

PETROLEUM DEVELOPMENT CORP Weld County CO

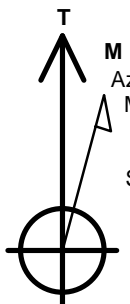
Well Name: **Becker Ranch 5U-443**

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1339356.32	3260103.96	40.261180	-104.567980	
RKB - 15' WELL @ 4799.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 206'FNL, 730'FEL	1.0	0.0	0.0	Point
BHL 500'FSL, 475'FEL	6985.0	-4590.2	234.5	Point



Azimuths to True North
Magnetic North: 8.41°

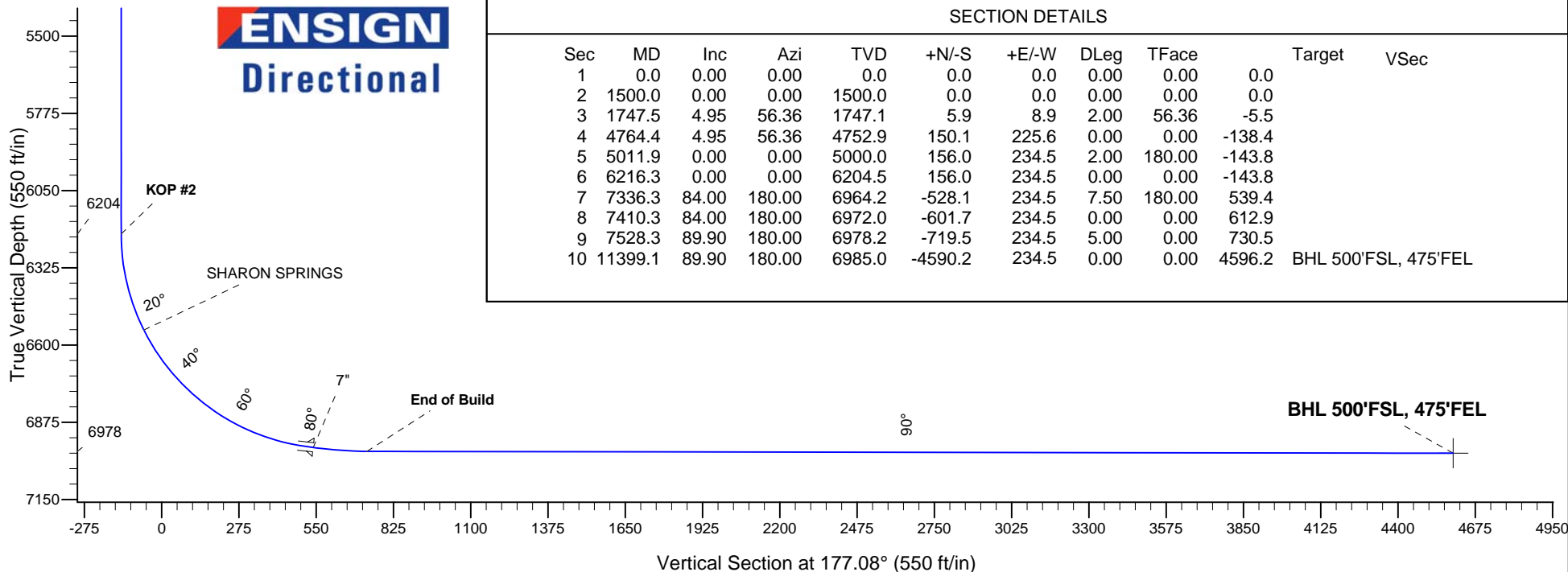
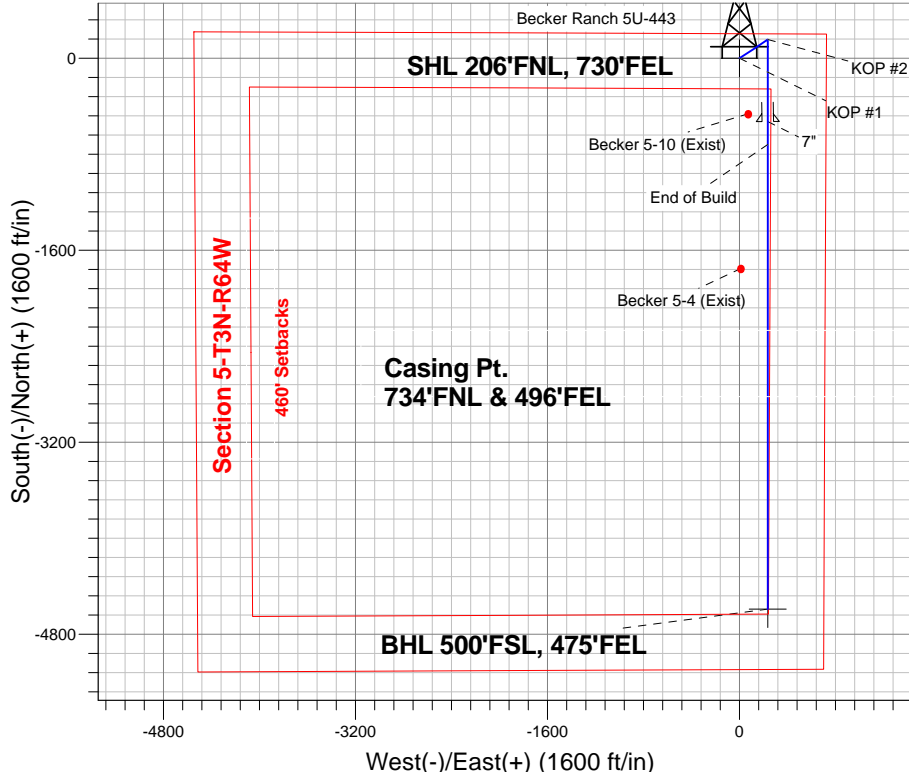
Magnetic Field
Strength: 52819.4snT
Dip Angle: 66.89°
Date: 12/3/2013
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1500.0	1500.0	KOP #1
6204.4	6216.3	KOP #2
6978.2	7528.3	End of Build

Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W
Becker Ranch 5U-443
Plan #1 (12-03-13)
13:42, 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	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1747.5	4.95	56.36	1747.1	5.9	8.9	2.00	56.36	-5.5	
4	4764.4	4.95	56.36	4752.9	150.1	225.6	0.00	0.00	-138.4	
5	5011.9	0.00	0.00	5000.0	156.0	234.5	2.00	180.00	-143.8	
6	6216.3	0.00	0.00	6204.5	156.0	234.5	0.00	0.00	-143.8	
7	7336.3	84.00	180.00	6964.2	-528.1	234.5	7.50	180.00	539.4	
8	7410.3	84.00	180.00	6972.0	-601.7	234.5	0.00	0.00	612.9	
9	7528.3	89.90	180.00	6978.2	-719.5	234.5	5.00	0.00	730.5	
10	11399.1	89.90	180.00	6985.0	-4590.2	234.5	0.00	0.00	4596.2	BHL 500'FSL, 475'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.5-T3N-R64W

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

Becker Ranch 5U-443

Wellbore #1

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

Standard Planning Report

11 December, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-443	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:			1,339,355.73ft			Latitude:			40.261180					
From:			Lat/Long			Easting:			3,260,045.36ft			Longitude:			-104.568190		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.60 °		

Well	Becker Ranch 5U-443					
Well Position	+N-S	0.0 ft	Northing:	1,339,356.32 ft	Latitude:	40.261180
	+E-W	58.6 ft	Easting:	3,260,103.96 ft	Longitude:	-104.567980
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,784.0 ft

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	177.08

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	
1,747.5	4.95	56.36	1,747.1	5.9	8.9	2.00	2.00	0.00	56.36	
4,764.4	4.95	56.36	4,752.9	150.1	225.6	0.00	0.00	0.00	0.00	
5,011.9	0.00	0.00	5,000.0	156.0	234.5	2.00	-2.00	0.00	180.00	
6,216.3	0.00	0.00	6,204.5	156.0	234.5	0.00	0.00	0.00	0.00	
7,336.3	84.00	180.00	6,964.2	-528.1	234.5	7.50	7.50	0.00	180.00	
7,410.3	84.00	180.00	6,972.0	-601.7	234.5	0.00	0.00	0.00	0.00	
7,528.3	89.90	180.00	6,978.2	-719.5	234.5	5.00	5.00	0.00	0.00	
11,399.1	89.90	180.00	6,985.0	-4,590.2	234.5	0.00	0.00	0.00	0.00	BHL 500'FSL, 475'F

