

PETROLEUM DEVELOPMENT CORP Weld County CO

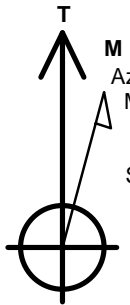
Well Name: **Becker Ranch 5M-443**

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	7023.0	-4528.3	-55.8	Point



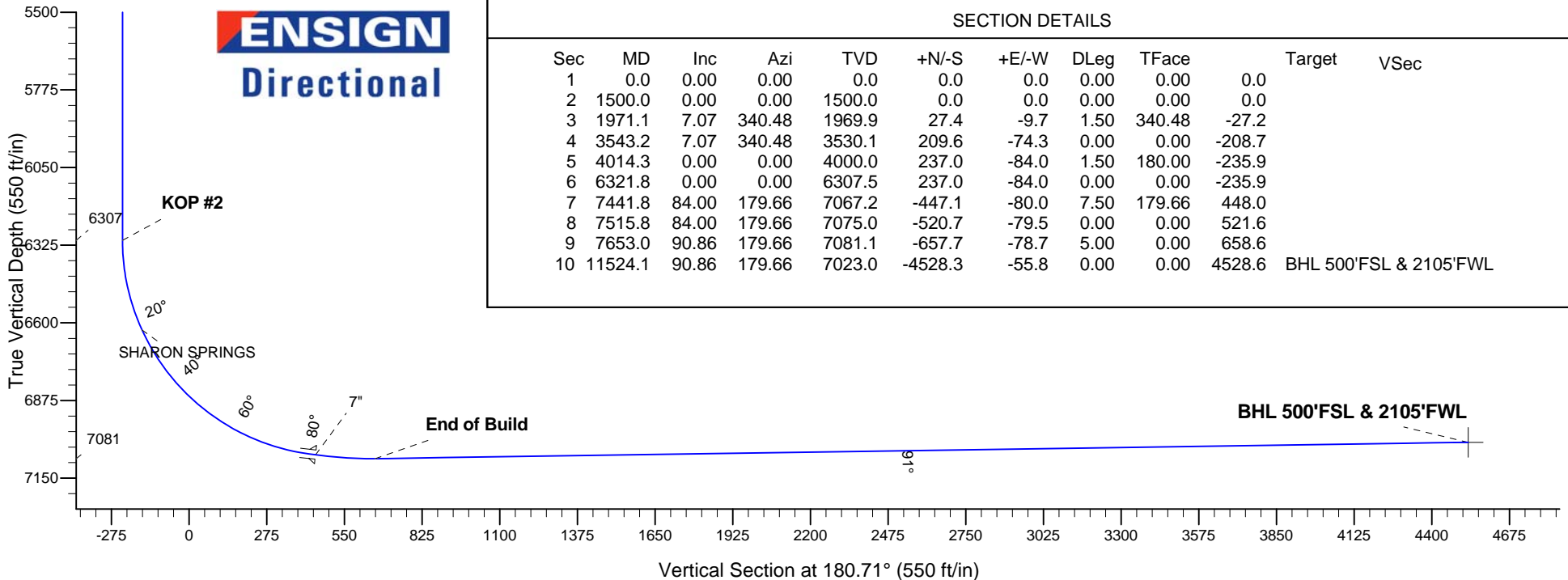
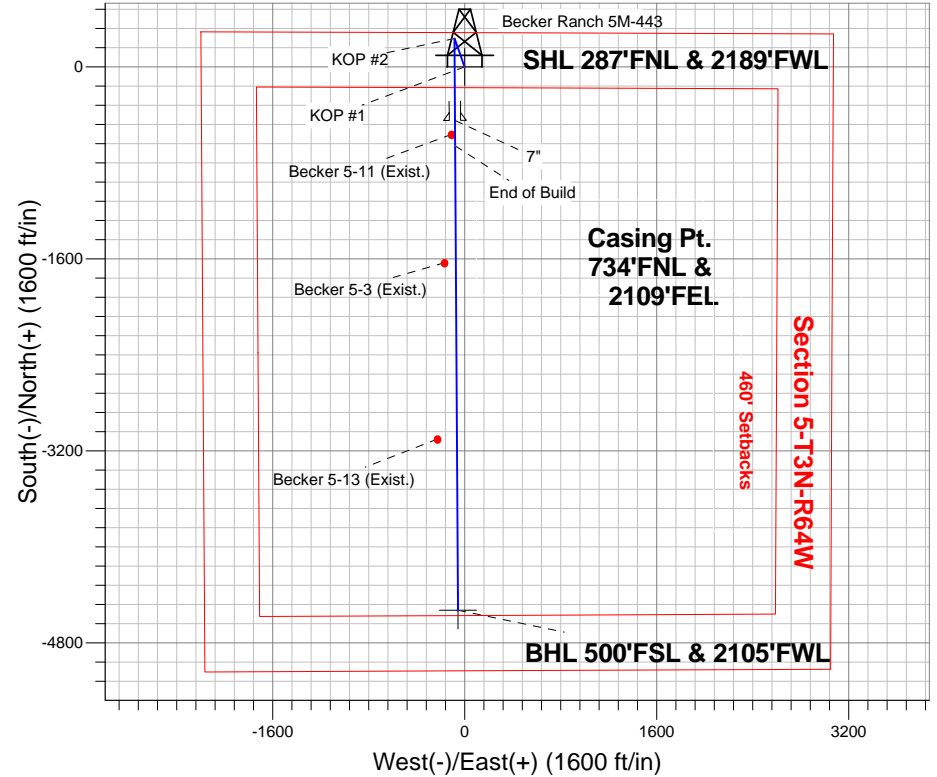
Azimuths to True North
Magnetic North: 8.42°

Magnetic Field
Strength: 52821.4snT
Dip Angle: 66.88°
Date: 11/22/2013
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
6307.5	6321.8	KOP #2
7081.1	7653.0	End of Build

Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W
Becker Ranch 5M-443
Plan #1 (11-22-13)
13:17, December 05 2013





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.5-T3N-R64W

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

Becker Ranch 5M-443

Wellbore #1

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

Standard Planning Report

05 December, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W											
Site Position:						Northing:			1,339,320.83ft			Latitude:			40.261150		
From:			Lat/Long			Easting:			3,257,754.34ft			Longitude:			-104.576400		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.60 °		

Well	Becker Ranch 5M-443					
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

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/22/2013	8.42	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	180.71

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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,971.1	7.07	340.48	1,969.9	27.4	-9.7	1.50	1.50	0.00	340.48	
3,543.2	7.07	340.48	3,530.1	209.6	-74.3	0.00	0.00	0.00	0.00	
4,014.3	0.00	0.00	4,000.0	237.0	-84.0	1.50	-1.50	0.00	180.00	
6,321.8	0.00	0.00	6,307.5	237.0	-84.0	0.00	0.00	0.00	0.00	
7,441.8	84.00	179.66	7,067.2	-447.1	-80.0	7.50	7.50	0.00	179.66	
7,515.8	84.00	179.66	7,075.0	-520.7	-79.5	0.00	0.00	0.00	0.00	
7,653.0	90.86	179.66	7,081.1	-657.7	-78.7	5.00	5.00	0.00	0.00	
11,524.1	90.86	179.66	7,023.0	-4,528.3	-55.8	0.00	0.00	0.00	0.00	BHL 500'FSL & 21C

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Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5M-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 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 #1									
1,600.0	1.50	340.48	1,600.0	1.2	-0.4	-1.2	1.50	1.50	0.00
1,700.0	3.00	340.48	1,699.9	4.9	-1.7	-4.9	1.50	1.50	0.00
1,800.0	4.50	340.48	1,799.7	11.1	-3.9	-11.0	1.50	1.50	0.00
1,900.0	6.00	340.48	1,899.3	19.7	-7.0	-19.6	1.50	1.50	0.00
1,971.1	7.07	340.48	1,969.9	27.4	-9.7	-27.2	1.50	1.50	0.00
2,000.0	7.07	340.48	1,998.6	30.7	-10.9	-30.6	0.00	0.00	0.00
2,100.0	7.07	340.48	2,097.8	42.3	-15.0	-42.1	0.00	0.00	0.00
2,200.0	7.07	340.48	2,197.1	53.9	-19.1	-53.7	0.00	0.00	0.00
2,300.0	7.07	340.48	2,296.3	65.5	-23.2	-65.2	0.00	0.00	0.00
2,400.0	7.07	340.48	2,395.5	77.1	-27.3	-76.7	0.00	0.00	0.00
2,500.0	7.07	340.48	2,494.8	88.7	-31.4	-88.3	0.00	0.00	0.00
2,600.0	7.07	340.48	2,594.0	100.3	-35.5	-99.8	0.00	0.00	0.00
2,700.0	7.07	340.48	2,693.3	111.9	-39.7	-111.4	0.00	0.00	0.00
2,800.0	7.07	340.48	2,792.5	123.5	-43.8	-122.9	0.00	0.00	0.00
2,900.0	7.07	340.48	2,891.7	135.1	-47.9	-134.5	0.00	0.00	0.00
3,000.0	7.07	340.48	2,991.0	146.7	-52.0	-146.0	0.00	0.00	0.00
3,100.0	7.07	340.48	3,090.2	158.3	-56.1	-157.6	0.00	0.00	0.00
3,200.0	7.07	340.48	3,189.5	169.9	-60.2	-169.1	0.00	0.00	0.00
3,300.0	7.07	340.48	3,288.7	181.4	-64.3	-180.6	0.00	0.00	0.00
3,400.0	7.07	340.48	3,388.0	193.0	-68.4	-192.2	0.00	0.00	0.00
3,500.0	7.07	340.48	3,487.2	204.6	-72.5	-203.7	0.00	0.00	0.00
3,543.2	7.07	340.48	3,530.1	209.6	-74.3	-208.7	0.00	0.00	0.00
3,600.0	6.21	340.48	3,586.5	215.8	-76.5	-214.9	1.50	-1.50	0.00
3,700.0	4.71	340.48	3,686.0	224.8	-79.7	-223.8	1.50	-1.50	0.00
3,714.0	4.50	340.48	3,700.0	225.9	-80.1	-224.9	1.50	-1.50	0.00
PARKMAN									
3,800.0	3.21	340.48	3,785.8	231.3	-82.0	-230.3	1.50	-1.50	0.00
3,900.0	1.71	340.48	3,885.7	235.4	-83.4	-234.3	1.50	-1.50	0.00
4,000.0	0.21	340.48	3,985.7	237.0	-84.0	-235.9	1.50	-1.50	0.00
4,014.3	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	4,085.7	237.0	-84.0	-235.9	0.00	0.00	0.00
4,200.0	0.00	0.00	4,185.7	237.0	-84.0	-235.9	0.00	0.00	0.00
4,300.0	0.00	0.00	4,285.7	237.0	-84.0	-235.9	0.00	0.00	0.00
4,400.0	0.00	0.00	4,385.7	237.0	-84.0	-235.9	0.00	0.00	0.00

