5,490.8	12.6	12.8	90.00		173.0	202.7	333.7	308.9	24.84	13.435	
5,600.0	5,591.8	5,598.4	5,590.8	12.9	13.0	90.00		173.0	202.7	333.7	308.4	25.27	13.208	
5,700.0	5,691.8	5,698.4	5,690.8	13.1	13.2	90.00		173.0	202.7	333.7	308.0	25.69	12.988	
5,800.0	5,791.8	5,798.4	5,790.8	13.3	13.4	90.00		173.0	202.7	333.7	307.6	26.12	12.776	
5,900.0	5,891.8	5,898.4	5,890.8	13.5	13.6	90.00		173.0	202.7	333.7	307.2	26.55	12.569	
6,000.0	5,991.8	5,998.4	5,990.8	13.7	13.9	90.00		173.0	202.7	333.7	306.7	26.98	12.369	
6,036.7	6,028.5	6,035.1	6,027.5	13.8	13.9	90.00		173.0	202.7	333.7	306.6	27.14	12.297	
6,100.0	6,091.8	6,098.2	6,090.4	13.9	14.0	90.39		170.7	202.7	333.7	306.3	27.38	12.190	
6,200.0	6,191.8	6,195.8	6,187.1	14.1	14.2	92.74		157.0	202.8	334.2	306.5	27.71	12.059	
6,281.9	6,273.7	6,272.3	6,261.0	14.3	14.2	96.03		137.7	202.9	336.0	308.0	27.96	12.016	
6,300.0	6,291.8	6,288.6	6,276.6	14.4	14.2	-82.73		132.7	202.9	336.6	308.6	28.00	12.021	
6,350.0	6,341.7	6,333.4	6,318.5	14.4	14.3	-80.34		117.1	203.0	338.9	310.8	28.11	12.057	
6,400.0	6,391.3	6,377.4	6,358.8	14.5	14.3	-78.03		99.4	203.1	341.7	313.5	28.19	12.121	
6,450.0	6,440.4	6,420.9	6,397.5	14.5	14.4	-75.81		79.6	203.2	344.9	316.7	28.25	12.210	
6,500.0	6,488.8	6,463.7	6,434.5	14.6	14.4	-73.68		58.1	203.3	348.6	320.3	28.29	12.322	
6,550.0	6,536.3	6,506.0	6,469.8	14.6	14.4	-71.66		34.8	203.5	352.6	324.3	28.31	12.455	
6,600.0	6,582.6	6,550.0	6,505.1	14.7	14.5	-69.66		8.5	203.6	356.9	328.6	28.32	12.605	
6,650.0	6,627.7	6,589.1	6,535.2	14.7	14.5	-67.94		-16.5	203.7	361.3	333.0	28.30	12.766	
6,700.0	6,671.2	6,630.0	6,565.2	14.8	14.6	-66.25		-44.3	203.9	365.9	337.6	28.28	12.939	
6,750.0	6,713.0	6,670.6	6,593.5	14.8	14.7	-64.68		-73.4	204.1	370.5	342.2	28.24	13.118	
6,800.0	6,752.9	6,710.7	6,619.9	14.9	14.8	-63.22		-103.6	204.2	375.0	346.8	28.20	13.298	
6,850.0	6,790.8	6,750.0	6,644.1	14.9	14.9	-61.89		-134.5	204.4	379.5	351.4	28.17	13.472	
6,900.0	6,826.5	6,790.2	6,667.3	15.0	15.1	-60.65		-167.3	204.6	383.9	355.7	28.16	13.631	
6,950.0	6,859.8	6,829.5	6,688.2	15.1	15.3	-59.53		-200.5	204.7	388.0	359.9	28.18	13.771	
7,000.0	6,890.6	6,868.5	6,707.3	15.3	15.5	-58.53		-234.6	204.9	391.9	363.7	28.23	13.885	
7,050.0	6,918.7	6,907.4	6,724.6	15.5	15.8	-57.63		-269.5	205.1	395.6	367.3	28.33	13.965	
7,100.0	6,944.1	6,950.0	6,741.4	15.8	16.1	-56.78		-308.6	205.3	398.9	370.4	28.50	13.999	
7,150.0	6,966.6	6,984.6	6,753.5	16.1	16.4	-56.15		-341.0	205.5	401.9	373.2	28.72	13.995	
7,200.0	6,986.2	7,023.0	6,765.1	16.5	16.7	-55.56		-377.6	205.7	404.5	375.4	29.03	13.935	
7,250.0	7,002.7	7,061.2	6,774.9	16.9	17.1	-55.08		-414.6	205.9	406.7	377.2	29.42	13.823	
7,300.0	7,016.1	7,100.0	6,782.9	17.3	17.5	-54.68		-452.5	206.1	408.4	378.5	29.91	13.658	
7,350.0	7,026.3	7,137.5	6,788.7	17.8	17.9	-54.40		-489.5	206.3	409.8	379.3	30.48	13.442	
7,401.9	7,033.4	7,177.0	6,793.0	18.3	18.3	-54.20		-528.8	206.5	410.7	379.5	31.19	13.168	
7,475.9	7,041.2	7,233.1	6,795.5	19.2	18.9	-53.82		-584.8	206.9	413.2	380.9	32.31	12.788	