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Site:	Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W	North Reference:	True
Well:	Becker Ranch 5U-443	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, 730'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
KOP #1									
1,600.0	2.00	56.36	1,600.0	1.0	1.5	-0.9	2.00	2.00	0.00
1,700.0	4.00	56.36	1,699.8	3.9	5.8	-3.6	2.00	2.00	0.00
1,747.5	4.95	56.36	1,747.1	5.9	8.9	-5.5	2.00	2.00	0.00
1,800.0	4.95	56.36	1,799.5	8.4	12.7	-7.8	0.00	0.00	0.00
1,900.0	4.95	56.36	1,899.1	13.2	19.8	-12.2	0.00	0.00	0.00
2,000.0	4.95	56.36	1,998.8	18.0	27.0	-16.6	0.00	0.00	0.00
2,100.0	4.95	56.36	2,098.4	22.8	34.2	-21.0	0.00	0.00	0.00
2,200.0	4.95	56.36	2,198.0	27.5	41.4	-25.4	0.00	0.00	0.00
2,300.0	4.95	56.36	2,297.6	32.3	48.6	-29.8	0.00	0.00	0.00
2,400.0	4.95	56.36	2,397.3	37.1	55.8	-34.2	0.00	0.00	0.00
2,500.0	4.95	56.36	2,496.9	41.9	62.9	-38.6	0.00	0.00	0.00
2,600.0	4.95	56.36	2,596.5	46.7	70.1	-43.0	0.00	0.00	0.00
2,700.0	4.95	56.36	2,696.1	51.4	77.3	-47.4	0.00	0.00	0.00
2,800.0	4.95	56.36	2,795.8	56.2	84.5	-51.8	0.00	0.00	0.00
2,900.0	4.95	56.36	2,895.4	61.0	91.7	-56.2	0.00	0.00	0.00
3,000.0	4.95	56.36	2,995.0	65.8	98.9	-60.6	0.00	0.00	0.00
3,100.0	4.95	56.36	3,094.6	70.5	106.0	-65.0	0.00	0.00	0.00
3,200.0	4.95	56.36	3,194.3	75.3	113.2	-69.5	0.00	0.00	0.00
3,300.0	4.95	56.36	3,293.9	80.1	120.4	-73.9	0.00	0.00	0.00
3,400.0	4.95	56.36	3,393.5	84.9	127.6	-78.3	0.00	0.00	0.00
3,500.0	4.95	56.36	3,493.2	89.7	134.8	-82.7	0.00	0.00	0.00
3,600.0	4.95	56.36	3,592.8	94.4	142.0	-87.1	0.00	0.00	0.00
3,700.0	4.95	56.36	3,692.4	99.2	149.1	-91.5	0.00	0.00	0.00
3,707.6	4.95	56.36	3,700.0	99.6	149.7	-91.8	0.00	0.00	0.00
PARKMAN									
3,800.0	4.95	56.36	3,792.0	104.0	156.3	-95.9	0.00	0.00	0.00
3,900.0	4.95	56.36	3,891.7	108.8	163.5	-100.3	0.00	0.00	0.00
4,000.0	4.95	56.36	3,991.3	113.6	170.7	-104.7	0.00	0.00	0.00
4,100.0	4.95	56.36	4,090.9	118.3	177.9	-109.1	0.00	0.00	0.00
4,200.0	4.95	56.36	4,190.5	123.1	185.0	-113.5	0.00	0.00	0.00
4,300.0	4.95	56.36	4,290.2	127.9	192.2	-117.9	0.00	0.00	0.00
4,400.0	4.95	56.36	4,389.8	132.7	199.4	-122.3	0.00	0.00	0.00
4,410.2	4.95	56.36	4,400.0	133.2	200.2	-122.8	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 5U-443	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	4.95	56.36	4,489.4	137.4	206.6	-126.7	0.00	0.00	0.00
4,600.0	4.95	56.36	4,589.1	142.2	213.8	-131.1	0.00	0.00	0.00
4,700.0	4.95	56.36	4,688.7	147.0	221.0	-135.5	0.00	0.00	0.00
4,764.4	4.95	56.36	4,752.9	150.1	225.6	-138.4	0.00	0.00	0.00
4,800.0	4.24	56.36	4,788.3	151.7	228.0	-139.8	2.00	-2.00	0.00
4,900.0	2.24	56.36	4,888.2	154.8	232.7	-142.7	2.00	-2.00	0.00
5,000.0	0.24	56.36	4,988.1	156.0	234.5	-143.8	2.00	-2.00	0.00
5,011.9	0.00	0.00	5,000.0	156.0	234.5	-143.8	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,088.1	156.0	234.5	-143.8	0.00	0.00	0.00
5,111.9	0.00	0.00	5,100.0	156.0	234.5	-143.8	0.00	0.00	0.00
SHANNON									
5,200.0	0.00	0.00	5,188.1	156.0	234.5	-143.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,288.1	156.0	234.5	-143.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,388.1	156.0	234.5	-143.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,488.1	156.0	234.5	-143.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,588.1	156.0	234.5	-143.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,688.1	156.0	234.5	-143.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,788.1	156.0	234.5	-143.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,888.1	156.0	234.5	-143.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,988.1	156.0	234.5	-143.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,088.1	156.0	234.5	-143.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,188.1	156.0	234.5	-143.8	0.00	0.00	0.00
6,216.3	0.00	0.00	6,204.4	156.0	234.5	-143.8	0.00	0.00	0.00
KOP #2									
6,300.0	6.27	180.00	6,288.0	151.4	234.5	-139.3	7.50	7.50	0.00
6,400.0	13.77	180.00	6,386.4	134.0	234.5	-121.9	7.50	7.50	0.00
6,500.0	21.27	180.00	6,481.7	103.9	234.5	-91.8	7.50	7.50	0.00
6,570.4	26.55	180.00	6,546.0	75.4	234.5	-63.3	7.50	7.50	0.00
SHARON SPRINGS									
6,600.0	28.77	180.00	6,572.2	61.7	234.5	-49.6	7.50	7.50	0.00
6,700.0	36.27	180.00	6,656.5	7.9	234.5	4.0	7.50	7.50	0.00
6,800.0	43.77	180.00	6,733.0	-56.3	234.5	68.2	7.50	7.50	0.00
6,900.0	51.27	180.00	6,800.5	-130.0	234.5	141.8	7.50	7.50	0.00
7,000.0	58.77	180.00	6,857.7	-211.9	234.5	223.6	7.50	7.50	0.00
7,100.0	66.27	180.00	6,903.9	-300.6	234.5	312.1	7.50	7.50	0.00
7,200.0	73.77	180.00	6,938.0	-394.5	234.5	405.9	7.50	7.50	0.00
7,300.0	81.27	180.00	6,959.6	-492.1	234.5	503.4	7.50	7.50	0.00
7,336.3	84.00	180.00	6,964.2	-528.1	234.5	539.3	7.50	7.50	0.00
7"									
7,400.0	84.00	180.00	6,970.9	-591.4	234.5	602.6	0.00	0.00	0.00
7,410.3	84.00	180.00	6,972.0	-601.7	234.5	612.9	0.00	0.00	0.00
7,500.0	88.48	180.00	6,977.8	-691.1	234.5	702.2	5.00	5.00	0.00
7,528.3	89.90	180.00	6,978.2	-719.4	234.5	730.5	5.00	5.00	0.00
End of Build									
7,600.0	89.90	180.00	6,978.4	-791.1	234.5	802.1	0.00	0.00	0.00
7,700.0	89.90	180.00	6,978.5	-891.1	234.5	901.9	0.00	0.00	0.00
7,800.0	89.90	180.00	6,978.7	-991.1	234.5	1,001.8	0.00	0.00	0.00
7,900.0	89.90	180.00	6,978.9	-1,091.1	234.5	1,101.7	0.00	0.00	0.00
8,000.0	89.90	180.00	6,979.1	-1,191.1	234.5	1,201.5	0.00	0.00	0.00
8,100.0	89.90	180.00	6,979.2	-1,291.1	234.5	1,301.4	0.00	0.00	0.00
8,200.0	89.90	180.00	6,979.4	-1,391.1	234.5	1,401.3	0.00	0.00	0.00
8,300.0	89.90	180.00	6,979.6	-1,491.1	234.5	1,501.1	0.00	0.00	0.00

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Project:	SEC.5-T3N-R64W	MD Reference:	WELL @ 4799.0ft (RKB - 15')
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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)
8,400.0	89.90	180.00	6,979.8	-1,591.1	234.5	1,601.0	0.00	0.00	0.00
8,500.0	89.90	180.00	6,979.9	-1,691.1	234.5	1,700.9	0.00	0.00	0.00
8,600.0	89.90	180.00	6,980.1	-1,791.1	234.5	1,800.8	0.00	0.00	0.00
8,700.0	89.90	180.00	6,980.3	-1,891.1	234.5	1,900.6	0.00	0.00	0.00
8,800.0	89.90	180.00	6,980.5	-1,991.1	234.5	2,000.5	0.00	0.00	0.00
8,900.0	89.90	180.00	6,980.6	-2,091.1	234.5	2,100.4	0.00	0.00	0.00
9,000.0	89.90	180.00	6,980.8	-2,191.1	234.5	2,200.2	0.00	0.00	0.00
9,100.0	89.90	180.00	6,981.0	-2,291.1	234.5	2,300.1	0.00	0.00	0.00
9,200.0	89.90	180.00	6,981.2	-2,391.1	234.5	2,400.0	0.00	0.00	0.00
9,300.0	89.90	180.00	6,981.3	-2,491.1	234.5	2,499.8	0.00	0.00	0.00
9,400.0	89.90	180.00	6,981.5	-2,591.1	234.5	2,599.7	0.00	0.00	0.00
9,500.0	89.90	180.00	6,981.7	-2,691.1	234.5	2,699.6	0.00	0.00	0.00
9,600.0	89.90	180.00	6,981.9	-2,791.1	234.5	2,799.5	0.00	0.00	0.00
9,700.0	89.90	180.00	6,982.0	-2,891.1	234.5	2,899.3	0.00	0.00	0.00
9,800.0	89.90	180.00	6,982.2	-2,991.1	234.5	2,999.2	0.00	0.00	0.00
9,900.0	89.90	180.00	6,982.4	-3,091.1	234.5	3,099.1	0.00	0.00	0.00
10,000.0	89.90	180.00	6,982.6	-3,191.1	234.5	3,198.9	0.00	0.00	0.00
10,100.0	89.90	180.00	6,982.7	-3,291.1	234.5	3,298.8	0.00	0.00	0.00
10,200.0	89.90	180.00	6,982.9	-3,391.1	234.5	3,398.7	0.00	0.00	0.00
10,300.0	89.90	180.00	6,983.1	-3,491.1	234.5	3,498.5	0.00	0.00	0.00
10,400.0	89.90	180.00	6,983.3	-3,591.1	234.5	3,598.4	0.00	0.00	0.00
10,500.0	89.90	180.00	6,983.4	-3,691.1	234.5	3,698.3	0.00	0.00	0.00
10,600.0	89.90	180.00	6,983.6	-3,791.1	234.5	3,798.1	0.00	0.00	0.00
10,700.0	89.90	180.00	6,983.8	-3,891.1	234.5	3,898.0	0.00	0.00	0.00
10,800.0	89.90	180.00	6,984.0	-3,991.1	234.5	3,997.9	0.00	0.00	0.00
10,900.0	89.90	180.00	6,984.1	-4,091.1	234.5	4,097.8	0.00	0.00	0.00
11,000.0	89.90	180.00	6,984.3	-4,191.1	234.5	4,197.6	0.00	0.00	0.00
11,100.0	89.90	180.00	6,984.5	-4,291.1	234.5	4,297.5	0.00	0.00	0.00
11,200.0	89.90	180.00	6,984.7	-4,391.1	234.5	4,397.4	0.00	0.00	0.00
11,300.0	89.90	180.00	6,984.8	-4,491.1	234.5	4,497.2	0.00	0.00	0.00
11,399.1	89.90	180.00	6,985.0	-4,590.2	234.5	4,596.2	0.00	0.00	0.00

BHL 500'FSL, 475'FEL

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,336.3	6,964.2	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,707.6	3,700.0	PARKMAN			
4,410.2	4,400.0	SUSSEX			
5,111.9	5,100.0	SHANNON			
6,570.4	6,546.0	SHARON SPRINGS			

Database:	Landmark	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-443	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)	
1,500.0	1,500.0	0.0	0.0	KOP #1
6,216.3	6,204.4	156.0	234.5	KOP #2
7,528.3	6,978.2	-719.4	234.5	End of Build



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.5-T3N-R64W

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

Becker Ranch 5U-443

Wellbore #1

Plan #1 (12-03-13)