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Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5M-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)
4,414.3	0.00	0.00	4,400.0	237.0	-84.0	-235.9	0.00	0.00	0.00
SUSSEX									
4,500.0	0.00	0.00	4,485.7	237.0	-84.0	-235.9	0.00	0.00	0.00
4,600.0	0.00	0.00	4,585.7	237.0	-84.0	-235.9	0.00	0.00	0.00
4,700.0	0.00	0.00	4,685.7	237.0	-84.0	-235.9	0.00	0.00	0.00
4,800.0	0.00	0.00	4,785.7	237.0	-84.0	-235.9	0.00	0.00	0.00
4,900.0	0.00	0.00	4,885.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,000.0	0.00	0.00	4,985.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,100.0	0.00	0.00	5,085.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,114.3	0.00	0.00	5,100.0	237.0	-84.0	-235.9	0.00	0.00	0.00
SHANNON									
5,200.0	0.00	0.00	5,185.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,300.0	0.00	0.00	5,285.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,400.0	0.00	0.00	5,385.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,500.0	0.00	0.00	5,485.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,585.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,685.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,785.7	237.0	-84.0	-235.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,885.7	237.0	-84.0	-235.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,985.7	237.0	-84.0	-235.9	0.00	0.00	0.00
6,100.0	0.00	0.00	6,085.7	237.0	-84.0	-235.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,185.7	237.0	-84.0	-235.9	0.00	0.00	0.00
6,300.0	0.00	0.00	6,285.7	237.0	-84.0	-235.9	0.00	0.00	0.00
6,321.8	0.00	0.00	6,307.5	237.0	-84.0	-235.9	0.00	0.00	0.00
KOP #2									
6,400.0	5.87	179.66	6,385.5	233.0	-84.0	-231.9	7.50	7.50	0.00
6,500.0	13.37	179.66	6,484.1	216.3	-83.9	-215.3	7.50	7.50	0.00
6,600.0	20.87	179.66	6,579.6	186.9	-83.7	-185.9	7.50	7.50	0.00
6,649.3	24.56	179.66	6,625.0	167.9	-83.6	-166.8	7.50	7.50	0.00
SHARON SPRINGS									
6,700.0	28.37	179.66	6,670.4	145.3	-83.5	-144.2	7.50	7.50	0.00
6,800.0	35.87	179.66	6,755.0	92.2	-83.1	-91.1	7.50	7.50	0.00
6,900.0	43.37	179.66	6,832.0	28.4	-82.8	-27.4	7.50	7.50	0.00
7,000.0	50.87	179.66	6,900.0	-44.8	-82.3	45.8	7.50	7.50	0.00
7,100.0	58.37	179.66	6,957.9	-126.3	-81.9	127.3	7.50	7.50	0.00
7,200.0	65.87	179.66	7,004.6	-214.6	-81.3	215.6	7.50	7.50	0.00
7,300.0	73.37	179.66	7,039.4	-308.2	-80.8	309.2	7.50	7.50	0.00
7,400.0	80.87	179.66	7,061.7	-405.7	-80.2	406.6	7.50	7.50	0.00
7,441.8	84.00	179.66	7,067.2	-447.1	-80.0	448.0	7.50	7.50	0.00
7"									
7,500.0	84.00	179.66	7,073.3	-505.0	-79.6	505.9	0.00	0.00	0.00
7,515.8	84.00	179.66	7,075.0	-520.7	-79.5	521.6	0.00	0.00	0.00
7,600.0	88.21	179.66	7,080.7	-604.7	-79.0	605.6	5.00	5.00	0.00
7,653.0	90.86	179.66	7,081.1	-657.7	-78.7	658.6	5.00	5.00	0.00
End of Build									
7,700.0	90.86	179.66	7,080.4	-704.7	-78.4	705.6	0.00	0.00	0.00
7,800.0	90.86	179.66	7,078.9	-804.6	-77.8	805.5	0.00	0.00	0.00
7,900.0	90.86	179.66	7,077.4	-904.6	-77.3	905.5	0.00	0.00	0.00
8,000.0	90.86	179.66	7,075.9	-1,004.6	-76.7	1,005.5	0.00	0.00	0.00
8,100.0	90.86	179.66	7,074.4	-1,104.6	-76.1	1,105.5	0.00	0.00	0.00
8,200.0	90.86	179.66	7,072.9	-1,204.6	-75.5	1,205.4	0.00	0.00	0.00
8,300.0	90.86	179.66	7,071.4	-1,304.6	-74.9	1,305.4	0.00	0.00	0.00

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Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5M-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)
8,400.0	90.86	179.66	7,069.9	-1,404.6	-74.3	1,405.4	0.00	0.00	0.00
8,500.0	90.86	179.66	7,068.4	-1,504.5	-73.7	1,505.3	0.00	0.00	0.00
8,600.0	90.86	179.66	7,066.9	-1,604.5	-73.1	1,605.3	0.00	0.00	0.00
8,700.0	90.86	179.66	7,065.4	-1,704.5	-72.5	1,705.3	0.00	0.00	0.00
8,800.0	90.86	179.66	7,063.9	-1,804.5	-71.9	1,805.3	0.00	0.00	0.00
8,900.0	90.86	179.66	7,062.4	-1,904.5	-71.3	1,905.2	0.00	0.00	0.00
9,000.0	90.86	179.66	7,060.9	-2,004.5	-70.7	2,005.2	0.00	0.00	0.00
9,100.0	90.86	179.66	7,059.4	-2,104.5	-70.2	2,105.2	0.00	0.00	0.00
9,200.0	90.86	179.66	7,057.9	-2,204.5	-69.6	2,205.1	0.00	0.00	0.00
9,300.0	90.86	179.66	7,056.4	-2,304.4	-69.0	2,305.1	0.00	0.00	0.00
9,400.0	90.86	179.66	7,054.9	-2,404.4	-68.4	2,405.1	0.00	0.00	0.00
9,500.0	90.86	179.66	7,053.4	-2,504.4	-67.8	2,505.1	0.00	0.00	0.00
9,600.0	90.86	179.66	7,051.9	-2,604.4	-67.2	2,605.0	0.00	0.00	0.00
9,700.0	90.86	179.66	7,050.4	-2,704.4	-66.6	2,705.0	0.00	0.00	0.00
9,800.0	90.86	179.66	7,048.9	-2,804.4	-66.0	2,805.0	0.00	0.00	0.00
9,900.0	90.86	179.66	7,047.4	-2,904.4	-65.4	2,905.0	0.00	0.00	0.00
10,000.0	90.86	179.66	7,045.9	-3,004.4	-64.8	3,004.9	0.00	0.00	0.00
10,100.0	90.86	179.66	7,044.4	-3,104.3	-64.2	3,104.9	0.00	0.00	0.00
10,200.0	90.86	179.66	7,042.9	-3,204.3	-63.7	3,204.9	0.00	0.00	0.00
10,300.0	90.86	179.66	7,041.4	-3,304.3	-63.1	3,304.8	0.00	0.00	0.00
10,400.0	90.86	179.66	7,039.9	-3,404.3	-62.5	3,404.8	0.00	0.00	0.00
10,500.0	90.86	179.66	7,038.4	-3,504.3	-61.9	3,504.8	0.00	0.00	0.00
10,600.0	90.86	179.66	7,036.9	-3,604.3	-61.3	3,604.8	0.00	0.00	0.00
10,700.0	90.86	179.66	7,035.4	-3,704.3	-60.7	3,704.7	0.00	0.00	0.00
10,800.0	90.86	179.66	7,033.9	-3,804.2	-60.1	3,804.7	0.00	0.00	0.00
10,900.0	90.86	179.66	7,032.4	-3,904.2	-59.5	3,904.7	0.00	0.00	0.00
11,000.0	90.86	179.66	7,030.9	-4,004.2	-58.9	4,004.6	0.00	0.00	0.00
11,100.0	90.86	179.66	7,029.4	-4,104.2	-58.3	4,104.6	0.00	0.00	0.00
11,200.0	90.86	179.66	7,027.9	-4,204.2	-57.7	4,204.6	0.00	0.00	0.00
11,300.0	90.86	179.66	7,026.4	-4,304.2	-57.2	4,304.6	0.00	0.00	0.00
11,400.0	90.86	179.66	7,024.9	-4,404.2	-56.6	4,404.5	0.00	0.00	0.00
11,500.0	90.86	179.66	7,023.4	-4,504.2	-56.0	4,504.5	0.00	0.00	0.00
11,524.1	90.86	179.66	7,023.0	-4,528.3	-55.8	4,528.6	0.00	0.00	0.00
BHL 500'FSL & 2105'FWL									

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,441.8	7,067.2	7"	7	7-1/2

Formations				
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)
3,714.0	3,700.0	PARKMAN		0.00
4,414.3	4,400.0	SUSSEX		0.00
5,114.3	5,100.0	SHANNON		0.00
6,649.3	6,625.0	SHARON SPRINGS		0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5M-443	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (11-22-13)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.0	1,500.0	0.0	0.0	KOP #1
6,321.8	6,307.5	237.0	-84.0	KOP #2
7,653.0	7,081.1	-657.7	-78.7	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.5-T3N-R64W

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

Becker Ranch 5M-443

Wellbore #1

Plan #1 (11-22-13)

Anticollision Report

05 December, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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	Plan #1 (11-22-13)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	12/4/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,523.4	Plan #1 (11-22-13) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W						
Becker Ranch 5J-223 - Wellbore #1 - Plan #1 (11-22-13)	1,200.0	1,200.0	29.1	24.0	5.637	CC, ES
Becker Ranch 5J-223 - Wellbore #1 - Plan #1 (11-22-13)	11,524.1	11,371.2	401.2	247.7	2.613	SF
Becker Ranch 5J-403 - Wellbore #1 - Plan #1 (11-22-13)	200.0	200.0	61.9	61.3	91.852	CC
Becker Ranch 5J-403 - Wellbore #1 - Plan #1 (11-22-13)	300.0	299.5	62.4	61.2	55.915	ES
Becker Ranch 5J-403 - Wellbore #1 - Plan #1 (11-22-13)	11,524.1	11,568.8	661.6	482.5	3.694	SF
Becker Ranch 5M-303 - Wellbore #1 - Plan #1 (11-22-13)	1,500.0	1,501.0	29.1	22.6	4.468	CC, ES
Becker Ranch 5M-303 - Wellbore #1 - Plan #1 (11-22-13)	11,524.1	11,456.5	356.7	190.4	2.145	SF
Existing Wells Sec.5-T3N-R64W						
Becker 5-11 (Exist.) - Wellbore #1 - Wellbore #1	7,556.1	7,060.0	29.6	-130.8	0.184	Level 1, CC, ES, SF
Becker 5-13 (Exist.) - Wellbore #1 - Wellbore #1	10,094.9	6,979.5	161.8	-40.0	0.802	Level 1, CC, SF
Becker 5-13 (Exist.) - Wellbore #1 - Wellbore #1	10,100.0	6,979.4	161.9	-40.0	0.802	Level 1, ES
Becker 5-3 (Exist.) - Wellbore #1 - Wellbore #1	8,627.0	7,037.5	94.5	-81.8	0.536	Level 1, CC, ES, SF

Offset Design	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-223 - 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		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)	Separation (ft)	Factor
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, ES
1,300.0	1,300.0	1,299.5	1,299.5	2.8	2.8	-2.96	29.9	-1.5	30.0	24.3	5.61	5.339

