

PETROLEUM DEVELOPMENT CORP Weld County CO

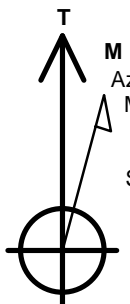
Well Name: **Becker Ranch 5R-323**

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339356.01	3260073.26	40.261180	-104.568090	
RKB - 15' WELL @ 4799.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 206'FNL, 760'FEL	1.0	0.0	0.0	Point
BHL 500'FSL, 805'FEL	6846.0	-4590.2	-64.2	Point



Azimuths to True North
Magnetic North: 8.41°

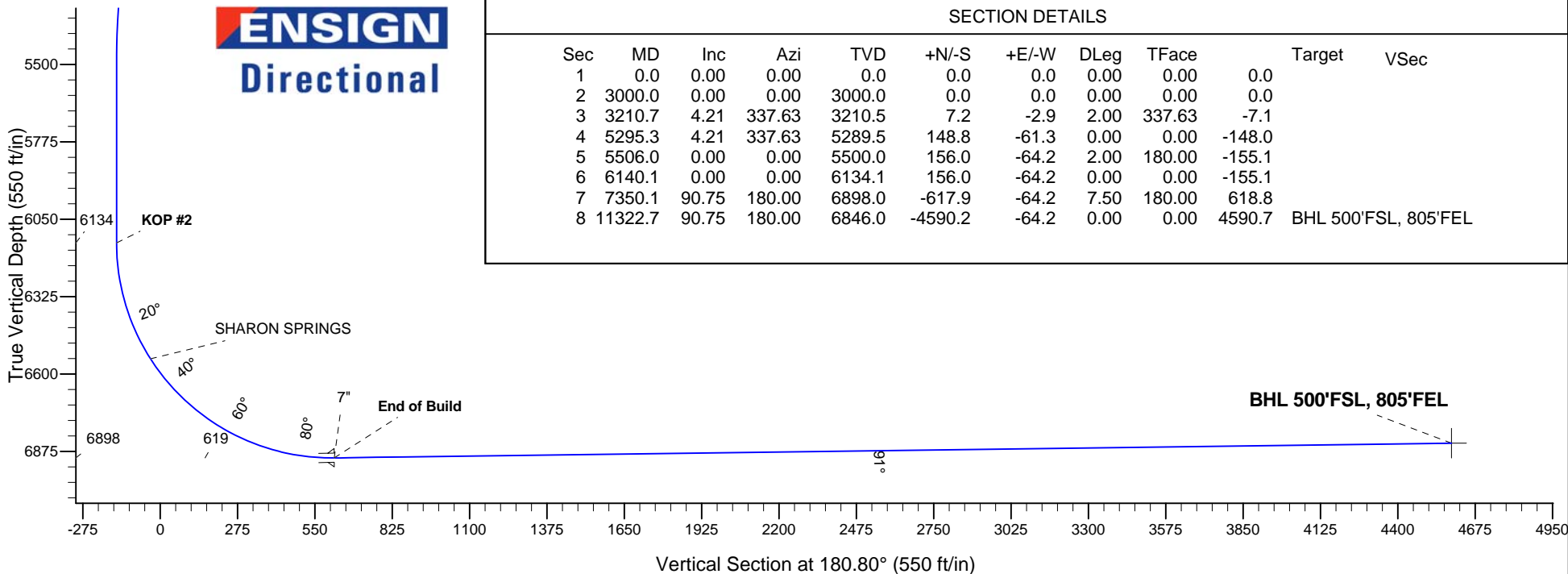
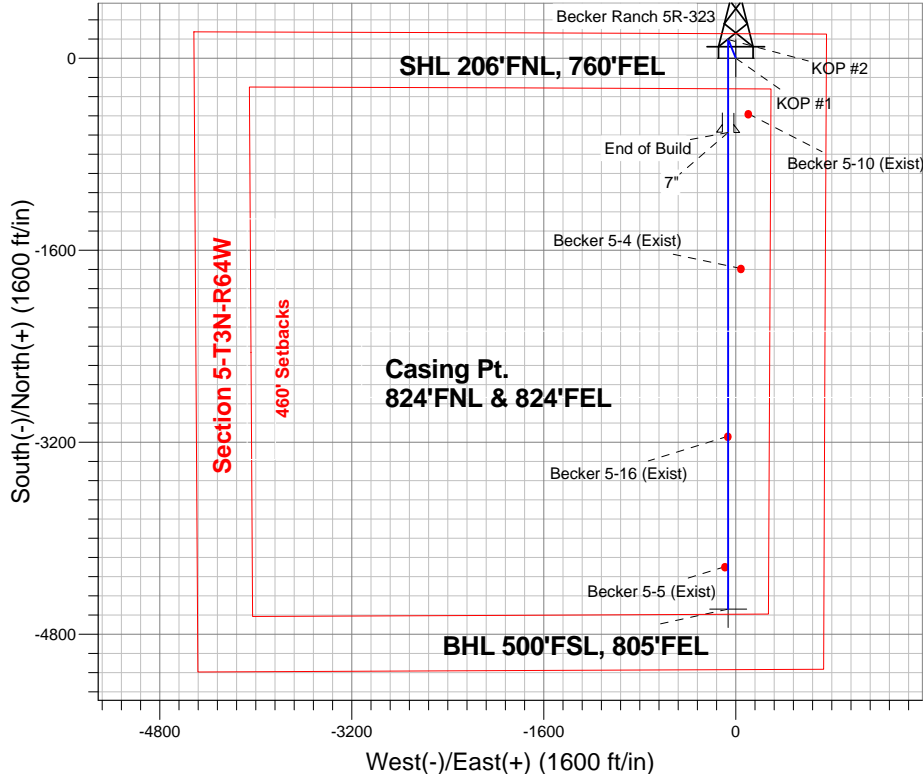
Magnetic Field
Strength: 52819.4snT
Dip Angle: 66.89°
Date: 12/3/2013
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
3000.0	3000.0	KOP #1
6134.1	6140.1	KOP #2
6898.0	7350.1	End of Build

Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W
Becker Ranch 5R-323
Plan #1 (12-03-13)
13:21, December 11 2013

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



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3210.7	4.21	337.63	3210.5	7.2	-2.9	2.00	337.63	-7.1	
4	5295.3	4.21	337.63	5289.5	148.8	-61.3	0.00	0.00	-148.0	
5	5506.0	0.00	0.00	5500.0	156.0	-64.2	2.00	180.00	-155.1	
6	6140.1	0.00	0.00	6134.1	156.0	-64.2	0.00	0.00	-155.1	
7	7350.1	90.75	180.00	6898.0	-617.9	-64.2	7.50	180.00	618.8	
8	11322.7	90.75	180.00	6846.0	-4590.2	-64.2	0.00	0.00	4590.7	BHL 500'FSL, 805'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.5-T3N-R64W

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

Becker Ranch 5R-323

Wellbore #1

Plan: Plan #1 (12-03-13)

Standard Planning Report

11 December, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-03-13)		

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 5RU-HZ Pad Sec.5-T3N-R64W		
Site Position:		Northing:	1,339,355.73 ft
From:	Lat/Long	Easting:	3,260,045.36 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.261180
		Longitude:	-104.568190
		Grid Convergence:	0.60 °

Well	Becker Ranch 5R-323		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	27.9 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			ft
			Latitude:
			40.261180
			Longitude:
			-104.568090
			Ground Level:
			4,784.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/3/2013	8.41	66.89	52,819

Design	Plan #1 (12-03-13)			
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	180.80

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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,210.7	4.21	337.63	3,210.5	7.2	-2.9	2.00	2.00	0.00	337.63	
5,295.3	4.21	337.63	5,289.5	148.8	-61.3	0.00	0.00	0.00	0.00	
5,506.0	0.00	0.00	5,500.0	156.0	-64.2	2.00	-2.00	0.00	180.00	
6,140.1	0.00	0.00	6,134.1	156.0	-64.2	0.00	0.00	0.00	0.00	
7,350.1	90.75	180.00	6,898.0	-617.9	-64.2	7.50	7.50	0.00	180.00	
11,322.7	90.75	180.00	6,846.0	-4,590.2	-64.2	0.00	0.00	0.00	0.00	BHL 500'FSL, 805'F

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Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-03-13)		

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 206'FNL, 760'FEL									
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
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
3,100.0	2.00	337.63	3,100.0	1.6	-0.7	-1.6	2.00	2.00	0.00
3,200.0	4.00	337.63	3,199.8	6.5	-2.7	-6.4	2.00	2.00	0.00
3,210.7	4.21	337.63	3,210.5	7.2	-2.9	-7.1	2.00	2.00	0.00
3,300.0	4.21	337.63	3,299.6	13.2	-5.4	-13.2	0.00	0.00	0.00
3,400.0	4.21	337.63	3,399.3	20.0	-8.2	-19.9	0.00	0.00	0.00
3,500.0	4.21	337.63	3,499.0	26.8	-11.0	-26.7	0.00	0.00	0.00
3,600.0	4.21	337.63	3,598.8	33.6	-13.8	-33.4	0.00	0.00	0.00
3,700.0	4.21	337.63	3,698.5	40.4	-16.6	-40.2	0.00	0.00	0.00
3,701.5	4.21	337.63	3,700.0	40.5	-16.7	-40.3	0.00	0.00	0.00
PARKMAN									
3,800.0	4.21	337.63	3,798.2	47.2	-19.4	-46.9	0.00	0.00	0.00
3,900.0	4.21	337.63	3,897.9	54.0	-22.2	-53.7	0.00	0.00	0.00
4,000.0	4.21	337.63	3,997.7	60.8	-25.0	-60.4	0.00	0.00	0.00
4,100.0	4.21	337.63	4,097.4	67.6	-27.8	-67.2	0.00	0.00	0.00
4,200.0	4.21	337.63	4,197.1	74.4	-30.6	-74.0	0.00	0.00	0.00
4,300.0	4.21	337.63	4,296.9	81.2	-33.4	-80.7	0.00	0.00	0.00
4,400.0	4.21	337.63	4,396.6	88.0	-36.2	-87.5	0.00	0.00	0.00
4,403.4	4.21	337.63	4,400.0	88.2	-36.3	-87.7	0.00	0.00	0.00
SUSSEX									

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Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-03-13)		

