

PETROLEUM DEVELOPMENT CORP Weld County CO

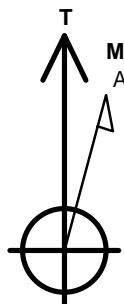
Well Name: **Spaur 10L-301**

Surface Location: Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4840.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1360183.51	3172640.63	40.320450	-104.880850	
RKB - 13' WELL @ 4853.0ft (RKB - 13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (10L-301)	1.0	2517.1	-437.7	Rectangle (Sides: L3978.7 W1000.0)
SHL 300'FSL & 1583'FWL	1.0	0.0	0.0	Point
BHL 500'FNL & 1172'FWL	7081.0	4506.5	-437.7	Point



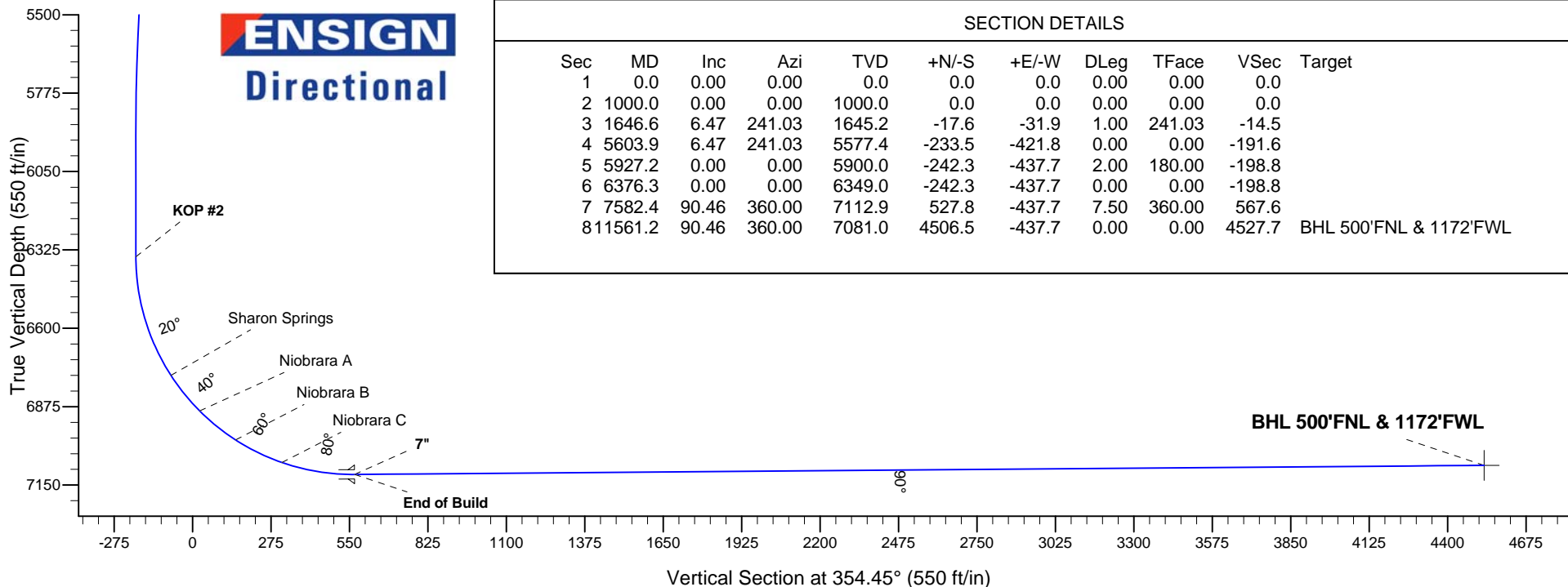
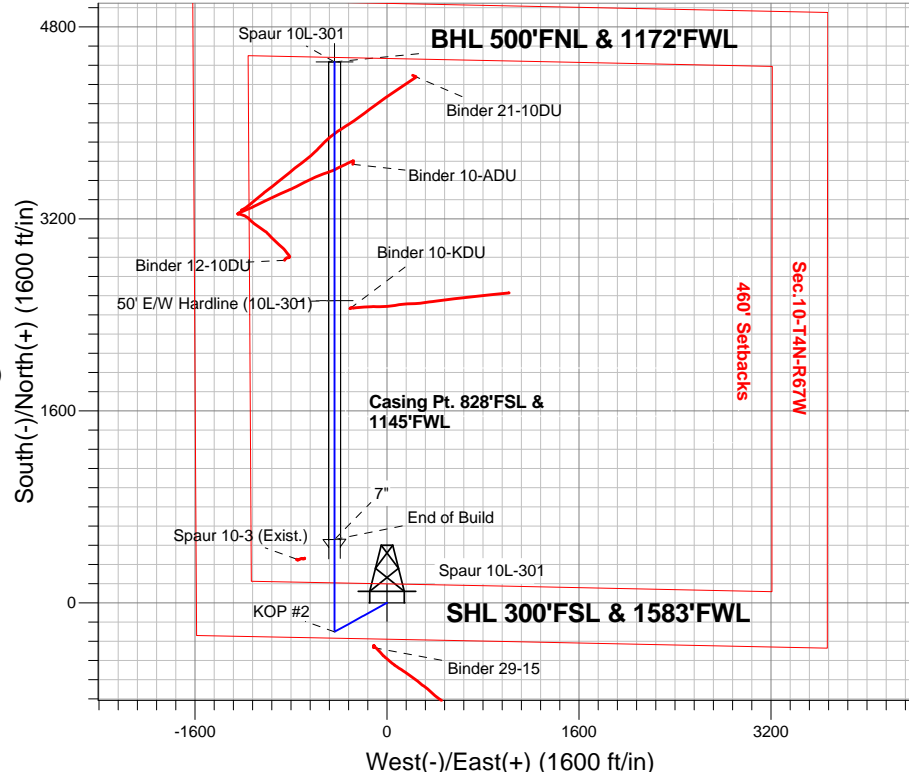
Azimuths to True North
 Magnetic North: 8.38°

Magnetic Field
 Strength: 52657.6snT
 Dip Angle: 66.83°
 Date: 6/10/2015
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP #1
6349.1	6376.3	KOP #2
7112.9	7582.4	End of Build

Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W
 Spaur 10L-301
 Plan #2 (6-10-15)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1646.6	6.47	241.03	1645.2	-17.6	-31.9	1.00	241.03	-14.5	
4	5603.9	6.47	241.03	5577.4	-233.5	-421.8	0.00	0.00	-191.6	
5	5927.2	0.00	0.00	5900.0	-242.3	-437.7	2.00	180.00	-198.8	
6	6376.3	0.00	0.00	6349.0	-242.3	-437.7	0.00	0.00	-198.8	
7	7582.4	90.46	360.00	7112.9	527.8	-437.7	7.50	360.00	567.6	
8	11561.2	90.46	360.00	7081.0	4506.5	-437.7	0.00	0.00	4527.7	BHL 500'FNL & 1172'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T4N-R67W

Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W

Spaur 10L-301

Wellbore #1

Plan: Plan #2 (6-10-15)

Standard Planning Report

15 June, 2015

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Spaur 10L-301
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Project:	SEC.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	North Reference:	True
Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-10-15)		

Project	SEC.10-T4N-R67W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W											
Site Position:						Northing:			1,360,227.24 ft			Latitude:			40.320570		
From:			Lat/Long			Easting:			3,172,640.32 ft			Longitude:			-104.880850		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.40 °		

Well	Spaur 10L-301					
Well Position	+N/-S	-43.7 ft	Northing:	1,360,183.51 ft	Latitude:	40.320450
	+E/-W	0.0 ft	Easting:	3,172,640.63 ft	Longitude:	-104.880850
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,840.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/10/2015	8.38	66.83	52,658

Design	Plan #2 (6-10-15)			
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	354.45

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,646.6	6.47	241.03	1,645.2	-17.6	-31.9	1.00	1.00	0.00	241.03	
5,603.9	6.47	241.03	5,577.4	-233.5	-421.8	0.00	0.00	0.00	0.00	
5,927.2	0.00	0.00	5,900.0	-242.3	-437.7	2.00	-2.00	0.00	180.00	
6,376.3	0.00	0.00	6,349.0	-242.3	-437.7	0.00	0.00	0.00	0.00	
7,582.4	90.46	360.00	7,112.9	527.8	-437.7	7.50	7.50	0.00	360.00	
11,561.2	90.46	360.00	7,081.0	4,506.5	-437.7	0.00	0.00	0.00	0.00	BHL 500'FNL & 117

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Project:	SEC.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	North Reference:	True
Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
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
KOP #1									
1,100.0	1.00	241.03	1,100.0	-0.4	-0.8	-0.3	1.00	1.00	0.00
1,200.0	2.00	241.03	1,200.0	-1.7	-3.1	-1.4	1.00	1.00	0.00
1,300.0	3.00	241.03	1,299.9	-3.8	-6.9	-3.1	1.00	1.00	0.00
1,400.0	4.00	241.03	1,399.7	-6.8	-12.2	-5.5	1.00	1.00	0.00
1,500.0	5.00	241.03	1,499.4	-10.6	-19.1	-8.7	1.00	1.00	0.00
1,600.0	6.00	241.03	1,598.9	-15.2	-27.5	-12.5	1.00	1.00	0.00
1,646.6	6.47	241.03	1,645.2	-17.6	-31.9	-14.5	1.00	1.00	0.00
1,700.0	6.47	241.03	1,698.3	-20.6	-37.1	-16.9	0.00	0.00	0.00
1,800.0	6.47	241.03	1,797.7	-26.0	-47.0	-21.4	0.00	0.00	0.00
1,900.0	6.47	241.03	1,897.0	-31.5	-56.9	-25.8	0.00	0.00	0.00
2,000.0	6.47	241.03	1,996.4	-36.9	-66.7	-30.3	0.00	0.00	0.00
2,100.0	6.47	241.03	2,095.7	-42.4	-76.6	-34.8	0.00	0.00	0.00
2,200.0	6.47	241.03	2,195.1	-47.8	-86.4	-39.3	0.00	0.00	0.00
2,300.0	6.47	241.03	2,294.5	-53.3	-96.3	-43.7	0.00	0.00	0.00
2,400.0	6.47	241.03	2,393.8	-58.7	-106.1	-48.2	0.00	0.00	0.00
2,500.0	6.47	241.03	2,493.2	-64.2	-116.0	-52.7	0.00	0.00	0.00
2,600.0	6.47	241.03	2,592.6	-69.6	-125.8	-57.2	0.00	0.00	0.00
2,700.0	6.47	241.03	2,691.9	-75.1	-135.7	-61.6	0.00	0.00	0.00
2,800.0	6.47	241.03	2,791.3	-80.6	-145.5	-66.1	0.00	0.00	0.00
2,900.0	6.47	241.03	2,890.7	-86.0	-155.4	-70.6	0.00	0.00	0.00
3,000.0	6.47	241.03	2,990.0	-91.5	-165.2	-75.1	0.00	0.00	0.00
3,100.0	6.47	241.03	3,089.4	-96.9	-175.1	-79.5	0.00	0.00	0.00
3,200.0	6.47	241.03	3,188.7	-102.4	-184.9	-84.0	0.00	0.00	0.00
3,300.0	6.47	241.03	3,288.1	-107.8	-194.8	-88.5	0.00	0.00	0.00
3,400.0	6.47	241.03	3,387.5	-113.3	-204.6	-93.0	0.00	0.00	0.00
3,500.0	6.47	241.03	3,486.8	-118.7	-214.5	-97.4	0.00	0.00	0.00
3,573.6	6.47	241.03	3,560.0	-122.7	-221.7	-100.7	0.00	0.00	0.00
Parkman									
3,600.0	6.47	241.03	3,586.2	-124.2	-224.3	-101.9	0.00	0.00	0.00
3,700.0	6.47	241.03	3,685.6	-129.6	-234.2	-106.4	0.00	0.00	0.00
3,800.0	6.47	241.03	3,784.9	-135.1	-244.0	-110.9	0.00	0.00	0.00
3,900.0	6.47	241.03	3,884.3	-140.5	-253.9	-115.3	0.00	0.00	0.00
4,000.0	6.47	241.03	3,983.7	-146.0	-263.7	-119.8	0.00	0.00	0.00
4,100.0	6.47	241.03	4,083.0	-151.5	-273.6	-124.3	0.00	0.00	0.00
4,117.1	6.47	241.03	4,100.0	-152.4	-275.3	-125.1	0.00	0.00	0.00
Sussex									
4,200.0	6.47	241.03	4,182.4	-156.9	-283.5	-128.8	0.00	0.00	0.00
4,300.0	6.47	241.03	4,281.8	-162.4	-293.3	-133.2	0.00	0.00	0.00
4,400.0	6.47	241.03	4,381.1	-167.8	-303.2	-137.7	0.00	0.00	0.00
4,500.0	6.47	241.03	4,480.5	-173.3	-313.0	-142.2	0.00	0.00	0.00