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 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-223 - 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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,400.0	1,400.0	1,398.8	1,398.6	3.0	3.0	-10.83		32.2	-6.2	32.8	26.8	6.05	5.427	
1,500.0	1,500.0	1,497.6	1,497.0	3.3	3.2	-20.96		36.0	-13.8	38.7	32.2	6.50	5.958	
1,600.0	1,600.0	1,595.8	1,594.5	3.5	3.5	-11.32		41.3	-24.4	47.1	40.1	6.94	6.780	
1,700.0	1,699.9	1,694.8	1,692.5	3.7	3.7	-19.96		47.7	-37.1	56.0	48.6	7.38	7.584	
1,800.0	1,799.7	1,794.2	1,790.9	3.9	4.0	-27.18		54.1	-49.9	63.5	55.7	7.81	8.132	
1,900.0	1,899.3	1,893.7	1,889.4	4.2	4.3	-33.95		60.5	-62.7	69.7	61.5	8.25	8.455	
2,000.0	1,998.6	1,993.2	1,987.8	4.4	4.6	-40.78		66.9	-75.5	74.8	66.1	8.69	8.610	
2,100.0	2,097.8	2,092.7	2,086.3	4.7	4.9	-47.03		73.3	-88.3	80.4	71.2	9.16	8.780	
2,200.0	2,197.1	2,192.2	2,184.7	4.9	5.2	-52.43		79.7	-101.1	86.8	77.2	9.64	9.002	
2,300.0	2,296.3	2,291.7	2,283.2	5.2	5.5	-57.05		86.1	-113.9	93.9	83.7	10.15	9.251	
2,400.0	2,395.5	2,391.2	2,381.6	5.4	5.8	-61.01		92.5	-126.6	101.5	90.8	10.67	9.511	
2,500.0	2,494.8	2,490.6	2,480.1	5.7	6.2	-64.40		98.9	-139.4	109.5	98.3	11.21	9.770	
2,600.0	2,594.0	2,590.1	2,578.5	6.0	6.5	-67.33		105.3	-152.2	117.8	106.1	11.76	10.023	
2,700.0	2,693.3	2,689.6	2,677.0	6.3	6.8	-69.86		111.7	-165.0	126.4	114.1	12.32	10.265	
2,800.0	2,792.5	2,789.1	2,775.4	6.6	7.1	-72.07		118.1	-177.8	135.2	122.4	12.89	10.496	
2,900.0	2,891.7	2,888.6	2,873.9	6.9	7.5	-74.00		124.4	-190.6	144.2	130.8	13.46	10.713	
3,000.0	2,991.0	2,988.1	2,972.3	7.2	7.8	-75.71		130.8	-203.4	153.4	139.3	14.05	10.918	
3,100.0	3,090.2	3,087.5	3,070.8	7.5	8.1	-77.22		137.2	-216.2	162.6	148.0	14.64	11.111	
3,200.0	3,189.5	3,187.0	3,169.2	7.7	8.5	-78.57		143.6	-229.0	172.0	156.8	15.23	11.292	
3,300.0	3,288.7	3,286.5	3,267.7	8.0	8.8	-79.78		150.0	-241.8	181.5	165.6	15.83	11.462	
3,400.0	3,388.0	3,386.0	3,366.1	8.3	9.2	-80.87		156.4	-254.6	191.0	174.5	16.43	11.621	
3,500.0	3,487.2	3,485.5	3,464.6	8.6	9.5	-81.86		162.8	-267.4	200.6	183.5	17.04	11.771	
3,600.0	3,586.5	3,585.0	3,563.0	8.9	9.8	-82.73		169.2	-280.2	210.2	192.6	17.62	11.929	
3,700.0	3,686.0	3,684.5	3,661.5	9.1	10.2	-82.97		175.6	-293.0	220.2	202.1	18.13	12.146	
3,800.0	3,785.8	3,783.9	3,759.9	9.4	10.5	-82.57		182.0	-305.7	230.6	212.0	18.60	12.396	
3,900.0	3,885.7	3,883.2	3,858.2	9.5	10.9	-81.60		188.4	-318.5	241.3	222.3	19.03	12.681	
4,000.0	3,985.7	3,982.3	3,956.3	9.7	11.2	-80.14		194.8	-331.3	252.6	233.2	19.41	13.010	
4,100.0	4,085.7	4,081.3	4,054.2	9.9	11.5	-97.85		201.1	-344.0	264.3	244.6	19.77	13.371	
4,200.0	4,185.7	4,180.2	4,152.1	10.1	11.9	-96.17		207.5	-356.7	276.3	256.2	20.16	13.707	
4,300.0	4,285.7	4,279.2	4,250.1	10.3	12.2	-94.63		213.9	-369.4	288.6	268.0	20.56	14.039	
4,400.0	4,385.7	4,378.2	4,348.0	10.5	12.6	-93.22		220.2	-382.2	301.0	280.0	20.95	14.364	
4,500.0	4,485.7	4,483.4	4,452.2	10.7	12.9	-91.90		226.7	-395.0	313.0	291.7	21.35	14.658	
4,600.0	4,585.7	4,593.6	4,561.9	10.9	13.1	-90.94		231.7	-405.1	322.1	300.3	21.74	14.816	
4,700.0	4,685.7	4,704.7	4,672.7	11.1	13.4	-90.37		234.9	-411.5	327.7	305.6	22.12	14.815	
4,800.0	4,785.7	4,816.0	4,784.0	11.3	13.5	-90.15		236.1	-414.0	330.0	307.5	22.51	14.658	
4,900.0	4,885.7	4,917.7	4,885.7	11.5	13.7	-90.15		236.1	-414.0	330.0	307.1	22.90	14.409	
5,000.0	4,985.7	5,017.7	4,985.7	11.7	13.9	-90.15		236.1	-414.0	330.0	306.7	23.31	14.159	
5,100.0	5,085.7	5,117.7	5,085.7	11.9	14.0	-90.15		236.1	-414.0	330.0	306.3	23.71	13.917	
5,200.0	5,185.7	5,217.7	5,185.7	12.1	14.2	-90.15		236.1	-414.0	330.0	305.9	24.12	13.683	
5,300.0	5,285.7	5,317.7	5,285.7	12.3	14.4	-90.15		236.1	-414.0	330.0	305.5	24.53	13.455	
5,400.0	5,385.7	5,417.7	5,385.7	12.5	14.6	-90.15		236.1	-414.0	330.0	305.1	24.94	13.234	
5,500.0	5,485.7	5,517.7	5,485.7	12.7	14.7	-90.15		236.1	-414.0	330.0	304.7	25.35	13.019	
5,600.0	5,585.7	5,617.7	5,585.7	12.9	14.9	-90.15		236.1	-414.0	330.0	304.2	25.76	12.811	
5,700.0	5,685.7	5,717.7	5,685.7	13.2	15.1	-90.15		236.1	-414.0	330.0	303.8	26.17	12.609	
5,800.0	5,785.7	5,817.7	5,785.7	13.4	15.3	-90.15		236.1	-414.0	330.0	303.4	26.59	12.412	
5,900.0	5,885.7	5,917.7	5,885.7	13.6	15.5	-90.15		236.1	-414.0	330.0	303.0	27.00	12.221	
6,000.0	5,985.7	6,017.7	5,985.7	13.8	15.7	-90.15		236.1	-414.0	330.0	302.6	27.42	12.035	
6,100.0	6,085.7	6,117.7	6,085.7	14.0	15.8	-90.15		236.1	-414.0	330.0	302.2	27.84	11.854	
6,175.9	6,161.6	6,193.6	6,161.6	14.2	16.0	-90.20		235.9	-414.0	330.0	301.8	28.15	11.722	
6,200.0	6,185.7	6,217.7	6,185.7	14.2	16.0	-90.37		234.9	-414.0	330.0	301.8	28.25	11.683	
6,300.0	6,285.7	6,316.2	6,283.3	14.4	16.1	-92.46		222.8	-413.9	330.2	301.6	28.65	11.525	

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 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-223 - 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
6,400.0	6,385.5	6,411.2	6,375.3	14.6	16.2	84.38		199.5	-413.8	331.7	302.7	29.03	11.426	
6,500.0	6,484.1	6,503.8	6,461.6	14.7	16.2	80.98		165.8	-413.6	334.3	305.1	29.26	11.428	
6,600.0	6,579.6	6,594.4	6,541.4	14.7	16.3	77.79		123.1	-413.4	338.0	308.6	29.37	11.509	
6,700.0	6,670.4	6,683.3	6,614.3	14.8	16.3	74.87		72.2	-413.1	342.3	312.9	29.38	11.650	
6,800.0	6,755.0	6,770.6	6,679.6	14.8	16.4	72.25		14.4	-412.8	347.0	317.6	29.35	11.824	
6,900.0	6,832.0	6,856.7	6,737.1	14.9	16.4	69.96		-49.5	-412.4	351.8	322.5	29.35	11.988	
7,000.0	6,900.0	6,941.6	6,786.5	15.0	16.6	68.00		-118.6	-412.1	356.4	327.0	29.46	12.100	
7,100.0	6,957.9	7,025.6	6,827.6	15.4	16.8	66.38		-191.9	-411.7	360.7	330.9	29.78	12.109	
7,200.0	7,004.6	7,108.9	6,860.0	15.9	17.3	65.11		-268.5	-411.2	364.2	333.8	30.41	11.976	
7,300.0	7,039.4	7,191.7	6,883.9	16.6	17.8	64.18		-347.8	-410.8	367.0	335.6	31.42	11.680	
7,400.0	7,061.7	7,274.1	6,898.9	17.5	18.6	63.58		-428.7	-410.4	368.8	336.0	32.84	11.232	
7,500.0	7,073.3	7,356.2	6,905.2	18.5	19.4	63.10		-510.6	-409.9	370.7	336.2	34.51	10.741	
7,600.0	7,080.7	7,447.4	6,903.7	19.7	20.5	61.85		-601.7	-409.4	374.8	338.5	36.36	10.308	
7,700.0	7,080.4	7,547.3	6,901.0	20.9	21.7	61.49		-701.6	-408.9	376.0	337.4	38.65	9.729	
7,800.0	7,078.9	7,647.3	6,898.3	22.3	23.1	61.34		-801.6	-408.3	376.6	335.6	41.06	9.172	
7,900.0	7,077.4	7,747.3	6,895.6	23.7	24.5	61.18		-901.5	-407.8	377.3	333.7	43.60	8.652	
8,000.0	7,075.9	7,847.3	6,892.9	25.2	26.0	61.03		-1,001.5	-407.3	377.9	331.6	46.25	8.171	
8,100.0	7,074.4	7,947.3	6,890.2	26.8	27.5	60.87		-1,101.5	-406.7	378.5	329.5	48.98	7.728	
8,200.0	7,072.9	8,047.3	6,887.5	28.4	29.1	60.72		-1,201.4	-406.2	379.1	327.3	51.78	7.321	
8,300.0	7,071.4	8,147.3	6,884.9	30.0	30.7	60.57		-1,301.4	-405.6	379.7	325.1	54.64	6.950	
8,400.0	7,069.9	8,247.3	6,882.2	31.7	32.3	60.41		-1,401.3	-405.1	380.4	322.8	57.55	6.609	
8,500.0	7,068.4	8,347.3	6,879.5	33.4	34.0	60.26		-1,501.3	-404.5	381.0	320.5	60.50	6.298	
8,600.0	7,066.9	8,447.3	6,876.8	35.1	35.7	60.11		-1,601.2	-404.0	381.6	318.1	63.48	6.012	
8,700.0	7,065.4	8,547.3	6,874.1	36.8	37.5	59.96		-1,701.2	-403.4	382.2	315.8	66.49	5.749	
8,800.0	7,063.9	8,647.3	6,871.4	38.6	39.2	59.81		-1,801.1	-402.9	382.9	313.4	69.52	5.508	
8,900.0	7,062.4	8,747.3	6,868.7	40.4	41.0	59.66		-1,901.1	-402.4	383.5	310.9	72.57	5.285	
9,000.0	7,060.9	8,847.2	6,866.0	42.1	42.7	59.51		-2,001.0	-401.8	384.2	308.5	75.63	5.079	
9,100.0	7,059.4	8,947.2	6,863.4	43.9	44.5	59.36		-2,101.0	-401.3	384.8	306.1	78.71	4.889	
9,200.0	7,057.9	9,047.2	6,860.7	45.7	46.3	59.21		-2,201.0	-400.7	385.4	303.7	81.79	4.713	
9,300.0	7,056.4	9,147.2	6,858.0	47.6	48.1	59.07		-2,300.9	-400.2	386.1	301.2	84.88	4.548	
9,400.0	7,054.9	9,247.2	6,855.3	49.4	49.9	58.92		-2,400.9	-399.6	386.7	298.8	87.98	4.396	
9,500.0	7,053.4	9,347.2	6,852.6	51.2	51.8	58.77		-2,500.8	-399.1	387.4	296.3	91.09	4.253	
9,600.0	7,051.9	9,447.2	6,849.9	53.0	53.6	58.63		-2,600.8	-398.5	388.1	293.9	94.20	4.120	
9,700.0	7,050.4	9,547.2	6,847.2	54.9	55.4	58.48		-2,700.7	-398.0	388.7	291.4	97.30	3.995	
9,800.0	7,048.9	9,647.2	6,844.5	56.7	57.3	58.34		-2,800.7	-397.4	389.4	289.0	100.41	3.878	
9,900.0	7,047.4	9,747.2	6,841.9	58.6	59.1	58.19		-2,900.6	-396.9	390.0	286.5	103.52	3.768	
10,000.0	7,045.9	9,847.2	6,839.2	60.4	60.9	58.05		-3,000.6	-396.4	390.7	284.1	106.63	3.664	
10,100.0	7,044.4	9,947.2	6,836.5	62.3	62.8	57.90		-3,100.6	-395.8	391.4	281.6	109.74	3.566	
10,200.0	7,042.9	10,047.2	6,833.8	64.2	64.7	57.76		-3,200.5	-395.3	392.0	279.2	112.85	3.474	
10,300.0	7,041.4	10,147.2	6,831.1	66.0	66.5	57.62		-3,300.5	-394.7	392.7	276.8	115.95	3.387	
10,400.0	7,039.9	10,247.1	6,828.4	67.9	68.4	57.47		-3,400.4	-394.2	393.4	274.3	119.05	3.304	
10,500.0	7,038.4	10,347.1	6,825.7	69.8	70.2	57.33		-3,500.4	-393.6	394.1	271.9	122.15	3.226	
10,600.0	7,036.9	10,447.1	6,823.0	71.7	72.1	57.19		-3,600.3	-393.1	394.7	269.5	125.24	3.152	
10,700.0	7,035.4	10,547.1	6,820.4	73.5	74.0	57.05		-3,700.3	-392.5	395.4	267.1	128.33	3.081	
10,800.0	7,033.9	10,647.1	6,817.7	75.4	75.9	56.91		-3,800.2	-392.0	396.1	264.7	131.41	3.014	
10,900.0	7,032.4	10,747.1	6,815.0	77.3	77.7	56.77		-3,900.2	-391.5	396.8	262.3	134.49	2.950	
11,000.0	7,030.9	10,847.1	6,812.3	79.2	79.6	56.63		-4,000.2	-390.9	397.5	259.9	137.56	2.890	
11,100.0	7,029.4	10,947.1	6,809.6	81.1	81.5	56.49		-4,100.1	-390.4	398.2	257.6	140.63	2.831	
11,200.0	7,027.9	11,047.1	6,806.9	82.9	83.4	56.35		-4,200.1	-389.8	398.9	255.2	143.70	2.776	
11,300.0	7,026.4	11,147.1	6,804.2	84.8	85.3	56.21		-4,300.0	-389.3	399.6	252.8	146.75	2.723	
11,400.0	7,024.9	11,247.1	6,801.5	86.7	87.2	56.08		-4,400.0	-388.7	400.3	250.5	149.80	2.672	