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	4.21	337.63	4,496.3	94.8	-39.0	-94.2	0.00	0.00	0.00
4,600.0	4.21	337.63	4,596.1	101.6	-41.8	-101.0	0.00	0.00	0.00
4,700.0	4.21	337.63	4,695.8	108.4	-44.6	-107.7	0.00	0.00	0.00
4,800.0	4.21	337.63	4,795.5	115.2	-47.4	-114.5	0.00	0.00	0.00
4,900.0	4.21	337.63	4,895.2	122.0	-50.2	-121.3	0.00	0.00	0.00
5,000.0	4.21	337.63	4,995.0	128.8	-53.0	-128.0	0.00	0.00	0.00
5,100.0	4.21	337.63	5,094.7	135.6	-55.8	-134.8	0.00	0.00	0.00
5,105.3	4.21	337.63	5,100.0	135.9	-55.9	-135.1	0.00	0.00	0.00
SHANNON									
5,200.0	4.21	337.63	5,194.4	142.4	-58.6	-141.5	0.00	0.00	0.00
5,295.3	4.21	337.63	5,289.5	148.8	-61.3	-148.0	0.00	0.00	0.00
5,300.0	4.12	337.63	5,294.2	149.2	-61.4	-148.3	2.00	-2.00	0.00
5,400.0	2.12	337.63	5,394.0	154.2	-63.5	-153.3	2.00	-2.00	0.00
5,500.0	0.12	337.63	5,494.0	156.0	-64.2	-155.1	2.00	-2.00	0.00
5,506.0	0.00	0.00	5,500.0	156.0	-64.2	-155.1	2.00	-2.00	0.00
5,600.0	0.00	0.00	5,594.0	156.0	-64.2	-155.1	0.00	0.00	0.00
5,700.0	0.00	0.00	5,694.0	156.0	-64.2	-155.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,794.0	156.0	-64.2	-155.1	0.00	0.00	0.00
5,900.0	0.00	0.00	5,894.0	156.0	-64.2	-155.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,994.0	156.0	-64.2	-155.1	0.00	0.00	0.00
6,100.0	0.00	0.00	6,094.0	156.0	-64.2	-155.1	0.00	0.00	0.00
6,140.1	0.00	0.00	6,134.1	156.0	-64.2	-155.1	0.00	0.00	0.00
KOP #2									
6,200.0	4.49	180.00	6,193.9	153.7	-64.2	-152.7	7.50	7.50	0.00
6,300.0	11.99	180.00	6,292.8	139.3	-64.2	-138.4	7.50	7.50	0.00
6,400.0	19.49	180.00	6,389.0	112.2	-64.2	-111.3	7.50	7.50	0.00
6,500.0	26.99	180.00	6,480.8	72.8	-64.2	-71.9	7.50	7.50	0.00
6,575.1	32.63	180.00	6,546.0	35.5	-64.2	-34.6	7.50	7.50	0.00
SHARON SPRINGS									
6,600.0	34.49	180.00	6,566.7	21.7	-64.2	-20.8	7.50	7.50	0.00
6,700.0	41.99	180.00	6,645.2	-40.1	-64.2	41.0	7.50	7.50	0.00
6,800.0	49.49	180.00	6,714.9	-111.7	-64.2	112.6	7.50	7.50	0.00
6,900.0	56.99	180.00	6,774.7	-191.8	-64.2	192.6	7.50	7.50	0.00
7,000.0	64.49	180.00	6,823.6	-278.9	-64.2	279.8	7.50	7.50	0.00
7,100.0	71.99	180.00	6,860.6	-371.7	-64.2	372.6	7.50	7.50	0.00
7,200.0	79.49	180.00	6,885.2	-468.6	-64.2	469.4	7.50	7.50	0.00
7,300.0	86.99	180.00	6,897.0	-567.8	-64.2	568.7	7.50	7.50	0.00
7,350.1	90.75	180.00	6,898.0	-617.9	-64.2	618.7	7.50	7.50	0.00
End of Build - 7"									
7,400.0	90.75	180.00	6,897.3	-667.8	-64.2	668.6	0.01	0.01	0.00
7,500.0	90.75	180.00	6,896.0	-767.8	-64.2	768.6	0.00	0.00	0.00
7,600.0	90.75	180.00	6,894.7	-867.8	-64.2	868.6	0.00	0.00	0.00
7,700.0	90.75	180.00	6,893.4	-967.8	-64.2	968.6	0.00	0.00	0.00
7,800.0	90.75	180.00	6,892.1	-1,067.8	-64.2	1,068.6	0.00	0.00	0.00
7,900.0	90.75	180.00	6,890.8	-1,167.8	-64.2	1,168.5	0.00	0.00	0.00
8,000.0	90.75	180.00	6,889.5	-1,267.7	-64.2	1,268.5	0.00	0.00	0.00
8,100.0	90.75	180.00	6,888.2	-1,367.7	-64.2	1,368.5	0.00	0.00	0.00
8,200.0	90.75	180.00	6,886.9	-1,467.7	-64.2	1,468.5	0.00	0.00	0.00
8,300.0	90.75	180.00	6,885.6	-1,567.7	-64.2	1,568.5	0.00	0.00	0.00
8,400.0	90.75	180.00	6,884.3	-1,667.7	-64.2	1,668.5	0.00	0.00	0.00
8,500.0	90.75	180.00	6,882.9	-1,767.7	-64.2	1,768.4	0.00	0.00	0.00
8,600.0	90.75	180.00	6,881.6	-1,867.7	-64.2	1,868.4	0.00	0.00	0.00

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Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-03-13)		

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)
8,700.0	90.75	180.00	6,880.3	-1,967.7	-64.2	1,968.4	0.00	0.00	0.00
8,800.0	90.75	180.00	6,879.0	-2,067.7	-64.2	2,068.4	0.00	0.00	0.00
8,900.0	90.75	180.00	6,877.7	-2,167.7	-64.2	2,168.4	0.00	0.00	0.00
9,000.0	90.75	180.00	6,876.4	-2,267.7	-64.2	2,268.3	0.00	0.00	0.00
9,100.0	90.75	180.00	6,875.1	-2,367.7	-64.2	2,368.3	0.00	0.00	0.00
9,200.0	90.75	180.00	6,873.8	-2,467.6	-64.2	2,468.3	0.00	0.00	0.00
9,300.0	90.75	180.00	6,872.5	-2,567.6	-64.2	2,568.3	0.00	0.00	0.00
9,400.0	90.75	180.00	6,871.2	-2,667.6	-64.2	2,668.3	0.00	0.00	0.00
9,500.0	90.75	180.00	6,869.9	-2,767.6	-64.2	2,768.2	0.00	0.00	0.00
9,600.0	90.75	180.00	6,868.5	-2,867.6	-64.2	2,868.2	0.00	0.00	0.00
9,700.0	90.75	180.00	6,867.2	-2,967.6	-64.2	2,968.2	0.00	0.00	0.00
9,800.0	90.75	180.00	6,865.9	-3,067.6	-64.2	3,068.2	0.00	0.00	0.00
9,900.0	90.75	180.00	6,864.6	-3,167.6	-64.2	3,168.2	0.00	0.00	0.00
10,000.0	90.75	180.00	6,863.3	-3,267.6	-64.2	3,268.2	0.00	0.00	0.00
10,100.0	90.75	180.00	6,862.0	-3,367.6	-64.2	3,368.1	0.00	0.00	0.00
10,200.0	90.75	180.00	6,860.7	-3,467.6	-64.2	3,468.1	0.00	0.00	0.00
10,300.0	90.75	180.00	6,859.4	-3,567.6	-64.2	3,568.1	0.00	0.00	0.00
10,400.0	90.75	180.00	6,858.1	-3,667.5	-64.2	3,668.1	0.00	0.00	0.00
10,500.0	90.75	180.00	6,856.8	-3,767.5	-64.2	3,768.1	0.00	0.00	0.00
10,600.0	90.75	180.00	6,855.5	-3,867.5	-64.2	3,868.0	0.00	0.00	0.00
10,700.0	90.75	180.00	6,854.2	-3,967.5	-64.2	3,968.0	0.00	0.00	0.00
10,800.0	90.75	180.00	6,852.8	-4,067.5	-64.2	4,068.0	0.00	0.00	0.00
10,900.0	90.75	180.00	6,851.5	-4,167.5	-64.2	4,168.0	0.00	0.00	0.00
11,000.0	90.75	180.00	6,850.2	-4,267.5	-64.2	4,268.0	0.00	0.00	0.00
11,100.0	90.75	180.00	6,848.9	-4,367.5	-64.2	4,368.0	0.00	0.00	0.00
11,200.0	90.75	180.00	6,847.6	-4,467.5	-64.2	4,467.9	0.00	0.00	0.00
11,300.0	90.75	180.00	6,846.3	-4,567.5	-64.2	4,567.9	0.00	0.00	0.00
11,322.7	90.75	180.00	6,846.0	-4,590.2	-64.2	4,590.7	0.00	0.00	0.00
BHL 500°FSL, 805°FEL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,350.1	6,898.0	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,701.5	3,700.0	PARKMAN			
4,403.4	4,400.0	SUSSEX			
5,105.3	5,100.0	SHANNON			
6,575.1	6,546.0	SHARON SPRINGS			

Database:	Landmark	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5R-323	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (12-03-13)		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,000.0	3,000.0	0.0	0.0	KOP #1
6,140.1	6,134.1	156.0	-64.2	KOP #2
7,350.1	6,898.0	-617.9	-64.2	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.5-T3N-R64W

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

Becker Ranch 5R-323

Wellbore #1

Plan #1 (12-03-13)

Anticollision Report

11 December, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (12-03-13)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date	12/5/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,322.7	Plan #1 (12-03-13) (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 5RU-HZ Pad Sec.5-T3N-R64W						
Becker Ranch 5R-403 - Wellbore #1 - Plan #1 (12-03-13)	1,000.0	999.0	27.9	23.6	6.539	CC, ES
Becker Ranch 5R-403 - Wellbore #1 - Plan #1 (12-03-13)	11,322.7	11,405.5	360.5	193.9	2.164	SF
Becker Ranch 5U-203 - Wellbore #1 - Plan #1 (12-03-13)	1,000.0	999.0	61.4	57.1	14.385	CC, ES
Becker Ranch 5U-203 - Wellbore #1 - Plan #1 (12-03-13)	11,322.7	11,269.9	664.4	486.1	3.726	SF
Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-13)	1,500.0	1,500.0	30.7	24.2	4.710	CC, ES
Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-13)	11,322.7	11,398.8	357.5	190.4	2.139	SF
Existing Wells Sec.5-T3N-R64W						
Becker 5-10 (Exist) - Wellbore #1 - Wellbore #1	7,193.9	6,862.1	167.5	12.8	1.082	Level 2, CC, ES, SF
Becker 5-16 (Exist) - Wellbore #1 - Wellbore #1	9,880.3	6,806.9	4.4	-194.3	0.022	Level 1, CC, ES, SF
Becker 5-4 (Exist) - Wellbore #1 - Wellbore #1	8,484.6	6,856.2	106.1	-68.1	0.609	Level 1, CC, ES, SF
Becker 5-5 (Exist) - Wellbore #1 - Wellbore #1	10,969.3	6,777.6	27.9	-190.6	0.128	Level 1, CC, ES, SF

Offset Design		Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-403 - Wellbore #1 - Plan #1 (12-03-1										Offset Site Error:		0.0 ft		
Survey Program: 0-MWDD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-89.98	0.0	-27.9	27.9							
100.0	100.0	99.0	99.0	0.1	0.1	-89.98	0.0	-27.9	27.9	27.7	0.22	124.793				
200.0	200.0	199.0	199.0	0.3	0.3	-89.98	0.0	-27.9	27.9	27.2	0.67	41.529				
300.0	300.0	299.0	299.0	0.6	0.6	-89.98	0.0	-27.9	27.9	26.8	1.12	24.884				
400.0	400.0	399.0	399.0	0.8	0.8	-89.98	0.0	-27.9	27.9	26.3	1.57	17.764				
500.0	500.0	499.0	499.0	1.0	1.0	-89.98	0.0	-27.9	27.9	25.9	2.02	13.812				
600.0	600.0	599.0	599.0	1.2	1.2	-89.98	0.0	-27.9	27.9	25.4	2.47	11.299				
700.0	700.0	699.0	699.0	1.5	1.5	-89.98	0.0	-27.9	27.9	25.0	2.92	9.559				
800.0	800.0	799.0	799.0	1.7	1.7	-89.98	0.0	-27.9	27.9	24.5	3.37	8.284				
900.0	900.0	899.0	899.0	1.9	1.9	-89.98	0.0	-27.9	27.9	24.1	3.82	7.308				
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-89.98	0.0	-27.9	27.9	23.6	4.27	6.539	CC, ES			
1,100.0	1,100.0	1,098.1	1,098.1	2.4	2.3	-88.71	0.7	-29.5	29.5	24.8	4.71	6.261				
1,200.0	1,200.0	1,196.9	1,196.8	2.6	2.6	-85.57	2.6	-34.1	34.3	29.2	5.14	6.671				
1,300.0	1,300.0	1,295.7	1,295.1	2.8	2.8	-81.96	5.9	-41.8	42.4	36.8	5.59	7.597				
1,400.0	1,400.0	1,395.2	1,394.2	3.0	3.0	-79.27	9.6	-50.5	51.6	45.6	6.03	8.562				