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Project:	SEC.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site:	Spaur 4N67W10MLVT Pad	North Reference:	True
	Sec.10-T4N-R67W	Survey Calculation Method:	Minimum Curvature
Well:	Spaur 10L-301		
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,600.0	6.47	241.03	4,579.8	-178.7	-322.9	-146.7	0.00	0.00	0.00
4,636.4	6.47	241.03	4,616.0	-180.7	-326.4	-148.3	0.00	0.00	0.00
Shannon									
4,700.0	6.47	241.03	4,679.2	-184.2	-332.7	-151.1	0.00	0.00	0.00
4,800.0	6.47	241.03	4,778.6	-189.6	-342.6	-155.6	0.00	0.00	0.00
4,900.0	6.47	241.03	4,877.9	-195.1	-352.4	-160.1	0.00	0.00	0.00
5,000.0	6.47	241.03	4,977.3	-200.5	-362.3	-164.6	0.00	0.00	0.00
5,100.0	6.47	241.03	5,076.7	-206.0	-372.1	-169.0	0.00	0.00	0.00
5,200.0	6.47	241.03	5,176.0	-211.4	-382.0	-173.5	0.00	0.00	0.00
5,300.0	6.47	241.03	5,275.4	-216.9	-391.8	-178.0	0.00	0.00	0.00
5,400.0	6.47	241.03	5,374.8	-222.3	-401.7	-182.5	0.00	0.00	0.00
5,500.0	6.47	241.03	5,474.1	-227.8	-411.5	-187.0	0.00	0.00	0.00
5,600.0	6.47	241.03	5,573.5	-233.3	-421.4	-191.4	0.00	0.00	0.00
5,603.9	6.47	241.03	5,577.4	-233.5	-421.8	-191.6	0.00	0.00	0.00
5,700.0	4.54	241.03	5,673.0	-237.9	-429.8	-195.3	2.00	-2.00	0.00
5,800.0	2.54	241.03	5,772.8	-240.9	-435.2	-197.7	2.00	-2.00	0.00
5,900.0	0.54	241.03	5,872.8	-242.2	-437.6	-198.8	2.00	-2.00	0.00
5,927.2	0.00	0.00	5,900.0	-242.3	-437.7	-198.8	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,972.8	-242.3	-437.7	-198.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,072.8	-242.3	-437.7	-198.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,172.8	-242.3	-437.7	-198.8	0.00	0.00	0.00
6,300.0	0.00	0.00	6,272.8	-242.3	-437.7	-198.8	0.00	0.00	0.00
6,376.3	0.00	0.00	6,349.1	-242.3	-437.7	-198.8	0.00	0.00	0.00
KOP #2									
6,400.0	1.78	360.00	6,372.8	-241.9	-437.7	-198.5	7.52	7.52	0.00
6,500.0	9.28	360.00	6,472.2	-232.3	-437.7	-188.9	7.50	7.50	0.00
6,600.0	16.78	360.00	6,569.6	-209.8	-437.7	-166.5	7.50	7.50	0.00
6,700.0	24.28	360.00	6,663.2	-174.7	-437.7	-131.6	7.50	7.50	0.00
6,800.0	31.78	360.00	6,751.4	-127.8	-437.7	-84.8	7.50	7.50	0.00
6,816.1	32.99	360.00	6,765.0	-119.1	-437.7	-76.2	7.50	7.50	0.00
Sharon Springs									
6,900.0	39.28	360.00	6,832.7	-69.7	-437.7	-27.0	7.50	7.50	0.00
6,977.4	45.08	360.00	6,890.0	-17.8	-437.7	24.6	7.50	7.50	0.00
Niobrara A									
7,000.0	46.78	360.00	6,905.7	-1.5	-437.7	40.8	7.50	7.50	0.00
7,100.0	54.28	360.00	6,969.3	75.7	-437.7	117.6	7.50	7.50	0.00
7,140.5	57.32	360.00	6,992.0	109.1	-437.7	150.9	7.50	7.50	0.00
Niobrara B									
7,200.0	61.78	360.00	7,022.2	160.4	-437.7	202.0	7.50	7.50	0.00
7,300.0	69.28	360.00	7,063.6	251.4	-437.7	292.5	7.50	7.50	0.00
7,321.9	70.92	360.00	7,071.0	271.9	-437.7	313.0	7.50	7.50	0.00
Niobrara C									
7,400.0	76.78	360.00	7,092.7	347.0	-437.7	387.6	7.50	7.50	0.00
7,500.0	84.28	360.00	7,109.2	445.5	-437.7	485.8	7.50	7.50	0.00
7,582.4	90.46	360.00	7,112.9	527.8	-437.7	567.6	7.50	7.50	0.00
End of Build - 7"									
7,600.0	90.46	360.00	7,112.8	545.4	-437.7	585.2	0.00	0.00	0.00
7,700.0	90.46	360.00	7,112.0	645.4	-437.7	684.7	0.00	0.00	0.00
7,800.0	90.46	360.00	7,111.2	745.4	-437.7	784.2	0.00	0.00	0.00
7,900.0	90.46	360.00	7,110.4	845.4	-437.7	883.7	0.00	0.00	0.00
8,000.0	90.46	360.00	7,109.6	945.4	-437.7	983.3	0.00	0.00	0.00