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 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-223 - 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 (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	
11,500.0	7,023.4	11,347.1	6,798.9	88.6	89.0	55.94	-4,499.9	-388.2	401.0	248.1	152.85	2.623		
11,524.1	7,023.0	11,371.2	6,798.2	89.0	89.5	55.91	-4,524.0	-388.1	401.2	247.7	153.50	2.613 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-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 (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	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	275.556		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	61.9	0.0	61.9	61.3	0.67	91.852 CC		
300.0	300.0	299.5	299.4	0.6	0.6	-1.54	62.3	-1.7	62.4	61.2	1.12	55.915 ES		
400.0	400.0	398.7	398.5	0.8	0.8	-6.02	63.5	-6.7	63.9	62.3	1.56	40.856		
500.0	500.0	497.4	496.9	1.0	1.0	-12.90	65.5	-15.0	67.3	65.2	2.04	33.006		
600.0	600.0	595.5	594.2	1.2	1.3	-21.23	68.3	-26.5	73.4	70.9	2.54	28.874		
700.0	700.0	694.2	692.0	1.5	1.6	-29.34	71.5	-40.2	82.4	79.4	3.07	26.843		
800.0	800.0	793.2	789.9	1.7	2.0	-35.81	74.8	-54.0	92.8	89.2	3.59	25.821		
900.0	900.0	892.2	887.9	1.9	2.3	-40.94	78.1	-67.7	104.1	100.0	4.11	25.338		
1,000.0	1,000.0	991.1	985.8	2.1	2.6	-45.05	81.3	-81.5	116.0	111.4	4.61	25.146		
1,100.0	1,100.0	1,090.1	1,083.8	2.4	3.0	-48.38	84.6	-95.3	128.4	123.3	5.11	25.114		
1,200.0	1,200.0	1,189.1	1,181.7	2.6	3.3	-51.12	87.9	-109.0	141.2	135.6	5.61	25.170		
1,300.0	1,300.0	1,288.1	1,279.7	2.8	3.7	-53.40	91.2	-122.8	154.3	148.2	6.10	25.274		
1,400.0	1,400.0	1,387.0	1,377.7	3.0	4.0	-55.32	94.5	-136.5	167.5	160.9	6.60	25.402		
1,500.0	1,500.0	1,486.0	1,475.6	3.3	4.3	-56.96	97.7	-150.3	180.9	173.9	7.08	25.541		
1,600.0	1,600.0	1,585.1	1,573.7	3.5	4.7	-38.99	101.0	-164.1	193.5	186.2	7.24	26.736		
1,700.0	1,699.9	1,684.3	1,671.8	3.7	5.0	-40.82	104.3	-177.9	204.2	196.5	7.69	26.557		
1,800.0	1,799.7	1,783.5	1,770.1	3.9	5.4	-42.94	107.6	-191.7	213.2	205.0	8.13	26.211		
1,900.0	1,899.3	1,882.8	1,868.3	4.2	5.7	-45.37	110.9	-205.5	220.6	212.0	8.57	25.731		
2,000.0	1,998.6	1,982.0	1,966.5	4.4	6.1	-48.12	114.2	-219.3	226.8	217.8	9.02	25.146		
2,100.0	2,097.8	2,081.2	2,064.7	4.7	6.4	-50.89	117.5	-233.1	233.0	223.6	9.48	24.590		
2,200.0	2,197.1	2,180.4	2,162.8	4.9	6.8	-53.51	120.7	-246.9	239.8	229.9	9.95	24.106		
2,300.0	2,296.3	2,279.5	2,261.0	5.2	7.1	-55.99	124.0	-260.6	247.1	236.6	10.43	23.680		
2,400.0	2,395.5	2,378.7	2,359.1	5.4	7.5	-58.32	127.3	-274.4	254.8	243.9	10.93	23.302		
2,500.0	2,494.8	2,477.9	2,457.3	5.7	7.8	-60.51	130.6	-288.2	262.9	251.4	11.45	22.966		
2,600.0	2,594.0	2,577.1	2,555.5	6.0	8.2	-62.57	133.9	-302.0	271.3	259.4	11.97	22.666		
2,700.0	2,693.3	2,676.2	2,653.6	6.3	8.5	-64.50	137.2	-315.8	280.1	267.6	12.51	22.396		
2,800.0	2,792.5	2,775.4	2,751.8	6.6	8.9	-66.32	140.5	-329.6	289.2	276.2	13.06	22.154		
2,900.0	2,891.7	2,874.6	2,849.9	6.9	9.2	-68.02	143.7	-343.4	298.6	285.0	13.61	21.935		
3,000.0	2,991.0	2,973.8	2,948.1	7.2	9.6	-69.62	147.0	-357.2	308.2	294.0	14.18	21.738		
3,100.0	3,090.2	3,072.9	3,046.3	7.5	9.9	-71.13	150.3	-371.0	318.0	303.3	14.75	21.561		
3,200.0	3,189.5	3,172.1	3,144.4	7.7	10.3	-72.54	153.6	-384.8	328.1	312.7	15.33	21.400		
3,300.0	3,288.7	3,271.3	3,242.6	8.0	10.6	-73.87	156.9	-398.6	338.3	322.4	15.92	21.255		
3,400.0	3,388.0	3,370.5	3,340.7	8.3	11.0	-75.12	160.2	-412.3	348.7	332.2	16.51	21.124		
3,500.0	3,487.2	3,469.7	3,438.9	8.6	11.3	-76.29	163.5	-426.1	359.3	342.2	17.10	21.005		
3,600.0	3,586.5	3,568.8	3,537.1	8.9	11.7	-77.43	166.7	-439.9	370.0	352.4	17.68	20.928		
3,700.0	3,686.0	3,668.1	3,635.3	9.1	12.0	-78.24	170.0	-453.7	381.4	363.2	18.19	20.967		
3,800.0	3,785.8	3,767.4	3,733.6	9.4	12.4	-78.64	173.3	-467.5	393.4	374.7	18.67	21.070		
3,900.0	3,885.7	3,866.6	3,831.8	9.5	12.7	-78.67	176.6	-481.3	405.8	386.7	19.11	21.234		
4,000.0	3,985.7	3,965.7	3,929.8	9.7	13.1	-78.36	179.9	-495.1	418.8	399.3	19.52	21.456		
4,100.0	4,085.7	4,064.7	4,027.8	9.9	13.4	-97.22	183.2	-508.9	432.2	412.3	19.90	21.719		
4,200.0	4,185.7	4,163.6	4,125.7	10.1	13.8	-96.58	186.4	-522.6	445.6	425.3	20.32	21.933		
4,300.0	4,285.7	4,262.6	4,223.7	10.3	14.1	-95.97	189.7	-536.4	459.1	438.3	20.74	22.138		
4,400.0	4,385.7	4,361.6	4,321.6	10.5	14.5	-95.39	193.0	-550.2	472.6	451.4	21.16	22.335		
4,500.0	4,485.7	4,460.5	4,419.6	10.7	14.8	-94.85	196.3	-563.9	486.2	464.6	21.58	22.524		
4,600.0	4,585.7	4,559.5	4,517.6	10.9	15.2	-94.34	199.6	-577.7	499.8	477.8	22.01	22.706		
4,700.0	4,685.7	4,658.5	4,615.5	11.1	15.5	-93.85	202.8	-591.5	513.4	491.0	22.44	22.881		
4,800.0	4,785.7	4,757.5	4,713.5	11.3	15.9	-93.39	206.1	-605.2	527.1	504.2	22.87	23.048		
4,900.0	4,885.7	4,856.4	4,811.4	11.5	16.2	-92.95	209.4	-619.0	540.8	517.5	23.30	23.210		
5,000.0	4,985.7	4,955.4	4,909.4	11.7	16.6	-92.54	212.7	-632.7	554.5	530.8	23.73	23.365		