Anticollision Report

11 December, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-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 (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
1,700.0	1,699.8	1,699.8	1,699.8	3.7	3.7	-152.34		0.0	-30.7	36.7	29.3	7.39	4.969	
1,800.0	1,799.5	1,799.5	1,799.5	3.9	3.9	-157.27		0.0	-30.7	44.2	36.4	7.82	5.650	
1,900.0	1,899.1	1,899.1	1,899.1	4.1	4.2	-160.93		0.0	-30.7	52.2	44.0	8.26	6.327	
2,000.0	1,998.8	1,998.8	1,998.8	4.4	4.4	-163.60		0.0	-30.7	60.5	51.8	8.70	6.951	
2,100.0	2,098.4	2,098.4	2,098.4	4.6	4.6	-165.63		0.0	-30.7	68.8	59.6	9.14	7.525	
2,200.0	2,198.0	2,198.0	2,198.0	4.9	4.8	-167.22		0.0	-30.7	77.2	67.6	9.58	8.052	
2,300.0	2,297.6	2,297.6	2,297.6	5.1	5.1	-168.50		0.0	-30.7	85.6	75.6	10.03	8.536	
2,400.0	2,397.3	2,397.3	2,397.3	5.4	5.3	-169.54		0.0	-30.7	94.1	83.6	10.48	8.981	
2,500.0	2,496.9	2,496.9	2,496.9	5.6	5.5	-170.42		0.0	-30.7	102.6	91.7	10.92	9.392	
2,600.0	2,596.5	2,596.5	2,596.5	5.9	5.7	-171.16		0.0	-30.7	111.1	99.7	11.37	9.771	
2,700.0	2,696.1	2,696.1	2,696.1	6.1	5.9	-171.79		0.0	-30.7	119.6	107.8	11.82	10.122	
2,800.0	2,795.8	2,795.8	2,795.8	6.4	6.2	-172.34		0.0	-30.7	128.2	115.9	12.27	10.449	
2,900.0	2,895.4	2,895.4	2,895.4	6.6	6.4	-172.83		0.0	-30.7	136.7	124.0	12.72	10.752	
3,000.0	2,995.0	2,995.0	2,995.0	6.9	6.6	-173.25		0.0	-30.7	145.3	132.1	13.17	11.035	
3,100.0	3,094.6	3,095.1	3,095.0	7.2	6.8	-173.04		1.5	-31.3	153.7	140.1	13.62	11.291	
3,200.0	3,194.3	3,195.0	3,194.8	7.4	7.1	-171.62		6.1	-33.2	162.0	147.9	14.06	11.516	
3,300.0	3,293.9	3,294.5	3,294.1	7.7	7.3	-169.59		12.9	-36.0	170.2	155.7	14.52	11.728	
3,400.0	3,393.5	3,394.0	3,393.3	7.9	7.5	-167.74		19.6	-38.8	178.7	163.7	14.97	11.937	
3,500.0	3,493.2	3,493.5	3,492.5	8.2	7.7	-166.05		26.4	-41.6	187.3	171.9	15.43	12.141	
3,600.0	3,592.8	3,593.0	3,591.7	8.5	8.0	-164.51		33.1	-44.3	196.1	180.2	15.89	12.341	
3,700.0	3,692.4	3,692.4	3,691.0	8.7	8.2	-163.11		39.9	-47.1	205.0	188.7	16.36	12.535	
3,800.0	3,792.0	3,791.9	3,790.2	9.0	8.4	-161.82		46.7	-49.9	214.1	197.2	16.82	12.723	
3,900.0	3,891.7	3,891.4	3,889.4	9.3	8.7	-160.64		53.4	-52.7	223.2	205.9	17.29	12.905	
4,000.0	3,991.3	3,990.9	3,988.6	9.5	8.9	-159.55		60.2	-55.5	232.4	214.6	17.76	13.081	
4,100.0	4,090.9	4,090.4	4,087.8	9.8	9.1	-158.54		67.0	-58.3	241.7	223.4	18.24	13.250	
4,200.0	4,190.5	4,189.9	4,187.0	10.1	9.4	-157.61		73.7	-61.0	251.0	232.3	18.71	13.413	
4,300.0	4,290.2	4,289.3	4,286.2	10.3	9.6	-156.75		80.5	-63.8	260.4	241.2	19.19	13.570	
4,400.0	4,389.8	4,388.8	4,385.4	10.6	9.8	-155.94		87.2	-66.6	269.9	250.2	19.67	13.721	
4,500.0	4,489.4	4,488.3	4,484.7	10.9	10.1	-155.19		94.0	-69.4	279.4	259.3	20.15	13.867	
4,600.0	4,589.1	4,587.8	4,583.9	11.1	10.3	-154.49		100.8	-72.2	289.0	268.4	20.63	14.007	
4,700.0	4,688.7	4,687.3	4,683.1	11.4	10.6	-153.84		107.5	-74.9	298.6	277.5	21.11	14.142	
4,800.0	4,788.3	4,786.8	4,782.3	11.7	10.8	-153.24		114.3	-77.7	308.0	286.4	21.60	14.262	
4,900.0	4,888.2	4,886.4	4,881.7	11.9	11.1	-152.47		121.1	-80.5	315.1	293.0	22.05	14.290	
5,000.0	4,988.1	4,986.1	4,981.1	12.0	11.3	-151.42		127.8	-83.3	319.1	296.6	22.48	14.196	
5,100.0	5,088.1	5,085.9	5,080.6	12.2	11.6	-93.82		134.6	-86.1	321.4	298.5	22.92	14.020	
5,200.0	5,188.1	5,185.6	5,180.1	12.4	11.8	-92.59		141.4	-88.9	323.8	300.4	23.39	13.843	
5,300.0	5,288.1	5,285.3	5,279.5	12.6	12.0	-91.38		148.2	-91.7	326.4	302.5	23.86	13.680	
5,400.0	5,388.1	5,389.1	5,383.1	12.8	12.2	-90.38		153.8	-94.0	328.5	304.2	24.28	13.531	
5,500.0	5,488.1	5,493.6	5,487.6	13.0	12.4	-90.00		156.0	-94.9	329.4	304.7	24.68	13.347	
5,600.0	5,588.1	5,594.2	5,588.1	13.2	12.6	-90.00		156.0	-94.9	329.4	304.3	25.08	13.133	
5,700.0	5,688.1	5,694.2	5,688.1	13.4	12.8	-90.00		156.0	-94.9	329.4	303.9	25.51	12.912	
5,800.0	5,788.1	5,794.2	5,788.1	13.6	13.1	-90.00		156.0	-94.9	329.4	303.4	25.94	12.698	
5,900.0	5,888.1	5,894.2	5,888.1	13.8	13.3	-90.00		156.0	-94.9	329.4	303.0	26.37	12.490	
6,000.0	5,988.1	5,994.2	5,988.1	14.0	13.5	-90.00		156.0	-94.9	329.4	302.6	26.80	12.289	
6,100.0	6,088.1	6,094.2	6,088.1	14.2	13.7	-90.00		156.0	-94.9	329.4	302.1	27.24	12.094	
6,149.5	6,137.7	6,143.7	6,137.7	14.3	13.8	-90.00		156.0	-94.9	329.4	301.9	27.45	12.000	
6,200.0	6,188.1	6,194.1	6,188.0	14.5	13.9	-90.33		154.1	-94.9	329.4	301.8	27.63	11.920	
6,300.0	6,288.0	6,292.8	6,285.8	14.6	14.0	88.12		140.8	-94.9	329.6	301.6	27.91	11.806	
6,400.0	6,386.4	6,390.5	6,380.0	14.7	14.1	86.59		115.4	-94.9	330.0	301.9	28.11	11.739	
6,500.0	6,481.7	6,487.1	6,469.3	14.8	14.2	85.12		78.6	-94.9	330.6	302.3	28.27	11.693	
6,600.0	6,572.2	6,582.7	6,552.4	14.9	14.3	83.74		31.3	-94.9	331.4	302.9	28.45	11.647	