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 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-403 - Wellbore #1 - Plan #1 (12-03-1)													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	1,494.8	1,493.4	3.3	3.3	-77.40		13.2	-59.1	60.8	54.4	6.47	9.403	
1,600.0	1,600.0	1,594.3	1,592.5	3.5	3.5	-76.01		16.9	-67.7	70.1	63.2	6.92	10.138	
1,700.0	1,700.0	1,693.9	1,691.6	3.7	3.8	-74.96		20.5	-76.4	79.4	72.1	7.37	10.784	
1,800.0	1,800.0	1,793.4	1,790.7	3.9	4.0	-74.12		24.2	-85.0	88.8	81.0	7.82	11.355	
1,900.0	1,900.0	1,893.0	1,889.8	4.2	4.3	-73.44		27.8	-93.6	98.1	89.9	8.27	11.864	
2,000.0	2,000.0	1,992.5	1,988.9	4.4	4.6	-72.88		31.5	-102.3	107.5	98.8	8.73	12.319	
2,100.0	2,100.0	2,092.1	2,088.0	4.6	4.8	-72.42		35.2	-110.9	116.9	107.7	9.18	12.727	
2,200.0	2,200.0	2,191.6	2,187.2	4.8	5.1	-72.02		38.8	-119.6	126.3	116.6	9.64	13.097	
2,300.0	2,300.0	2,291.2	2,286.3	5.1	5.4	-71.67		42.5	-128.2	135.6	125.5	10.10	13.432	
2,400.0	2,400.0	2,390.8	2,385.4	5.3	5.6	-71.37		46.1	-136.8	145.0	134.5	10.56	13.737	
2,500.0	2,500.0	2,490.3	2,484.5	5.5	5.9	-71.11		49.8	-145.5	154.4	143.4	11.02	14.016	
2,600.0	2,600.0	2,589.9	2,583.6	5.7	6.2	-70.88		53.4	-154.1	163.8	152.3	11.48	14.272	
2,700.0	2,700.0	2,689.4	2,682.7	6.0	6.5	-70.67		57.1	-162.7	173.2	161.3	11.94	14.508	
2,800.0	2,800.0	2,789.0	2,781.8	6.2	6.7	-70.48		60.7	-171.4	182.6	170.2	12.40	14.726	
2,900.0	2,900.0	2,888.5	2,880.9	6.4	7.0	-70.31		64.4	-180.0	192.0	179.2	12.86	14.928	
3,000.0	3,000.0	2,988.1	2,980.1	6.6	7.3	-70.16		68.1	-188.6	201.4	188.1	13.32	15.116	
3,100.0	3,100.0	3,087.7	3,079.3	6.9	7.6	-47.88		71.7	-197.3	209.7	196.0	13.67	15.341	
3,200.0	3,199.8	3,187.5	3,178.6	7.1	7.8	-48.69		75.4	-205.9	215.6	201.5	14.12	15.274	
3,300.0	3,299.6	3,287.3	3,277.9	7.3	8.1	-49.94		79.0	-214.6	220.2	205.6	14.57	15.117	
3,400.0	3,399.3	3,387.1	3,377.3	7.5	8.4	-51.14		82.7	-223.2	224.9	209.9	15.02	14.973	
3,500.0	3,499.0	3,486.8	3,476.6	7.8	8.7	-52.30		86.4	-231.9	229.7	214.3	15.48	14.841	
3,600.0	3,598.8	3,586.6	3,575.9	8.0	9.0	-53.41		90.0	-240.5	234.6	218.7	15.94	14.719	
3,700.0	3,698.5	3,686.4	3,675.3	8.2	9.2	-54.48		93.7	-249.2	239.6	223.2	16.40	14.607	
3,800.0	3,798.2	3,786.2	3,774.6	8.4	9.5	-55.50		97.4	-257.8	244.7	227.8	16.87	14.504	
3,900.0	3,897.9	3,886.0	3,873.9	8.7	9.8	-56.48		101.0	-266.5	249.8	232.5	17.34	14.408	
4,000.0	3,997.7	3,985.7	3,973.3	8.9	10.1	-57.42		104.7	-275.2	255.0	237.2	17.81	14.319	
4,100.0	4,097.4	4,085.5	4,072.6	9.2	10.4	-58.33		108.3	-283.8	260.3	242.0	18.28	14.237	
4,200.0	4,197.1	4,185.3	4,171.9	9.4	10.6	-59.19		112.0	-292.5	265.6	246.9	18.76	14.160	
4,300.0	4,296.9	4,285.1	4,271.3	9.6	10.9	-60.02		115.7	-301.1	271.0	251.8	19.24	14.088	
4,400.0	4,396.6	4,384.9	4,370.6	9.9	11.2	-60.82		119.3	-309.8	276.5	256.8	19.72	14.022	
4,500.0	4,496.3	4,484.6	4,469.9	10.1	11.5	-61.59		123.0	-318.4	282.0	261.8	20.20	13.959	
4,600.0	4,596.1	4,584.4	4,569.3	10.4	11.8	-62.33		126.7	-327.1	287.5	266.8	20.68	13.901	
4,700.0	4,695.8	4,684.2	4,668.6	10.6	12.1	-63.04		130.3	-335.7	293.1	272.0	21.17	13.846	
4,800.0	4,795.5	4,784.0	4,767.9	10.8	12.3	-63.73		134.0	-344.4	298.8	277.1	21.66	13.795	
4,900.0	4,895.2	4,883.7	4,867.3	11.1	12.6	-64.39		137.7	-353.0	304.4	282.3	22.15	13.746	
5,000.0	4,995.0	4,983.5	4,966.6	11.3	12.9	-65.02		141.3	-361.7	310.2	287.5	22.64	13.701	
5,100.0	5,094.7	5,083.3	5,066.0	11.6	13.2	-65.63		145.0	-370.3	315.9	292.8	23.13	13.658	
5,200.0	5,194.4	5,183.1	5,165.3	11.8	13.5	-66.22		148.6	-379.0	321.7	298.1	23.62	13.618	
5,300.0	5,294.2	5,286.9	5,268.7	12.1	13.8	-66.84		152.4	-387.8	327.3	303.2	24.12	13.571	
5,400.0	5,394.0	5,398.7	5,380.3	12.3	14.0	-67.42		155.0	-394.1	330.9	306.3	24.52	13.492	
5,500.0	5,494.0	5,510.6	5,492.1	12.4	14.2	-67.63		156.0	-396.4	332.2	307.3	24.89	13.345	
5,600.0	5,594.0	5,611.5	5,593.0	12.6	14.3	-90.00		156.0	-396.4	332.2	306.9	25.27	13.143	
5,700.0	5,694.0	5,711.5	5,693.0	12.8	14.5	-90.00		156.0	-396.4	332.2	306.5	25.70	12.927	
5,800.0	5,794.0	5,811.5	5,793.0	13.1	14.7	-90.00		156.0	-396.4	332.2	306.1	26.12	12.718	
5,900.0	5,894.0	5,911.5	5,893.0	13.3	14.9	-90.00		156.0	-396.4	332.2	305.6	26.54	12.515	
6,000.0	5,994.0	6,011.5	5,993.0	13.5	15.1	-90.00		156.0	-396.4	332.2	305.2	26.97	12.318	
6,100.0	6,094.0	6,111.5	6,093.0	13.7	15.3	-90.00		156.0	-396.4	332.2	304.8	27.39	12.127	
6,146.8	6,140.8	6,158.3	6,139.8	13.8	15.4	90.15		156.0	-396.4	332.2	304.6	27.57	12.048	
6,200.0	6,193.9	6,211.4	6,192.9	13.9	15.5	90.40		156.0	-396.4	332.2	304.4	27.77	11.961	
6,300.0	6,292.8	6,311.8	6,293.2	14.0	15.6	91.99		150.8	-396.4	332.4	304.4	28.02	11.861	
6,400.0	6,389.0	6,413.6	6,393.1	14.1	15.7	93.56		132.3	-396.4	332.8	304.6	28.20	11.802	