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 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-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
5,100.0	5,085.7	5,054.4	5,007.3	11.9	16.9	-92.14		215.9	-646.5	568.3	544.1	24.17	23.514	
5,200.0	5,185.7	5,153.4	5,105.3	12.1	17.3	-91.77		219.2	-660.3	582.1	557.5	24.61	23.658	
5,300.0	5,285.7	5,252.3	5,203.3	12.3	17.6	-91.41		222.5	-674.0	595.9	570.9	25.04	23.796	
5,400.0	5,385.7	5,351.3	5,301.2	12.5	18.0	-91.06		225.8	-687.8	609.8	584.3	25.48	23.930	
5,500.0	5,485.7	5,450.3	5,399.2	12.7	18.3	-90.74		229.1	-701.6	623.6	597.7	25.92	24.058	
5,600.0	5,585.7	5,551.1	5,499.0	12.9	18.7	-90.42		232.4	-715.6	637.5	611.1	26.36	24.180	
5,700.0	5,685.7	5,678.1	5,625.1	13.2	19.0	-90.10		235.9	-730.1	649.0	622.2	26.82	24.201	
5,800.0	5,785.7	5,806.3	5,752.9	13.4	19.2	-89.91		238.1	-739.3	656.1	628.9	27.25	24.080	
5,900.0	5,885.7	5,935.0	5,881.5	13.6	19.4	-89.83		238.9	-742.9	659.0	631.3	27.67	23.813	
6,000.0	5,985.7	6,039.1	5,985.7	13.8	19.6	-89.83		238.9	-743.0	659.0	630.9	28.07	23.476	
6,100.0	6,085.7	6,139.1	6,085.7	14.0	19.7	-89.83		238.9	-743.0	659.0	630.5	28.47	23.147	
6,200.0	6,185.7	6,239.1	6,185.7	14.2	19.8	-89.83		238.9	-743.0	659.0	630.1	28.87	22.827	
6,300.0	6,285.7	6,339.1	6,285.7	14.4	20.0	-89.83		238.9	-743.0	659.0	629.7	29.27	22.514	
6,400.0	6,385.5	6,439.7	6,386.1	14.6	20.1	90.50		234.9	-743.0	659.0	629.4	29.62	22.252	
6,500.0	6,484.1	6,540.4	6,485.3	14.7	20.2	90.49		218.0	-742.9	659.0	629.2	29.82	22.097	
6,600.0	6,579.6	6,641.1	6,581.4	14.7	20.3	90.48		188.2	-742.7	659.0	629.1	29.96	21.999	
6,700.0	6,670.4	6,741.8	6,672.7	14.8	20.3	90.45		146.0	-742.5	659.0	629.0	30.07	21.916	
6,800.0	6,755.0	6,842.4	6,757.7	14.8	20.4	90.41		92.2	-742.2	659.1	628.8	30.23	21.800	
6,900.0	6,832.0	6,942.9	6,834.8	14.9	20.5	90.37		27.8	-741.9	659.1	628.6	30.52	21.595	
7,000.0	6,900.0	7,043.4	6,902.7	15.0	20.6	90.32		-46.1	-741.5	659.1	628.1	31.02	21.250	
7,100.0	6,957.9	7,143.8	6,960.4	15.4	20.8	90.27		-128.3	-741.0	659.2	627.4	31.80	20.731	
7,200.0	7,004.6	7,244.2	7,006.7	15.9	21.1	90.21		-217.2	-740.6	659.2	626.3	32.90	20.035	
7,300.0	7,039.4	7,344.4	7,041.0	16.6	21.6	90.15		-311.3	-740.0	659.3	624.9	34.36	19.189	
7,400.0	7,061.7	7,444.6	7,062.6	17.5	22.2	90.08		-409.1	-739.5	659.3	623.2	36.14	18.242	
7,500.0	7,073.3	7,544.6	7,073.9	18.5	23.0	90.06		-508.4	-739.0	659.4	621.2	38.22	17.251	
7,600.0	7,080.7	7,644.7	7,080.9	19.7	23.9	90.02		-608.2	-738.5	659.4	618.9	40.56	16.258	
7,700.0	7,080.4	7,744.7	7,080.4	20.9	25.0	90.00		-708.2	-737.9	659.5	616.4	43.10	15.302	
7,800.0	7,078.9	7,844.7	7,078.9	22.3	26.2	90.00		-808.2	-737.4	659.5	613.7	45.81	14.397	
7,900.0	7,077.4	7,944.7	7,077.5	23.7	27.5	90.01		-908.2	-736.8	659.6	610.9	48.68	13.550	
8,000.0	7,075.9	8,044.7	7,076.1	25.2	28.8	90.01		-1,008.2	-736.3	659.7	608.0	51.67	12.766	
8,100.0	7,074.4	8,144.7	7,074.6	26.8	30.3	90.02		-1,108.1	-735.8	659.7	604.9	54.78	12.044	
8,200.0	7,072.9	8,244.7	7,073.2	28.4	31.7	90.02		-1,208.1	-735.2	659.8	601.8	57.96	11.382	
8,300.0	7,071.4	8,344.7	7,071.7	30.0	33.3	90.03		-1,308.1	-734.7	659.8	598.6	61.23	10.776	
8,400.0	7,069.9	8,444.7	7,070.3	31.7	34.8	90.03		-1,408.1	-734.2	659.9	595.3	64.56	10.222	
8,500.0	7,068.4	8,544.7	7,068.8	33.4	36.4	90.04		-1,508.1	-733.6	659.9	592.0	67.94	9.714	
8,600.0	7,066.9	8,644.7	7,067.4	35.1	38.1	90.04		-1,608.1	-733.1	660.0	588.6	71.37	9.248	
8,700.0	7,065.4	8,744.7	7,065.9	36.8	39.7	90.04		-1,708.1	-732.6	660.0	585.2	74.84	8.820	
8,800.0	7,063.9	8,844.7	7,064.5	38.6	41.4	90.05		-1,808.1	-732.0	660.1	581.8	78.34	8.426	
8,900.0	7,062.4	8,944.7	7,063.0	40.4	43.1	90.05		-1,908.0	-731.5	660.2	578.3	81.87	8.063	
9,000.0	7,060.9	9,044.7	7,061.6	42.1	44.8	90.06		-2,008.0	-730.9	660.2	574.8	85.44	7.728	
9,100.0	7,059.4	9,144.7	7,060.1	43.9	46.5	90.06		-2,108.0	-730.4	660.3	571.2	89.02	7.417	
9,200.0	7,057.9	9,244.7	7,058.7	45.7	48.3	90.07		-2,208.0	-729.9	660.3	567.7	92.62	7.129	
9,300.0	7,056.4	9,344.7	7,057.2	47.6	50.1	90.07		-2,308.0	-729.3	660.4	564.1	96.25	6.861	
9,400.0	7,054.9	9,444.7	7,055.8	49.4	51.8	90.08		-2,408.0	-728.8	660.4	560.5	99.89	6.612	
9,500.0	7,053.4	9,544.7	7,054.3	51.2	53.6	90.08		-2,508.0	-728.3	660.5	556.9	103.54	6.379	
9,600.0	7,051.9	9,644.7	7,052.9	53.0	55.4	90.09		-2,608.0	-727.7	660.5	553.3	107.21	6.161	
9,700.0	7,050.4	9,744.7	7,051.4	54.9	57.2	90.09		-2,708.0	-727.2	660.6	549.7	110.89	5.957	
9,800.0	7,048.9	9,844.7	7,050.0	56.7	59.0	90.09		-2,807.9	-726.7	660.6	546.1	114.58	5.766	
9,900.0	7,047.4	9,944.7	7,048.5	58.6	60.8	90.10		-2,907.9	-726.1	660.7	542.4	118.28	5.586	
10,000.0	7,045.9	10,044.7	7,047.1	60.4	62.6	90.10		-3,007.9	-725.6	660.8	538.8	121.98	5.417	
10,100.0	7,044.4	10,144.7	7,045.6	62.3	64.5	90.11		-3,107.9	-725.0	660.8	535.1	125.70	5.257	

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 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5J-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 (ft)	Offset (ft)	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
10,200.0	7,042.9	10,244.7	7,044.2	64.2	66.3	90.11	-3,207.9	-724.5	660.9	531.4	129.42	5.106	
10,300.0	7,041.4	10,344.7	7,042.7	66.0	68.1	90.12	-3,307.9	-724.0	660.9	527.8	133.15	4.964	
10,400.0	7,039.9	10,444.7	7,041.3	67.9	70.0	90.12	-3,407.9	-723.4	661.0	524.1	136.89	4.828	
10,500.0	7,038.4	10,544.7	7,039.8	69.8	71.8	90.13	-3,507.9	-722.9	661.0	520.4	140.63	4.700	
10,600.0	7,036.9	10,644.7	7,038.4	71.7	73.7	90.13	-3,607.8	-722.4	661.1	516.7	144.38	4.579	
10,700.0	7,035.4	10,744.7	7,036.9	73.5	75.5	90.14	-3,707.8	-721.8	661.1	513.0	148.13	4.463	
10,800.0	7,033.9	10,844.7	7,035.5	75.4	77.4	90.14	-3,807.8	-721.3	661.2	509.3	151.89	4.353	
10,900.0	7,032.4	10,944.7	7,034.0	77.3	79.2	90.14	-3,907.8	-720.8	661.2	505.6	155.65	4.248	
11,000.0	7,030.9	11,044.7	7,032.6	79.2	81.1	90.15	-4,007.8	-720.2	661.3	501.9	159.41	4.148	
11,100.0	7,029.4	11,144.7	7,031.1	81.1	83.0	90.15	-4,107.8	-719.7	661.4	498.2	163.18	4.053	
11,200.0	7,027.9	11,244.7	7,029.7	82.9	84.8	90.16	-4,207.8	-719.1	661.4	494.5	166.95	3.962	
11,300.0	7,026.4	11,344.7	7,028.2	84.8	86.7	90.16	-4,307.8	-718.6	661.5	490.7	170.73	3.874	
11,400.0	7,024.9	11,444.7	7,026.8	86.7	88.6	90.17	-4,407.7	-718.1	661.5	487.0	174.51	3.791	
11,500.0	7,023.4	11,544.7	7,025.4	88.6	90.4	90.17	-4,507.7	-717.5	661.6	483.3	178.29	3.711	
11,524.1	7,023.0	11,568.8	7,025.0	89.0	90.9	90.17	-4,531.9	-717.4	661.6	482.5	179.11	3.694 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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													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	128.345	
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	43.066	
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	25.874	
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	18.492	
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	14.387	
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	11.774	
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	9.964	
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	8.636	
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	7.621	
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	6.819	
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	6.170	
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	5.634	
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	5.183	
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	-161.30	-161.30	-29.1	0.0	30.4	23.4	6.97	4.359	
1,700.0	1,699.9	1,700.9	1,700.9	3.7	3.7	-163.40	-163.40	-29.1	0.0	34.1	26.7	7.41	4.603	
1,800.0	1,799.7	1,800.7	1,800.7	3.9	3.9	-166.03	-166.03	-29.1	0.0	40.4	32.6	7.85	5.149	
1,900.0	1,899.3	1,900.3	1,900.3	4.2	4.2	-168.57	-168.57	-29.1	0.0	49.4	41.1	8.29	5.957	
2,000.0	1,998.6	1,999.6	1,999.6	4.4	4.4	-170.72	-170.72	-29.1	0.0	60.8	52.1	8.72	6.974	
2,100.0	2,097.8	2,099.9	2,099.9	4.7	4.6	-173.14	-173.14	-28.2	0.9	72.2	63.1	9.17	7.881	
2,200.0	2,197.1	2,200.4	2,200.3	4.9	4.8	-176.44	-176.44	-25.3	3.6	82.4	72.8	9.61	8.571	
2,300.0	2,296.3	2,300.9	2,300.6	5.2	5.0	179.53	179.53	-20.4	8.0	91.5	81.4	10.06	9.094	
2,400.0	2,395.5	2,401.4	2,400.6	5.4	5.3	174.87	174.87	-13.6	14.3	99.9	89.4	10.51	9.500	
2,500.0	2,494.8	2,501.5	2,500.1	5.7	5.5	169.65	169.65	-5.0	22.3	108.0	97.0	10.98	9.836	
2,600.0	2,594.0	2,600.9	2,598.5	6.0	5.8	164.23	164.23	5.2	31.6	116.5	105.0	11.47	10.154	
2,700.0	2,693.3	2,700.0	2,696.6	6.3	6.0	159.51	159.51	15.4	41.0	125.8	113.8	11.97	10.506	
2,800.0	2,792.5	2,799.0	2,794.7	6.6	6.3	155.46	155.46	25.6	50.5	135.8	123.3	12.49	10.875	
2,900.0	2,891.7	2,898.1	2,892.7	6.9	6.5	151.98	151.98	35.8	59.9	146.5	133.4	13.02	11.250	
3,000.0	2,991.0	2,997.1	2,990.8	7.2	6.8	148.97	148.97	46.1	69.3	157.6	144.0	13.56	11.622	
3,100.0	3,090.2	3,096.2	3,088.9	7.5	7.1	146.36	146.36	56.3	78.7	169.0	154.9	14.10	11.984	
3,200.0	3,189.5	3,195.3	3,187.0	7.7	7.4	144.09	144.09	66.5	88.1	180.8	166.2	14.66	12.335	
3,300.0	3,288.7	3,294.3	3,285.1	8.0	7.7	142.10	142.10	76.7	97.6	192.8	177.6	15.22	12.672	
3,400.0	3,388.0	3,393.4	3,383.2	8.3	8.0	140.34	140.34	87.0	107.0	205.1	189.3	15.78	12.994	
3,500.0	3,487.2	3,492.5	3,481.2	8.6	8.3	138.78	138.78	97.2	116.4	217.5	201.1	16.35	13.300	
3,600.0	3,586.5	3,591.6	3,579.4	8.9	8.6	137.38	137.38	107.4	125.8	229.7	212.8	16.91	13.579	
3,700.0	3,686.0	3,690.7	3,677.6	9.1	8.9	135.79	135.79	117.7	135.3	240.4	222.9	17.44	13.779	
3,800.0	3,785.8	3,790.0	3,775.8	9.4	9.2	133.90	133.90	127.9	144.7	249.4	231.4	17.96	13.887	
3,900.0	3,885.7	3,889.2	3,874.0	9.5	9.5	131.70	131.70	138.1	154.1	257.0	238.5	18.46	13.920	
4,000.0	3,985.7	3,988.3	3,972.1	9.7	9.8	129.20	129.20	148.4	163.5	263.3	244.4	18.95	13.898	
4,100.0	4,085.7	4,087.3	4,070.2	9.9	10.1	106.97	106.97	158.6	173.0	269.2	249.7	19.43	13.851	
4,200.0	4,185.7	4,186.3	4,168.2	10.1	10.4	104.36	104.36	168.8	182.4	275.6	255.7	19.93	13.826	
4,300.0	4,285.7	4,285.3	4,266.2	10.3	10.7	101.87	101.87	179.0	191.8	282.6	262.1	20.42	13.834	
4,400.0	4,385.7	4,384.3	4,364.3	10.5	11.1	99.51	99.51	189.2	201.2	290.0	269.1	20.91	13.872	
4,500.0	4,485.7	4,483.3	4,462.3	10.7	11.4	97.26	97.26	199.5	210.6	298.0	276.6	21.38	13.935	
4,600.0	4,585.7	4,582.3	4,560.3	10.9	11.7	95.13	95.13	209.7	220.0	306.4	284.5	21.85	14.020	
4,700.0	4,685.7	4,686.6	4,663.8	11.1	12.0	93.20	93.20	219.5	229.1	314.4	292.1	22.28	14.111	
4,800.0	4,785.7	4,791.8	4,768.4	11.3	12.2	91.74	91.74	227.3	236.2	320.9	298.2	22.69	14.142	
4,900.0	4,885.7	4,897.5	4,873.8	11.5	12.4	90.72	90.72	232.9	241.5	325.7	302.6	23.09	14.105	
5,000.0	4,985.7	5,003.5	4,979.7	11.7	12.6	90.09	90.09	236.5	244.7	328.8	305.3	23.49	13.998	