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 5U-443
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 5U-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 (12-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Becker Ranch 5RU-HZ Pad Sec.5-T3N-R64W - Becker Ranch 5R-323 - 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)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,700.0	6,656.5	6,677.5	6,628.3	15.0	14.4	82.48	-25.3	-94.9	332.3	303.5	28.71	11.571		
6,800.0	6,733.0	6,771.5	6,696.0	15.2	14.6	81.34	-90.4	-94.9	333.2	304.1	29.13	11.440		
6,900.0	6,800.5	6,864.8	6,754.9	15.4	15.0	80.35	-162.7	-94.9	334.1	304.4	29.75	11.232		
7,000.0	6,857.7	6,957.6	6,804.3	15.8	15.5	79.52	-241.2	-94.9	335.0	304.3	30.63	10.935		
7,100.0	6,903.9	7,050.0	6,843.6	16.4	16.2	78.86	-324.7	-94.9	335.7	303.9	31.82	10.551		
7,200.0	6,938.0	7,141.9	6,872.5	17.2	17.0	78.38	-411.9	-94.9	336.3	303.0	33.32	10.093		
7,300.0	6,959.6	7,233.6	6,890.6	18.2	17.9	78.07	-501.7	-94.9	336.7	301.5	35.11	9.588		
7,400.0	6,970.9	7,325.0	6,897.9	19.3	18.9	77.55	-592.8	-94.9	337.4	300.2	37.15	9.081		
7,500.0	6,977.8	7,422.3	6,897.1	20.5	20.2	76.23	-690.1	-94.9	339.2	299.8	39.34	8.621		
7,600.0	6,978.4	7,522.3	6,895.7	21.9	21.5	75.92	-790.0	-94.9	339.6	297.7	41.88	8.108		
7,700.0	6,978.5	7,622.3	6,894.4	23.3	22.9	75.68	-890.0	-94.9	340.0	295.4	44.60	7.622		
7,800.0	6,978.7	7,722.2	6,893.1	24.7	24.4	75.43	-990.0	-94.9	340.3	292.9	47.45	7.172		
7,900.0	6,978.9	7,822.2	6,891.8	26.3	26.0	75.19	-1,090.0	-94.9	340.7	290.3	50.41	6.759		
8,000.0	6,979.1	7,922.2	6,890.5	27.8	27.6	74.95	-1,190.0	-94.9	341.1	287.6	53.44	6.382		
8,100.0	6,979.2	8,022.2	6,889.2	29.5	29.2	74.71	-1,289.9	-94.9	341.5	284.9	56.55	6.038		
8,200.0	6,979.4	8,122.2	6,887.9	31.1	30.9	74.47	-1,389.9	-94.9	341.9	282.1	59.72	5.725		
8,300.0	6,979.6	8,222.2	6,886.6	32.8	32.5	74.23	-1,489.9	-94.9	342.3	279.3	62.93	5.439		
8,400.0	6,979.8	8,322.2	6,885.3	34.5	34.3	73.99	-1,589.9	-94.9	342.7	276.5	66.18	5.178		
8,500.0	6,979.9	8,422.2	6,884.0	36.2	36.0	73.76	-1,689.9	-94.9	343.1	273.6	69.47	4.939		
8,600.0	6,980.1	8,522.2	6,882.7	38.0	37.8	73.52	-1,789.9	-94.9	343.5	270.7	72.78	4.720		
8,700.0	6,980.3	8,622.1	6,881.3	39.7	39.5	73.28	-1,889.8	-94.9	343.9	267.8	76.11	4.519		
8,800.0	6,980.5	8,722.1	6,880.0	41.5	41.3	73.04	-1,989.8	-94.9	344.4	264.9	79.46	4.333		
8,900.0	6,980.6	8,822.1	6,878.7	43.3	43.1	72.81	-2,089.8	-94.9	344.8	262.0	82.83	4.163		
9,000.0	6,980.8	8,922.1	6,877.4	45.1	44.9	72.57	-2,189.8	-94.9	345.2	259.0	86.21	4.005		
9,100.0	6,981.0	9,022.1	6,876.1	46.9	46.7	72.34	-2,289.8	-94.9	345.7	256.1	89.59	3.858		
9,200.0	6,981.2	9,122.1	6,874.8	48.7	48.5	72.11	-2,389.7	-94.9	346.1	253.1	92.99	3.722		
9,300.0	6,981.3	9,222.1	6,873.5	50.5	50.4	71.87	-2,489.7	-94.9	346.6	250.2	96.38	3.596		
9,400.0	6,981.5	9,322.1	6,872.2	52.4	52.2	71.64	-2,589.7	-94.9	347.1	247.3	99.78	3.478		
9,500.0	6,981.7	9,422.1	6,870.9	54.2	54.1	71.41	-2,689.7	-94.9	347.5	244.3	103.19	3.368		
9,600.0	6,981.9	9,522.0	6,869.6	56.1	55.9	71.18	-2,789.7	-94.9	348.0	241.4	106.59	3.265		
9,700.0	6,982.0	9,622.0	6,868.3	57.9	57.8	70.95	-2,889.6	-94.9	348.5	238.5	109.99	3.168		
9,800.0	6,982.2	9,722.0	6,867.0	59.8	59.6	70.71	-2,989.6	-94.9	349.0	235.6	113.40	3.077		
9,900.0	6,982.4	9,822.0	6,865.6	61.6	61.5	70.49	-3,089.6	-94.9	349.5	232.7	116.80	2.992		
10,000.0	6,982.6	9,922.0	6,864.3	63.5	63.3	70.26	-3,189.6	-94.9	350.0	229.8	120.20	2.912		
10,100.0	6,982.7	10,022.0	6,863.0	65.3	65.2	70.03	-3,289.6	-94.9	350.5	226.9	123.59	2.836		
10,200.0	6,982.9	10,122.0	6,861.7	67.2	67.1	69.80	-3,389.5	-94.9	351.0	224.0	126.98	2.764		
10,300.0	6,983.1	10,222.0	6,860.4	69.1	68.9	69.57	-3,489.5	-94.9	351.5	221.1	130.36	2.696		
10,400.0	6,983.3	10,322.0	6,859.1	70.9	70.8	69.35	-3,589.5	-94.9	352.0	218.3	133.75	2.632		
10,500.0	6,983.4	10,421.9	6,857.8	72.8	72.7	69.12	-3,689.5	-94.9	352.5	215.4	137.12	2.571		
10,600.0	6,983.6	10,521.9	6,856.5	74.7	74.6	68.90	-3,789.5	-94.9	353.1	212.6	140.49	2.513		
10,700.0	6,983.8	10,621.9	6,855.2	76.6	76.5	68.67	-3,889.4	-94.9	353.6	209.8	143.85	2.458		
10,800.0	6,984.0	10,721.9	6,853.9	78.5	78.3	68.45	-3,989.4	-94.9	354.1	206.9	147.21	2.406		
10,900.0	6,984.1	10,821.9	6,852.6	80.3	80.2	68.23	-4,089.4	-94.9	354.7	204.1	150.55	2.356		
11,000.0	6,984.3	10,921.9	6,851.2	82.2	82.1	68.00	-4,189.4	-94.9	355.2	201.4	153.89	2.308		
11,100.0	6,984.5	11,021.9	6,849.9	84.1	84.0	67.78	-4,289.4	-94.9	355.8	198.6	157.23	2.263		
11,200.0	6,984.7	11,121.9	6,848.6	86.0	85.9	67.56	-4,389.3	-94.9	356.4	195.8	160.55	2.220		
11,300.0	6,984.8	11,221.9	6,847.3	87.9	87.8	67.34	-4,489.3	-94.9	356.9	193.1	163.87	2.178		
11,399.1	6,985.0	11,320.9	6,846.0	89.8	89.7	67.12	-4,588.4	-94.9	357.5	190.4	167.15	2.139 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-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 (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)	+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	-89.98	-89.98	0.0	-58.6	58.6				
100.0	100.0	99.0	99.0	0.1	0.1	-89.98	-89.98	0.0	-58.6	58.6	58.4	0.22	262.066	
200.0	200.0	199.0	199.0	0.3	0.3	-89.98	-89.98	0.0	-58.6	58.6	57.9	0.67	87.210	
300.0	300.0	299.0	299.0	0.6	0.6	-89.98	-89.98	0.0	-58.6	58.6	57.5	1.12	52.256	
400.0	400.0	399.0	399.0	0.8	0.8	-89.98	-89.98	0.0	-58.6	58.6	57.0	1.57	37.304	
500.0	500.0	499.0	499.0	1.0	1.0	-89.98	-89.98	0.0	-58.6	58.6	56.6	2.02	29.005	
600.0	600.0	599.0	599.0	1.2	1.2	-89.98	-89.98	0.0	-58.6	58.6	56.1	2.47	23.727	
700.0	700.0	699.0	699.0	1.5	1.5	-89.98	-89.98	0.0	-58.6	58.6	55.7	2.92	20.074	
800.0	800.0	799.0	799.0	1.7	1.7	-89.98	-89.98	0.0	-58.6	58.6	55.2	3.37	17.395	
900.0	900.0	899.0	899.0	1.9	1.9	-89.98	-89.98	0.0	-58.6	58.6	54.8	3.82	15.348	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-89.98	-89.98	0.0	-58.6	58.6	54.3	4.27	13.731 CC, ES	
1,100.0	1,100.0	1,097.1	1,097.1	2.4	2.3	-89.37	-89.37	0.7	-60.1	60.2	55.5	4.71	12.783	
1,200.0	1,200.0	1,195.0	1,194.9	2.6	2.6	-87.70	-87.70	2.6	-64.7	64.9	59.8	5.14	12.625	
1,300.0	1,300.0	1,293.0	1,292.5	2.8	2.8	-85.40	-85.40	5.8	-72.3	72.8	67.3	5.58	13.042	
1,400.0	1,400.0	1,392.5	1,391.6	3.0	3.0	-83.33	-83.33	9.5	-80.9	81.8	75.8	6.04	13.544	
1,500.0	1,500.0	1,492.1	1,490.7	3.3	3.3	-81.66	-81.66	13.1	-89.6	90.9	84.4	6.51	13.976	
1,600.0	1,600.0	1,591.5	1,589.7	3.5	3.5	-137.21	-137.21	16.8	-98.2	101.3	94.4	6.89	14.698	
1,700.0	1,699.8	1,690.7	1,688.4	3.7	3.8	-137.69	-137.69	20.4	-106.8	114.3	107.0	7.32	15.611	
1,800.0	1,799.5	1,789.5	1,786.8	3.9	4.0	-139.01	-139.01	24.0	-115.4	129.5	121.8	7.75	16.705	
1,900.0	1,899.1	1,888.2	1,885.1	4.1	4.3	-140.23	-140.23	27.7	-123.9	145.1	136.9	8.19	17.709	
2,000.0	1,998.8	1,986.9	1,983.4	4.4	4.5	-141.21	-141.21	31.3	-132.5	160.7	152.1	8.64	18.607	
2,100.0	2,098.4	2,085.7	2,081.7	4.6	4.8	-142.02	-142.02	34.9	-141.1	176.4	167.3	9.09	19.413	
2,200.0	2,198.0	2,184.4	2,180.0	4.9	5.1	-142.70	-142.70	38.6	-149.6	192.1	182.6	9.54	20.139	
2,300.0	2,297.6	2,283.2	2,278.3	5.1	5.3	-143.27	-143.27	42.2	-158.2	207.8	197.8	9.99	20.796	
2,400.0	2,397.3	2,381.9	2,376.6	5.4	5.6	-143.76	-143.76	45.8	-166.8	223.6	213.1	10.45	21.393	
2,500.0	2,496.9	2,480.6	2,474.9	5.6	5.9	-144.19	-144.19	49.4	-175.3	239.3	228.4	10.91	21.937	
2,600.0	2,596.5	2,579.4	2,573.1	5.9	6.2	-144.57	-144.57	53.1	-183.9	255.1	243.7	11.37	22.434	
2,700.0	2,696.1	2,678.1	2,671.4	6.1	6.4	-144.90	-144.90	56.7	-192.4	270.8	259.0	11.83	22.891	
2,800.0	2,795.8	2,776.8	2,769.7	6.4	6.7	-145.20	-145.20	60.3	-201.0	286.6	274.3	12.30	23.311	
2,900.0	2,895.4	2,875.6	2,868.0	6.6	7.0	-145.46	-145.46	63.9	-209.6	302.4	289.6	12.76	23.699	
3,000.0	2,995.0	2,974.3	2,966.3	6.9	7.2	-145.70	-145.70	67.6	-218.1	318.2	305.0	13.23	24.058	
3,100.0	3,094.6	3,073.1	3,064.6	7.2	7.5	-145.91	-145.91	71.2	-226.7	334.0	320.3	13.69	24.391	
3,200.0	3,194.3	3,171.8	3,162.9	7.4	7.8	-146.11	-146.11	74.8	-235.3	349.8	335.6	14.16	24.701	
3,300.0	3,293.9	3,270.5	3,261.2	7.7	8.1	-146.29	-146.29	78.4	-243.8	365.6	351.0	14.63	24.989	
3,400.0	3,393.5	3,369.3	3,359.5	7.9	8.4	-146.45	-146.45	82.1	-252.4	381.4	366.3	15.10	25.259	
3,500.0	3,493.2	3,468.0	3,457.8	8.2	8.6	-146.61	-146.61	85.7	-261.0	397.2	381.7	15.57	25.512	
3,600.0	3,592.8	3,566.7	3,556.1	8.5	8.9	-146.75	-146.75	89.3	-269.5	413.0	397.0	16.04	25.749	
3,700.0	3,692.4	3,665.5	3,654.4	8.7	9.2	-146.88	-146.88	92.9	-278.1	428.9	412.3	16.51	25.972	
3,800.0	3,792.0	3,764.2	3,752.7	9.0	9.5	-147.00	-147.00	96.6	-286.6	444.7	427.7	16.98	26.182	
3,900.0	3,891.7	3,862.9	3,851.0	9.3	9.7	-147.11	-147.11	100.2	-295.2	460.5	443.0	17.46	26.380	
4,000.0	3,991.3	3,961.7	3,949.3	9.5	10.0	-147.21	-147.21	103.8	-303.8	476.3	458.4	17.93	26.567	
4,100.0	4,090.9	4,060.4	4,047.6	9.8	10.3	-147.31	-147.31	107.4	-312.3	492.1	473.7	18.40	26.743	
4,200.0	4,190.5	4,159.2	4,145.9	10.1	10.6	-147.40	-147.40	111.1	-320.9	508.0	489.1	18.88	26.911	
4,300.0	4,290.2	4,257.9	4,244.2	10.3	10.9	-147.49	-147.49	114.7	-329.5	523.8	504.4	19.35	27.069	
4,400.0	4,389.8	4,356.6	4,342.5	10.6	11.1	-147.57	-147.57	118.3	-338.0	539.6	519.8	19.82	27.220	
4,500.0	4,489.4	4,455.4	4,440.8	10.9	11.4	-147.65	-147.65	121.9	-346.6	555.4	535.1	20.30	27.364	
4,600.0	4,589.1	4,554.1	4,539.1	11.1	11.7	-147.72	-147.72	125.6	-355.1	571.3	550.5	20.77	27.500	
4,700.0	4,688.7	4,652.8	4,637.4	11.4	12.0	-147.79	-147.79	129.2	-363.7	587.1	565.9	21.25	27.630	
4,800.0	4,788.3	4,751.6	4,735.7	11.7	12.3	-147.90	-147.90	132.8	-372.3	602.7	581.0	21.73	27.738	
4,900.0	4,888.2	4,850.7	4,834.4	11.9	12.5	-147.95	-147.95	136.5	-380.9	616.1	593.9	22.18	27.771	
5,000.0	4,988.1	4,950.1	4,933.4	12.0	12.8	-147.81	-147.81	140.1	-389.5	626.5	603.9	22.61	27.704	