7,500.0	7,043.4	7,253.6	6,795.4	19.5	19.2	-53.54		-605.3	207.0	414.6	381.9	32.66	12.693	
7,597.5	7,047.4	7,351.0	6,794.8	20.7	20.4	-52.92		-702.7	207.5	417.3	382.8	34.48	12.102	
7,600.0	7,047.4	7,353.5	6,794.8	20.7	20.5	-52.92		-705.2	207.5	417.3	382.8	34.54	12.083	
7,700.0	7,047.3	7,453.5	6,794.2	22.1	21.8	-52.86		-805.2	208.1	417.5	380.8	36.75	11.362	
7,800.0	7,047.2	7,553.5	6,793.6	23.5	23.3	-52.80		-905.2	208.6	417.7	378.6	39.09	10.687	
7,900.0	7,047.0	7,653.5	6,793.0	25.0	24.8	-52.74		-1,005.2	209.2	417.9	376.4	41.54	10.062	
8,000.0	7,046.9	7,753.5	6,792.4	26.5	26.3	-52.68		-1,105.2	209.7	418.1	374.1	44.07	9.488	
8,100.0	7,046.7	7,853.5	6,791.8	28.1	27.9	-52.62		-1,205.1	210.3	418.4	371.7	46.68	8.962	
8,200.0	7,046.6	7,953.5	6,791.2	29.8	29.6	-52.56		-1,305.1	210.8	418.6	369.2	49.36	8.481	
8,300.0	7,046.5	8,053.5	6,790.5	31.4	31.3	-52.50		-1,405.1	211.4	418.8	366.7	52.08	8.042	
8,400.0	7,046.3	8,153.5	6,789.9	33.1	33.0	-52.45		-1,505.1	211.9	419.0	364.2	54.84	7.640	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design		Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-103 - Wellbore #1 - Plan #1 (11-22-13)										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	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,500.0	7,046.2	8,253.5	6,789.3	34.8	34.7	-52.39	-1,605.1	212.4	419.2	361.6	57.64	7.273		
8,600.0	7,046.0	8,353.5	6,788.7	36.6	36.4	-52.33	-1,705.1	213.0	419.4	359.0	60.48	6.936		
8,700.0	7,045.9	8,453.5	6,788.1	38.3	38.2	-52.27	-1,805.1	213.5	419.7	356.3	63.33	6.626		
8,800.0	7,045.8	8,553.5	6,787.5	40.1	40.0	-52.21	-1,905.1	214.1	419.9	353.7	66.21	6.341		
8,900.0	7,045.6	8,653.5	6,786.9	41.9	41.8	-52.15	-2,005.1	214.6	420.1	351.0	69.11	6.079		
9,000.0	7,045.5	8,753.5	6,786.3	43.7	43.6	-52.10	-2,105.1	215.2	420.3	348.3	72.02	5.836		
9,100.0	7,045.3	8,853.5	6,785.7	45.5	45.4	-52.04	-2,205.1	215.7	420.5	345.6	74.95	5.611		
9,200.0	7,045.2	8,953.5	6,785.0	47.3	47.2	-51.98	-2,305.1	216.3	420.7	342.9	77.88	5.402		
9,300.0	7,045.1	9,053.5	6,784.4	49.1	49.0	-51.92	-2,405.1	216.8	421.0	340.1	80.83	5.208		
9,400.0	7,044.9	9,153.5	6,783.8	50.9	50.8	-51.86	-2,505.1	217.4	421.2	337.4	83.79	5.027		
9,500.0	7,044.8	9,253.5	6,783.2	52.8	52.7	-51.80	-2,605.1	217.9	421.4	334.7	86.75	4.858		
9,600.0	7,044.6	9,353.4	6,782.6	54.6	54.5	-51.75	-2,705.1	218.5	421.6	331.9	89.72	4.699		
9,700.0	7,044.5	9,453.4	6,782.0	56.5	56.4	-51.69	-2,805.1	219.0	421.8	329.2	92.69	4.551		
9,800.0	7,044.4	9,553.4	6,781.4	58.3	58.2	-51.63	-2,905.1	219.6	422.1	326.4	95.67	4.412		
9,900.0	7,044.2	9,653.4	6,780.8	60.2	60.1	-51.57	-3,005.1	220.1	422.3	323.6	98.65	4.281		
10,000.0	7,044.1	9,753.4	6,780.2	62.0	62.0	-51.52	-3,105.1	220.7	422.5	320.9	101.63	4.157		
10,100.0	7,043.9	9,853.4	6,779.6	63.9	63.8	-51.46	-3,205.1	221.2	422.7	318.1	104.62	4.041		
10,200.0	7,043.8	9,953.4	6,778.9	65.8	65.7	-51.40	-3,305.1	221.8	423.0	315.4	107.61	3.931		
10,300.0	7,043.7	10,053.4	6,778.3	67.6	67.6	-51.34	-3,405.0	222.3	423.2	312.6	110.59	3.826		