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 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design												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
6,500.0	6,480.8	6,516.6	6,490.9	14.2	15.8	95.08	100.3	-396.4	333.5	305.1	28.36	11.761	
6,600.0	6,566.7	6,620.9	6,584.6	14.3	15.9	96.51	54.7	-396.4	334.3	305.8	28.55	11.711	
6,700.0	6,645.2	6,726.4	6,672.2	14.5	16.0	97.83	-3.9	-396.4	335.3	306.5	28.86	11.619	
6,800.0	6,714.9	6,833.0	6,751.7	14.7	16.2	99.00	-74.9	-396.4	336.3	307.0	29.35	11.460	
6,900.0	6,774.7	6,940.7	6,821.2	15.2	16.4	100.02	-157.1	-396.4	337.3	307.2	30.11	11.204	
7,000.0	6,823.6	7,049.3	6,878.8	15.8	16.8	100.85	-249.0	-396.4	338.2	307.0	31.19	10.845	
7,100.0	6,860.6	7,158.6	6,923.1	16.6	17.5	101.48	-348.8	-396.4	339.0	306.3	32.63	10.389	
7,200.0	6,885.2	7,268.5	6,952.9	17.5	18.4	101.90	-454.5	-396.4	339.5	305.1	34.42	9.863	
7,300.0	6,897.0	7,375.3	6,967.6	18.6	19.5	102.21	-560.3	-396.4	339.9	303.4	36.48	9.317	
7,400.0	6,897.3	7,479.2	6,976.8	19.9	20.7	103.60	-663.7	-396.4	341.8	303.2	38.63	8.848	
7,500.0	6,896.0	7,583.1	6,978.3	21.2	22.1	104.07	-767.6	-396.4	342.5	301.3	41.15	8.321	
7,600.0	6,894.7	7,683.1	6,978.5	22.6	23.4	104.31	-867.6	-396.4	342.8	299.0	43.83	7.821	
7,700.0	6,893.4	7,783.1	6,978.7	24.1	24.9	104.55	-967.6	-396.4	343.2	296.5	46.64	7.358	
7,800.0	6,892.1	7,883.1	6,978.8	25.6	26.3	104.79	-1,067.6	-396.4	343.6	294.0	49.57	6.931	
7,900.0	6,890.8	7,983.1	6,979.0	27.2	27.9	105.03	-1,167.6	-396.4	344.0	291.4	52.58	6.542	
8,000.0	6,889.5	8,083.1	6,979.2	28.8	29.5	105.27	-1,267.6	-396.4	344.3	288.7	55.67	6.186	
8,100.0	6,888.2	8,183.1	6,979.4	30.5	31.1	105.51	-1,367.6	-396.4	344.7	285.9	58.81	5.861	
8,200.0	6,886.9	8,283.1	6,979.5	32.2	32.8	105.75	-1,467.6	-396.4	345.1	283.1	62.01	5.566	
8,300.0	6,885.6	8,383.1	6,979.7	33.9	34.4	105.98	-1,567.6	-396.4	345.5	280.3	65.25	5.295	
8,400.0	6,884.3	8,483.0	6,979.9	35.6	36.2	106.22	-1,667.5	-396.4	345.9	277.4	68.53	5.048	
8,500.0	6,882.9	8,583.0	6,980.1	37.4	37.9	106.45	-1,767.5	-396.4	346.4	274.5	71.83	4.822	
8,600.0	6,881.6	8,683.0	6,980.2	39.1	39.6	106.69	-1,867.5	-396.4	346.8	271.6	75.15	4.614	
8,700.0	6,880.3	8,783.0	6,980.4	40.9	41.4	106.92	-1,967.5	-396.4	347.2	268.7	78.50	4.423	
8,800.0	6,879.0	8,883.0	6,980.6	42.7	43.2	107.16	-2,067.5	-396.4	347.7	265.8	81.86	4.247	
8,900.0	6,877.7	8,983.0	6,980.8	44.5	44.9	107.39	-2,167.5	-396.4	348.1	262.9	85.23	4.084	
9,000.0	6,876.4	9,083.0	6,980.9	46.3	46.7	107.62	-2,267.5	-396.4	348.5	259.9	88.61	3.933	
9,100.0	6,875.1	9,183.0	6,981.1	48.1	48.5	107.86	-2,367.5	-396.4	349.0	257.0	92.00	3.793	
9,200.0	6,873.8	9,283.0	6,981.3	50.0	50.4	108.09	-2,467.5	-396.4	349.4	254.1	95.39	3.663	
9,300.0	6,872.5	9,382.9	6,981.5	51.8	52.2	108.32	-2,567.4	-396.4	349.9	251.1	98.79	3.542	
9,400.0	6,871.2	9,482.9	6,981.6	53.6	54.0	108.55	-2,667.4	-396.4	350.4	248.2	102.19	3.429	
9,500.0	6,869.9	9,582.9	6,981.8	55.5	55.8	108.78	-2,767.4	-396.4	350.9	245.3	105.60	3.323	
9,600.0	6,868.5	9,682.9	6,982.0	57.3	57.7	109.01	-2,867.4	-396.4	351.3	242.3	109.00	3.223	
9,700.0	6,867.2	9,782.9	6,982.2	59.2	59.5	109.24	-2,967.4	-396.4	351.8	239.4	112.40	3.130	
9,800.0	6,865.9	9,882.9	6,982.3	61.1	61.4	109.46	-3,067.4	-396.4	352.3	236.5	115.80	3.042	
9,900.0	6,864.6	9,982.9	6,982.5	62.9	63.2	109.69	-3,167.4	-396.4	352.8	233.6	119.20	2.960	
10,000.0	6,863.3	10,082.9	6,982.7	64.8	65.1	109.92	-3,267.4	-396.4	353.3	230.7	122.60	2.882	
10,100.0	6,862.0	10,182.9	6,982.9	66.7	66.9	110.14	-3,367.4	-396.4	353.8	227.8	125.99	2.808	
10,200.0	6,860.7	10,282.8	6,983.0	68.5	68.8	110.37	-3,467.3	-396.4	354.3	225.0	129.37	2.739	
10,300.0	6,859.4	10,382.8	6,983.2	70.4	70.7	110.59	-3,567.3	-396.4	354.9	222.1	132.76	2.673	
10,400.0	6,858.1	10,482.8	6,983.4	72.3	72.5	110.82	-3,667.3	-396.4	355.4	219.2	136.13	2.611	
10,500.0	6,856.8	10,582.8	6,983.6	74.2	74.4	111.04	-3,767.3	-396.4	355.9	216.4	139.50	2.551	
10,600.0	6,855.5	10,682.8	6,983.7	76.0	76.3	111.26	-3,867.3	-396.4	356.4	213.6	142.87	2.495	
10,700.0	6,854.2	10,782.8	6,983.9	77.9	78.2	111.48	-3,967.3	-396.4	357.0	210.8	146.23	2.441	
10,800.0	6,852.8	10,882.8	6,984.1	79.8	80.0	111.71	-4,067.3	-396.4	357.5	208.0	149.58	2.390	
10,900.0	6,851.5	10,982.8	6,984.3	81.7	81.9	111.93	-4,167.3	-396.4	358.1	205.2	152.92	2.342	
11,000.0	6,850.2	11,082.8	6,984.4	83.6	83.8	112.15	-4,267.3	-396.4	358.6	202.4	156.26	2.295	
11,100.0	6,848.9	11,182.7	6,984.6	85.5	85.7	112.36	-4,367.2	-396.4	359.2	199.6	159.59	2.251	
11,200.0	6,847.6	11,282.7	6,984.8	87.4	87.6	112.58	-4,467.2	-396.4	359.8	196.9	162.91	2.208	
11,300.0	6,846.3	11,382.7	6,985.0	89.3	89.2	112.80	-4,567.2	-396.4	360.3	194.4	166.93	2.172	
11,322.7	6,846.0	11,405.5	6,985.0	89.7	89.5	112.85	-4,590.0	-396.4	360.5	193.9	166.60	2.164 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	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)	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	90.01	90.01	0.0	61.4	61.4				
100.0	100.0	99.0	99.0	0.1	0.1	90.01	90.01	0.0	61.4	61.4	61.2	0.22	274.546	
200.0	200.0	199.0	199.0	0.3	0.3	90.01	90.01	0.0	61.4	61.4	60.7	0.67	91.363	
300.0	300.0	299.0	299.0	0.6	0.6	90.01	90.01	0.0	61.4	61.4	60.3	1.12	54.745	
400.0	400.0	399.0	399.0	0.8	0.8	90.01	90.01	0.0	61.4	61.4	59.8	1.57	39.081	
500.0	500.0	499.0	499.0	1.0	1.0	90.01	90.01	0.0	61.4	61.4	59.4	2.02	30.387	
600.0	600.0	599.0	599.0	1.2	1.2	90.01	90.01	0.0	61.4	61.4	58.9	2.47	24.857	
700.0	700.0	699.0	699.0	1.5	1.5	90.01	90.01	0.0	61.4	61.4	58.5	2.92	21.030	
800.0	800.0	799.0	799.0	1.7	1.7	90.01	90.01	0.0	61.4	61.4	58.0	3.37	18.224	
900.0	900.0	899.0	899.0	1.9	1.9	90.01	90.01	0.0	61.4	61.4	57.6	3.82	16.079	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.01	90.01	0.0	61.4	61.4	57.1	4.27	14.385 CC, ES	
1,100.0	1,100.0	1,097.0	1,096.9	2.4	2.3	89.59	89.59	0.4	63.0	63.0	58.3	4.70	13.396	
1,200.0	1,200.0	1,194.7	1,194.5	2.6	2.6	88.45	88.45	1.8	67.8	67.9	62.8	5.13	13.231	
1,300.0	1,300.0	1,292.0	1,291.5	2.8	2.8	86.87	86.87	4.1	75.7	76.2	70.6	5.57	13.677	
1,400.0	1,400.0	1,388.7	1,387.5	3.0	3.0	85.16	85.16	7.3	86.7	87.7	81.7	6.01	14.599	
1,500.0	1,500.0	1,487.8	1,485.7	3.3	3.3	83.66	83.66	11.0	99.4	100.9	94.4	6.46	15.618	
1,600.0	1,600.0	1,586.9	1,583.9	3.5	3.5	82.51	82.51	14.7	112.1	114.1	107.2	6.91	16.506	
1,700.0	1,700.0	1,686.0	1,682.1	3.7	3.8	81.60	81.60	18.4	124.9	127.3	120.0	7.37	17.280	
1,800.0	1,800.0	1,785.1	1,780.3	3.9	4.1	80.86	80.86	22.1	137.6	140.6	132.8	7.83	17.961	
1,900.0	1,900.0	1,884.2	1,878.6	4.2	4.4	80.25	80.25	25.8	150.3	153.9	145.6	8.29	18.564	
2,000.0	2,000.0	1,983.3	1,976.8	4.4	4.7	79.73	79.73	29.5	163.0	167.2	158.4	8.75	19.101	
2,100.0	2,100.0	2,082.4	2,075.0	4.6	5.0	79.29	79.29	33.2	175.7	180.5	171.3	9.22	19.581	
2,200.0	2,200.0	2,181.5	2,173.2	4.8	5.3	78.91	78.91	36.9	188.5	193.8	184.1	9.68	20.014	
2,300.0	2,300.0	2,280.6	2,271.4	5.1	5.6	78.58	78.58	40.6	201.2	207.1	197.0	10.15	20.405	
2,400.0	2,400.0	2,379.7	2,369.6	5.3	5.9	78.29	78.29	44.3	213.9	220.4	209.8	10.62	20.760	
2,500.0	2,500.0	2,478.8	2,467.8	5.5	6.3	78.03	78.03	48.0	226.6	233.8	222.7	11.09	21.084	
2,600.0	2,600.0	2,577.9	2,566.0	5.7	6.6	77.81	77.81	51.7	239.4	247.1	235.5	11.56	21.381	
2,700.0	2,700.0	2,677.0	2,664.3	6.0	6.9	77.60	77.60	55.4	252.1	260.4	248.4	12.03	21.653	
2,800.0	2,800.0	2,776.1	2,762.5	6.2	7.2	77.41	77.41	59.1	264.8	273.8	261.3	12.50	21.905	
2,900.0	2,900.0	2,875.2	2,860.7	6.4	7.5	77.24	77.24	62.8	277.5	287.1	274.2	12.97	22.137	
3,000.0	3,000.0	2,974.3	2,958.9	6.6	7.9	77.09	77.09	66.5	290.3	300.5	287.0	13.44	22.352	
3,100.0	3,100.0	3,073.4	3,057.1	6.9	8.2	99.37	99.37	70.2	303.0	314.1	300.4	13.70	22.936	
3,200.0	3,199.8	3,172.3	3,155.1	7.1	8.5	99.85	99.85	73.9	315.7	328.3	314.2	14.15	23.209	
3,300.0	3,299.6	3,271.0	3,252.9	7.3	8.8	100.87	100.87	77.6	328.4	343.0	328.4	14.60	23.488	
3,400.0	3,399.3	3,369.7	3,350.7	7.5	9.2	101.84	101.84	81.3	341.0	357.8	342.7	15.06	23.751	
3,500.0	3,499.0	3,468.4	3,448.6	7.8	9.5	102.73	102.73	85.0	353.7	372.7	357.1	15.53	23.999	
3,600.0	3,598.8	3,567.2	3,546.4	8.0	9.8	103.55	103.55	88.7	366.4	387.6	371.6	15.99	24.233	
3,700.0	3,698.5	3,665.9	3,644.3	8.2	10.1	104.31	104.31	92.3	379.1	402.6	386.2	16.46	24.454	
3,800.0	3,798.2	3,764.6	3,742.1	8.4	10.5	105.02	105.02	96.0	391.7	417.7	400.8	16.94	24.663	
3,900.0	3,897.9	3,863.4	3,839.9	8.7	10.8	105.68	105.68	99.7	404.4	432.9	415.4	17.41	24.861	
4,000.0	3,997.7	3,962.1	3,937.8	8.9	11.1	106.29	106.29	103.4	417.1	448.1	430.2	17.89	25.048	
4,100.0	4,097.4	4,060.8	4,035.6	9.2	11.4	106.86	106.86	107.1	429.8	463.3	444.9	18.37	25.225	
4,200.0	4,197.1	4,159.5	4,133.5	9.4	11.8	107.40	107.40	110.8	442.4	478.6	459.7	18.85	25.393	
4,300.0	4,296.9	4,258.3	4,231.3	9.6	12.1	107.90	107.90	114.5	455.1	493.9	474.6	19.33	25.553	
4,400.0	4,396.6	4,357.0	4,329.2	9.9	12.4	108.37	108.37	118.1	467.8	509.3	489.5	19.81	25.705	
4,500.0	4,496.3	4,455.7	4,427.0	10.1	12.8	108.82	108.82	121.8	480.5	524.7	504.4	20.30	25.849	
4,600.0	4,596.1	4,554.5	4,524.8	10.4	13.1	109.24	109.24	125.5	493.2	540.1	519.3	20.78	25.986	
4,700.0	4,695.8	4,653.2	4,622.7	10.6	13.4	109.63	109.63	129.2	505.8	555.5	534.3	21.27	26.117	
4,800.0	4,795.5	4,751.9	4,720.5	10.8	13.7	110.01	110.01	132.9	518.5	571.0	549.2	21.76	26.241	
4,900.0	4,895.2	4,850.6	4,818.4	11.1	14.1	110.37	110.37	136.6	531.2	586.5	564.2	22.25	26.360	
5,000.0	4,895.0	4,849.4	4,816.2	11.3	14.4	110.70	110.70	140.2	543.9	602.0	579.3	22.74	26.474	