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 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5M-303 - 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
5,100.0	5,085.7	5,109.7	5,085.8	11.9	12.8	89.85	89.85	237.8	246.0	330.0	306.1	23.88	13.820	
5,200.0	5,185.7	5,210.5	5,186.7	12.1	13.0	89.85	89.85	237.9	246.0	330.0	305.7	24.27	13.597	
5,300.0	5,285.7	5,310.5	5,286.7	12.3	13.2	89.85	89.85	237.9	246.0	330.0	305.3	24.68	13.372	
5,400.0	5,385.7	5,410.5	5,386.7	12.5	13.4	89.85	89.85	237.9	246.0	330.0	304.9	25.09	13.154	
5,500.0	5,485.7	5,510.5	5,486.7	12.7	13.6	89.85	89.85	237.9	246.0	330.0	304.5	25.50	12.941	
5,600.0	5,585.7	5,610.5	5,586.7	12.9	13.8	89.85	89.85	237.9	246.0	330.0	304.1	25.91	12.735	
5,700.0	5,685.7	5,710.5	5,686.7	13.2	14.0	89.85	89.85	237.9	246.0	330.0	303.7	26.33	12.535	
5,800.0	5,785.7	5,810.5	5,786.7	13.4	14.2	89.85	89.85	237.9	246.0	330.0	303.3	26.74	12.341	
5,900.0	5,885.7	5,910.5	5,886.7	13.6	14.4	89.85	89.85	237.9	246.0	330.0	302.8	27.16	12.152	
6,000.0	5,985.7	6,010.5	5,986.7	13.8	14.5	89.85	89.85	237.9	246.0	330.0	302.4	27.57	11.968	
6,100.0	6,085.7	6,110.5	6,086.7	14.0	14.7	89.85	89.85	237.9	246.0	330.0	302.0	27.99	11.789	
6,200.0	6,185.7	6,210.5	6,186.7	14.2	14.9	89.85	89.85	237.9	246.0	330.0	301.6	28.41	11.615	
6,243.1	6,228.8	6,253.6	6,229.8	14.3	15.0	89.85	89.85	237.9	246.0	330.0	301.4	28.59	11.542	
6,300.0	6,285.7	6,310.3	6,286.5	14.4	15.1	90.16	90.16	236.1	246.0	330.0	301.2	28.81	11.454	
6,400.0	6,385.5	6,409.0	6,384.2	14.6	15.2	-87.91	-87.91	223.1	246.1	330.2	301.1	29.09	11.351	
6,500.0	6,484.1	6,506.4	6,478.2	14.7	15.3	-86.30	-86.30	198.0	246.2	330.7	301.4	29.24	11.309	
6,600.0	6,579.6	6,602.7	6,567.4	14.7	15.3	-84.77	-84.77	161.6	246.4	331.4	302.1	29.30	11.311	
6,700.0	6,670.4	6,698.1	6,650.4	14.8	15.3	-83.34	-83.34	114.8	246.7	332.2	302.9	29.31	11.334	
6,800.0	6,755.0	6,792.5	6,726.2	14.8	15.3	-82.02	-82.02	58.6	247.0	333.2	303.9	29.36	11.351	
6,900.0	6,832.0	6,886.2	6,794.0	14.9	15.3	-80.85	-80.85	-5.9	247.4	334.2	304.7	29.50	11.330	
7,000.0	6,900.0	6,979.1	6,853.0	15.0	15.3	-79.83	-79.83	-77.7	247.8	335.2	305.4	29.83	11.237	
7,100.0	6,957.9	7,071.5	6,902.6	15.4	15.5	-78.97	-78.97	-155.6	248.3	336.2	305.7	30.42	11.051	
7,200.0	7,004.6	7,163.5	6,942.3	15.9	16.0	-78.29	-78.29	-238.4	248.8	337.0	305.6	31.32	10.758	
7,300.0	7,039.4	7,255.0	6,971.6	16.6	16.7	-77.80	-77.80	-325.1	249.3	337.6	305.0	32.57	10.366	
7,400.0	7,061.7	7,346.3	6,990.3	17.5	17.5	-77.49	-77.49	-414.4	249.8	337.9	303.8	34.16	9.894	
7,500.0	7,073.3	7,437.4	6,998.2	18.5	18.4	-77.04	-77.04	-505.1	250.3	338.6	302.6	36.01	9.402	
7,600.0	7,080.7	7,532.7	6,996.7	19.7	19.5	-75.58	-75.58	-600.4	250.8	340.7	302.6	38.04	8.955	
7,700.0	7,080.4	7,632.7	6,993.9	20.9	20.7	-75.14	-75.14	-700.3	251.4	341.3	300.9	40.43	8.441	
7,800.0	7,078.9	7,732.7	6,991.1	22.3	22.0	-74.94	-74.94	-800.3	252.0	341.6	298.6	43.02	7.941	
7,900.0	7,077.4	7,832.7	6,988.3	23.7	23.4	-74.73	-74.73	-900.2	252.6	341.9	296.2	45.76	7.473	
8,000.0	7,075.9	7,932.6	6,985.6	25.2	24.9	-74.52	-74.52	-1,000.2	253.2	342.3	293.6	48.61	7.040	
8,100.0	7,074.4	8,032.6	6,982.8	26.8	26.5	-74.31	-74.31	-1,100.1	253.7	342.6	291.0	51.57	6.643	
8,200.0	7,072.9	8,132.6	6,980.0	28.4	28.0	-74.10	-74.10	-1,200.1	254.3	342.9	288.3	54.62	6.279	
8,300.0	7,071.4	8,232.6	6,977.2	30.0	29.7	-73.89	-73.89	-1,300.0	254.9	343.3	285.6	57.73	5.946	
8,400.0	7,069.9	8,332.6	6,974.4	31.7	31.3	-73.68	-73.68	-1,400.0	255.5	343.6	282.7	60.90	5.643	
8,500.0	7,068.4	8,432.6	6,971.6	33.4	33.0	-73.48	-73.48	-1,499.9	256.0	344.0	279.9	64.11	5.365	
8,600.0	7,066.9	8,532.6	6,968.8	35.1	34.7	-73.27	-73.27	-1,599.9	256.6	344.3	277.0	67.37	5.111	
8,700.0	7,065.4	8,632.6	6,966.0	36.8	36.4	-73.06	-73.06	-1,699.8	257.2	344.7	274.0	70.66	4.879	
8,800.0	7,063.9	8,732.6	6,963.2	38.6	38.2	-72.86	-72.86	-1,799.8	257.8	345.1	271.1	73.97	4.665	
8,900.0	7,062.4	8,832.6	6,960.4	40.4	40.0	-72.65	-72.65	-1,899.7	258.4	345.4	268.1	77.31	4.468	
9,000.0	7,060.9	8,932.6	6,957.6	42.1	41.7	-72.45	-72.45	-1,999.7	258.9	345.8	265.2	80.66	4.287	
9,100.0	7,059.4	9,032.6	6,954.8	43.9	43.5	-72.24	-72.24	-2,099.6	259.5	346.2	262.2	84.03	4.120	
9,200.0	7,057.9	9,132.6	6,952.0	45.7	45.3	-72.04	-72.04	-2,199.6	260.1	346.6	259.2	87.41	3.965	
9,300.0	7,056.4	9,232.5	6,949.3	47.6	47.1	-71.84	-71.84	-2,299.5	260.7	347.0	256.2	90.81	3.821	
9,400.0	7,054.9	9,332.5	6,946.5	49.4	48.9	-71.63	-71.63	-2,399.5	261.3	347.4	253.1	94.21	3.687	
9,500.0	7,053.4	9,432.5	6,943.7	51.2	50.8	-71.43	-71.43	-2,499.4	261.8	347.8	250.1	97.62	3.562	
9,600.0	7,051.9	9,532.5	6,940.9	53.0	52.6	-71.23	-71.23	-2,599.4	262.4	348.2	247.1	101.03	3.446	
9,700.0	7,050.4	9,632.5	6,938.1	54.9	54.4	-71.03	-71.03	-2,699.3	263.0	348.6	244.1	104.44	3.337	
9,800.0	7,048.9	9,732.5	6,935.3	56.7	56.3	-70.83	-70.83	-2,799.3	263.6	349.0	241.1	107.86	3.235	
9,900.0	7,047.4	9,832.5	6,932.5	58.6	58.1	-70.62	-70.62	-2,899.2	264.1	349.4	238.1	111.28	3.140	
10,000.0	7,045.9	9,932.5	6,929.7	60.4	60.0	-70.42	-70.42	-2,999.2	264.7	349.8	235.1	114.70	3.050	