10,400.0	7,043.5	10,153.4	6,777.7	69.5	69.4	-51.29	-3,505.0	222.9	423.4	309.8	113.58	3.728		
10,500.0	7,043.4	10,253.4	6,777.1	71.4	71.3	-51.23	-3,605.0	223.4	423.6	307.1	116.57	3.634		
10,600.0	7,043.3	10,353.4	6,776.5	73.3	73.2	-51.17	-3,705.0	224.0	423.9	304.3	119.56	3.545		
10,700.0	7,043.1	10,453.4	6,775.9	75.1	75.1	-51.11	-3,805.0	224.5	424.1	301.5	122.55	3.460		
10,800.0	7,043.0	10,553.4	6,775.3	77.0	77.0	-51.06	-3,905.0	225.1	424.3	298.8	125.54	3.380		
10,900.0	7,042.8	10,653.4	6,774.7	78.9	78.8	-51.00	-4,005.0	225.6	424.5	296.0	128.53	3.303		
11,000.0	7,042.7	10,753.4	6,774.1	80.8	80.7	-50.94	-4,105.0	226.2	424.8	293.2	131.51	3.230		
11,100.0	7,042.6	10,853.4	6,773.4	82.7	82.6	-50.89	-4,205.0	226.7	425.0	290.5	134.50	3.160		
11,200.0	7,042.4	10,953.4	6,772.8	84.6	84.5	-50.83	-4,305.0	227.2	425.2	287.7	137.48	3.093		
11,300.0	7,042.3	11,053.4	6,772.2	86.5	86.4	-50.77	-4,405.0	227.8	425.4	285.0	140.47	3.029		
11,400.0	7,042.1	11,153.4	6,771.6	88.3	88.3	-50.71	-4,505.0	228.3	425.7	282.2	143.45	2.967		
11,496.3	7,042.0	11,249.8	6,771.0	89.8	89.9	-50.66	-4,601.3	228.9	425.9	280.1	145.83	2.920 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-14 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft	
Survey Program: 7154-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)			
10,200.0	7,043.8	6,967.8	6,967.8	65.8	139.4	90.58	-4,280.6	-237.3	980.5	775.5	205.07	4.781		
10,300.0	7,043.7	6,967.7	6,967.7	67.6	139.4	90.52	-4,280.6	-237.3	881.6	674.6	206.94	4.260		
10,400.0	7,043.5	6,967.5	6,967.5	69.5	139.4	90.46	-4,280.6	-237.3	782.9	574.1	208.81	3.749		
10,500.0	7,043.4	6,967.4	6,967.4	71.4	139.3	90.40	-4,280.6	-237.3	684.6	473.9	210.69	3.249		
10,600.0	7,043.3	6,967.3	6,967.3	73.3	139.3	90.34	-4,280.6	-237.3	586.9	374.3	212.57	2.761		
10,700.0	7,043.1	6,967.1	6,967.1	75.1	139.3	90.28	-4,280.6	-237.3	490.1	275.7	214.45	2.285		
10,800.0	7,043.0	6,967.0	6,967.0	77.0	139.3	90.22	-4,280.6	-237.3	394.9	178.6	216.33	1.826		
10,900.0	7,042.8	6,966.8	6,966.8	78.9	139.3	90.16	-4,280.6	-237.3	302.8	84.6	218.21	1.388 Level 3		
11,000.0	7,042.7	6,966.7	6,966.7	80.8	139.3	90.10	-4,280.6	-237.3	217.9	-2.2	220.09	0.990 Level 1		
11,100.0	7,042.6	6,966.6	6,966.6	82.7	139.3	90.04	-4,280.6	-237.3	152.4	-69.6	221.98	0.686 Level 1		
11,171.2	7,042.5	6,966.5	6,966.5	84.0	139.3	90.00	-4,280.6	-237.3	134.7	-88.6	223.32	0.603 Level 1, CC, ES, SF		
11,200.0	7,042.4	6,966.4	6,966.4	84.6	139.3	89.98	-4,280.6	-237.3	137.7	-86.1	223.87	0.615 Level 1		
11,300.0	7,042.3	6,966.3	6,966.3	86.5	139.3	89.92	-4,280.6	-237.3	186.3	-39.4	225.76	0.825 Level 1		
11,400.0	7,042.1	6,966.1	6,966.1	88.3	139.3	89.86	-4,280.6	-237.3	265.5	37.8	227.64	1.166 Level 2		
11,496.3	7,042.0	6,966.0	6,966.0	89.8	139.3	89.81	-4,280.6	-237.3	351.9	122.8	229.12	1.536		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-7 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7200-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-176.48	-176.48	-499.1	-30.7	500.2				