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 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-203 - Wellbore #1 - Plan #1 (12-03-1)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,094.7	5,048.1	5,014.1	11.6	14.7	111.02	111.02	143.9	556.5	617.5	594.3	23.23	26.583	
5,200.0	5,194.4	5,146.8	5,111.9	11.8	15.1	111.33	111.33	147.6	569.2	633.1	609.4	23.72	26.687	
5,300.0	5,294.2	5,271.6	5,235.8	12.1	15.4	111.76	111.76	151.6	582.8	646.8	622.5	24.23	26.690	
5,400.0	5,394.0	5,399.0	5,362.9	12.3	15.6	112.28	112.28	154.1	591.4	655.6	630.9	24.69	26.554	
5,500.0	5,494.0	5,527.1	5,491.0	12.4	15.8	112.46	112.46	155.0	594.6	658.8	633.7	25.11	26.239	
5,600.0	5,594.0	5,629.1	5,593.0	12.6	16.0	90.09	90.09	155.0	594.6	658.8	633.3	25.49	25.843	
5,700.0	5,694.0	5,729.1	5,693.0	12.8	16.2	90.09	90.09	155.0	594.6	658.8	632.9	25.91	25.429	
5,800.0	5,794.0	5,829.1	5,793.0	13.1	16.3	90.09	90.09	155.0	594.6	658.8	632.4	26.32	25.027	
5,900.0	5,894.0	5,929.1	5,893.0	13.3	16.5	90.09	90.09	155.0	594.6	658.8	632.0	26.74	24.636	
6,000.0	5,994.0	6,029.1	5,993.0	13.5	16.7	90.09	90.09	155.0	594.6	658.8	631.6	27.16	24.257	
6,052.6	6,046.6	6,081.7	6,045.6	13.6	16.8	90.09	90.09	155.0	594.6	658.8	631.4	27.38	24.061	
6,100.0	6,094.0	6,129.0	6,092.9	13.7	16.8	90.18	90.18	154.0	594.6	658.8	631.2	27.57	23.897	
6,200.0	6,193.9	6,227.8	6,190.9	13.9	16.9	-89.02	-89.02	142.5	594.6	658.9	631.0	27.91	23.609	
6,300.0	6,292.8	6,325.2	6,285.3	14.0	17.0	-88.15	-88.15	118.9	594.6	659.1	631.0	28.15	23.414	
6,400.0	6,389.0	6,421.4	6,374.9	14.1	17.1	-87.31	-87.31	84.0	594.6	659.5	631.2	28.34	23.269	
6,500.0	6,480.8	6,516.5	6,458.5	14.2	17.2	-86.52	-86.52	38.7	594.6	660.0	631.5	28.53	23.132	
6,600.0	6,566.7	6,610.7	6,535.1	14.3	17.3	-85.79	-85.79	-16.0	594.6	660.6	631.8	28.79	22.947	
6,700.0	6,645.2	6,704.0	6,603.7	14.5	17.4	-85.13	-85.13	-79.1	594.6	661.2	632.0	29.17	22.664	
6,800.0	6,714.9	6,796.5	6,663.7	14.7	17.6	-84.56	-84.56	-149.5	594.6	661.8	632.0	29.77	22.227	
6,900.0	6,774.7	6,888.5	6,714.4	15.2	17.9	-84.07	-84.07	-226.1	594.6	662.3	631.7	30.65	21.606	
7,000.0	6,823.6	6,979.9	6,755.4	15.8	18.3	-83.67	-83.67	-307.8	594.6	662.8	631.0	31.86	20.807	
7,100.0	6,860.6	7,070.9	6,786.2	16.6	18.9	-83.38	-83.38	-393.3	594.6	663.2	629.8	33.39	19.861	
7,200.0	6,885.2	7,161.6	6,806.6	17.5	19.7	-83.19	-83.19	-481.7	594.6	663.5	628.2	35.25	18.823	
7,300.0	6,897.0	7,250.0	6,816.3	18.6	20.5	-83.10	-83.10	-569.5	594.6	663.6	626.2	37.36	17.763	
7,400.0	6,897.3	7,347.2	6,816.5	19.9	21.6	-83.09	-83.09	-666.6	594.6	663.6	623.8	39.79	16.679	
7,500.0	6,896.0	7,447.2	6,815.1	21.2	22.8	-83.08	-83.08	-766.6	594.6	663.6	621.2	42.40	15.650	
7,600.0	6,894.7	7,547.2	6,813.6	22.6	24.1	-83.06	-83.06	-866.6	594.6	663.6	618.4	45.19	14.685	
7,700.0	6,893.4	7,647.2	6,812.1	24.1	25.5	-83.05	-83.05	-966.6	594.6	663.6	615.5	48.12	13.791	
7,800.0	6,892.1	7,747.2	6,810.7	25.6	27.0	-83.04	-83.04	-1,066.6	594.6	663.7	612.5	51.17	12.971	
7,900.0	6,890.8	7,847.2	6,809.2	27.2	28.5	-83.02	-83.02	-1,166.6	594.6	663.7	609.4	54.31	12.220	
8,000.0	6,889.5	7,947.2	6,807.7	28.8	30.0	-83.01	-83.01	-1,266.6	594.6	663.7	606.2	57.53	11.536	
8,100.0	6,888.2	8,047.2	6,806.3	30.5	31.6	-83.00	-83.00	-1,366.6	594.6	663.7	602.9	60.83	10.912	
8,200.0	6,886.9	8,147.2	6,804.8	32.2	33.3	-82.98	-82.98	-1,466.5	594.6	663.7	599.6	64.18	10.343	
8,300.0	6,885.6	8,247.2	6,803.3	33.9	34.9	-82.97	-82.97	-1,566.5	594.6	663.8	596.2	67.57	9.823	
8,400.0	6,884.3	8,347.2	6,801.9	35.6	36.6	-82.96	-82.96	-1,666.5	594.6	663.8	592.8	71.01	9.347	
8,500.0	6,882.9	8,447.2	6,800.4	37.4	38.3	-82.94	-82.94	-1,766.5	594.6	663.8	589.3	74.49	8.911	
8,600.0	6,881.6	8,547.2	6,798.9	39.1	40.0	-82.93	-82.93	-1,866.5	594.6	663.8	585.8	78.00	8.511	
8,700.0	6,880.3	8,647.2	6,797.5	40.9	41.8	-82.92	-82.92	-1,966.5	594.6	663.8	582.3	81.53	8.142	
8,800.0	6,879.0	8,747.2	6,796.0	42.7	43.5	-82.90	-82.90	-2,066.5	594.6	663.9	578.8	85.09	7.802	
8,900.0	6,877.7	8,847.2	6,794.5	44.5	45.3	-82.89	-82.89	-2,166.5	594.6	663.9	575.2	88.67	7.487	
9,000.0	6,876.4	8,947.2	6,793.1	46.3	47.1	-82.88	-82.88	-2,266.5	594.6	663.9	571.6	92.27	7.195	
9,100.0	6,875.1	9,047.2	6,791.6	48.1	48.9	-82.86	-82.86	-2,366.4	594.6	663.9	568.0	95.88	6.924	
9,200.0	6,873.8	9,147.2	6,790.1	50.0	50.7	-82.85	-82.85	-2,466.4	594.6	663.9	564.4	99.51	6.672	
9,300.0	6,872.5	9,247.2	6,788.7	51.8	52.5	-82.83	-82.83	-2,566.4	594.6	664.0	560.8	103.16	6.436	
9,400.0	6,871.2	9,347.2	6,787.2	53.6	54.3	-82.82	-82.82	-2,666.4	594.6	664.0	557.2	106.81	6.217	
9,500.0	6,869.9	9,447.2	6,785.7	55.5	56.1	-82.81	-82.81	-2,766.4	594.6	664.0	553.5	110.47	6.011	
9,600.0	6,868.5	9,547.2	6,784.3	57.3	58.0	-82.79	-82.79	-2,866.4	594.6	664.0	549.9	114.15	5.817	
9,700.0	6,867.2	9,647.2	6,782.8	59.2	59.8	-82.78	-82.78	-2,966.4	594.6	664.0	546.2	117.83	5.636	
9,800.0	6,865.9	9,747.2	6,781.3	61.1	61.7	-82.77	-82.77	-3,066.4	594.6	664.1	542.5	121.52	5.465	
9,900.0	6,864.6	9,847.2	6,779.9	62.9	63.5	-82.75	-82.75	-3,166.4	594.6	664.1	538.9	125.21	5.304	
10,000.0	6,863.3	9,947.2	6,778.4	64.8	65.3	-82.74	-82.74	-3,266.3	594.6	664.1	535.2	128.92	5.151	

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 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design										Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-203 - Wellbore #1 - Plan #1 (12-03-1				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)				
10,100.0	6,862.0	10,047.2	6,776.9	66.7	67.2	-82.73	-3,366.3	594.6		664.1	531.5	132.62	5.007			
10,200.0	6,860.7	10,147.2	6,775.5	68.5	69.1	-82.71	-3,466.3	594.6		664.1	527.8	136.34	4.871			
10,300.0	6,859.4	10,247.2	6,774.0	70.4	70.9	-82.70	-3,566.3	594.6		664.2	524.1	140.06	4.742			
10,400.0	6,858.1	10,347.2	6,772.5	72.3	72.8	-82.69	-3,666.3	594.6		664.2	520.4	143.78	4.619			
10,500.0	6,856.8	10,447.2	6,771.1	74.2	74.6	-82.67	-3,766.3	594.6		664.2	516.7	147.51	4.503			
10,600.0	6,855.5	10,547.2	6,769.6	76.0	76.5	-82.66	-3,866.3	594.6		664.2	513.0	151.24	4.392			
10,700.0	6,854.2	10,647.2	6,768.1	77.9	78.4	-82.65	-3,966.3	594.6		664.2	509.3	154.97	4.286			
10,800.0	6,852.8	10,747.2	6,766.7	79.8	80.3	-82.63	-4,066.3	594.6		664.3	505.5	158.71	4.185			
10,900.0	6,851.5	10,847.2	6,765.2	81.7	82.1	-82.62	-4,166.3	594.6		664.3	501.8	162.45	4.089			
11,000.0	6,850.2	10,947.2	6,763.7	83.6	84.0	-82.61	-4,266.2	594.6		664.3	498.1	166.20	3.997			
11,100.0	6,848.9	11,047.2	6,762.3	85.5	85.9	-82.59	-4,366.2	594.6		664.3	494.4	169.94	3.909			
11,200.0	6,847.6	11,147.2	6,760.8	87.4	87.8	-82.58	-4,466.2	594.6		664.3	490.6	173.69	3.825			
11,300.0	6,846.3	11,247.2	6,759.4	89.3	89.7	-82.57	-4,566.2	594.6		664.4	486.9	177.45	3.744			
11,322.7	6,846.0	11,269.9	6,759.0	89.7	90.1	-82.56	-4,588.9	594.6		664.4	486.1	178.30	3.726 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	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)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	90.02	90.02	0.0	30.7	30.7				
100.0	100.0	100.0	100.0	0.1	0.1	90.02	90.02	0.0	30.7	30.7	30.5	0.22	136.588	
200.0	200.0	200.0	200.0	0.3	0.3	90.02	90.02	0.0	30.7	30.7	30.0	0.67	45.529	
300.0	300.0	300.0	300.0	0.6	0.6	90.02	90.02	0.0	30.7	30.7	29.6	1.12	27.318	
400.0	400.0	400.0	400.0	0.8	0.8	90.02	90.02	0.0	30.7	30.7	29.1	1.57	19.513	
500.0	500.0	500.0	500.0	1.0	1.0	90.02	90.02	0.0	30.7	30.7	28.7	2.02	15.176	
600.0	600.0	600.0	600.0	1.2	1.2	90.02	90.02	0.0	30.7	30.7	28.2	2.47	12.417	
700.0	700.0	700.0	700.0	1.5	1.5	90.02	90.02	0.0	30.7	30.7	27.8	2.92	10.507	
800.0	800.0	800.0	800.0	1.7	1.7	90.02	90.02	0.0	30.7	30.7	27.3	3.37	9.106	
900.0	900.0	900.0	900.0	1.9	1.9	90.02	90.02	0.0	30.7	30.7	26.9	3.82	8.035	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.02	90.02	0.0	30.7	30.7	26.4	4.27	7.189	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.02	90.02	0.0	30.7	30.7	26.0	4.72	6.504	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.02	90.02	0.0	30.7	30.7	25.5	5.17	5.939	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	90.02	90.02	0.0	30.7	30.7	25.1	5.62	5.464	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	90.02	90.02	0.0	30.7	30.7	24.6	6.07	5.059	
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	90.02	90.02	0.0	30.7	30.7	24.2	6.52	4.710 CC, ES	
1,600.0	1,600.0	1,599.1	1,599.1	3.5	3.5	88.32	88.32	0.9	32.1	32.2	25.2	6.96	4.620	
1,700.0	1,700.0	1,697.9	1,697.8	3.7	3.7	84.07	84.07	3.8	36.4	36.7	29.3	7.40	4.956	
1,800.0	1,800.0	1,797.0	1,796.5	3.9	3.9	79.14	79.14	8.3	43.2	44.1	36.2	7.84	5.625	
1,900.0	1,900.0	1,896.6	1,895.7	4.2	4.1	75.47	75.47	13.0	50.3	52.1	43.9	8.28	6.299	
2,000.0	2,000.0	1,996.2	1,995.0	4.4	4.4	72.79	72.79	17.8	57.5	60.4	51.6	8.72	6.920	
2,100.0	2,100.0	2,095.9	2,094.3	4.6	4.6	70.76	70.76	22.6	64.6	68.7	59.5	9.17	7.491	
2,200.0	2,200.0	2,195.5	2,193.5	4.8	4.9	69.16	69.16	27.3	71.8	77.1	67.5	9.62	8.014	
2,300.0	2,300.0	2,295.1	2,292.8	5.1	5.1	67.88	67.88	32.1	78.9	85.5	75.4	10.07	8.495	
2,400.0	2,400.0	2,394.7	2,392.0	5.3	5.3	66.83	66.83	36.8	86.1	94.0	83.5	10.52	8.936	
2,500.0	2,500.0	2,494.4	2,491.3	5.5	5.6	65.96	65.96	41.6	93.2	102.5	91.5	10.97	9.344	
2,600.0	2,600.0	2,594.0	2,590.5	5.7	5.8	65.21	65.21	46.4	100.4	111.0	99.6	11.42	9.720	
2,700.0	2,700.0	2,693.6	2,689.8	6.0	6.1	64.58	64.58	51.1	107.6	119.5	107.6	11.87	10.068	
2,800.0	2,800.0	2,793.3	2,789.0	6.2	6.4	64.03	64.03	55.9	114.7	128.1	115.7	12.33	10.391	
2,900.0	2,900.0	2,892.9	2,888.3	6.4	6.6	63.54	63.54	60.6	121.9	136.6	123.8	12.78	10.691	
3,000.0	3,000.0	2,992.5	2,987.6	6.6	6.9	63.12	63.12	65.4	129.0	145.2	132.0	13.23	10.971	
3,100.0	3,100.0	3,092.1	3,086.8	6.9	7.1	85.59	85.59	70.2	136.2	153.6	140.0	13.63	11.268	
3,200.0	3,199.8	3,191.7	3,186.0	7.1	7.4	86.91	86.91	74.9	143.3	161.8	147.8	14.08	11.493	
3,300.0	3,299.6	3,291.2	3,285.1	7.3	7.7	88.93	88.93	79.7	150.5	170.1	155.6	14.53	11.705	
3,400.0	3,399.3	3,390.7	3,384.3	7.5	7.9	90.79	90.79	84.4	157.6	178.6	163.6	14.99	11.915	
3,500.0	3,499.0	3,490.2	3,483.4	7.8	8.2	92.48	92.48	89.2	164.8	187.2	171.8	15.44	12.121	
3,600.0	3,598.8	3,589.6	3,582.5	8.0	8.4	94.02	94.02	93.9	171.9	196.0	180.1	15.90	12.322	
3,700.0	3,698.5	3,689.1	3,681.6	8.2	8.7	95.42	95.42	98.7	179.1	204.9	188.5	16.37	12.517	
3,800.0	3,798.2	3,788.6	3,780.7	8.4	9.0	96.71	96.71	103.4	186.2	213.9	197.1	16.83	12.707	
3,900.0	3,897.9	3,888.1	3,879.8	8.7	9.2	97.90	97.90	108.2	193.3	223.0	205.7	17.30	12.889	
4,000.0	3,997.7	3,987.6	3,978.9	8.9	9.5	98.99	98.99	113.0	200.5	232.2	214.5	17.77	13.066	
4,100.0	4,097.4	4,087.1	4,078.0	9.2	9.8	100.00	100.00	117.7	207.6	241.5	223.3	18.25	13.236	
4,200.0	4,197.1	4,186.5	4,177.1	9.4	10.0	100.93	100.93	122.5	214.8	250.9	232.1	18.72	13.400	
4,300.0	4,296.9	4,286.0	4,276.2	9.6	10.3	101.79	101.79	127.2	221.9	260.3	241.1	19.20	13.558	
4,400.0	4,396.6	4,385.5	4,375.4	9.9	10.6	102.60	102.60	132.0	229.1	269.7	250.1	19.68	13.710	
4,500.0	4,496.3	4,485.0	4,474.5	10.1	10.8	103.35	103.35	136.7	236.2	279.3	259.1	20.15	13.856	
4,600.0	4,596.1	4,584.5	4,573.6	10.4	11.1	104.05	104.05	141.5	243.4	288.8	268.2	20.64	13.996	
4,700.0	4,695.8	4,683.9	4,672.7	10.6	11.4	104.71	104.71	146.2	250.5	298.4	277.3	21.12	14.132	
4,800.0	4,795.5	4,785.4	4,773.8	10.8	11.6	105.34	105.34	151.0	257.7	308.0	286.4	21.60	14.259	
4,900.0	4,895.2	4,885.8	4,873.9	11.1	11.9	106.22	106.22	154.7	263.2	315.3	293.3	22.06	14.295	
5,000.0	4,895.0	5,006.3	4,994.4	11.3	12.0	107.43	107.43	156.0	265.2	319.3	296.8	22.51	14.187	