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 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5M-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5M-303 - 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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,100.0	7,044.4	10,032.5	6,926.9	62.3	61.8	-70.22	-3,099.1	265.3	350.2	232.1	118.11	2.965	
10,200.0	7,042.9	10,132.5	6,924.1	64.2	63.7	-70.03	-3,199.1	265.9	350.7	229.1	121.53	2.885	
10,300.0	7,041.4	10,232.5	6,921.3	66.0	65.6	-69.83	-3,299.0	266.5	351.1	226.1	124.94	2.810	
10,400.0	7,039.9	10,332.4	6,918.5	67.9	67.4	-69.63	-3,399.0	267.0	351.5	223.2	128.35	2.739	
10,500.0	7,038.4	10,432.4	6,915.8	69.8	69.3	-69.43	-3,498.9	267.6	352.0	220.2	131.76	2.671	
10,600.0	7,036.9	10,532.4	6,913.0	71.7	71.2	-69.23	-3,598.9	268.2	352.4	217.2	135.17	2.607	
10,700.0	7,035.4	10,632.4	6,910.2	73.5	73.0	-69.04	-3,698.8	268.8	352.9	214.3	138.57	2.546	
10,800.0	7,033.9	10,732.4	6,907.4	75.4	74.9	-68.84	-3,798.8	269.3	353.3	211.3	141.96	2.489	
10,900.0	7,032.4	10,832.4	6,904.6	77.3	76.8	-68.64	-3,898.7	269.9	353.8	208.4	145.35	2.434	
11,000.0	7,030.9	10,932.4	6,901.8	79.2	78.7	-68.45	-3,998.7	270.5	354.2	205.5	148.74	2.382	
11,100.0	7,029.4	11,032.4	6,899.0	81.1	80.6	-68.25	-4,098.6	271.1	354.7	202.6	152.12	2.332	
11,200.0	7,027.9	11,132.4	6,896.2	82.9	82.5	-68.06	-4,198.6	271.7	355.2	199.7	155.49	2.284	
11,300.0	7,026.4	11,232.4	6,893.4	84.8	84.3	-67.87	-4,298.5	272.2	355.6	196.8	158.86	2.239	
11,400.0	7,024.9	11,332.4	6,890.6	86.7	86.2	-67.67	-4,398.5	272.8	356.1	193.9	162.22	2.195	
11,500.0	7,023.4	11,432.4	6,887.8	88.6	88.1	-67.48	-4,498.4	273.4	356.6	191.0	165.57	2.154	
11,524.1	7,023.0	11,456.5	6,887.2	89.0	88.6	-67.43	-4,522.5	273.5	356.7	190.4	166.30	2.145 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5-11 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error: 0.0 ft	
Survey Program: 7228-UNKNOWN												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-169.02	-561.0	-108.8	571.8				
100.0	100.0	82.0	82.0	0.1	1.6	-169.02	-561.0	-108.8	571.5	569.7	1.75	326.082	
200.0	200.0	182.0	182.0	0.3	3.6	-169.02	-561.0	-108.8	571.5	567.5	3.98	143.685	
300.0	300.0	282.0	282.0	0.6	5.6	-169.02	-561.0	-108.8	571.5	565.3	6.20	92.144	
400.0	400.0	382.0	382.0	0.8	7.6	-169.02	-561.0	-108.8	571.5	563.1	8.43	67.817	
500.0	500.0	482.0	482.0	1.0	9.6	-169.02	-561.0	-108.8	571.5	560.8	10.65	53.652	
600.0	600.0	582.0	582.0	1.2	11.6	-169.02	-561.0	-108.8	571.5	558.6	12.88	44.382	
700.0	700.0	682.0	682.0	1.5	13.6	-169.02	-561.0	-108.8	571.5	556.4	15.10	37.844	
800.0	800.0	782.0	782.0	1.7	15.6	-169.02	-561.0	-108.8	571.5	554.2	17.33	32.984	
900.0	900.0	882.0	882.0	1.9	17.6	-169.02	-561.0	-108.8	571.5	551.9	19.55	29.231	
1,000.0	1,000.0	982.0	982.0	2.1	19.6	-169.02	-561.0	-108.8	571.5	549.7	21.78	26.244	
1,100.0	1,100.0	1,082.0	1,082.0	2.4	21.6	-169.02	-561.0	-108.8	571.5	547.5	24.00	23.812	
1,200.0	1,200.0	1,182.0	1,182.0	2.6	23.6	-169.02	-561.0	-108.8	571.5	545.3	26.22	21.792	
1,300.0	1,300.0	1,282.0	1,282.0	2.8	25.6	-169.02	-561.0	-108.8	571.5	543.0	28.45	20.088	
1,400.0	1,400.0	1,382.0	1,382.0	3.0	27.6	-169.02	-561.0	-108.8	571.5	540.8	30.67	18.631	
1,500.0	1,500.0	1,482.0	1,482.0	3.3	29.6	-169.02	-561.0	-108.8	571.5	538.6	32.90	17.371	
1,600.0	1,600.0	1,582.0	1,582.0	3.5	31.6	-149.56	-561.0	-108.8	572.6	537.5	35.11	16.307	
1,700.0	1,699.9	1,681.9	1,681.9	3.7	33.6	-149.73	-561.0	-108.8	576.0	538.7	37.31	15.439	
1,800.0	1,799.7	1,781.7	1,781.7	3.9	35.6	-150.02	-561.0	-108.8	581.7	542.2	39.48	14.734	
1,900.0	1,899.3	1,881.3	1,881.3	4.2	37.6	-150.40	-561.0	-108.8	589.6	548.0	41.62	14.167	
2,000.0	1,998.6	1,980.6	1,980.6	4.4	39.6	-150.90	-561.0	-108.8	599.8	556.0	43.76	13.707	
2,100.0	2,097.8	2,079.8	2,079.8	4.7	41.6	-151.46	-561.0	-108.8	610.6	564.6	45.96	13.285	
2,200.0	2,197.1	2,179.1	2,179.1	4.9	43.6	-152.00	-561.0	-108.8	621.4	573.3	48.17	12.901	
2,300.0	2,296.3	2,278.3	2,278.3	5.2	45.6	-152.52	-561.0	-108.8	632.3	582.0	50.38	12.552	
2,400.0	2,395.5	2,377.5	2,377.5	5.4	47.6	-153.03	-561.0	-108.8	643.3	590.7	52.59	12.233	
2,500.0	2,494.8	2,476.8	2,476.8	5.7	49.5	-153.51	-561.0	-108.8	654.3	599.5	54.80	11.940	
2,600.0	2,594.0	2,576.0	2,576.0	6.0	51.5	-153.99	-561.0	-108.8	665.3	608.3	57.01	11.670	
2,700.0	2,693.3	2,675.3	2,675.3	6.3	53.5	-154.44	-561.0	-108.8	676.4	617.2	59.23	11.421	
2,800.0	2,792.5	2,774.5	2,774.5	6.6	55.5	-154.88	-561.0	-108.8	687.6	626.1	61.44	11.191	
2,900.0	2,891.7	2,873.7	2,873.7	6.9	57.5	-155.31	-561.0	-108.8	698.8	635.1	63.65	10.977	
3,000.0	2,991.0	2,973.0	2,973.0	7.2	59.5	-155.73	-561.0	-108.8	710.0	644.1	65.87	10.779	
3,100.0	3,090.2	3,072.2	3,072.2	7.5	61.4	-156.13	-561.0	-108.8	721.2	653.1	68.08	10.593	
3,200.0	3,189.5	3,171.5	3,171.5	7.7	63.4	-156.52	-561.0	-108.8	732.5	662.2	70.30	10.420	
3,300.0	3,288.7	3,270.7	3,270.7	8.0	65.4	-156.89	-561.0	-108.8	743.8	671.3	72.51	10.258	
3,400.0	3,388.0	3,370.0	3,370.0	8.3	67.4	-157.26	-561.0	-108.8	755.1	680.4	74.72	10.106	
3,500.0	3,487.2	3,469.2	3,469.2	8.6	69.4	-157.61	-561.0	-108.8	766.5	689.6	76.94	9.963	
3,600.0	3,586.5	3,568.5	3,568.5	8.9	71.4	-157.98	-561.0	-108.8	777.5	698.3	79.24	9.812	
3,700.0	3,686.0	3,668.0	3,668.0	9.1	73.4	-158.29	-561.0	-108.8	786.4	704.8	81.57	9.641	
3,800.0	3,785.8	3,767.8	3,767.8	9.4	75.4	-158.51	-561.0	-108.8	792.8	709.0	83.85	9.455	
3,900.0	3,885.7	3,867.7	3,867.7	9.5	77.4	-158.65	-561.0	-108.8	796.8	710.7	86.09	9.255	
4,000.0	3,985.7	3,967.7	3,967.7	9.7	79.4	-158.70	-561.0	-108.8	798.4	710.1	88.29	9.043	
4,100.0	4,085.7	4,067.7	4,067.7	9.9	81.4	-178.22	-561.0	-108.8	798.4	707.9	90.48	8.824	
4,200.0	4,185.7	4,167.7	4,167.7	10.1	83.4	-178.22	-561.0	-108.8	798.4	705.7	92.69	8.613	
4,300.0	4,285.7	4,267.7	4,267.7	10.3	85.4	-178.22	-561.0	-108.8	798.4	703.5	94.91	8.412	
4,400.0	4,385.7	4,367.7	4,367.7	10.5	87.4	-178.22	-561.0	-108.8	798.4	701.3	97.13	8.220	
4,500.0	4,485.7	4,467.7	4,467.7	10.7	89.4	-178.22	-561.0	-108.8	798.4	699.1	99.34	8.037	
4,600.0	4,585.7	4,567.7	4,567.7	10.9	91.4	-178.22	-561.0	-108.8	798.4	696.8	101.56	7.861	
4,700.0	4,685.7	4,667.7	4,667.7	11.1	93.4	-178.22	-561.0	-108.8	798.4	694.6	103.78	7.693	
4,800.0	4,785.7	4,767.7	4,767.7	11.3	95.4	-178.22	-561.0	-108.8	798.4	692.4	106.00	7.532	
4,900.0	4,885.7	4,867.7	4,867.7	11.5	97.4	-178.22	-561.0	-108.8	798.4	690.2	108.22	7.378	
5,000.0	4,985.7	4,967.7	4,967.7	11.7	99.4	-178.22	-561.0	-108.8	798.4	688.0	110.43	7.230	