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 5U-443
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 5U-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 (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
5,100.0	5,088.1	5,049.7	5,032.5	12.2	13.1	-91.11		143.8	-398.1	635.1	612.0	23.04	27.564	
5,200.0	5,188.1	5,149.2	5,131.6	12.4	13.4	-90.77		147.4	-406.8	643.7	620.2	23.49	27.407	
5,300.0	5,288.1	5,248.9	5,230.8	12.6	13.7	-90.43		151.1	-415.4	652.3	628.4	23.93	27.257	
5,400.0	5,388.1	5,375.3	5,356.8	12.8	13.9	-90.12		154.6	-423.8	659.0	634.6	24.39	27.020	
5,500.0	5,488.1	5,502.1	5,483.7	13.0	14.1	-90.00		156.0	-427.0	661.5	636.7	24.82	26.651	
5,600.0	5,588.1	5,605.6	5,587.1	13.2	14.3	-90.00		156.0	-427.1	661.6	636.3	25.23	26.223	
5,700.0	5,688.1	5,705.6	5,687.1	13.4	14.5	-90.00		156.0	-427.1	661.6	635.9	25.64	25.798	
5,800.0	5,788.1	5,805.6	5,787.1	13.6	14.7	-90.00		156.0	-427.1	661.6	635.5	26.06	25.385	
5,900.0	5,888.1	5,905.6	5,887.1	13.8	14.9	-90.00		156.0	-427.1	661.6	635.1	26.48	24.984	
6,000.0	5,988.1	6,005.6	5,987.1	14.0	15.1	-90.00		156.0	-427.1	661.6	634.7	26.90	24.595	
6,100.0	6,088.1	6,105.6	6,087.1	14.2	15.3	-90.00		156.0	-427.1	661.6	634.2	27.32	24.216	
6,200.0	6,188.1	6,205.6	6,187.1	14.5	15.4	-90.00		156.0	-427.1	661.6	633.8	27.74	23.849	
6,300.0	6,288.0	6,305.6	6,287.0	14.6	15.6	90.01		151.5	-427.1	661.6	633.5	28.08	23.558	
6,400.0	6,386.4	6,405.7	6,385.4	14.7	15.7	90.02		134.3	-427.1	661.6	633.2	28.32	23.358	
6,500.0	6,481.7	6,505.7	6,480.8	14.8	15.8	90.03		104.3	-427.1	661.6	633.1	28.51	23.203	
6,600.0	6,572.2	6,605.8	6,571.4	14.9	15.9	90.04		62.1	-427.1	661.6	632.9	28.71	23.047	
6,700.0	6,656.5	6,705.8	6,655.8	15.0	16.0	90.05		8.4	-427.1	661.6	632.6	28.97	22.834	
6,800.0	6,733.0	6,805.9	6,732.5	15.2	16.1	90.06		-55.8	-427.1	661.6	632.2	29.39	22.506	
6,900.0	6,800.5	6,906.0	6,800.1	15.4	16.3	90.07		-129.5	-427.1	661.6	631.5	30.05	22.015	
7,000.0	6,857.7	7,006.1	6,857.5	15.8	16.7	90.07		-211.5	-427.1	661.6	630.6	31.00	21.337	
7,100.0	6,903.9	7,106.2	6,903.7	16.4	17.2	90.08		-300.2	-427.1	661.6	629.3	32.30	20.483	
7,200.0	6,938.0	7,206.4	6,937.9	17.2	17.9	90.08		-394.2	-427.1	661.6	627.6	33.94	19.492	
7,300.0	6,959.6	7,306.5	6,959.6	18.2	18.8	90.09		-491.9	-427.1	661.6	625.7	35.91	18.425	
7,400.0	6,970.9	7,406.5	6,970.9	19.3	19.9	90.09		-591.3	-427.1	661.6	623.4	38.15	17.342	
7,500.0	6,977.8	7,506.6	6,977.8	20.5	21.1	90.09		-691.1	-427.1	661.6	620.9	40.62	16.285	
7,599.6	6,979.3	7,606.3	6,978.4	21.9	22.4	90.01		-790.8	-427.1	661.6	618.3	43.28	15.286	
7,600.0	6,978.4	7,606.6	6,978.4	21.9	22.4	90.09		-791.1	-427.1	661.6	618.3	43.29	15.283	
7,700.0	6,978.5	7,706.6	6,978.5	23.3	23.8	90.09		-891.1	-427.1	661.6	615.4	46.11	14.346	
7,800.0	6,978.7	7,806.6	6,978.7	24.7	25.2	90.09		-991.1	-427.1	661.6	612.5	49.08	13.479	
7,900.0	6,978.9	7,906.6	6,978.9	26.3	26.7	90.09		-1,091.1	-427.1	661.6	609.4	52.16	12.684	
8,000.0	6,979.1	8,006.6	6,979.1	27.8	28.3	90.09		-1,191.1	-427.1	661.6	606.2	55.33	11.956	
8,100.0	6,979.2	8,106.6	6,979.2	29.5	29.9	90.09		-1,291.1	-427.1	661.6	603.0	58.59	11.292	
8,200.0	6,979.4	8,206.6	6,979.4	31.1	31.5	90.09		-1,391.1	-427.1	661.6	599.7	61.91	10.687	
8,300.0	6,979.6	8,306.6	6,979.6	32.8	33.2	90.09		-1,491.1	-427.1	661.6	596.3	65.28	10.134	
8,400.0	6,979.8	8,406.6	6,979.8	34.5	34.8	90.09		-1,591.1	-427.1	661.6	592.9	68.71	9.628	
8,500.0	6,979.9	8,506.6	6,979.9	36.2	36.6	90.09		-1,691.1	-427.1	661.6	589.4	72.18	9.166	
8,600.0	6,980.1	8,606.6	6,980.1	38.0	38.3	90.09		-1,791.1	-427.1	661.6	585.9	75.68	8.742	
8,700.0	6,980.3	8,706.6	6,980.3	39.7	40.0	90.09		-1,891.1	-427.1	661.6	582.3	79.21	8.352	
8,800.0	6,980.5	8,806.6	6,980.5	41.5	41.8	90.09		-1,991.1	-427.1	661.6	578.8	82.78	7.992	
8,900.0	6,980.6	8,906.6	6,980.6	43.3	43.6	90.09		-2,091.1	-427.1	661.6	575.2	86.36	7.660	
9,000.0	6,980.8	9,006.6	6,980.8	45.1	45.4	90.09		-2,191.1	-427.1	661.6	571.6	89.97	7.353	
9,100.0	6,981.0	9,106.6	6,981.0	46.9	47.2	90.09		-2,291.1	-427.1	661.6	568.0	93.59	7.069	
9,200.0	6,981.2	9,206.6	6,981.2	48.7	49.0	90.09		-2,391.1	-427.1	661.6	564.3	97.23	6.804	
9,300.0	6,981.3	9,306.6	6,981.3	50.5	50.8	90.09		-2,491.1	-427.1	661.6	560.7	100.89	6.557	
9,400.0	6,981.5	9,406.6	6,981.5	52.4	52.6	90.09		-2,591.1	-427.1	661.6	557.0	104.56	6.327	
9,500.0	6,981.7	9,506.6	6,981.7	54.2	54.4	90.09		-2,691.1	-427.1	661.6	553.3	108.24	6.112	
9,600.0	6,981.9	9,606.6	6,981.9	56.1	56.3	90.09		-2,791.1	-427.1	661.6	549.6	111.93	5.911	
9,700.0	6,982.0	9,706.6	6,982.0	57.9	58.1	90.09		-2,891.1	-427.1	661.6	545.9	115.63	5.721	
9,800.0	6,982.2	9,806.6	6,982.2	59.8	60.0	90.09		-2,991.1	-427.1	661.6	542.2	119.34	5.544	
9,900.0	6,982.4	9,906.6	6,982.4	61.6	61.8	90.09		-3,091.1	-427.1	661.6	538.5	123.06	5.376	
10,000.0	6,982.6	10,006.6	6,982.6	63.5	63.7	90.09		-3,191.1	-427.1	661.6	534.8	126.78	5.218	