100.0	100.0	89.0	89.0	0.1	1.8	-176.48	-176.48	-499.1	-30.7	500.0	498.1	1.89	264.208	
200.0	200.0	189.0	189.0	0.3	3.8	-176.48	-176.48	-499.1	-30.7	500.0	495.9	4.12	121.446	
300.0	300.0	289.0	289.0	0.6	5.8	-176.48	-176.48	-499.1	-30.7	500.0	493.7	6.34	78.844	
400.0	400.0	389.0	389.0	0.8	7.8	-176.48	-176.48	-499.1	-30.7	500.0	491.5	8.57	58.368	
500.0	500.0	489.0	489.0	1.0	9.8	-176.48	-176.48	-499.1	-30.7	500.0	489.2	10.79	46.335	
600.0	600.0	589.0	589.0	1.2	11.8	-176.48	-176.48	-499.1	-30.7	500.0	487.0	13.02	38.416	
700.0	700.0	689.0	689.0	1.5	13.8	-176.48	-176.48	-499.1	-30.7	500.0	484.8	15.24	32.808	
800.0	800.0	789.0	789.0	1.7	15.8	-176.48	-176.48	-499.1	-30.7	500.0	482.6	17.47	28.629	
900.0	900.0	889.0	889.0	1.9	17.8	-176.48	-176.48	-499.1	-30.7	500.0	480.3	19.69	25.394	
1,000.0	1,000.0	989.0	989.0	2.1	19.8	-176.48	-176.48	-499.1	-30.7	500.0	478.1	21.92	22.817	
1,100.0	1,100.0	1,089.0	1,089.0	2.4	21.8	-176.48	-176.48	-499.1	-30.7	500.0	475.9	24.14	20.714	
1,200.0	1,200.0	1,189.0	1,189.0	2.6	23.8	-176.48	-176.48	-499.1	-30.7	500.0	473.7	26.36	18.966	
1,300.0	1,300.0	1,289.0	1,289.0	2.8	25.8	-176.48	-176.48	-499.1	-30.7	500.0	471.4	28.59	17.490	
1,400.0	1,400.0	1,389.0	1,389.0	3.0	27.8	-176.48	-176.48	-499.1	-30.7	500.0	469.2	30.81	16.227	
1,500.0	1,500.0	1,489.0	1,489.0	3.3	29.8	-176.48	-176.48	-499.1	-30.7	500.0	467.0	33.04	15.135	
1,600.0	1,600.0	1,589.0	1,589.0	3.5	31.8	-176.48	-176.48	-499.1	-30.7	500.0	464.8	35.26	14.180	
1,700.0	1,700.0	1,689.0	1,689.0	3.7	33.8	-176.48	-176.48	-499.1	-30.7	500.0	462.5	37.49	13.338	
1,800.0	1,800.0	1,789.0	1,789.0	3.9	35.8	-176.48	-176.48	-499.1	-30.7	500.0	460.3	39.71	12.591	
1,900.0	1,900.0	1,889.0	1,889.0	4.2	37.8	-176.48	-176.48	-499.1	-30.7	500.0	458.1	41.94	11.923	
2,000.0	2,000.0	1,989.0	1,989.0	4.4	39.8	-176.48	-176.48	-499.1	-30.7	500.0	455.9	44.16	11.322	
2,100.0	2,100.0	2,089.0	2,089.0	4.6	41.8	-139.46	-139.46	-499.1	-30.7	501.4	455.0	46.37	10.812	
2,200.0	2,199.8	2,188.8	2,188.8	4.8	43.8	-139.79	-139.79	-499.1	-30.7	505.3	456.8	48.54	10.412	
2,223.5	2,223.2	2,212.2	2,212.2	4.9	44.2	-139.90	-139.90	-499.1	-30.7	506.7	457.6	49.04	10.332	
2,300.0	2,299.5	2,288.5	2,288.5	5.1	45.8	-140.33	-140.33	-499.1	-30.7	511.3	460.5	50.73	10.078	
2,400.0	2,399.2	2,388.2	2,388.2	5.3	47.8	-140.88	-140.88	-499.1	-30.7	517.3	464.3	52.95	9.770	
2,500.0	2,498.9	2,487.9	2,487.9	5.5	49.8	-141.42	-141.42	-499.1	-30.7	523.4	468.2	55.16	9.487	
2,600.0	2,598.6	2,587.6	2,587.6	5.7	51.8	-141.94	-141.94	-499.1	-30.7	529.5	472.1	57.38	9.227	
2,700.0	2,698.3	2,687.3	2,687.3	6.0	53.7	-142.46	-142.46	-499.1	-30.7	535.6	476.0	59.60	8.987	
2,800.0	2,798.0	2,787.0	2,787.0	6.2	55.7	-142.96	-142.96	-499.1	-30.7	541.9	480.0	61.82	8.765	
2,900.0	2,897.7	2,886.7	2,886.7	6.5	57.7	-143.45	-143.45	-499.1	-30.7	548.1	484.1	64.04	8.559	
3,000.0	2,997.4	2,986.4	2,986.4	6.7	59.7	-143.93	-143.93	-499.1	-30.7	554.4	488.1	66.26	8.367	