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 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5-11 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7228-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
5,100.0	5,085.7	5,067.7	5,067.7	11.9	101.4	-178.22	-178.22	-561.0	-108.8	798.4	685.8	112.65	7.087	
5,200.0	5,185.7	5,167.7	5,167.7	12.1	103.4	-178.22	-178.22	-561.0	-108.8	798.4	683.5	114.87	6.950	
5,300.0	5,285.7	5,267.7	5,267.7	12.3	105.4	-178.22	-178.22	-561.0	-108.8	798.4	681.3	117.09	6.819	
5,400.0	5,385.7	5,367.7	5,367.7	12.5	107.4	-178.22	-178.22	-561.0	-108.8	798.4	679.1	119.31	6.692	
5,500.0	5,485.7	5,467.7	5,467.7	12.7	109.4	-178.22	-178.22	-561.0	-108.8	798.4	676.9	121.53	6.570	
5,600.0	5,585.7	5,567.7	5,567.7	12.9	111.4	-178.22	-178.22	-561.0	-108.8	798.4	674.7	123.75	6.452	
5,700.0	5,685.7	5,667.7	5,667.7	13.2	113.4	-178.22	-178.22	-561.0	-108.8	798.4	672.4	125.97	6.338	
5,800.0	5,785.7	5,767.7	5,767.7	13.4	115.4	-178.22	-178.22	-561.0	-108.8	798.4	670.2	128.19	6.228	
5,900.0	5,885.7	5,867.7	5,867.7	13.6	117.4	-178.22	-178.22	-561.0	-108.8	798.4	668.0	130.41	6.122	
6,000.0	5,985.7	5,967.7	5,967.7	13.8	119.4	-178.22	-178.22	-561.0	-108.8	798.4	665.8	132.63	6.020	
6,100.0	6,085.7	6,067.7	6,067.7	14.0	121.4	-178.22	-178.22	-561.0	-108.8	798.4	663.6	134.85	5.921	
6,200.0	6,185.7	6,167.7	6,167.7	14.2	123.4	-178.22	-178.22	-561.0	-108.8	798.4	661.3	137.07	5.825	
6,300.0	6,285.7	6,267.7	6,267.7	14.4	125.4	-178.22	-178.22	-561.0	-108.8	798.4	659.1	139.29	5.732	
6,400.0	6,385.5	6,367.5	6,367.5	14.6	127.4	2.14	2.14	-561.0	-108.8	794.4	653.7	140.70	5.646	
6,500.0	6,484.1	6,466.1	6,466.1	14.7	129.3	2.24	2.24	-561.0	-108.8	777.7	638.0	139.70	5.567	
6,600.0	6,579.6	6,561.6	6,561.6	14.7	131.2	2.42	2.42	-561.0	-108.8	748.3	612.2	136.18	5.495	
6,700.0	6,670.4	6,652.4	6,652.4	14.8	133.0	2.72	2.72	-561.0	-108.8	706.8	576.6	130.14	5.431	
6,800.0	6,755.0	6,737.0	6,737.0	14.8	134.7	3.20	3.20	-561.0	-108.8	653.7	532.0	121.65	5.373	
6,900.0	6,832.0	6,814.0	6,814.0	14.9	136.3	3.95	3.95	-561.0	-108.8	590.0	479.1	110.90	5.320	
7,000.0	6,900.0	6,882.0	6,882.0	15.0	137.6	5.19	5.19	-561.0	-108.8	516.9	418.7	98.23	5.262	
7,100.0	6,957.9	6,939.9	6,939.9	15.4	138.8	7.39	7.39	-561.0	-108.8	435.6	351.1	84.47	5.157	
7,200.0	7,004.6	6,986.6	6,986.6	15.9	139.7	11.80	11.80	-561.0	-108.8	347.5	275.1	72.47	4.796	
7,300.0	7,039.4	7,021.4	7,021.4	16.6	140.4	22.24	22.24	-561.0	-108.8	254.3	179.1	75.21	3.382	
7,400.0	7,061.7	7,043.7	7,043.7	17.5	140.9	50.20	50.20	-561.0	-108.8	158.0	34.2	123.76	1.277	Level 3
7,500.0	7,073.3	7,055.3	7,055.3	18.5	141.1	78.82	78.82	-561.0	-108.8	63.2	-93.5	156.72	0.403	Level 1
7,556.1	7,078.0	7,060.0	7,060.0	19.2	141.2	90.00	90.00	-561.0	-108.8	29.6	-130.8	160.34	0.184	Level 1, CC, ES, SF
7,600.0	7,080.7	7,062.7	7,062.7	19.7	141.3	92.65	92.65	-561.0	-108.8	52.9	-107.9	160.72	0.329	Level 1
7,700.0	7,080.4	7,062.4	7,062.4	20.9	141.2	85.82	85.82	-561.0	-108.8	146.8	-14.9	161.76	0.908	Level 1
7,800.0	7,078.9	7,060.9	7,060.9	22.3	141.2	82.94	82.94	-561.0	-108.8	245.6	83.3	162.31	1.513	
7,900.0	7,077.4	7,059.4	7,059.4	23.7	141.2	80.10	80.10	-561.0	-108.8	345.1	182.5	162.55	2.123	
8,000.0	7,075.9	7,057.9	7,057.9	25.2	141.2	77.30	77.30	-561.0	-108.8	444.8	282.3	162.47	2.737	
8,100.0	7,074.4	7,056.4	7,056.4	26.8	141.1	74.57	74.57	-561.0	-108.8	544.6	382.5	162.09	3.360	
8,200.0	7,072.9	7,054.9	7,054.9	28.4	141.1	71.90	71.90	-561.0	-108.8	644.4	483.0	161.42	3.992	
8,300.0	7,071.4	7,053.4	7,053.4	30.0	141.1	69.32	69.32	-561.0	-108.8	744.3	583.8	160.48	4.638	
8,400.0	7,069.9	7,051.9	7,051.9	31.7	141.0	66.81	66.81	-561.0	-108.8	844.2	684.9	159.32	5.299	
8,500.0	7,068.4	7,050.4	7,050.4	33.4	141.0	64.40	64.40	-561.0	-108.8	944.2	786.2	157.96	5.977	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5-13 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7158-UNKNOWN													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	
9,200.0	7,057.9	6,992.9	6,992.9	45.7	139.9	94.74	-3,100.2	-226.1	909.3	724.4	184.95	4.917		
9,300.0	7,056.4	6,991.4	6,991.4	47.6	139.8	94.22	-3,100.2	-226.1	811.1	624.3	186.86	4.341		
9,400.0	7,054.9	6,989.9	6,989.9	49.4	139.8	93.69	-3,100.2	-226.1	713.4	524.7	188.77	3.779		
9,500.0	7,053.4	6,988.4	6,988.4	51.2	139.8	93.16	-3,100.2	-226.1	616.5	425.8	190.67	3.233		
9,600.0	7,051.9	6,986.9	6,986.9	53.0	139.7	92.63	-3,100.2	-226.1	520.6	328.1	192.56	2.704		
9,700.0	7,050.4	6,985.4	6,985.4	54.9	139.7	92.10	-3,100.2	-226.1	426.7	232.3	194.45	2.195		
9,800.0	7,048.9	6,983.9	6,983.9	56.7	139.7	91.57	-3,100.2	-226.1	336.4	140.0	196.32	1.713		
9,900.0	7,047.4	6,982.4	6,982.4	58.6	139.6	91.04	-3,100.2	-226.1	253.3	55.1	198.19	1.278 Level 3		
10,000.0	7,045.9	6,980.9	6,980.9	60.4	139.6	90.50	-3,100.2	-226.1	187.6	-12.4	200.04	0.938 Level 1		
10,094.9	7,044.5	6,979.5	6,979.5	62.2	139.6	90.00	-3,100.2	-226.1	161.8	-40.0	201.79	0.802 Level 1, CC, SF		
10,100.0	7,044.4	6,979.4	6,979.4	62.3	139.6	89.97	-3,100.2	-226.1	161.9	-40.0	201.88	0.802 Level 1, ES		
10,200.0	7,042.9	6,977.9	6,977.9	64.2	139.6	89.44	-3,100.2	-226.1	192.9	-10.8	203.71	0.947 Level 1		
10,300.0	7,041.4	6,976.4	6,976.4	66.0	139.5	88.91	-3,100.2	-226.1	261.2	55.7	205.52	1.271 Level 3		
10,400.0	7,039.9	6,974.9	6,974.9	67.9	139.5	88.38	-3,100.2	-226.1	345.3	138.0	207.32	1.666		
10,500.0	7,038.4	6,973.4	6,973.4	69.8	139.5	87.85	-3,100.2	-226.1	436.2	227.1	209.10	2.086		
10,600.0	7,036.9	6,971.9	6,971.9	71.7	139.4	87.32	-3,100.2	-226.1	530.3	319.4	210.87	2.515		
10,700.0	7,035.4	6,970.4	6,970.4	73.5	139.4	86.79	-3,100.2	-226.1	626.3	413.7	212.62	2.945		
10,800.0	7,033.9	6,968.9	6,968.9	75.4	139.4	86.26	-3,100.2	-226.1	723.3	509.0	214.36	3.374		
10,900.0	7,032.4	6,967.4	6,967.4	77.3	139.3	85.73	-3,100.2	-226.1	821.1	605.0	216.08	3.800		
11,000.0	7,030.9	6,965.9	6,965.9	79.2	139.3	85.20	-3,100.2	-226.1	919.3	701.6	217.78	4.221		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 5-3 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7172-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)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,700.0	7,080.4	7,051.4	7,051.4	20.9	141.0	98.37	98.37	-1,632.1	-167.5	931.7	771.5	160.22	5.815	
7,800.0	7,078.9	7,049.9	7,049.9	22.3	141.0	97.48	97.48	-1,632.1	-167.5	832.3	670.4	161.88	5.141	
7,900.0	7,077.4	7,048.4	7,048.4	23.7	141.0	96.58	96.58	-1,632.1	-167.5	733.0	569.4	163.58	4.481	
8,000.0	7,075.9	7,046.9	7,046.9	25.2	140.9	95.69	95.69	-1,632.1	-167.5	634.0	468.7	165.32	3.835	
8,100.0	7,074.4	7,045.4	7,045.4	26.8	140.9	94.78	94.78	-1,632.1	-167.5	535.3	368.3	167.07	3.204	
8,200.0	7,072.9	7,043.9	7,043.9	28.4	140.9	93.88	93.88	-1,632.1	-167.5	437.3	268.4	168.84	2.590	
8,300.0	7,071.4	7,042.4	7,042.4	30.0	140.8	92.97	92.97	-1,632.1	-167.5	340.3	169.7	170.60	1.995	
8,400.0	7,069.9	7,040.9	7,040.9	31.7	140.8	92.06	92.06	-1,632.1	-167.5	245.9	73.5	172.36	1.426	Level 3
8,500.0	7,068.4	7,039.4	7,039.4	33.4	140.8	91.16	91.16	-1,632.1	-167.5	158.3	-15.8	174.10	0.909	Level 1
8,600.0	7,066.9	7,037.9	7,037.9	35.1	140.8	90.25	90.25	-1,632.1	-167.5	98.3	-77.5	175.83	0.559	Level 1
8,627.0	7,066.5	7,037.5	7,037.5	35.6	140.7	90.00	90.00	-1,632.1	-167.5	94.5	-81.8	176.29	0.536	Level 1, CC, ES, SF
8,700.0	7,065.4	7,036.4	7,036.4	36.8	140.7	89.34	89.34	-1,632.1	-167.5	119.4	-58.1	177.53	0.673	Level 1
8,800.0	7,063.9	7,034.9	7,034.9	38.6	140.7	88.43	88.43	-1,632.1	-167.5	197.1	17.9	179.21	1.100	Level 2
8,900.0	7,062.4	7,033.4	7,033.4	40.4	140.7	87.52	87.52	-1,632.1	-167.5	288.9	108.0	180.85	1.597	
9,000.0	7,060.9	7,031.9	7,031.9	42.1	140.6	86.61	86.61	-1,632.1	-167.5	384.8	202.3	182.47	2.109	
9,100.0	7,059.4	7,030.4	7,030.4	43.9	140.6	85.70	85.70	-1,632.1	-167.5	482.3	298.3	184.05	2.621	
9,200.0	7,057.9	7,028.9	7,028.9	45.7	140.6	84.80	84.80	-1,632.1	-167.5	580.7	395.1	185.59	3.129	
9,300.0	7,056.4	7,027.4	7,027.4	47.6	140.5	83.90	83.90	-1,632.1	-167.5	679.5	492.5	187.09	3.632	
9,400.0	7,054.9	7,025.9	7,025.9	49.4	140.5	83.00	83.00	-1,632.1	-167.5	778.7	590.1	188.56	4.130	
9,500.0	7,053.4	7,024.4	7,024.4	51.2	140.5	82.11	82.11	-1,632.1	-167.5	878.0	688.0	189.98	4.622	
9,600.0	7,051.9	7,022.9	7,022.9	53.0	140.5	81.22	81.22	-1,632.1	-167.5	977.5	786.1	191.36	5.108	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 @ 4830.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Becker Ranch 5M-443

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.60°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5M-443
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Reference Site:	Becker Ranch 5M-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5M-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 @ 4830.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

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