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 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-1)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,094.7	5,106.6	5,094.7	11.6	12.2	108.68		156.0	265.2	321.6	298.7	22.96	14.009	
5,200.0	5,194.4	5,206.3	5,194.4	11.8	12.4	109.91		156.0	265.2	324.1	300.6	23.42	13.834	
5,300.0	5,294.2	5,306.0	5,294.2	12.1	12.6	111.12		156.0	265.2	326.6	302.7	23.89	13.673	
5,400.0	5,394.0	5,405.9	5,394.0	12.3	12.8	112.04		156.0	265.2	328.6	304.3	24.31	13.521	
5,500.0	5,494.0	5,505.8	5,494.0	12.4	13.0	112.37		156.0	265.2	329.4	304.7	24.70	13.335	
5,600.0	5,594.0	5,605.8	5,594.0	12.6	13.2	90.00		156.0	265.2	329.4	304.3	25.11	13.120	
5,700.0	5,694.0	5,705.8	5,694.0	12.8	13.4	90.00		156.0	265.2	329.4	303.9	25.54	12.899	
5,800.0	5,794.0	5,805.8	5,794.0	13.1	13.6	90.00		156.0	265.2	329.4	303.4	25.97	12.685	
5,900.0	5,894.0	5,905.8	5,894.0	13.3	13.8	90.00		156.0	265.2	329.4	303.0	26.40	12.478	
6,000.0	5,994.0	6,005.8	5,994.0	13.5	14.1	90.00		156.0	265.2	329.4	302.6	26.83	12.277	
6,100.0	6,094.0	6,105.8	6,094.0	13.7	14.3	90.00		156.0	265.2	329.4	302.1	27.26	12.082	
6,146.9	6,140.9	6,152.8	6,140.9	13.8	14.4	-90.15		156.0	265.2	329.4	301.9	27.45	12.001	
6,200.0	6,193.9	6,205.8	6,193.9	13.9	14.5	-90.41		156.0	265.2	329.4	301.7	27.65	11.911	
6,300.0	6,292.8	6,306.2	6,292.8	14.0	14.6	-91.98		150.7	265.2	329.6	301.7	27.93	11.801	
6,400.0	6,389.0	6,408.0	6,389.1	14.1	14.8	-93.55		132.1	265.2	330.0	301.9	28.12	11.736	
6,500.0	6,480.8	6,510.9	6,481.8	14.2	14.9	-95.05		99.9	265.2	330.7	302.4	28.28	11.691	
6,600.0	6,566.7	6,615.1	6,585.4	14.3	15.0	-96.48		54.2	265.2	331.5	303.0	28.48	11.642	
6,700.0	6,645.2	6,720.6	6,672.9	14.5	15.1	-97.79		-4.5	265.2	332.5	303.7	28.78	11.554	
6,800.0	6,714.9	6,827.1	6,752.2	14.7	15.2	-98.96		-75.4	265.2	333.5	304.2	29.26	11.397	
6,900.0	6,774.7	6,834.7	6,821.6	15.2	15.5	-99.96		-157.6	265.2	334.4	304.4	30.02	11.143	
7,000.0	6,823.6	7,043.2	6,879.1	15.8	16.0	-100.79		-249.4	265.2	335.3	304.2	31.10	10.781	
7,100.0	6,860.6	7,152.4	6,923.3	16.6	16.8	-101.42		-349.2	265.2	336.0	303.5	32.57	10.319	
7,200.0	6,885.2	7,262.1	6,952.9	17.5	17.8	-101.84		-454.7	265.2	336.5	302.1	34.40	9.783	
7,300.0	6,897.0	7,368.8	6,967.6	18.6	19.0	-102.15		-560.4	265.2	337.0	300.4	36.53	9.225	
7,400.0	6,897.3	7,472.6	6,976.8	19.9	20.2	-103.55		-663.8	265.2	338.9	300.1	38.74	8.748	
7,500.0	6,896.0	7,576.5	6,978.3	21.2	21.5	-104.03		-767.6	265.2	339.5	298.2	41.27	8.226	
7,600.0	6,894.7	7,676.5	6,978.5	22.6	22.9	-104.27		-867.6	265.2	339.9	295.9	43.96	7.731	
7,700.0	6,893.4	7,776.5	6,978.7	24.1	24.4	-104.51		-967.6	265.2	340.2	293.5	46.78	7.273	
7,800.0	6,892.1	7,876.5	6,978.9	25.6	25.9	-104.75		-1,067.6	265.2	340.6	290.9	49.71	6.851	
7,900.0	6,890.8	7,976.5	6,979.0	27.2	27.5	-104.99		-1,167.6	265.2	341.0	288.3	52.73	6.466	
8,000.0	6,889.5	8,076.5	6,979.2	28.8	29.1	-105.23		-1,267.6	265.2	341.4	285.6	55.83	6.115	
8,100.0	6,888.2	8,176.4	6,979.4	30.5	30.7	-105.47		-1,367.6	265.2	341.8	282.8	58.98	5.795	
8,200.0	6,886.9	8,276.4	6,979.5	32.2	32.4	-105.71		-1,467.6	265.2	342.2	280.0	62.18	5.503	
8,300.0	6,885.6	8,376.4	6,979.7	33.9	34.1	-105.95		-1,567.6	265.2	342.6	277.2	65.43	5.236	
8,400.0	6,884.3	8,476.4	6,979.9	35.6	35.8	-106.19		-1,667.5	265.2	343.0	274.3	68.71	4.992	
8,500.0	6,882.9	8,576.4	6,980.1	37.4	37.6	-106.43		-1,767.5	265.2	343.4	271.4	72.01	4.769	
8,600.0	6,881.6	8,676.4	6,980.2	39.1	39.3	-106.66		-1,867.5	265.2	343.8	268.5	75.34	4.564	
8,700.0	6,880.3	8,776.4	6,980.4	40.9	41.1	-106.90		-1,967.5	265.2	344.3	265.6	78.69	4.375	
8,800.0	6,879.0	8,876.4	6,980.6	42.7	42.9	-107.14		-2,067.5	265.2	344.7	262.6	82.05	4.201	
8,900.0	6,877.7	8,976.4	6,980.8	44.5	44.7	-107.37		-2,167.5	265.2	345.1	259.7	85.42	4.040	
9,000.0	6,876.4	9,076.3	6,980.9	46.3	46.5	-107.61		-2,267.5	265.2	345.6	256.8	88.81	3.891	
9,100.0	6,875.1	9,176.3	6,981.1	48.1	48.3	-107.84		-2,367.5	265.2	346.0	253.8	92.20	3.753	
9,200.0	6,873.8	9,276.3	6,981.3	50.0	50.1	-108.07		-2,467.5	265.2	346.5	250.9	95.59	3.625	
9,300.0	6,872.5	9,376.3	6,981.5	51.8	51.9	-108.31		-2,567.4	265.2	346.9	248.0	98.99	3.505	
9,400.0	6,871.2	9,476.3	6,981.6	53.6	53.8	-108.54		-2,667.4	265.2	347.4	245.0	102.40	3.393	
9,500.0	6,869.9	9,576.3	6,981.8	55.5	55.6	-108.77		-2,767.4	265.2	347.9	242.1	105.80	3.288	
9,600.0	6,868.5	9,676.3	6,982.0	57.3	57.5	-109.00		-2,867.4	265.2	348.4	239.2	109.20	3.190	
9,700.0	6,867.2	9,776.3	6,982.2	59.2	59.3	-109.23		-2,967.4	265.2	348.9	236.3	112.61	3.098	
9,800.0	6,865.9	9,876.3	6,982.3	61.1	61.2	-109.46		-3,067.4	265.2	349.4	233.3	116.01	3.011	
9,900.0	6,864.6	9,976.2	6,982.5	62.9	63.0	-109.69		-3,167.4	265.2	349.8	230.4	119.40	2.930	
10,000.0	6,863.3	10,076.2	6,982.7	64.8	64.9	-109.92		-3,267.4	265.2	350.4	227.6	122.80	2.853	