3,100.0	3,097.1	3,086.1	3,086.1	7.0	61.7	-144.40	-144.40	-499.1	-30.7	560.7	492.2	68.48	8.187	
3,200.0	3,196.8	3,185.8	3,185.8	7.2	63.7	-144.86	-144.86	-499.1	-30.7	567.1	496.4	70.71	8.020	
3,300.0	3,296.5	3,285.5	3,285.5	7.4	65.7	-145.30	-145.30	-499.1	-30.7	573.5	500.5	72.93	7.863	
3,400.0	3,396.2	3,385.2	3,385.2	7.7	67.7	-145.74	-145.74	-499.1	-30.7	579.9	504.7	75.15	7.716	
3,500.0	3,495.9	3,484.9	3,484.9	7.9	69.7	-146.17	-146.17	-499.1	-30.7	586.4	509.0	77.37	7.578	
3,600.0	3,595.6	3,584.6	3,584.6	8.2	71.7	-146.59	-146.59	-499.1	-30.7	592.9	513.3	79.60	7.448	
3,700.0	3,695.3	3,684.3	3,684.3	8.4	73.7	-147.00	-147.00	-499.1	-30.7	599.4	517.6	81.82	7.326	
3,800.0	3,795.0	3,784.0	3,784.0	8.7	75.7	-147.40	-147.40	-499.1	-30.7	605.9	521.9	84.04	7.210	
3,900.0	3,894.7	3,883.7	3,883.7	9.0	77.7	-147.79	-147.79	-499.1	-30.7	612.5	526.3	86.27	7.100	
4,000.0	3,994.4	3,983.4	3,983.4	9.2	79.7	-148.17	-148.17	-499.1	-30.7	619.1	530.6	88.49	6.997	
4,100.0	4,094.1	4,083.1	4,083.1	9.5	81.7	-148.55	-148.55	-499.1	-30.7	625.8	535.1	90.71	6.898	
4,200.0	4,193.8	4,182.8	4,182.8	9.7	83.7	-148.92	-148.92	-499.1	-30.7	632.4	539.5	92.94	6.805	
4,300.0	4,293.5	4,282.5	4,282.5	10.0	85.6	-149.28	-149.28	-499.1	-30.7	639.1	544.0	95.16	6.716	
4,400.0	4,393.2	4,382.2	4,382.2	10.2	87.6	-149.63	-149.63	-499.1	-30.7	645.8	548.5	97.38	6.632	
4,500.0	4,492.9	4,481.9	4,481.9	10.5	89.6	-149.98	-149.98	-499.1	-30.7	652.6	553.0	99.61	6.552	
4,600.0	4,592.5	4,581.5	4,581.5	10.7	91.6	-150.32	-150.32	-499.1	-30.7	659.3	557.5	101.83	6.475	
4,700.0	4,692.2	4,681.2	4,681.2	11.0	93.6	-150.65	-150.65	-499.1	-30.7	666.1	562.1	104.05	6.402	
4,784.8	4,776.8	4,765.8	4,765.8	11.2	95.3	-150.92	-150.92	-499.1	-30.7	671.9	566.0	105.94	6.343	
4,800.0	4,791.9	4,780.9	4,780.9	11.3	95.6	-150.98	-150.98	-499.1	-30.7	672.9	566.6	106.30	6.330	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-7 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7200-UNKNOWN													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,900.0	4,891.8	4,880.8	4,880.8	11.4	97.6	-151.25	-499.1	-30.7	677.7	569.1	108.61	6.240		
5,008.2	5,000.0	4,989.0	4,989.0	11.6	99.8	171.51	-499.1	-30.7	679.5	568.5	111.01	6.121		
5,100.0	5,091.8	5,080.8	5,080.8	11.8	101.6	171.51	-499.1	-30.7	679.5	566.5	113.02	6.012		
5,200.0	5,191.8	5,180.8	5,180.8	12.0	103.6	171.51	-499.1	-30.7	679.5	564.3	115.24	5.897		
5,300.0	5,291.8	5,280.8	5,280.8	12.2	105.6	171.51	-499.1	-30.7	679.5	562.1	117.46	5.785		
5,400.0	5,391.8	5,380.8	5,380.8	12.4	107.6	171.51	-499.1	-30.7	679.5	559.9	119.68	5.678		
5,500.0	5,491.8	5,480.8	5,480.8	12.6	109.6	171.51	-499.1	-30.7	679.5	557.6	121.90	5.575		
5,600.0	5,591.8	5,580.8	5,580.8	12.9	111.6	171.51	-499.1	-30.7	679.5	555.4	124.12	5.475		
5,700.0	5,691.8	5,680.8	5,680.8	13.1	113.6	171.51	-499.1	-30.7	679.5	553.2	126.33	5.379		
5,800.0	5,791.8	5,780.8	5,780.8	13.3	115.6	171.51	-499.1	-30.7	679.5	551.0	128.55	5.286		
5,900.0	5,891.8	5,880.8	5,880.8	13.5	117.6	171.51	-499.1	-30.7	679.5	548.8	130.77	5.196		