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 5U-443
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 5U-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 (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	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	
10,100.0	6,982.7	10,106.6	6,982.7	65.3	65.5	90.09	-3,291.1	-427.1	661.6	531.1	130.51	5.069		
10,200.0	6,982.9	10,206.6	6,982.9	67.2	67.4	90.09	-3,391.1	-427.1	661.6	527.3	134.25	4.928		
10,300.0	6,983.1	10,306.6	6,983.1	69.1	69.3	90.09	-3,491.1	-427.1	661.6	523.6	137.99	4.794		
10,400.0	6,983.3	10,406.6	6,983.2	70.9	71.1	90.09	-3,591.1	-427.1	661.6	519.8	141.74	4.667		
10,500.0	6,983.4	10,506.6	6,983.4	72.8	73.0	90.09	-3,691.1	-427.1	661.6	516.1	145.49	4.547		
10,600.0	6,983.6	10,606.6	6,983.6	74.7	74.9	90.09	-3,791.1	-427.1	661.6	512.3	149.25	4.433		
10,700.0	6,983.8	10,706.6	6,983.8	76.6	76.7	90.09	-3,891.1	-427.1	661.6	508.6	153.01	4.324		
10,800.0	6,984.0	10,806.6	6,983.9	78.5	78.6	90.09	-3,991.1	-427.1	661.6	504.8	156.78	4.220		
10,900.0	6,984.1	10,906.6	6,984.1	80.3	80.5	90.09	-4,091.1	-427.1	661.6	501.0	160.54	4.121		
11,000.0	6,984.3	11,006.6	6,984.3	82.2	82.4	90.09	-4,191.1	-427.1	661.6	497.2	164.32	4.026		
11,100.0	6,984.5	11,106.6	6,984.5	84.1	84.3	90.09	-4,291.1	-427.1	661.6	493.5	168.09	3.936		
11,200.0	6,984.7	11,206.6	6,984.6	86.0	86.1	90.09	-4,391.1	-427.1	661.6	489.7	171.87	3.849		
11,300.0	6,984.8	11,306.6	6,984.8	87.9	88.0	90.09	-4,491.1	-427.1	661.6	485.9	175.62	3.767		
11,399.1	6,985.0	11,405.7	6,985.0	89.8	89.5	90.09	-4,590.2	-427.1	661.6	482.5	179.02	3.696 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-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 (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	90.00	90.00	0.0	30.7	30.7				
100.0	100.0	99.0	99.0	0.1	0.1	90.00	90.00	0.0	30.7	30.7	30.5	0.22	137.273	
200.0	200.0	199.0	199.0	0.3	0.3	90.00	90.00	0.0	30.7	30.7	30.0	0.67	45.681	
300.0	300.0	299.0	299.0	0.6	0.6	90.00	90.00	0.0	30.7	30.7	29.6	1.12	27.372	
400.0	400.0	399.0	399.0	0.8	0.8	90.00	90.00	0.0	30.7	30.7	29.1	1.57	19.540	
500.0	500.0	499.0	499.0	1.0	1.0	90.00	90.00	0.0	30.7	30.7	28.7	2.02	15.193	
600.0	600.0	599.0	599.0	1.2	1.2	90.00	90.00	0.0	30.7	30.7	28.2	2.47	12.428	
700.0	700.0	699.0	699.0	1.5	1.5	90.00	90.00	0.0	30.7	30.7	27.8	2.92	10.515	
800.0	800.0	799.0	799.0	1.7	1.7	90.00	90.00	0.0	30.7	30.7	27.3	3.37	9.112	
900.0	900.0	899.0	899.0	1.9	1.9	90.00	90.00	0.0	30.7	30.7	26.9	3.82	8.039	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	90.00	90.00	0.0	30.7	30.7	26.4	4.27	7.193 CC, ES	
1,100.0	1,100.0	1,098.0	1,097.9	2.4	2.3	89.17	87.10	0.5	32.3	32.3	27.6	4.71	6.869	
1,200.0	1,200.0	1,196.7	1,196.5	2.6	2.6	87.10	84.66	1.9	37.2	37.3	32.2	5.14	7.257	
1,300.0	1,300.0	1,294.9	1,294.4	2.8	2.8	84.66	82.44	4.2	45.3	45.7	40.1	5.58	8.183	
1,400.0	1,400.0	1,392.6	1,391.4	3.0	3.0	82.44	80.81	7.5	56.5	57.5	51.4	6.04	9.518	
1,500.0	1,500.0	1,491.7	1,489.6	3.3	3.3	80.81	23.72	11.2	69.2	70.7	64.2	6.51	10.865	
1,600.0	1,600.0	1,591.0	1,588.0	3.5	3.5	23.72	24.05	14.9	82.0	82.4	75.5	6.89	11.972	
1,700.0	1,699.8	1,690.7	1,686.8	3.7	3.8	24.05	25.09	18.6	94.8	91.0	83.6	7.31	12.441	
1,800.0	1,799.5	1,790.5	1,785.7	3.9	4.1	25.09	26.14	22.3	107.6	96.8	89.0	7.75	12.492	
1,900.0	1,899.1	1,890.3	1,884.6	4.1	4.4	26.14	27.07	26.1	120.4	102.3	94.1	8.19	12.480	
2,000.0	1,998.8	1,990.1	1,983.6	4.4	4.7	27.07	27.92	29.8	133.2	107.8	99.1	8.65	12.465	
2,100.0	2,098.4	2,090.0	2,082.5	4.6	5.0	27.92	28.69	33.5	146.0	113.3	104.2	9.10	12.449	
2,200.0	2,198.0	2,189.8	2,181.4	4.9	5.3	28.69	29.38	37.3	158.8	118.9	109.3	9.56	12.431	
2,300.0	2,297.6	2,289.6	2,280.4	5.1	5.7	29.38	30.02	41.0	171.7	124.5	114.4	10.03	12.412	
2,400.0	2,397.3	2,389.5	2,379.3	5.4	6.0	30.02	31.14	44.7	184.5	130.0	119.6	10.49	12.392	
2,500.0	2,496.9	2,489.3	2,478.2	5.6	6.3	30.61	31.64	48.4	197.3	135.7	124.7	10.97	12.372	
2,600.0	2,596.5	2,589.1	2,577.2	5.9	6.6	31.14	32.10	52.2	210.1	141.3	129.8	11.44	12.352	
2,700.0	2,696.1	2,689.0	2,676.1	6.1	6.9	31.64	32.53	55.9	222.9	146.9	135.0	11.92	12.331	
2,800.0	2,795.8	2,788.8	2,775.0	6.4	7.3	32.10	32.93	59.6	235.7	152.6	140.2	12.39	12.310	
2,900.0	2,895.4	2,888.6	2,874.0	6.6	7.6	32.53	33.30	63.3	248.6	158.2	145.4	12.87	12.290	
3,000.0	2,995.0	2,988.5	2,972.9	6.9	7.9	32.93	33.65	67.1	261.4	163.9	150.5	13.36	12.270	
3,100.0	3,094.6	3,088.3	3,071.9	7.2	8.2	33.30	33.97	70.8	274.2	169.6	155.7	13.84	12.250	
3,200.0	3,194.3	3,188.1	3,170.8	7.4	8.6	33.65	34.28	74.5	287.0	175.2	160.9	14.33	12.231	
3,300.0	3,293.9	3,288.0	3,269.7	7.7	8.9	33.97	34.57	78.2	299.8	180.9	166.1	14.82	12.212	
3,400.0	3,393.5	3,387.8	3,368.7	7.9	9.2	34.28	34.84	82.0	312.7	186.6	171.3	15.31	12.193	
3,500.0	3,493.2	3,487.6	3,467.6	8.2	9.5	34.57	35.09	85.7	325.5	192.3	176.5	15.80	12.175	
3,600.0	3,592.8	3,587.5	3,566.5	8.5	9.9	34.84	35.33	89.4	338.3	198.0	181.7	16.29	12.158	
3,700.0	3,692.4	3,687.3	3,665.5	8.7	10.2	35.09	35.56	93.1	351.1	203.7	186.9	16.78	12.141	
3,800.0	3,792.0	3,787.1	3,764.4	9.0	10.5	35.33	35.78	96.9	363.9	209.4	192.2	17.27	12.124	
3,900.0	3,891.7	3,887.0	3,863.3	9.3	10.9	35.56	35.99	100.6	376.7	215.1	197.4	17.77	12.108	
4,000.0	3,991.3	3,986.8	3,962.3	9.5	11.2	35.78	36.18	104.3	389.6	220.9	202.6	18.26	12.092	
4,100.0	4,090.9	4,086.6	4,061.2	9.8	11.5	35.99	36.37	108.1	402.4	226.6	207.8	18.76	12.077	
4,200.0	4,190.5	4,186.5	4,160.2	10.1	11.9	36.18	36.55	111.8	415.2	232.3	213.0	19.26	12.062	
4,300.0	4,290.2	4,286.3	4,259.1	10.3	12.2	36.37	36.72	115.5	428.0	238.0	218.3	19.76	12.048	
4,400.0	4,389.8	4,386.1	4,358.0	10.6	12.5	36.55	36.88	119.2	440.8	243.7	223.5	20.26	12.034	
4,500.0	4,489.4	4,486.0	4,457.0	10.9	12.9	36.72	37.04	123.0	453.7	249.5	228.7	20.76	12.020	
4,600.0	4,589.1	4,585.8	4,555.9	11.1	13.2	36.88	37.18	126.7	466.5	255.2	234.0	21.26	12.007	
4,700.0	4,688.7	4,685.6	4,654.8	11.4	13.5	37.04	37.25	130.4	479.3	260.9	239.2	21.76	11.994	
4,800.0	4,788.3	4,785.5	4,753.8	11.7	13.9	37.18	37.30	134.1	492.1	266.8	244.6	22.25	11.995	
4,900.0	4,888.2	4,885.1	4,852.5	11.9	14.2	37.30	37.35	137.9	504.9	275.0	252.3	22.66	12.132	
5,000.0	4,988.1	4,984.5	4,951.0	12.0	14.5	37.35		141.6	517.7	285.9	262.8	23.04	12.408	