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Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-10-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,100.0	90.46	360.00	7,108.8	1,045.4	-437.7	1,082.8	0.00	0.00	0.00
8,200.0	90.46	360.00	7,108.0	1,145.4	-437.7	1,182.3	0.00	0.00	0.00
8,300.0	90.46	360.00	7,107.2	1,245.4	-437.7	1,281.9	0.00	0.00	0.00
8,400.0	90.46	360.00	7,106.4	1,345.4	-437.7	1,381.4	0.00	0.00	0.00
8,500.0	90.46	360.00	7,105.6	1,445.4	-437.7	1,480.9	0.00	0.00	0.00
8,600.0	90.46	360.00	7,104.8	1,545.4	-437.7	1,580.4	0.00	0.00	0.00
8,700.0	90.46	360.00	7,104.0	1,645.4	-437.7	1,680.0	0.00	0.00	0.00
8,800.0	90.46	360.00	7,103.2	1,745.4	-437.7	1,779.5	0.00	0.00	0.00
8,900.0	90.46	360.00	7,102.4	1,845.4	-437.7	1,879.0	0.00	0.00	0.00
9,000.0	90.46	360.00	7,101.6	1,945.3	-437.7	1,978.6	0.00	0.00	0.00
9,100.0	90.46	360.00	7,100.8	2,045.3	-437.7	2,078.1	0.00	0.00	0.00
9,200.0	90.46	360.00	7,100.0	2,145.3	-437.7	2,177.6	0.00	0.00	0.00
9,300.0	90.46	360.00	7,099.2	2,245.3	-437.7	2,277.1	0.00	0.00	0.00
9,400.0	90.46	360.00	7,098.4	2,345.3	-437.7	2,376.7	0.00	0.00	0.00
9,500.0	90.46	360.00	7,097.5	2,445.3	-437.7	2,476.2	0.00	0.00	0.00
9,600.0	90.46	360.00	7,096.7	2,545.3	-437.7	2,575.7	0.00	0.00	0.00
9,700.0	90.46	360.00	7,095.9	2,645.3	-437.7	2,675.3	0.00	0.00	0.00
9,800.0	90.46	360.00	7,095.1	2,745.3	-437.7	2,774.8	0.00	0.00	0.00
9,900.0	90.46	360.00	7,094.3	2,845.3	-437.7	2,874.3	0.00	0.00	0.00
10,000.0	90.46	360.00	7,093.5	2,945.3	-437.7	2,973.8	0.00	0.00	0.00
10,100.0	90.46	360.00	7,092.7	3,045.3	-437.7	3,073.4	0.00	0.00	0.00
10,200.0	90.46	360.00	7,091.9	3,145.3	-437.7	3,172.9	0.00	0.00	0.00
10,300.0	90.46	360.00	7,091.1	3,245.3	-437.7	3,272.4	0.00	0.00	0.00
10,400.0	90.46	360.00	7,090.3	3,345.3	-437.7	3,372.0	0.00	0.00	0.00
10,500.0	90.46	360.00	7,089.5	3,445.3	-437.7	3,471.5	0.00	0.00	0.00
10,600.0	90.46	360.00	7,088.7	3,545.3	-437.7	3,571.0	0.00	0.00	0.00
10,700.0	90.46	360.00	7,087.9	3,645.3	-437.7	3,670.5	0.00	0.00	0.00
10,800.0	90.46	360.00	7,087.1	3,745.3	-437.7	3,770.1	0.00	0.00	0.00
10,900.0	90.46	360.00	7,086.3	3,845.3	-437.7	3,869.6	0.00	0.00	0.00
11,000.0	90.46	360.00	7,085.5	3,945.3	-437.7	3,969.1	0.00	0.00	0.00
11,100.0	90.46	360.00	7,084.7	4,045.3	-437.7	4,068.6	0.00	0.00	0.00
11,200.0	90.46	360.00	7,083.9	4,145.3	-437.7	4,168.2	0.00	0.00	0.00
11,300.0	90.46	360.00	7,083.1	4,245.3	-437.7	4,267.7	0.00	0.00	0.00
11,400.0	90.46	360.00	7,082.3	4,345.3	-437.7	4,367.2	0.00	0.00	0.00
11,500.0	90.46	360.00	7,081.5	4,445.3	-437.7	4,466.8	0.00	0.00	0.00
11,561.2	90.46	360.00	7,081.0	4,506.5	-437.7	4,527.7	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Spaur 10L-301
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Project:	SEC.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	North Reference:	True
Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-10-15)		

Targets										
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SHL 300'FSL & 1583'I - plan hits target center - Point		0.00	0.00	1.0	0.0	0.0	1,360,183.53	3,172,640.63	40.320450	-104.880850
BHL 500'FNL & 1172' - plan hits target center - Point		0.00	0.00	7,081.0	4,506.5	-437.7	1,364,686.65	3,172,171.48	40.332820	-104.882420
50' E/W Hardline (10L - plan misses target center by 2554.9ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W3,978.7 H100.0 D0.0)		0.00	0.00	1.0	2,517.1	-437.7	1,362,697.41	3,172,185.38	40.327359	-104.882420

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,582.4	7,112.9	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,573.6	3,560.0	Parkman		0.00		
4,117.1	4,100.0	Sussex		0.00		
4,636.4	4,616.0	Shannon		0.00		
6,816.1	6,765.0	Sharon Springs		0.00		
6,977.4	6,890.0	Niobrara A		0.00		
7,140.5	6,992.0	Niobrara B		0.00		
7,321.9	7,071.0	Niobrara C		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP #1	
6,376.3	6,349.1	-242.3	-437.7	KOP #2	
7,582.4	7,112.9	527.8	-437.7	End of Build	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T4N-R67W

Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W

Spaur 10L-301

Wellbore #1

Plan #2 (6-10-15)