6,000.0	5,991.8	5,980.8	5,980.8	13.7	119.6	171.51	-499.1	-30.7	679.5	546.5	132.99	5.110		
6,100.0	6,091.8	6,080.8	6,080.8	13.9	121.6	171.51	-499.1	-30.7	679.5	544.3	135.21	5.026		
6,200.0	6,191.8	6,180.8	6,180.8	14.1	123.6	171.51	-499.1	-30.7	679.5	542.1	137.43	4.944		
6,281.9	6,273.7	6,262.7	6,262.7	14.3	125.3	171.51	-499.1	-30.7	679.5	540.3	139.25	4.880		
6,300.0	6,291.8	6,280.8	6,280.8	14.4	125.6	-8.13	-499.1	-30.7	679.3	539.7	139.60	4.866		
6,350.0	6,341.7	6,330.7	6,330.7	14.4	126.6	-8.19	-499.1	-30.7	676.5	536.4	140.16	4.827		
6,400.0	6,391.3	6,380.3	6,380.3	14.5	127.6	-8.33	-499.1	-30.7	670.5	530.4	140.13	4.785		
6,450.0	6,440.4	6,429.4	6,429.4	14.5	128.6	-8.55	-499.1	-30.7	661.3	521.8	139.49	4.741		
6,500.0	6,488.8	6,477.8	6,477.8	14.6	129.6	-8.86	-499.1	-30.7	648.9	510.7	138.25	4.694		
6,550.0	6,536.3	6,525.3	6,525.3	14.6	130.5	-9.27	-499.1	-30.7	633.5	497.1	136.40	4.644		
6,600.0	6,582.6	6,571.6	6,571.6	14.7	131.4	-9.80	-499.1	-30.7	615.0	481.0	133.97	4.590		
6,650.0	6,627.7	6,616.7	6,616.7	14.7	132.3	-10.48	-499.1	-30.7	593.6	462.6	130.98	4.532		
6,700.0	6,671.2	6,660.2	6,660.2	14.8	133.2	-11.33	-499.1	-30.7	569.3	441.8	127.46	4.466		
6,750.0	6,713.0	6,702.0	6,702.0	14.8	134.0	-12.40	-499.1	-30.7	542.3	418.8	123.50	4.391		
6,800.0	6,752.9	6,741.9	6,741.9	14.9	134.8	-13.75	-499.1	-30.7	512.7	393.5	119.20	4.302		
6,850.0	6,790.8	6,779.8	6,779.8	14.9	135.6	-15.48	-499.1	-30.7	480.7	366.0	114.74	4.190		
6,900.0	6,826.5	6,815.5	6,815.5	15.0	136.3	-17.69	-499.1	-30.7	446.5	336.0	110.44	4.043		
6,950.0	6,859.8	6,848.8	6,848.8	15.1	137.0	-20.58	-499.1	-30.7	410.1	303.3	106.80	3.840		
7,000.0	6,890.6	6,879.6	6,879.6	15.3	137.6	-24.37	-499.1	-30.7	372.0	267.3	104.64	3.555		
7,050.0	6,918.7	6,907.7	6,907.7	15.5	138.2	-29.40	-499.1	-30.7	332.2	227.0	105.17	3.159		
7,100.0	6,944.1	6,933.1	6,933.1	15.8	138.7	-36.07	-499.1	-30.7	291.3	181.4	109.83	2.652		
7,150.0	6,966.6	6,955.6	6,955.6	16.1	139.1	-44.72	-499.1	-30.7	249.6	130.1	119.40	2.090		
7,200.0	6,986.2	6,975.2	6,975.2	16.5	139.5	-55.29	-499.1	-30.7	207.8	75.3	132.58	1.568		
7,250.0	7,002.7	6,991.7	6,991.7	16.9	139.8	-66.88	-499.1	-30.7	167.4	22.0	145.42	1.151 Level 2		
7,300.0	7,016.1	7,005.1	7,005.1	17.3	140.1	-77.67	-499.1	-30.7	130.9	-23.1	153.96	0.850 Level 1		
7,350.0	7,026.3	7,015.3	7,015.3	17.8	140.3	-85.90	-499.1	-30.7	104.0	-53.6	157.64	0.660 Level 1		
7,390.5	7,032.2	7,021.2	7,021.2	18.2	140.4	-90.00	-499.1	-30.7	96.0	-62.6	158.58	0.605 Level 1, CC, ES, SF		
7,401.9	7,033.4	7,022.4	7,022.4	18.3	140.4	-90.71	-499.1	-30.7	96.7	-62.0	158.72	0.609 Level 1		
7,475.9	7,041.2	7,030.2	7,030.2	19.2	140.6	-95.29	-499.1	-30.7	128.2	-30.9	159.09	0.806 Level 1		
7,500.0	7,043.4	7,032.4	7,032.4	19.5	140.6	-95.42	-499.1	-30.7	145.2	-14.2	159.38	0.911 Level 1		
7,597.5	7,047.4	7,036.4	7,036.4	20.7	140.7	-89.83	-499.1	-30.7	227.6	66.2	161.35	1.411 Level 3		
7,600.0	7,047.4	7,036.4	7,036.4	20.7	140.7	-89.83	-499.1	-30.7	229.8	68.5	161.38	1.424 Level 3		