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 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design										Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5U-443 - Wellbore #1 - Plan #1 (12-03-1				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)					
10,100.0	6,862.0	10,176.2	6,982.9	66.7	66.8	-110.15	-3,367.4	265.2	350.9	224.7	126.19	2.780				
10,200.0	6,860.7	10,276.2	6,983.0	68.5	68.6	-110.37	-3,467.3	265.2	351.4	221.8	129.58	2.712				
10,300.0	6,859.4	10,376.2	6,983.2	70.4	70.5	-110.60	-3,567.3	265.2	351.9	218.9	132.96	2.647				
10,400.0	6,858.1	10,476.2	6,983.4	72.3	72.4	-110.83	-3,667.3	265.2	352.4	216.1	136.33	2.585				
10,500.0	6,856.8	10,576.2	6,983.6	74.2	74.2	-111.05	-3,767.3	265.2	352.9	213.2	139.70	2.526				
10,600.0	6,855.5	10,676.2	6,983.7	76.0	76.1	-111.28	-3,867.3	265.2	353.5	210.4	143.07	2.471				
10,700.0	6,854.2	10,776.2	6,983.9	77.9	78.0	-111.50	-3,967.3	265.2	354.0	207.6	146.42	2.418				
10,800.0	6,852.8	10,876.1	6,984.1	79.8	79.9	-111.72	-4,067.3	265.2	354.6	204.8	149.77	2.367				
10,900.0	6,851.5	10,976.1	6,984.3	81.7	81.8	-111.95	-4,167.3	265.2	355.1	202.0	153.11	2.319				
11,000.0	6,850.2	11,076.1	6,984.4	83.6	83.7	-112.17	-4,267.3	265.2	355.7	199.2	156.45	2.273				
11,100.0	6,848.9	11,176.1	6,984.6	85.5	85.5	-112.39	-4,367.2	265.2	356.2	196.5	159.78	2.230				
11,200.0	6,847.6	11,276.1	6,984.8	87.4	87.4	-112.61	-4,467.2	265.2	356.8	193.7	163.09	2.188				
11,300.0	6,846.3	11,376.1	6,985.0	89.3	89.3	-112.83	-4,567.2	265.2	357.4	191.0	166.40	2.148				
11,322.7	6,846.0	11,398.8	6,985.0	89.7	89.8	-112.88	-4,590.0	265.2	357.5	190.4	167.16	2.139 SF				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells Sec.5-T3N-R64W - Becker 5-10 (Exist) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		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	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	167.42	-462.7	103.3	474.6					
100.0	100.0	78.0	78.0	0.1	1.6	167.42	-462.7	103.3	474.0	472.4	1.67	283.421		
200.0	200.0	178.0	178.0	0.3	3.6	167.42	-462.7	103.3	474.0	470.1	3.90	121.633		
300.0	300.0	278.0	278.0	0.6	5.6	167.42	-462.7	103.3	474.0	467.9	6.12	77.432		
400.0	400.0	378.0	378.0	0.8	7.6	167.42	-462.7	103.3	474.0	465.7	8.35	56.793		
500.0	500.0	478.0	478.0	1.0	9.6	167.42	-462.7	103.3	474.0	463.5	10.57	44.841		
600.0	600.0	578.0	578.0	1.2	11.6	167.42	-462.7	103.3	474.0	461.2	12.80	37.045		
700.0	700.0	678.0	678.0	1.5	13.6	167.42	-462.7	103.3	474.0	459.0	15.02	31.559		
800.0	800.0	778.0	778.0	1.7	15.6	167.42	-462.7	103.3	474.0	456.8	17.25	27.487		
900.0	900.0	878.0	878.0	1.9	17.6	167.42	-462.7	103.3	474.0	454.6	19.47	24.347		
1,000.0	1,000.0	978.0	978.0	2.1	19.6	167.42	-462.7	103.3	474.0	452.3	21.70	21.850		
1,100.0	1,100.0	1,078.0	1,078.0	2.4	21.6	167.42	-462.7	103.3	474.0	450.1	23.92	19.818		
1,200.0	1,200.0	1,178.0	1,178.0	2.6	23.6	167.42	-462.7	103.3	474.0	447.9	26.14	18.131		
1,300.0	1,300.0	1,278.0	1,278.0	2.8	25.6	167.42	-462.7	103.3	474.0	445.7	28.37	16.710		
1,400.0	1,400.0	1,378.0	1,378.0	3.0	27.6	167.42	-462.7	103.3	474.0	443.5	30.59	15.494		
1,500.0	1,500.0	1,478.0	1,478.0	3.3	29.6	167.42	-462.7	103.3	474.0	441.2	32.82	14.444		
1,600.0	1,600.0	1,578.0	1,578.0	3.5	31.6	167.42	-462.7	103.3	474.0	439.0	35.04	13.527		
1,700.0	1,700.0	1,678.0	1,678.0	3.7	33.6	167.42	-462.7	103.3	474.0	436.8	37.27	12.720		
1,800.0	1,800.0	1,778.0	1,778.0	3.9	35.6	167.42	-462.7	103.3	474.0	434.6	39.49	12.003		
1,900.0	1,900.0	1,878.0	1,878.0	4.2	37.6	167.42	-462.7	103.3	474.0	432.3	41.72	11.363		
2,000.0	2,000.0	1,978.0	1,978.0	4.4	39.6	167.42	-462.7	103.3	474.0	430.1	43.94	10.788		
2,100.0	2,100.0	2,078.0	2,078.0	4.6	41.6	167.42	-462.7	103.3	474.0	427.9	46.17	10.268		
2,200.0	2,200.0	2,178.0	2,178.0	4.8	43.6	167.42	-462.7	103.3	474.0	425.7	48.39	9.796		
2,300.0	2,300.0	2,278.0	2,278.0	5.1	45.6	167.42	-462.7	103.3	474.0	423.4	50.62	9.365		
2,400.0	2,400.0	2,378.0	2,378.0	5.3	47.6	167.42	-462.7	103.3	474.0	421.2	52.84	8.971		
2,500.0	2,500.0	2,478.0	2,478.0	5.5	49.6	167.42	-462.7	103.3	474.0	419.0	55.07	8.609		
2,600.0	2,600.0	2,578.0	2,578.0	5.7	51.6	167.42	-462.7	103.3	474.0	416.8	57.29	8.274		
2,700.0	2,700.0	2,678.0	2,678.0	6.0	53.6	167.42	-462.7	103.3	474.0	414.5	59.52	7.965		
2,800.0	2,800.0	2,778.0	2,778.0	6.2	55.6	167.42	-462.7	103.3	474.0	412.3	61.74	7.678		
2,900.0	2,900.0	2,878.0	2,878.0	6.4	57.6	167.42	-462.7	103.3	474.0	410.1	63.97	7.411		
3,000.0	3,000.0	2,978.0	2,978.0	6.6	59.6	167.42	-462.7	103.3	474.0	407.9	66.19	7.162		
3,100.0	3,100.0	3,078.0	3,078.0	6.9	61.6	-170.24	-462.7	103.3	475.8	407.4	68.37	6.958		
3,200.0	3,199.8	3,177.8	3,177.8	7.1	63.6	-170.33	-462.7	103.3	480.9	410.5	70.47	6.825		
3,300.0	3,299.6	3,277.6	3,277.6	7.3	65.6	-170.47	-462.7	103.3	488.2	415.5	72.66	6.718		
3,400.0	3,399.3	3,377.3	3,377.3	7.5	67.5	-170.61	-462.7	103.3	495.4	420.5	74.88	6.616		
3,500.0	3,499.0	3,477.0	3,477.0	7.8	69.5	-170.75	-462.7	103.3	502.7	425.6	77.09	6.520		
3,600.0	3,598.8	3,576.8	3,576.8	8.0	71.5	-170.88	-462.7	103.3	509.9	430.6	79.30	6.430		
3,700.0	3,698.5	3,676.5	3,676.5	8.2	73.5	-171.01	-462.7	103.3	517.2	435.6	81.52	6.344		
3,800.0	3,798.2	3,776.2	3,776.2	8.4	75.5	-171.14	-462.7	103.3	524.4	440.7	83.73	6.263		
3,900.0	3,897.9	3,875.9	3,875.9	8.7	77.5	-171.26	-462.7	103.3	531.7	445.7	85.95	6.186		
4,000.0	3,997.7	3,975.7	3,975.7	8.9	79.5	-171.38	-462.7	103.3	539.0	450.8	88.16	6.113		
4,100.0	4,097.4	4,075.4	4,075.4	9.2	81.5	-171.49	-462.7	103.3	546.2	455.8	90.38	6.044		
4,200.0	4,197.1	4,175.1	4,175.1	9.4	83.5	-171.61	-462.7	103.3	553.5	460.9	92.59	5.978		
4,300.0	4,296.9	4,274.9	4,274.9	9.6	85.5	-171.72	-462.7	103.3	560.8	466.0	94.81	5.915		
4,400.0	4,396.6	4,374.6	4,374.6	9.9	87.5	-171.82	-462.7	103.3	568.0	471.0	97.03	5.854		
4,500.0	4,496.3	4,474.3	4,474.3	10.1	89.5	-171.93	-462.7	103.3	575.3	476.1	99.24	5.797		
4,600.0	4,596.1	4,574.1	4,574.1	10.4	91.5	-172.03	-462.7	103.3	582.6	481.1	101.46	5.742		
4,700.0	4,695.8	4,673.8	4,673.8	10.6	93.5	-172.13	-462.7	103.3	589.9	486.2	103.68	5.690		
4,800.0	4,795.5	4,773.5	4,773.5	10.8	95.5	-172.22	-462.7	103.3	597.2	491.3	105.89	5.639		
4,900.0	4,895.2	4,873.2	4,873.2	11.1	97.5	-172.32	-462.7	103.3	604.4	496.3	108.11	5.591		
5,000.0	4,995.0	4,973.0	4,973.0	11.3	99.5	-172.41	-462.7	103.3	611.7	501.4	110.33	5.545		