Anticollision Report

15 June, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (6-10-15)		
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 6/15/2015			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,560.6	Plan #2 (6-10-15) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Binder 10-NDU Pad Sec.10-T4N-R67W						
Binder 10-KDU - Wellbore #1 - Wellbore #1	9,508.8	7,230.5	131.2	63.6	1.940	CC, ES, SF
Binder 12-10DU Pad Sec.10-T4N-R67W						
Binder 10-ADU - Wellbore #1 - Wellbore #1	10,711.8	7,135.9	153.6	63.3	1.701	CC, ES, SF
Binder 12-10DU - Wellbore #1 - Wellbore #1	9,914.2	7,058.6	414.2	339.9	5.577	CC, ES
Binder 12-10DU - Wellbore #1 - Wellbore #1	10,000.0	7,057.0	423.0	347.1	5.576	SF
Binder 21-10DU - Wellbore #1 - Wellbore #1	11,447.3	7,368.0	659.0	545.4	5.802	CC, ES
Binder 21-10DU - Wellbore #1 - Wellbore #1	11,500.0	7,368.2	661.1	546.5	5.770	SF
Existing Wells Sec.10-T4N-R67W						
Binder 29-15 - Wellbore #1 - Wellbore #1	4,869.5	4,952.0	289.2	265.4	12.166	CC, ES
Binder 29-15 - Wellbore #1 - Wellbore #1	6,500.0	6,562.3	351.8	321.4	11.590	SF
Spaur 10-3 (Exist.) - Wellbore #1 - Wellbore #1	7,414.4	7,067.3	315.7	281.0	9.085	CC, ES, SF
Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W						
Spaur 10I-201 - Wellbore #1 - Plan #1 (6-12-15)	200.0	200.0	43.7	43.1	67.763	CC
Spaur 10I-201 - Wellbore #1 - Plan #1 (6-12-15)	300.0	299.8	43.9	42.8	40.550	ES
Spaur 10I-201 - Wellbore #1 - Plan #1 (6-12-15)	800.0	794.3	67.8	64.3	19.296	SF
Spaur 10I-321 - Wellbore #1 - Plan #2 (6-10-15)	400.0	400.0	29.1	27.6	18.869	CC
Spaur 10I-321 - Wellbore #1 - Plan #2 (6-10-15)	500.0	499.9	29.3	27.3	14.815	ES
Spaur 10I-321 - Wellbore #1 - Plan #2 (6-10-15)	11,561.2	11,644.1	658.0	480.2	3.700	SF
Spaur 10L-201 - Wellbore #1 - Plan #2 (6-10-15)	1,000.0	1,000.0	43.7	39.5	10.309	CC, ES
Spaur 10L-201 - Wellbore #1 - Plan #2 (6-10-15)	11,561.2	11,429.5	300.7	131.4	1.776	SF
Spaur 10L-241 - Wellbore #1 - Plan #2 (6-10-15)	800.0	800.0	14.6	11.2	4.358	CC
Spaur 10L-241 - Wellbore #1 - Plan #2 (6-10-15)	900.0	899.9	14.8	11.1	3.934	ES
Spaur 10L-241 - Wellbore #1 - Plan #2 (6-10-15)	11,561.2	11,494.8	302.4	132.6	1.781	SF
Spaur 10L-321 - Wellbore #1 - Plan #2 (6-10-15)	1,000.0	1,001.0	29.2	24.9	6.870	CC, ES
Spaur 10L-321 - Wellbore #1 - Plan #2 (6-10-15)	11,561.2	11,552.3	786.4	609.6	4.448	SF
Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)	1,000.0	1,001.0	58.3	54.1	13.738	CC
Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)	1,100.0	1,101.0	58.7	54.1	12.568	ES
Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)	11,561.2	11,650.8	580.0	408.0	3.374	SF
Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)	1,020.0	1,021.1	13.7	9.4	3.200	CC, ES
Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)	1,100.0	1,101.0	14.7	10.1	3.187	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Binder 10-NDU Pad Sec.10-T4N-R67W - Binder 10-KDU - Wellbore #1 - Wellbore #1												Offset Site Error: 0.0 ft	
Survey Program: 452-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
8,600.0	7,104.8	7,248.6	7,056.9	34.8	28.8	98.44	2,453.9	-306.7	918.0	866.4	51.66	17.769	
8,700.0	7,104.0	7,246.7	7,055.1	36.5	28.8	97.64	2,453.9	-306.7	819.2	765.8	53.38	15.346	
8,800.0	7,103.2	7,244.8	7,053.2	38.3	28.8	96.83	2,454.0	-306.7	720.7	665.6	55.12	13.075	
8,900.0	7,102.4	7,242.9	7,051.2	40.0	28.8	95.99	2,454.0	-306.7	622.6	565.8	56.87	10.949	
9,000.0	7,101.6	7,241.0	7,049.3	41.8	28.8	95.15	2,454.0	-306.6	525.3	466.7	58.62	8.961	
9,100.0	7,100.8	7,239.0	7,047.3	43.5	28.8	94.28	2,454.0	-306.6	429.3	368.9	60.39	7.108	
9,200.0	7,100.0	7,236.9	7,045.3	45.3	28.7	93.40	2,454.1	-306.6	335.5	273.3	62.16	5.397	
9,300.0	7,099.2	7,234.9	7,043.2	47.1	28.7	92.50	2,454.1	-306.6	246.6	182.6	63.92	3.857	
9,400.0	7,098.4	7,232.8	7,041.1	48.9	28.7	91.59	2,454.1	-306.6	170.4	104.7	65.69	2.594	
9,500.0	7,097.5	7,230.7	7,039.0	50.7	28.7	90.65	2,454.2	-306.5	131.5	64.0	67.45	1.949	
9,508.8	7,097.5	7,230.5	7,038.8	50.9	28.7	90.57	2,454.2	-306.5	131.2	63.6	67.60	1.940 CC, ES, SF	
9,600.0	7,096.7	7,228.5	7,036.8	52.5	28.7	89.70	2,454.2	-306.5	159.7	90.6	69.20	2.309	
9,700.0	7,095.9	7,226.3	7,034.6	54.4	28.7	88.74	2,454.2	-306.5	231.8	160.9	70.94	3.268	
9,800.0	7,095.1	7,224.0	7,032.3	56.2	28.7	87.76	2,454.2	-306.5	319.3	246.6	72.66	4.394	
9,900.0	7,094.3	7,221.7	7,030.0	58.0	28.7	86.76	2,454.3	-306.4	412.5	338.1	74.37	5.547	
10,000.0	7,093.5	7,219.4	7,027.7	59.9	28.7	85.74	2,454.3	-306.4	508.3	432.2	76.06	6.683	
10,100.0	7,092.7	7,217.0	7,025.3	61.7	28.7	84.71	2,454.3	-306.4	605.4	527.7	77.73	7.789	
10,200.0	7,091.9	7,214.6	7,022.9	63.6	28.7	83.66	2,454.4	-306.4	703.4	624.0	79.37	8.862	
10,300.0	7,091.1	7,212.1	7,020.4	65.4	28.7	82.60	2,454.4	-306.3	801.8	720.8	80.99	9.900	
10,400.0	7,090.3	7,209.6	7,017.9	67.3	28.7	81.52	2,454.5	-306.3	900.6	818.0	82.57	10.907	