7,700.0	7,047.3	7,036.3	7,036.3	22.1	140.7	-89.74	-499.1	-30.7	323.4	160.7	162.72	1.988		
7,800.0	7,047.2	7,036.2	7,036.2	23.5	140.7	-89.66	-499.1	-30.7	420.0	255.8	164.14	2.558		
7,900.0	7,047.0	7,036.0	7,036.0	25.0	140.7	-89.58	-499.1	-30.7	517.8	352.2	165.63	3.126		
8,000.0	7,046.9	7,035.9	7,035.9	26.5	140.7	-89.49	-499.1	-30.7	616.4	449.2	167.18	3.687		
8,100.0	7,046.7	7,035.7	7,035.7	28.1	140.7	-89.41	-499.1	-30.7	715.3	546.5	168.77	4.238		
8,200.0	7,046.6	7,035.6	7,035.6	29.8	140.7	-89.33	-499.1	-30.7	814.5	644.1	170.39	4.780		
8,300.0	7,046.5	7,035.5	7,035.5	31.4	140.7	-89.24	-499.1	-30.7	913.9	741.8	172.05	5.312		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells Sec.5-T3N-R64W - Becker 5-8 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program: 7160-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9,200.0	7,045.2	6,977.2	6,977.2	47.3	139.5	103.91	-3,260.5	-114.4	952.0	770.6	181.43	5.247		
9,300.0	7,045.1	6,977.1	6,977.1	49.1	139.5	102.50	-3,260.5	-114.4	852.0	667.8	184.24	4.625		
9,400.0	7,044.9	6,976.9	6,976.9	50.9	139.5	101.07	-3,260.5	-114.4	752.0	565.0	186.96	4.022		
9,500.0	7,044.8	6,976.8	6,976.8	52.8	139.5	99.63	-3,260.5	-114.4	652.0	462.4	189.61	3.439		
9,600.0	7,044.6	6,976.6	6,976.6	54.6	139.5	98.17	-3,260.5	-114.4	552.0	359.9	192.17	2.873		
9,700.0	7,044.5	6,976.5	6,976.5	56.5	139.5	96.71	-3,260.5	-114.4	452.0	257.4	194.63	2.323		
9,800.0	7,044.4	6,976.4	6,976.4	58.3	139.5	95.23	-3,260.5	-114.4	352.0	155.1	196.98	1.787		
9,900.0	7,044.2	6,976.2	6,976.2	60.2	139.5	93.75	-3,260.5	-114.4	252.1	52.8	199.23	1.265	Level 3	
10,000.0	7,044.1	6,976.1	6,976.1	62.0	139.5	92.26	-3,260.5	-114.4	152.1	-49.3	201.35	0.755	Level 1	
10,100.0	7,043.9	6,975.9	6,975.9	63.9	139.5	90.77	-3,260.5	-114.4	52.3	-151.1	203.36	0.257	Level 1	
10,152.0	7,043.9	6,975.9	6,975.9	64.9	139.5	90.00	-3,260.5	-114.4	5.4	-199.0	204.35	0.026	Level 1, CC, ES, SF	
10,200.0	7,043.8	6,975.8	6,975.8	65.8	139.5	89.28	-3,260.5	-114.4	48.3	-156.9	205.23	0.235	Level 1	
10,300.0	7,043.7	6,975.7	6,975.7	67.6	139.5	87.80	-3,260.5	-114.4	148.1	-58.9	206.98	0.716	Level 1	
10,400.0	7,043.5	6,975.5	6,975.5	69.5	139.5	86.31	-3,260.5	-114.4	248.1	39.5	208.59	1.189	Level 2	
10,500.0	7,043.4	6,975.4	6,975.4	71.4	139.5	84.83	-3,260.5	-114.4	348.0	138.0	210.07	1.657		
10,600.0	7,043.3	6,975.3	6,975.3	73.3	139.5	83.35	-3,260.5	-114.4	448.0	236.6	211.42	2.119		
10,700.0	7,043.1	6,975.1	6,975.1	75.1	139.5	81.89	-3,260.5	-114.4	548.0	335.4	212.62	2.577		
10,800.0	7,043.0	6,975.0	6,975.0	77.0	139.5	80.43	-3,260.5	-114.4	648.0	434.3	213.70	3.032		
10,900.0	7,042.8	6,974.8	6,974.8	78.9	139.5	78.99	-3,260.5	-114.4	748.0	533.4	214.64	3.485		
11,000.0	7,042.7	6,974.7	6,974.7	80.8	139.5	77.56	-3,260.5	-114.4	848.0	632.6	215.44	3.936		
11,100.0	7,042.6	6,974.6	6,974.6	82.7	139.5	76.15	-3,260.5	-114.4	948.0	731.9	216.12	4.386		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-9 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7175-UNKNOWN													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	