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 5U-443
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 5U-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 (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	5,088.1	5,083.6	5,049.2	12.2	14.9	92.08	92.08	145.3	530.4	298.5	275.1	23.43	12.741	
5,200.0	5,188.1	5,186.2	5,151.0	12.4	15.2	91.29	91.29	149.0	543.4	311.1	287.2	23.85	13.044	
5,300.0	5,288.1	5,297.4	5,261.6	12.6	15.4	90.68	90.68	152.2	554.3	320.9	296.6	24.25	13.233	
5,400.0	5,388.1	5,409.4	5,373.3	12.8	15.7	90.31	90.31	154.2	561.2	327.0	302.3	24.65	13.266	
5,500.0	5,488.1	5,521.7	5,485.5	13.0	15.8	90.18	90.18	155.0	563.8	329.4	304.3	25.05	13.148	
5,600.0	5,588.1	5,623.3	5,587.1	13.2	16.0	90.17	90.17	155.0	563.9	329.4	303.9	25.45	12.942	
5,700.0	5,688.1	5,723.3	5,687.1	13.4	16.2	90.17	90.17	155.0	563.9	329.4	303.5	25.86	12.737	
5,800.0	5,788.1	5,823.3	5,787.1	13.6	16.3	90.17	90.17	155.0	563.9	329.4	303.1	26.27	12.538	
5,900.0	5,888.1	5,923.3	5,887.1	13.8	16.5	90.17	90.17	155.0	563.9	329.4	302.7	26.68	12.345	
6,000.0	5,988.1	6,023.3	5,987.1	14.0	16.7	90.17	90.17	155.0	563.9	329.4	302.3	27.10	12.157	
6,054.6	6,042.7	6,077.9	6,041.7	14.2	16.7	90.17	90.17	155.0	563.9	329.4	302.1	27.32	12.056	
6,100.0	6,088.1	6,123.2	6,087.1	14.2	16.8	90.30	90.30	154.3	563.9	329.4	301.9	27.50	11.976	
6,200.0	6,188.1	6,221.8	6,185.0	14.5	16.9	92.16	92.16	143.6	563.9	329.6	301.7	27.93	11.800	
6,300.0	6,288.0	6,317.2	6,277.7	14.6	17.0	-84.63	-84.63	121.3	563.9	330.9	302.5	28.35	11.673	
6,400.0	6,386.4	6,410.5	6,365.0	14.7	17.1	-81.53	-81.53	88.5	563.9	333.1	304.5	28.66	11.625	
6,500.0	6,481.7	6,500.0	6,444.4	14.8	17.2	-78.68	-78.68	47.3	563.9	336.2	307.3	28.87	11.645	
6,600.0	6,572.2	6,591.8	6,520.3	14.9	17.3	-75.96	-75.96	-4.3	563.9	339.8	310.8	29.00	11.714	
6,700.0	6,656.5	6,680.2	6,587.0	15.0	17.4	-73.57	-73.57	-62.3	563.9	343.7	314.6	29.13	11.800	
6,800.0	6,733.0	6,767.4	6,645.7	15.2	17.5	-71.47	-71.47	-126.6	563.9	347.7	318.4	29.29	11.870	
6,900.0	6,800.5	6,853.5	6,696.2	15.4	17.8	-69.68	-69.68	-196.3	563.9	351.5	321.9	29.60	11.874	
7,000.0	6,857.7	6,938.8	6,738.2	15.8	18.1	-68.20	-68.20	-270.5	563.9	354.9	324.8	30.18	11.762	
7,100.0	6,903.9	7,023.5	6,771.4	16.4	18.6	-67.05	-67.05	-348.3	563.9	357.8	326.7	31.10	11.507	
7,200.0	6,938.0	7,107.6	6,795.7	17.2	19.2	-66.21	-66.21	-428.8	563.9	360.0	327.6	32.42	11.104	
7,300.0	6,959.6	7,191.4	6,811.0	18.2	20.0	-65.69	-65.69	-511.1	563.9	361.4	327.3	34.18	10.575	
7,400.0	6,970.9	7,274.9	6,817.2	19.3	20.8	-65.20	-65.20	-594.3	563.9	363.1	327.0	36.08	10.064	
7,500.0	6,977.8	7,369.3	6,816.2	20.5	21.9	-64.02	-64.02	-688.8	563.9	366.5	328.2	38.25	9.581	
7,600.0	6,978.4	7,469.3	6,814.7	21.9	23.1	-63.72	-63.72	-788.7	563.9	367.4	326.7	40.70	9.026	
7,700.0	6,978.5	7,569.3	6,813.3	23.3	24.4	-63.49	-63.49	-888.7	563.9	368.1	324.9	43.23	8.515	
7,800.0	6,978.7	7,669.3	6,811.8	24.7	25.8	-63.27	-63.27	-988.7	563.9	368.8	323.0	45.87	8.041	
7,900.0	6,978.9	7,769.3	6,810.3	26.3	27.3	-63.04	-63.04	-1,088.7	563.9	369.6	321.0	48.60	7.605	
8,000.0	6,979.1	7,869.2	6,808.9	27.8	28.8	-62.81	-62.81	-1,188.6	563.9	370.3	318.9	51.40	7.204	
8,100.0	6,979.2	7,969.2	6,807.4	29.5	30.4	-62.59	-62.59	-1,288.6	563.9	371.1	316.8	54.27	6.837	
8,200.0	6,979.4	8,069.2	6,805.9	31.1	32.0	-62.36	-62.36	-1,388.6	563.9	371.8	314.6	57.19	6.502	
8,300.0	6,979.6	8,169.2	6,804.5	32.8	33.6	-62.14	-62.14	-1,488.6	563.9	372.6	312.4	60.14	6.195	
8,400.0	6,979.8	8,269.2	6,803.0	34.5	35.3	-61.92	-61.92	-1,588.5	563.9	373.4	310.2	63.13	5.914	
8,500.0	6,979.9	8,369.2	6,801.5	36.2	37.0	-61.70	-61.70	-1,688.5	563.9	374.1	308.0	66.15	5.656	
8,600.0	6,980.1	8,469.2	6,800.1	38.0	38.7	-61.47	-61.47	-1,788.5	563.9	374.9	305.7	69.18	5.419	
8,700.0	6,980.3	8,569.2	6,798.6	39.7	40.4	-61.25	-61.25	-1,888.5	563.9	375.7	303.5	72.24	5.201	
8,800.0	6,980.5	8,669.1	6,797.1	41.5	42.2	-61.04	-61.04	-1,988.5	563.9	376.5	301.2	75.30	5.000	
8,900.0	6,980.6	8,769.1	6,795.7	43.3	43.9	-60.82	-60.82	-2,088.4	563.9	377.3	298.9	78.38	4.814	
9,000.0	6,980.8	8,869.1	6,794.2	45.1	45.7	-60.60	-60.60	-2,188.4	563.9	378.1	296.6	81.46	4.641	
9,100.0	6,981.0	8,969.1	6,792.7	46.9	47.5	-60.38	-60.38	-2,288.4	563.9	378.9	294.3	84.55	4.481	
9,200.0	6,981.2	9,069.1	6,791.3	48.7	49.3	-60.17	-60.17	-2,388.4	563.9	379.7	292.1	87.64	4.332	
9,300.0	6,981.3	9,169.1	6,789.8	50.5	51.1	-59.96	-59.96	-2,488.3	563.9	380.5	289.8	90.74	4.194	
9,400.0	6,981.5	9,269.1	6,788.4	52.4	52.9	-59.74	-59.74	-2,588.3	563.9	381.4	287.5	93.83	4.064	
9,500.0	6,981.7	9,369.0	6,786.9	54.2	54.7	-59.53	-59.53	-2,688.3	563.9	382.2	285.3	96.92	3.943	
9,600.0	6,981.9	9,469.0	6,785.4	56.1	56.5	-59.32	-59.32	-2,788.3	563.9	383.0	283.0	100.01	3.830	
9,700.0	6,982.0	9,569.0	6,784.0	57.9	58.4	-59.11	-59.11	-2,888.2	563.9	383.9	280.8	103.10	3.723	
9,800.0	6,982.2	9,669.0	6,782.5	59.8	60.2	-58.90	-58.90	-2,988.2	563.9	384.7	278.5	106.18	3.623	
9,900.0	6,982.4	9,769.0	6,781.0	61.6	62.1	-58.69	-58.69	-3,088.2	563.9	385.5	276.3	109.26	3.529	
10,000.0	6,982.6	9,869.0	6,779.6	63.5	63.9	-58.48	-58.48	-3,188.2	563.9	386.4	274.1	112.33	3.440	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-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 (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	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,982.7	9,969.0	6,778.1	65.3	65.8	-58.27	-3,288.1	563.9	387.3	271.9	115.40	3.356	
10,200.0	6,982.9	10,068.9	6,776.6	67.2	67.6	-58.07	-3,388.1	563.9	388.1	269.7	118.46	3.277	
10,300.0	6,983.1	10,168.9	6,775.2	69.1	69.5	-57.86	-3,488.1	563.9	389.0	267.5	121.51	3.201	
10,400.0	6,983.3	10,268.9	6,773.7	70.9	71.3	-57.66	-3,588.1	563.9	389.9	265.3	124.55	3.130	
10,500.0	6,983.4	10,368.9	6,772.2	72.8	73.2	-57.46	-3,688.0	563.9	390.8	263.2	127.59	3.063	
10,600.0	6,983.6	10,468.9	6,770.8	74.7	75.1	-57.25	-3,788.0	563.9	391.6	261.0	130.62	2.998	
10,700.0	6,983.8	10,568.9	6,769.3	76.6	76.9	-57.05	-3,888.0	563.9	392.5	258.9	133.64	2.937	
10,800.0	6,984.0	10,668.9	6,767.8	78.5	78.8	-56.85	-3,988.0	563.9	393.4	256.8	136.65	2.879	
10,900.0	6,984.1	10,768.9	6,766.4	80.3	80.7	-56.65	-4,087.9	563.9	394.3	254.7	139.65	2.824	
11,000.0	6,984.3	10,868.8	6,764.9	82.2	82.5	-56.45	-4,187.9	563.9	395.2	252.6	142.65	2.771	
11,100.0	6,984.5	10,968.8	6,763.4	84.1	84.4	-56.26	-4,287.9	563.9	396.1	250.5	145.63	2.720	
11,200.0	6,984.7	11,068.8	6,762.0	86.0	86.3	-56.06	-4,387.9	563.9	397.1	248.4	148.61	2.672	
11,300.0	6,984.8	11,168.8	6,760.5	87.9	88.2	-55.86	-4,487.8	563.9	398.0	246.4	151.57	2.626	
11,399.1	6,985.0	11,267.9	6,759.0	89.8	90.0	-55.67	-4,586.9	563.9	398.9	244.4	154.50	2.582 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-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 (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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	171.09	171.09	-462.7	72.6	468.8				
100.0	100.0	78.0	78.0	0.1	1.6	171.09	171.09	-462.7	72.6	468.3	466.6	1.67	279.992	
200.0	200.0	178.0	178.0	0.3	3.6	171.09	171.09	-462.7	72.6	468.3	464.4	3.90	120.161	
300.0	300.0	278.0	278.0	0.6	5.6	171.09	171.09	-462.7	72.6	468.3	462.2	6.12	76.495	
400.0	400.0	378.0	378.0	0.8	7.6	171.09	171.09	-462.7	72.6	468.3	460.0	8.35	56.106	
500.0	500.0	478.0	478.0	1.0	9.6	171.09	171.09	-462.7	72.6	468.3	457.7	10.57	44.299	
600.0	600.0	578.0	578.0	1.2	11.6	171.09	171.09	-462.7	72.6	468.3	455.5	12.80	36.597	
700.0	700.0	678.0	678.0	1.5	13.6	171.09	171.09	-462.7	72.6	468.3	453.3	15.02	31.177	
800.0	800.0	778.0	778.0	1.7	15.6	171.09	171.09	-462.7	72.6	468.3	451.1	17.25	27.155	
900.0	900.0	878.0	878.0	1.9	17.6	171.09	171.09	-462.7	72.6	468.3	448.8	19.47	24.052	
1,000.0	1,000.0	978.0	978.0	2.1	19.6	171.09	171.09	-462.7	72.6	468.3	446.6	21.70	21.586	
1,100.0	1,100.0	1,078.0	1,078.0	2.4	21.6	171.09	171.09	-462.7	72.6	468.3	444.4	23.92	19.578	
1,200.0	1,200.0	1,178.0	1,178.0	2.6	23.6	171.09	171.09	-462.7	72.6	468.3	442.2	26.14	17.912	
1,300.0	1,300.0	1,278.0	1,278.0	2.8	25.6	171.09	171.09	-462.7	72.6	468.3	439.9	28.37	16.507	
1,400.0	1,400.0	1,378.0	1,378.0	3.0	27.6	171.09	171.09	-462.7	72.6	468.3	437.7	30.59	15.307	
1,500.0	1,500.0	1,478.0	1,478.0	3.3	29.6	171.09	171.09	-462.7	72.6	468.3	435.5	32.82	14.269	
1,600.0	1,600.0	1,578.0	1,578.0	3.5	31.6	114.90	114.90	-462.7	72.6	469.0	434.0	35.03	13.388	
1,700.0	1,699.8	1,677.8	1,677.8	3.7	33.6	115.44	115.44	-462.7	72.6	471.3	434.0	37.24	12.657	
1,800.0	1,799.5	1,777.5	1,777.5	3.9	35.6	116.30	116.30	-462.7	72.6	474.9	435.4	39.44	12.040	
1,900.0	1,899.1	1,877.1	1,877.1	4.1	37.5	117.23	117.23	-462.7	72.6	478.8	437.1	41.66	11.493	
2,000.0	1,998.8	1,976.8	1,976.8	4.4	39.5	118.13	118.13	-462.7	72.6	482.8	438.9	43.88	11.003	
2,100.0	2,098.4	2,076.4	2,076.4	4.6	41.5	119.03	119.03	-462.7	72.6	486.9	440.8	46.10	10.561	
2,200.0	2,198.0	2,176.0	2,176.0	4.9	43.5	119.90	119.90	-462.7	72.6	491.2	442.9	48.33	10.163	
2,300.0	2,297.6	2,275.6	2,275.6	5.1	45.5	120.77	120.77	-462.7	72.6	495.6	445.0	50.56	9.801	
2,400.0	2,397.3	2,375.3	2,375.3	5.4	47.5	121.61	121.61	-462.7	72.6	500.0	447.2	52.79	9.472	
2,500.0	2,496.9	2,474.9	2,474.9	5.6	49.5	122.45	122.45	-462.7	72.6	504.6	449.6	55.02	9.171	
2,600.0	2,596.5	2,574.5	2,574.5	5.9	51.5	123.26	123.26	-462.7	72.6	509.3	452.1	57.26	8.895	
2,700.0	2,696.1	2,674.1	2,674.1	6.1	53.5	124.07	124.07	-462.7	72.6	514.1	454.6	59.49	8.642	
2,800.0	2,795.8	2,773.8	2,773.8	6.4	55.5	124.85	124.85	-462.7	72.6	519.0	457.3	61.73	8.408	
2,900.0	2,895.4	2,873.4	2,873.4	6.6	57.5	125.62	125.62	-462.7	72.6	524.0	460.0	63.96	8.193	
3,000.0	2,995.0	2,973.0	2,973.0	6.9	59.5	126.38	126.38	-462.7	72.6	529.1	462.9	66.19	7.993	
3,100.0	3,094.6	3,072.6	3,072.6	7.2	61.5	127.13	127.13	-462.7	72.6	534.3	465.8	68.43	7.807	
3,200.0	3,194.3	3,172.3	3,172.3	7.4	63.4	127.85	127.85	-462.7	72.6	539.5	468.9	70.66	7.635	
3,300.0	3,293.9	3,271.9	3,271.9	7.7	65.4	128.57	128.57	-462.7	72.6	544.9	472.0	72.90	7.474	
3,400.0	3,393.5	3,371.5	3,371.5	7.9	67.4	129.27	129.27	-462.7	72.6	550.3	475.2	75.13	7.325	
3,500.0	3,493.2	3,471.2	3,471.2	8.2	69.4	129.96	129.96	-462.7	72.6	555.8	478.4	77.36	7.184	
3,600.0	3,592.8	3,570.8	3,570.8	8.5	71.4	130.63	130.63	-462.7	72.6	561.4	481.8	79.60	7.053	
3,700.0	3,692.4	3,670.4	3,670.4	8.7	73.4	131.29	131.29	-462.7	72.6	567.1	485.2	81.83	6.930	
3,800.0	3,792.0	3,770.0	3,770.0	9.0	75.4	131.94	131.94	-462.7	72.6	572.8	488.7	84.06	6.814	
3,900.0	3,891.7	3,869.7	3,869.7	9.3	77.4	132.57	132.57	-462.7	72.6	578.6	492.3	86.29	6.705	
4,000.0	3,991.3	3,969.3	3,969.3	9.5	79.4	133.19	133.19	-462.7	72.6	584.5	496.0	88.53	6.603	
4,100.0	4,090.9	4,068.9	4,068.9	9.8	81.4	133.80	133.80	-462.7	72.6	590.5	499.7	90.76	6.506	
4,200.0	4,190.5	4,168.5	4,168.5	10.1	83.4	134.40	134.40	-462.7	72.6	596.5	503.5	92.99	6.415	
4,300.0	4,290.2	4,268.2	4,268.2	10.3	85.4	134.98	134.98	-462.7	72.6	602.5	507.3	95.22	6.328	
4,400.0	4,389.8	4,367.8	4,367.8	10.6	87.4	135.56	135.56	-462.7	72.6	608.7	511.2	97.45	6.246	
4,500.0	4,489.4	4,467.4	4,467.4	10.9	89.3	136.12	136.12	-462.7	72.6	614.9	515.2	99.67	6.169	
4,600.0	4,589.1	4,567.1	4,567.1	11.1	91.3	136.67	136.67	-462.7	72.6	621.1	519.2	101.90	6.095	
4,700.0	4,688.7	4,666.7	4,666.7	11.4	93.3	137.21	137.21	-462.7	72.6	627.5	523.3	104.13	6.026	
4,800.0	4,788.3	4,766.3	4,766.3	11.7	95.3	137.75	137.75	-462.7	72.6	633.7	527.3	106.40	5.955	
4,900.0	4,888.2	4,866.2	4,866.2	11.9	97.3	138.15	138.15	-462.7	72.6	637.9	529.2	108.67	5.870	
5,000.0	4,988.1	4,966.1	4,966.1	12.0	99.3	138.30	138.30	-462.7	72.6	639.5	528.6	110.88	5.767	