10,500.0	7,089.5	7,207.0	7,015.3	69.1	28.7	80.43	2,454.5	-306.3	999.6	915.5	84.12	11.883	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design		Binder 12-10DU Pad Sec.10-T4N-R67W - Binder 10-ADU - Wellbore #1 - Wellbore #1											Offset Site Error:	0.0 ft
Survey Program:		150-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)			
9,800.0	7,095.1	7,148.0	7,020.9	56.2	23.7	94.86	3,657.1	-284.2	924.6	851.5	73.13	12.644		
9,900.0	7,094.3	7,146.6	7,019.5	58.0	23.7	94.36	3,657.1	-284.2	826.2	751.2	75.01	11.014		
10,000.0	7,093.5	7,145.3	7,018.2	59.9	23.7	93.86	3,657.1	-284.2	728.2	651.3	76.90	9.469		
10,100.0	7,092.7	7,144.0	7,016.8	61.7	23.7	93.36	3,657.1	-284.2	630.8	552.0	78.79	8.006		
10,200.0	7,091.9	7,142.6	7,015.5	63.6	23.7	92.87	3,657.1	-284.1	534.3	453.7	80.68	6.623		
10,300.0	7,091.1	7,141.3	7,014.2	65.4	23.7	92.37	3,657.1	-284.1	439.5	357.0	82.57	5.323		
10,400.0	7,090.3	7,140.0	7,012.9	67.3	23.7	91.88	3,657.1	-284.1	347.6	263.1	84.46	4.116		
10,500.0	7,089.5	7,138.7	7,011.6	69.1	23.7	91.39	3,657.1	-284.1	261.7	175.3	86.34	3.030		
10,600.0	7,088.7	7,137.4	7,010.2	71.0	23.7	90.90	3,657.1	-284.1	190.0	101.8	88.23	2.154		
10,700.0	7,087.9	7,136.1	7,008.9	72.9	23.7	90.42	3,657.1	-284.1	154.1	64.0	90.11	1.710		
10,711.8	7,087.8	7,135.9	7,008.8	73.1	23.7	90.36	3,657.1	-284.1	153.6	63.3	90.33	1.701 CC, ES, SF		
10,800.0	7,087.1	7,134.8	7,007.6	74.7	23.7	89.93	3,657.1	-284.1	177.1	85.1	91.99	1.925		
10,900.0	7,086.3	7,133.5	7,006.3	76.6	23.7	89.45	3,657.1	-284.1	242.9	149.0	93.87	2.588		
11,000.0	7,085.5	7,132.2	7,005.1	78.5	23.7	88.97	3,657.2	-284.1	326.5	230.8	95.74	3.411		
11,100.0	7,084.7	7,130.9	7,003.8	80.4	23.7	88.49	3,657.2	-284.1	417.4	319.8	97.61	4.276		
11,200.0	7,083.9	7,129.6	7,002.5	82.2	23.7	88.01	3,657.2	-284.1	511.7	412.3	99.48	5.144		
11,300.0	7,083.1	7,128.3	7,001.2	84.1	23.7	87.54	3,657.2	-284.1	607.8	506.5	101.34	5.998		
11,400.0	7,082.3	7,127.1	7,000.0	86.0	23.7	87.07	3,657.2	-284.0	705.0	601.9	103.19	6.832		
11,500.0	7,081.5	7,125.8	6,998.7	87.9	23.7	86.60	3,657.2	-284.0	802.9	697.9	105.04	7.644		
11,561.2	7,081.0	7,125.0	6,997.9	88.8	23.7	86.31	3,657.2	-284.0	863.1	757.2	105.95	8.147		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Binder 12-10DU Pad Sec.10-T4N-R67W - Binder 12-10DU - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 127-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	
9,100.0	7,100.8	7,074.2	7,027.0	43.5	17.6	-91.76	2,859.4	-852.0	913.4	854.0	59.42	15.373		
9,200.0	7,100.0	7,072.2	7,024.9	45.3	17.6	-91.48	2,859.4	-852.0	825.5	764.3	61.22	13.486		
9,300.0	7,099.2	7,070.2	7,022.9	47.1	17.6	-91.20	2,859.4	-852.0	740.8	677.7	63.03	11.753		
9,400.0	7,098.4	7,068.2	7,020.9	48.9	17.6	-90.92	2,859.4	-852.0	660.2	595.4	64.84	10.182		
9,500.0	7,097.5	7,066.2	7,019.0	50.7	17.5	-90.66	2,859.4	-852.0	585.7	519.1	66.67	8.786		
9,600.0	7,096.7	7,064.4	7,017.1	52.5	17.5	-90.40	2,859.5	-852.0	519.9	451.4	68.50	7.590		
9,700.0	7,095.9	7,062.5	7,015.3	54.4	17.5	-90.14	2,859.5	-852.0	466.3	396.0	70.33	6.630		
9,800.0	7,095.1	7,060.7	7,013.4	56.2	17.5	-89.89	2,859.5	-851.9	429.7	357.5	72.17	5.954		
9,900.0	7,094.3	7,058.8	7,011.6	58.0	17.5	-89.63	2,859.5	-851.9	414.5	340.4	74.01	5.600		
9,914.2	7,094.2	7,058.6	7,011.3	58.3	17.5	-89.59	2,859.5	-851.9	414.2	339.9	74.28	5.577 CC, ES		
10,000.0	7,093.5	7,057.0	7,009.7	59.9	17.5	-89.37	2,859.5	-851.9	423.0	347.1	75.86	5.576 SF		
10,100.0	7,092.7	7,055.1	7,007.8	61.7	17.5	-89.11	2,859.6	-851.9	454.0	376.2	77.71	5.842		
10,200.0	7,091.9	7,053.2	7,005.9	63.6	17.5	-88.86	2,859.6	-851.9	503.2	423.6	79.56	6.325		
10,300.0	7,091.1	7,051.3	7,004.1	65.4	17.5	-88.60	2,859.6	-851.9	566.0	484.6	81.42	6.952		
10,400.0	7,090.3	7,049.5	7,002.2	67.3	17.5	-88.33	2,859.6	-851.9	638.3	555.1	83.27	7.666		
10,500.0	7,089.5	7,047.6	7,000.3	69.1	17.5	-88.07	2,859.6	-851.8	717.4	632.2	85.13	8.427		
10,600.0	7,088.7	7,045.7	6,998.4	71.0	17.5	-87.81	2,859.7	-851.8	801.1	714.1	86.99	9.209		
10,700.0	7,087.9	7,043.8	6,996.5	72.9	17.5	-87.55	2,859.7	-851.8	888.2	799.3	88.84	9.997		
10,800.0	7,087.1	7,041.9	6,994.6	74.7	17.5	-87.28	2,859.7	-851.8	977.7	887.0	90.70	10.779		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Binder 12-10DU Pad Sec.10-T4N-R67W - Binder 21-10DU - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 152-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)					
10,700.0	7,087.9	7,364.3	7,022.9	72.9	36.9	91.82	4,392.7	220.9	996.4	896.8	99.54	10.009				
10,800.0	7,087.1	7,364.8	7,023.4	74.7	36.9	91.87	4,392.8	220.9	923.7	822.3	101.42	9.108				
10,900.0	7,086.3	7,365.3	7,023.9	76.6	36.9	91.91	4,392.8	220.9	856.6	753.3	103.29	8.293				
11,000.0	7,085.5	7,365.8	7,024.4	78.5	36.9	91.95	4,392.8	220.9	796.5	691.3	105.17	7.573				
11,100.0	7,084.7	7,366.3	7,024.9	80.4	36.9	92.00	4,392.8	220.9	744.9	637.9	107.04	6.959				
11,200.0	7,083.9	7,366.8	7,025.4	82.2	36.9	92.04	4,392.8	220.8	703.9	594.9	108.92	6.462				
11,300.0	7,083.1	7,367.3	7,025.8	84.1	36.9	92.08	4,392.8	220.8	675.2	564.4	110.80	6.094				
11,400.0	7,082.3	7,367.7	7,026.3	86.0	36.9	92.12	4,392.8	220.8	660.7	548.0	112.68	5.863				