7,401.9	7,033.4	7,001.4	7,001.4	18.3	140.0	27.55	-1,475.4	-173.0	965.5	887.9	77.58	12.444		
7,475.9	7,041.2	7,009.2	7,009.2	19.2	140.2	29.46	-1,475.4	-173.0	892.0	809.6	82.43	10.821		
7,500.0	7,043.4	7,011.4	7,011.4	19.5	140.2	35.97	-1,475.4	-173.0	868.1	771.5	96.58	8.988		
7,597.5	7,047.4	7,015.4	7,015.4	20.7	140.3	91.17	-1,475.4	-173.0	770.8	610.0	160.89	4.791		
7,600.0	7,047.4	7,015.4	7,015.4	20.7	140.3	91.17	-1,475.4	-173.0	768.4	607.4	160.92	4.775		
7,700.0	7,047.3	7,015.3	7,015.3	22.1	140.3	91.01	-1,475.4	-173.0	668.6	506.4	162.27	4.120		
7,800.0	7,047.2	7,015.2	7,015.2	23.5	140.3	90.86	-1,475.4	-173.0	569.0	405.3	163.71	3.476		
7,900.0	7,047.0	7,015.0	7,015.0	25.0	140.3	90.71	-1,475.4	-173.0	469.5	304.3	165.20	2.842		
8,000.0	7,046.9	7,014.9	7,014.9	26.5	140.3	90.56	-1,475.4	-173.0	370.3	203.6	166.76	2.221		
8,100.0	7,046.7	7,014.7	7,014.7	28.1	140.3	90.41	-1,475.4	-173.0	271.7	103.4	168.35	1.614		
8,200.0	7,046.6	7,014.6	7,014.6	29.8	140.3	90.25	-1,475.4	-173.0	174.7	4.7	169.99	1.028	Level 2	
8,300.0	7,046.5	7,014.5	7,014.5	31.4	140.3	90.10	-1,475.4	-173.0	84.8	-86.8	171.65	0.494	Level 1	
8,366.6	7,046.4	7,014.4	7,014.4	32.5	140.3	90.00	-1,475.4	-173.0	52.6	-120.2	172.78	0.304	Level 1, CC, ES, SF	
8,400.0	7,046.3	7,014.3	7,014.3	33.1	140.3	89.95	-1,475.4	-173.0	62.3	-111.0	173.34	0.359	Level 1	
8,500.0	7,046.2	7,014.2	7,014.2	34.8	140.3	89.80	-1,475.4	-173.0	143.4	-31.6	175.06	0.819	Level 1	
8,600.0	7,046.0	7,014.0	7,014.0	36.6	140.3	89.64	-1,475.4	-173.0	239.3	62.5	176.79	1.353	Level 3	
8,700.0	7,045.9	7,013.9	7,013.9	38.3	140.3	89.49	-1,475.4	-173.0	337.5	159.0	178.54	1.891		
8,800.0	7,045.8	7,013.8	7,013.8	40.1	140.3	89.34	-1,475.4	-173.0	436.6	256.3	180.31	2.421		
8,900.0	7,045.6	7,013.6	7,013.6	41.9	140.3	89.19	-1,475.4	-173.0	536.0	353.9	182.08	2.944		
9,000.0	7,045.5	7,013.5	7,013.5	43.7	140.3	89.04	-1,475.4	-173.0	635.6	451.7	183.87	3.457		
9,100.0	7,045.3	7,013.3	7,013.3	45.5	140.3	88.88	-1,475.4	-173.0	735.3	549.6	185.67	3.960		
9,200.0	7,045.2	7,013.2	7,013.2	47.3	140.3	88.73	-1,475.4	-173.0	835.1	647.6	187.47	4.454		
9,300.0	7,045.1	7,013.1	7,013.1	49.1	140.3	88.58	-1,475.4	-173.0	934.9	745.6	189.28	4.939		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4835.0ft (RKB - 15')

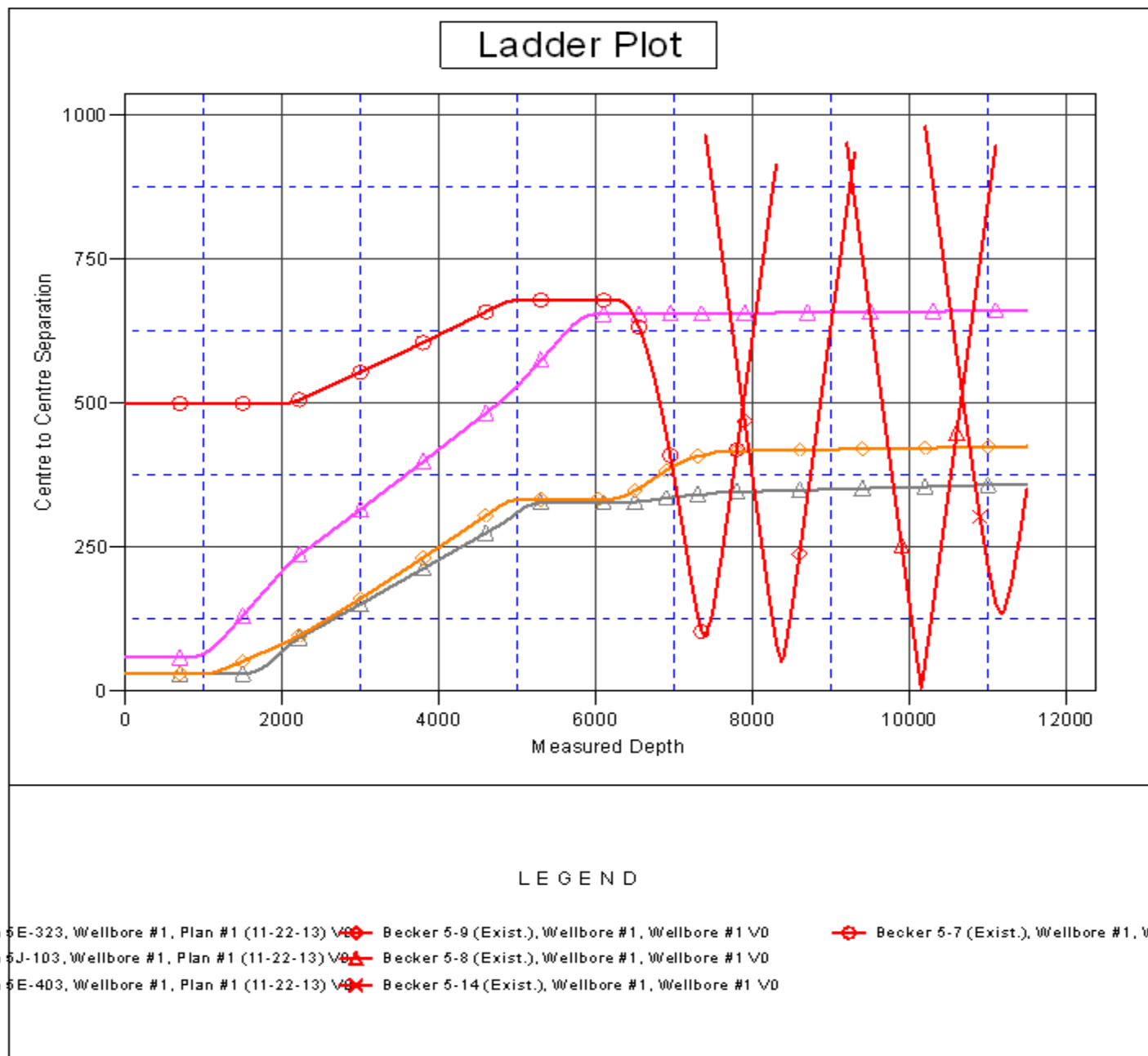
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Becker Ranch 5J-443

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5J-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4835.0ft (RKB - 15')
Reference Site:	Becker Ranch 5J-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4835.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5J-443	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (11-22-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4835.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Becker Ranch 5J-443

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.59°