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 5U-443
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 5U-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 (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			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)			
5,100.0	5,088.1	5,066.1	5,066.1	12.2	101.3	-165.33	-462.7	72.6	639.5	526.4	113.06	5.656		
5,200.0	5,188.1	5,166.1	5,166.1	12.4	103.3	-165.33	-462.7	72.6	639.5	524.2	115.27	5.548		
5,300.0	5,288.1	5,266.1	5,266.1	12.6	105.3	-165.33	-462.7	72.6	639.5	522.0	117.48	5.444		
5,400.0	5,388.1	5,366.1	5,366.1	12.8	107.3	-165.33	-462.7	72.6	639.5	519.8	119.69	5.343		
5,500.0	5,488.1	5,466.1	5,466.1	13.0	109.3	-165.33	-462.7	72.6	639.5	517.6	121.90	5.246		
5,600.0	5,588.1	5,566.1	5,566.1	13.2	111.3	-165.33	-462.7	72.6	639.5	515.4	124.11	5.153		
5,700.0	5,688.1	5,666.1	5,666.1	13.4	113.3	-165.33	-462.7	72.6	639.5	513.2	126.32	5.063		
5,800.0	5,788.1	5,766.1	5,766.1	13.6	115.3	-165.33	-462.7	72.6	639.5	511.0	128.53	4.975		
5,900.0	5,888.1	5,866.1	5,866.1	13.8	117.3	-165.33	-462.7	72.6	639.5	508.7	130.74	4.891		
6,000.0	5,988.1	5,966.1	5,966.1	14.0	119.3	-165.33	-462.7	72.6	639.5	506.5	132.95	4.810		
6,100.0	6,088.1	6,066.1	6,066.1	14.2	121.3	-165.33	-462.7	72.6	639.5	504.3	135.17	4.731		
6,200.0	6,188.1	6,166.1	6,166.1	14.5	123.3	-165.33	-462.7	72.6	639.5	502.1	137.38	4.655		
6,300.0	6,288.0	6,266.0	6,266.0	14.6	125.3	14.86	-462.7	72.6	635.1	496.3	138.75	4.577		
6,400.0	6,386.4	6,364.4	6,364.4	14.7	127.3	15.61	-462.7	72.6	618.3	480.4	137.89	4.484		
6,500.0	6,481.7	6,459.7	6,459.7	14.8	129.2	17.05	-462.7	72.6	589.3	454.4	134.87	4.369		
6,600.0	6,572.2	6,550.2	6,550.2	14.9	131.0	19.41	-462.7	72.6	548.8	418.8	129.99	4.222		
6,700.0	6,656.5	6,634.5	6,634.5	15.0	132.7	23.11	-462.7	72.6	497.7	373.6	124.11	4.010		
6,800.0	6,733.0	6,711.0	6,711.0	15.2	134.2	28.89	-462.7	72.6	437.4	318.2	119.23	3.669		
6,900.0	6,800.5	6,778.5	6,778.5	15.4	135.6	37.89	-462.7	72.6	369.9	250.6	119.37	3.099		
7,000.0	6,857.7	6,835.7	6,835.7	15.8	136.7	51.24	-462.7	72.6	298.5	169.5	129.02	2.313		
7,100.0	6,903.9	6,881.9	6,881.9	16.4	137.6	68.06	-462.7	72.6	229.1	84.5	144.61	1.584		
7,200.0	6,938.0	6,916.0	6,916.0	17.2	138.3	83.29	-462.7	72.6	175.7	21.4	154.24	1.139 Level 2		
7,270.2	6,954.5	6,932.5	6,932.5	17.9	138.6	90.00	-462.7	72.6	161.9	5.7	156.25	1.036 Level 2, CC, ES, SF		
7,300.0	6,959.6	6,937.6	6,937.6	18.2	138.8	91.58	-462.7	72.6	164.6	8.0	156.60	1.051 Level 2		
7,400.0	6,970.9	6,948.9	6,948.9	19.3	139.0	94.75	-462.7	72.6	206.9	49.3	157.52	1.313 Level 3		
7,500.0	6,977.8	6,955.8	6,955.8	20.5	139.1	92.14	-462.7	72.6	280.0	120.7	159.30	1.758		
7,600.0	6,978.4	6,956.4	6,956.4	21.9	139.1	90.20	-462.7	72.6	366.2	205.5	160.72	2.279		
7,700.0	6,978.5	6,956.5	6,956.5	23.3	139.1	90.26	-462.7	72.6	458.0	295.9	162.14	2.825		
7,800.0	6,978.7	6,956.7	6,956.7	24.7	139.1	90.33	-462.7	72.6	552.7	389.1	163.63	3.378		
7,900.0	6,978.9	6,956.9	6,956.9	26.3	139.1	90.39	-462.7	72.6	649.0	483.8	165.18	3.929		
8,000.0	6,979.1	6,957.1	6,957.1	27.8	139.1	90.45	-462.7	72.6	746.3	579.5	166.77	4.475		
8,100.0	6,979.2	6,957.2	6,957.2	29.5	139.1	90.51	-462.7	72.6	844.1	675.7	168.40	5.013		
8,200.0	6,979.4	6,957.4	6,957.4	31.1	139.1	90.57	-462.7	72.6	942.5	772.4	170.07	5.542		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-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 (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							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)			
7,600.0	6,978.4	6,951.4	6,951.4	21.9	139.0	89.57	-1,752.3	11.2	986.8	826.1	160.61	6.144		
7,700.0	6,978.5	6,951.5	6,951.5	23.3	139.0	89.61	-1,752.3	11.2	889.6	727.6	162.03	5.490		
7,800.0	6,978.7	6,951.7	6,951.7	24.7	139.0	89.66	-1,752.3	11.2	793.2	629.7	163.52	4.851		
7,900.0	6,978.9	6,951.9	6,951.9	26.3	139.0	89.70	-1,752.3	11.2	697.9	532.8	165.07	4.228		
8,000.0	6,979.1	6,952.1	6,952.1	27.8	139.0	89.75	-1,752.3	11.2	604.0	437.3	166.66	3.624		
8,100.0	6,979.2	6,952.2	6,952.2	29.5	139.0	89.79	-1,752.3	11.2	512.4	344.1	168.30	3.045		
8,200.0	6,979.4	6,952.4	6,952.4	31.1	139.0	89.84	-1,752.3	11.2	424.6	254.7	169.96	2.498		
8,300.0	6,979.6	6,952.6	6,952.6	32.8	139.1	89.88	-1,752.3	11.2	343.6	172.0	171.66	2.002		
8,400.0	6,979.8	6,952.8	6,952.8	34.5	139.1	89.93	-1,752.3	11.2	275.4	102.0	173.38	1.588		
8,500.0	6,979.9	6,952.9	6,952.9	36.2	139.1	89.97	-1,752.3	11.2	231.5	56.4	175.12	1.322 Level 3		
8,561.2	6,980.0	6,953.0	6,953.0	37.3	139.1	90.00	-1,752.3	11.2	223.3	47.1	176.19	1.267 Level 3, CC, ES, SF		
8,600.0	6,980.1	6,953.1	6,953.1	38.0	139.1	90.02	-1,752.3	11.2	226.7	49.8	176.87	1.282 Level 3		
8,700.0	6,980.3	6,953.3	6,953.3	39.7	139.1	90.06	-1,752.3	11.2	263.0	84.3	178.65	1.472 Level 3		
8,800.0	6,980.5	6,953.5	6,953.5	41.5	139.1	90.11	-1,752.3	11.2	327.0	146.5	180.43	1.812		
8,900.0	6,980.6	6,953.6	6,953.6	43.3	139.1	90.15	-1,752.3	11.2	405.8	223.6	182.23	2.227		
9,000.0	6,980.8	6,953.8	6,953.8	45.1	139.1	90.20	-1,752.3	11.2	492.4	308.4	184.04	2.676		
9,100.0	6,981.0	6,954.0	6,954.0	46.9	139.1	90.24	-1,752.3	11.2	583.3	397.4	185.85	3.138		
9,200.0	6,981.2	6,954.2	6,954.2	48.7	139.1	90.29	-1,752.3	11.2	676.7	489.1	187.68	3.606		
9,300.0	6,981.3	6,954.3	6,954.3	50.5	139.1	90.33	-1,752.3	11.2	771.9	582.3	189.51	4.073		
9,400.0	6,981.5	6,954.5	6,954.5	52.4	139.1	90.38	-1,752.3	11.2	868.1	676.7	191.35	4.537		
9,500.0	6,981.7	6,954.7	6,954.7	54.2	139.1	90.42	-1,752.3	11.2	965.0	771.8	193.19	4.995		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Becker Ranch 5U-443
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 5U-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 (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 5U-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 5U-443
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
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Well Error:	0.0ft	Output errors are at	2.00 sigma
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Coordinates are relative to: Becker Ranch 5U-443
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