11,447.3	7,081.9	7,368.0	7,026.5	86.9	36.9	92.14	4,392.8	220.8	659.0	545.4	113.58	5.802 CC, ES				
11,500.0	7,081.5	7,368.2	7,026.8	87.9	36.9	92.16	4,392.8	220.8	661.1	546.5	114.57	5.770 SF				
11,561.2	7,081.0	7,368.5	7,027.0	88.8	36.9	92.19	4,392.8	220.8	668.7	553.2	115.50	5.790				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.10-T4N-R67W - Binder 29-15 - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 635-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)			
0.0	0.0	0.0	0.0	0.0	0.0	149.13	-844.8	505.0	984.3					
100.0	100.0	100.0	100.0	0.1	0.1	149.13	-844.8	505.0	984.3	984.0	0.21	4,679.672		
200.0	200.0	200.0	200.0	0.3	0.2	149.13	-844.8	505.0	984.3	983.7	0.55	1,797.908		
300.0	300.0	300.0	300.0	0.5	0.3	149.13	-844.8	505.0	984.3	983.4	0.88	1,112.702		
400.0	400.0	400.0	400.0	0.8	0.4	149.13	-844.8	505.0	984.3	983.0	1.22	805.656		
500.0	500.0	500.0	500.0	1.0	0.6	149.13	-844.8	505.0	984.3	982.7	1.56	631.418		
600.0	600.0	600.0	600.0	1.2	0.7	149.13	-844.8	505.0	984.3	982.4	1.90	519.144		
700.0	700.0	699.6	699.6	1.4	0.8	149.15	-845.0	504.7	984.3	982.0	2.29	429.474		
800.0	800.0	800.2	800.2	1.7	1.1	149.19	-845.4	504.1	984.3	981.6	2.72	361.393		
900.0	900.0	900.8	900.8	1.9	1.3	149.25	-845.8	503.3	984.2	981.1	3.16	311.926		
1,000.0	1,000.0	1,001.5	1,001.4	2.1	1.5	149.30	-846.2	502.4	984.1	980.5	3.59	274.216		
1,100.0	1,100.0	1,102.5	1,102.5	2.3	1.7	-91.71	-846.6	501.3	983.9	979.9	4.02	244.891		
1,200.0	1,200.0	1,206.6	1,206.6	2.5	1.9	-91.80	-847.0	499.9	983.7	979.2	4.44	221.700		
1,300.0	1,299.9	1,419.4	1,418.7	2.7	2.4	-92.04	-837.7	487.2	976.5	971.4	5.13	190.322		
1,400.0	1,399.7	1,624.0	1,619.1	2.9	3.0	-91.97	-814.5	454.1	958.1	952.3	5.88	163.032		
1,500.0	1,499.4	1,716.3	1,708.6	3.1	3.4	-92.08	-801.4	435.7	936.0	929.7	6.32	148.074		
1,600.0	1,598.9	1,819.3	1,808.4	3.4	3.8	-92.28	-787.0	415.2	914.1	907.3	6.81	134.268		
1,700.0	1,698.3	1,912.7	1,899.3	3.6	4.1	-92.55	-773.2	398.1	892.4	885.1	7.28	122.599		
1,800.0	1,797.7	2,018.9	2,002.4	3.9	4.6	-92.86	-756.3	379.3	870.1	862.3	7.80	111.550		
1,900.0	1,897.0	2,111.4	2,092.2	4.1	4.9	-93.16	-741.3	363.1	847.5	839.2	8.29	102.186		
2,000.0	1,996.4	2,199.1	2,177.6	4.4	5.3	-93.47	-727.7	348.3	826.0	817.2	8.78	94.090		
2,100.0	2,095.7	2,295.9	2,272.0	4.7	5.7	-93.80	-713.5	332.1	805.3	796.0	9.30	86.592		
2,200.0	2,195.1	2,388.7	2,362.2	5.0	6.1	-94.02	-700.4	315.1	784.2	774.4	9.83	79.750		
2,300.0	2,294.5	2,504.1	2,474.1	5.3	6.7	-94.22	-684.0	292.4	762.4	751.9	10.45	72.938		
2,400.0	2,393.8	2,610.3	2,576.8	5.6	7.2	-94.39	-667.5	270.3	738.7	727.6	11.05	66.839		
2,500.0	2,493.2	2,708.3	2,671.2	5.8	7.7	-94.61	-651.3	250.0	714.4	702.8	11.61	61.519		
2,600.0	2,592.6	2,788.7	2,749.1	6.1	8.1	-94.85	-638.4	234.4	691.2	679.1	12.11	57.073		
2,700.0	2,691.9	2,893.3	2,850.6	6.4	8.5	-95.15	-623.2	214.5	669.5	656.8	12.69	52.755		
2,800.0	2,791.3	2,986.0	2,940.3	6.7	9.0	-95.26	-610.4	195.0	647.2	634.0	13.25	48.840		
2,900.0	2,890.7	3,070.2	3,022.1	7.0	9.4	-95.48	-598.5	178.6	625.7	611.9	13.78	45.414		
3,000.0	2,990.0	3,168.7	3,118.2	7.3	9.8	-95.84	-586.0	161.5	606.5	592.1	14.33	42.318		
3,100.0	3,089.4	3,269.7	3,216.5	7.6	10.3	-96.13	-572.7	142.3	585.9	570.9	14.91	39.290		
3,200.0	3,188.7	3,354.8	3,299.4	7.9	10.7	-96.37	-562.2	126.3	566.1	550.7	15.44	36.668		
3,300.0	3,288.1	3,449.7	3,392.4	8.2	11.1	-96.70	-552.2	110.1	548.9	532.9	15.98	34.339		
3,400.0	3,387.5	3,561.5	3,501.2	8.5	11.6	-97.04	-538.2	88.8	528.8	512.2	16.60	31.854		
3,500.0	3,486.8	3,659.9	3,596.9	8.8	12.0	-97.35	-525.5	69.7	508.3	491.1	17.17	29.605		
3,600.0	3,586.2	3,783.4	3,716.4	9.2	12.6	-97.96	-506.6	45.2	485.6	467.8	17.80	27.279		
3,700.0	3,685.6	3,883.0	3,812.1	9.5	13.2	-98.51	-488.7	23.8	459.9	441.5	18.37	25.034		
3,800.0	3,784.9	3,978.6	3,903.8	9.8	13.7	-99.15	-471.1	3.2	433.8	414.9	18.92	22.932		
3,900.0	3,884.3	4,063.0	3,985.0	10.1	14.1	-99.85	-456.1	-13.9	409.1	389.7	19.41	21.077		
4,000.0	3,983.7	4,148.9	4,068.5	10.4	14.5	-100.72	-443.1	-28.9	388.1	368.2	19.88	19.517		
4,100.0	4,083.0	4,238.8	4,156.5	10.7	14.9	-102.06	-429.4	-41.9	369.3	349.0	20.33	18.163		
4,200.0	4,182.4	4,333.1	4,248.9	11.0	15.3	-103.69	-415.7	-54.3	352.1	331.3	20.77	16.947		
4,300.0	4,281.8	4,425.3	4,339.7	11.3	15.6	-105.45	-403.6	-65.0	337.2	316.0	21.20	15.902		
4,400.0	4,381.1	4,522.3	4,435.3	11.6	16.0	-107.24	-391.8	-77.2	322.7	301.0	21.66	14.899		
4,500.0	4,480.5	4,611.7	4,523.6	11.9	16.3	-109.05	-382.1	-86.9	310.8	288.7	22.10	14.066		
4,600.0	4,579.8	4,703.9	4,615.0	12.2	16.6	-110.96	-374.0	-95.5	301.8	279.2	22.54	13.388		
4,700.0	4,679.2	4,799.1	4,709.6	12.5	16.8	-112.76	-367.9	-103.8	295.1	272.1	23.00	12.830		
4,800.0	4,778.6	4,890.4	4,800.5	12.9	17.1	-114.75	-362.2	-110.1	290.4	266.9	23.46	12.380		
4,869.5	4,847.6	4,952.0	4,862.0	13.1	17.2	-116.18	-359.0	-112.8	289.2	265.4	23.77	12.166 CC, ES		
4,900.0	4,877.9	4,976.3	4,886.3	13.2	17.2	-116.81	-357.9	-113.2	289.5	265.6	23.90	12.113		