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 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-10 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,094.7	5,072.7	5,072.7	11.6	101.5	-172.50	-462.7	103.3	619.0	506.5	112.55	5.500		
5,200.0	5,194.4	5,172.4	5,172.4	11.8	103.4	-172.59	-462.7	103.3	626.3	511.5	114.76	5.457		
5,300.0	5,294.2	5,272.2	5,272.2	12.1	105.4	-172.67	-462.7	103.3	633.6	516.6	116.99	5.416		
5,400.0	5,394.0	5,372.0	5,372.0	12.3	107.4	-172.75	-462.7	103.3	639.0	519.6	119.36	5.353		
5,500.0	5,494.0	5,472.0	5,472.0	12.4	109.4	-172.78	-462.7	103.3	640.9	519.3	121.60	5.271		
5,600.0	5,594.0	5,572.0	5,572.0	12.6	111.4	164.85	-462.7	103.3	640.9	517.1	123.80	5.177		
5,700.0	5,694.0	5,672.0	5,672.0	12.8	113.4	164.85	-462.7	103.3	640.9	514.9	126.02	5.086		
5,800.0	5,794.0	5,772.0	5,772.0	13.1	115.4	164.85	-462.7	103.3	640.9	512.7	128.24	4.998		
5,900.0	5,894.0	5,872.0	5,872.0	13.3	117.4	164.85	-462.7	103.3	640.9	510.5	130.47	4.913		
6,000.0	5,994.0	5,972.0	5,972.0	13.5	119.4	164.85	-462.7	103.3	640.9	508.2	132.69	4.830		
6,100.0	6,094.0	6,072.0	6,072.0	13.7	121.4	164.85	-462.7	103.3	640.9	506.0	134.91	4.751		
6,200.0	6,193.9	6,171.9	6,171.9	13.9	123.4	-15.25	-462.7	103.3	638.7	502.0	136.70	4.672		
6,300.0	6,292.8	6,270.8	6,270.8	14.0	125.4	-15.88	-462.7	103.3	624.9	488.4	136.43	4.580		
6,400.0	6,389.0	6,367.0	6,367.0	14.1	127.3	-17.17	-462.7	103.3	598.8	464.8	134.01	4.468		
6,500.0	6,480.8	6,458.8	6,458.8	14.2	129.2	-19.34	-462.7	103.3	561.0	431.4	129.68	4.326		
6,600.0	6,566.7	6,544.7	6,544.7	14.3	130.9	-22.76	-462.7	103.3	512.5	388.4	124.16	4.128		
6,700.0	6,645.2	6,623.2	6,623.2	14.5	132.5	-28.07	-462.7	103.3	454.5	335.4	119.12	3.816		
6,800.0	6,714.9	6,692.9	6,692.9	14.7	133.9	-36.30	-462.7	103.3	388.9	270.8	118.05	3.294		
6,900.0	6,774.7	6,752.7	6,752.7	15.2	135.1	-48.61	-462.7	103.3	318.5	193.0	125.52	2.537		
7,000.0	6,823.6	6,801.6	6,801.6	15.8	136.0	-64.71	-462.7	103.3	248.6	108.3	140.30	1.772		
7,100.0	6,860.6	6,838.6	6,838.6	16.6	136.8	-80.47	-462.7	103.3	190.6	39.1	151.46	1.258 Level 3		
7,193.9	6,884.1	6,862.1	6,862.1	17.5	137.2	-90.00	-462.7	103.3	167.5	12.8	154.71	1.082 Level 2, CC, ES, SF		
7,200.0	6,885.2	6,863.2	6,863.2	17.5	137.3	-90.37	-462.7	103.3	167.6	12.8	154.79	1.083 Level 2		
7,300.0	6,897.0	6,875.0	6,875.0	18.6	137.5	-91.89	-462.7	103.3	197.8	41.7	156.05	1.267 Level 3		
7,400.0	6,897.3	6,875.3	6,875.3	19.9	137.5	-89.08	-462.7	103.3	264.8	107.5	157.33	1.683		
7,500.0	6,896.0	6,874.0	6,874.0	21.2	137.5	-88.63	-462.7	103.3	348.1	189.5	158.60	2.195		
7,600.0	6,894.7	6,872.7	6,872.7	22.6	137.5	-88.19	-462.7	103.3	438.4	278.4	159.95	2.741		
7,700.0	6,893.4	6,871.4	6,871.4	24.1	137.4	-87.74	-462.7	103.3	532.2	370.8	161.35	3.298		
7,800.0	6,892.1	6,870.1	6,870.1	25.6	137.4	-87.29	-462.7	103.3	627.9	465.0	162.81	3.856		
7,900.0	6,890.8	6,868.8	6,868.8	27.2	137.4	-86.85	-462.7	103.3	724.7	560.4	164.30	4.411		
8,000.0	6,889.5	6,867.5	6,867.5	28.8	137.3	-86.40	-462.7	103.3	822.3	656.5	165.82	4.959		
8,100.0	6,888.2	6,866.2	6,866.2	30.5	137.3	-85.95	-462.7	103.3	920.4	753.1	167.37	5.500		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-16 (Exist) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 7600-UNKNOWN													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
8,900.0	6,877.7	6,819.7	6,819.7	44.5	136.4	167.78	-3,151.2	-67.0	983.5	935.3	48.29	20.368		
9,000.0	6,876.4	6,818.4	6,818.4	46.3	136.4	166.45	-3,151.2	-67.0	883.6	831.0	52.58	16.805		
9,100.0	6,875.1	6,817.1	6,817.1	48.1	136.3	164.80	-3,151.2	-67.0	783.6	725.8	57.78	13.561		
9,200.0	6,873.8	6,815.8	6,815.8	50.0	136.3	162.70	-3,151.2	-67.0	683.6	619.3	64.26	10.638		
9,300.0	6,872.5	6,814.5	6,814.5	51.8	136.3	159.95	-3,151.2	-67.0	583.6	511.0	72.58	8.040		
9,400.0	6,871.2	6,813.2	6,813.2	53.6	136.3	156.23	-3,151.2	-67.0	483.6	400.0	83.64	5.782		
9,500.0	6,869.9	6,811.9	6,811.9	55.5	136.2	150.96	-3,151.2	-67.0	383.6	284.7	98.87	3.880		
9,600.0	6,868.5	6,810.5	6,810.5	57.3	136.2	143.10	-3,151.2	-67.0	283.6	163.2	120.42	2.355		
9,700.0	6,867.2	6,809.2	6,809.2	59.2	136.2	130.77	-3,151.2	-67.0	183.6	33.3	150.30	1.222 Level 2		
9,800.0	6,865.9	6,807.9	6,807.9	61.1	136.2	111.44	-3,151.2	-67.0	83.7	-100.5	184.16	0.454 Level 1		
9,880.3	6,864.9	6,806.9	6,806.9	62.6	136.1	90.91	-3,151.2	-67.0	4.4	-194.3	198.66	0.022 Level 1, CC, ES, SF		
9,900.0	6,864.6	6,806.6	6,806.6	62.9	136.1	85.60	-3,151.2	-67.0	16.6	-181.9	198.51	0.084 Level 1		
10,000.0	6,863.3	6,805.3	6,805.3	64.8	136.1	61.35	-3,151.2	-67.0	116.4	-61.2	177.62	0.655 Level 1		
10,100.0	6,862.0	6,804.0	6,804.0	66.7	136.1	44.55	-3,151.2	-67.0	216.4	70.6	145.80	1.484 Level 3		
10,200.0	6,860.7	6,802.7	6,802.7	68.5	136.1	33.95	-3,151.2	-67.0	316.4	196.1	120.21	2.632		
10,300.0	6,859.4	6,801.4	6,801.4	70.4	136.0	27.09	-3,151.2	-67.0	416.3	314.1	102.22	4.073		
10,400.0	6,858.1	6,800.1	6,800.1	72.3	136.0	22.41	-3,151.2	-67.0	516.3	426.6	89.70	5.756		
10,500.0	6,856.8	6,798.8	6,798.8	74.2	136.0	19.06	-3,151.2	-67.0	616.3	535.5	80.80	7.628		
10,600.0	6,855.5	6,797.5	6,797.5	76.0	135.9	16.56	-3,151.2	-67.0	716.3	642.0	74.31	9.639		
10,700.0	6,854.2	6,796.2	6,796.2	77.9	135.9	14.62	-3,151.2	-67.0	816.3	746.8	69.48	11.749		
10,800.0	6,852.8	6,794.8	6,794.8	79.8	135.9	13.08	-3,151.2	-67.0	916.3	850.5	65.81	13.923		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.5-T3N-R64W - Becker 5-4 (Exist) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7600-UNKNOWN												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,500.0	6,896.0	6,869.0	6,869.0	21.2	137.4	-96.93	-1,752.3	41.9	990.2	832.8	157.44	6.289	
7,600.0	6,894.7	6,867.7	6,867.7	22.6	137.4	-96.23	-1,752.3	41.9	890.8	731.8	159.03	5.602	
7,700.0	6,893.4	6,866.4	6,866.4	24.1	137.3	-95.53	-1,752.3	41.9	791.7	631.0	160.67	4.927	
7,800.0	6,892.1	6,865.1	6,865.1	25.6	137.3	-94.83	-1,752.3	41.9	692.7	530.3	162.35	4.267	
7,900.0	6,890.8	6,863.8	6,863.8	27.2	137.3	-94.13	-1,752.3	41.9	594.1	430.0	164.05	3.621	
8,000.0	6,889.5	6,862.5	6,862.5	28.8	137.2	-93.42	-1,752.3	41.9	496.0	330.2	165.78	2.992	
8,100.0	6,888.2	6,861.2	6,861.2	30.5	137.2	-92.72	-1,752.3	41.9	398.9	231.4	167.51	2.381	
8,200.0	6,886.9	6,859.9	6,859.9	32.2	137.2	-92.01	-1,752.3	41.9	303.7	134.4	169.26	1.794	
8,300.0	6,885.6	6,858.6	6,858.6	33.9	137.2	-91.30	-1,752.3	41.9	212.9	41.9	171.00	1.245 Level 2	
8,400.0	6,884.3	6,857.3	6,857.3	35.6	137.1	-90.60	-1,752.3	41.9	135.7	-37.1	172.74	0.785 Level 1	
8,484.6	6,883.2	6,856.2	6,856.2	37.1	137.1	-90.00	-1,752.3	41.9	106.1	-68.1	174.21	0.609 Level 1, CC, ES, SF	
8,500.0	6,882.9	6,855.9	6,855.9	37.4	137.1	-89.89	-1,752.3	41.9	107.2	-67.3	174.47	0.614 Level 1	
8,600.0	6,881.6	6,854.6	6,854.6	39.1	137.1	-89.18	-1,752.3	41.9	156.7	-19.4	176.19	0.890 Level 1	
8,700.0	6,880.3	6,853.3	6,853.3	40.9	137.1	-88.48	-1,752.3	41.9	240.1	62.2	177.90	1.350 Level 3	
8,800.0	6,879.0	6,852.0	6,852.0	42.7	137.0	-87.77	-1,752.3	41.9	332.7	153.1	179.60	1.853	
8,900.0	6,877.7	6,850.7	6,850.7	44.5	137.0	-87.07	-1,752.3	41.9	428.7	247.4	181.28	2.365	
9,000.0	6,876.4	6,849.4	6,849.4	46.3	137.0	-86.36	-1,752.3	41.9	526.2	343.2	182.94	2.876	
9,100.0	6,875.1	6,848.1	6,848.1	48.1	137.0	-85.66	-1,752.3	41.9	624.4	439.9	184.57	3.383	
9,200.0	6,873.8	6,846.8	6,846.8	50.0	136.9	-84.96	-1,752.3	41.9	723.2	537.0	186.19	3.884	
9,300.0	6,872.5	6,845.5	6,845.5	51.8	136.9	-84.25	-1,752.3	41.9	822.2	634.4	187.78	4.379	
9,400.0	6,871.2	6,844.2	6,844.2	53.6	136.9	-83.56	-1,752.3	41.9	921.5	732.1	189.35	4.866	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design		Existing Wells Sec.5-T3N-R64W - Becker 5-5 (Exist) - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft			
Survey Program: 7600-UNKNOWN														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis		Distance								Warning			
Measured Depth 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					
10,000.0	6,863.3	6,790.3	6,790.3	64.8	135.8	114.44	-4,236.8	-92.1	969.7	786.2	183.45	5.286					
10,100.0	6,862.0	6,789.0	6,789.0	66.7	135.8	112.18	-4,236.8	-92.1	869.7	681.6	188.15	4.622					
10,200.0	6,860.7	6,787.7	6,787.7	68.5	135.8	109.84	-4,236.8	-92.1	769.8	577.1	192.72	3.994					
10,300.0	6,859.4	6,786.4	6,786.4	70.4	135.7	107.42	-4,236.8	-92.1	669.9	472.8	197.11	3.398					
10,400.0	6,858.1	6,785.1	6,785.1	72.3	135.7	104.95	-4,236.8	-92.1	570.0	368.7	201.27	2.832					
10,500.0	6,856.8	6,783.8	6,783.8	74.2	135.7	102.41	-4,236.8	-92.1	470.1	265.0	205.15	2.292					
10,600.0	6,855.5	6,782.5	6,782.5	76.0	135.6	99.83	-4,236.8	-92.1	370.4	161.6	208.72	1.774					
10,700.0	6,854.2	6,781.2	6,781.2	77.9	135.6	97.20	-4,236.8	-92.1	270.8	58.8	211.93	1.278	Level 3				
10,800.0	6,852.8	6,779.8	6,779.8	79.8	135.6	94.54	-4,236.8	-92.1	171.6	-43.1	214.75	0.799	Level 1				
10,900.0	6,851.5	6,778.5	6,778.5	81.7	135.6	91.86	-4,236.8	-92.1	74.7	-142.4	217.15	0.344	Level 1				
10,969.3	6,850.6	6,777.6	6,777.6	83.0	135.6	90.00	-4,236.8	-92.1	27.9	-190.6	218.55	0.128	Level 1, CC, ES, SF				
11,000.0	6,850.2	6,777.2	6,777.2	83.6	135.5	89.18	-4,236.8	-92.1	41.5	-177.6	219.10	0.189	Level 1				
11,100.0	6,848.9	6,775.9	6,775.9	85.5	135.5	86.49	-4,236.8	-92.1	133.6	-87.0	220.61	0.606	Level 1				
11,200.0	6,847.6	6,774.6	6,774.6	87.4	135.5	83.83	-4,236.8	-92.1	232.3	10.7	221.65	1.048	Level 2				
11,300.0	6,846.3	6,773.3	6,773.3	89.3	135.5	81.19	-4,236.8	-92.1	331.8	109.6	222.24	1.493	Level 3				
11,322.7	6,846.0	6,773.0	6,773.0	89.7	135.5	80.59	-4,236.8	-92.1	354.5	132.2	222.32	1.594					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	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 (12-03-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4799.0ft (RKB - 15')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Becker Ranch 5R-323
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 5R-323
Project:	SEC.5-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (RKB - 15')
Reference Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Becker Ranch 5R-323	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
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