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.10-T4N-R67W - Binder 29-15 - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft	
Survey Program: 635-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,000.0	4,977.3	5,061.9	4,971.8	13.5	17.3	-119.00	-355.7	-111.7	294.8	270.4	24.34	12.108		
5,100.0	5,076.7	5,159.9	5,069.8	13.8	17.4	-120.93	-356.6	-109.3	303.0	278.2	24.81	12.213		
5,200.0	5,176.0	5,261.0	5,170.9	14.1	17.5	-122.48	-358.7	-108.4	310.7	285.4	25.28	12.291		
5,300.0	5,275.4	5,362.4	5,272.2	14.4	17.6	-123.97	-360.6	-107.9	318.3	292.5	25.75	12.359		
5,400.0	5,374.8	5,464.1	5,373.9	14.7	17.7	-125.43	-362.0	-107.8	325.3	299.1	26.23	12.401		
5,500.0	5,474.1	5,565.4	5,475.2	15.0	17.9	-126.79	-363.3	-108.5	332.0	305.3	26.72	12.425		
5,600.0	5,573.5	5,666.8	5,576.6	15.3	18.0	-128.04	-364.7	-109.7	338.2	311.0	27.20	12.435		
5,700.0	5,673.0	5,766.2	5,676.0	15.6	18.1	-129.04	-366.1	-111.5	343.2	315.6	27.61	12.430		
5,800.0	5,772.8	5,864.1	5,773.8	15.8	18.3	-129.60	-367.4	-112.6	346.6	318.6	27.95	12.401		
5,900.0	5,872.8	5,963.6	5,873.4	16.0	18.4	-129.77	-368.5	-113.2	348.1	319.8	28.25	12.320		
6,000.0	5,972.8	6,063.4	5,973.1	16.1	18.5	111.40	-369.3	-113.7	348.0	319.4	28.58	12.175		
6,100.0	6,072.8	6,163.1	6,072.9	16.3	18.6	111.49	-369.7	-113.9	347.9	319.0	28.93	12.029		
6,138.7	6,111.5	6,201.7	6,111.5	16.3	18.7	111.50	-369.8	-114.0	347.9	318.9	29.06	11.974		
6,200.0	6,172.8	6,263.0	6,172.7	16.4	18.8	111.52	-369.9	-114.0	347.9	318.7	29.27	11.886		
6,300.0	6,272.8	6,363.0	6,272.8	16.6	18.9	111.54	-370.0	-114.1	348.0	318.3	29.63	11.745		
6,356.1	6,328.9	6,419.1	6,328.9	16.7	19.0	111.62	-370.1	-114.1	348.1	318.3	29.84	11.668		
6,400.0	6,372.8	6,463.0	6,372.8	16.8	19.1	111.59	-370.1	-114.1	348.1	318.1	30.00	11.603		
6,500.0	6,472.2	6,562.3	6,472.1	16.9	19.2	112.81	-370.2	-114.1	351.8	321.4	30.35	11.590 SF		
6,600.0	6,569.6	6,659.4	6,569.2	17.0	19.3	115.44	-370.6	-114.2	361.3	330.7	30.55	11.824		
6,700.0	6,663.2	6,752.5	6,662.3	17.0	19.5	118.92	-371.2	-114.3	378.4	347.8	30.58	12.373		
6,800.0	6,751.4	6,840.5	6,750.2	17.0	19.6	122.55	-371.4	-114.2	405.0	374.6	30.39	13.326		
6,900.0	6,832.7	6,921.8	6,831.6	17.0	19.7	125.71	-371.4	-113.9	442.6	412.6	30.00	14.755		
7,000.0	6,905.7	6,994.4	6,904.1	17.0	19.8	127.85	-371.2	-113.4	491.8	462.3	29.50	16.669		
7,100.0	6,969.3	7,056.7	6,966.5	17.0	19.9	128.54	-371.2	-113.1	552.4	523.2	29.15	18.952		
7,200.0	7,022.2	7,108.2	7,018.0	17.1	20.0	127.32	-371.4	-112.7	623.2	594.0	29.28	21.289		
7,300.0	7,063.6	7,148.1	7,057.8	17.4	20.0	123.47	-371.6	-112.5	702.8	672.5	30.30	23.193		
7,400.0	7,092.7	7,175.8	7,085.5	18.1	20.1	115.81	-371.8	-112.3	789.0	756.5	32.47	24.300		
7,500.0	7,109.2	7,190.9	7,100.7	18.9	20.1	102.64	-371.9	-112.2	879.9	844.7	35.19	25.000		
7,600.0	7,112.8	7,193.7	7,103.4	20.0	20.1	87.05	-371.9	-112.2	973.4	937.0	36.35	26.781		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.10-T4N-R67W - Spaur 10-3 (Exist.) - Wellbore #1 - Wellbore #1														Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-61.55	371.6	-686.0	780.7						
100.0	100.0	71.2	71.2	0.1	0.1	-61.57	371.4	-686.1	780.1	779.9	0.19	4,052.996			
167.8	167.8	138.8	138.8	0.3	0.2	-61.62	370.8	-686.4	780.1	779.6	0.49	1,605.945			
200.0	200.0	170.7	170.7	0.3	0.3	-61.65	370.5	-686.5	780.1	779.5	0.64	1,213.253			
300.0	300.0	270.7	270.7	0.5	0.6	-61.70	369.9	-686.9	780.2	779.0	1.13	688.624			
400.0	400.0	369.0	368.9	0.8	0.8	-61.74	369.5	-687.3	780.3	778.7	1.61	483.795			
500.0	500.0	468.6	468.5	1.0	1.1	-61.78	369.1	-687.8	780.6	778.5	2.09	373.263			
600.0	600.0	568.7	568.7	1.2	1.4	-61.81	368.9	-688.3	780.9	778.3	2.57	303.637			
700.0	700.0	668.5	668.4	1.4	1.6	-61.85	368.6	-688.8	781.2	778.2	3.06	255.685			
800.0	800.0	767.8	767.8	1.7	1.9	-61.90	368.2	-689.4	781.6	778.0	3.54	220.767			
900.0	900.0	867.7	867.7	1.9	2.1	-61.95	367.8	-690.1	782.0	778.0	4.03	194.207			
1,000.0	1,000.0	968.4	968.4	2.1	2.4	-61.99	367.4	-690.8	782.4	777.9	4.52	173.252			
1,100.0	1,100.0	1,068.9	1,068.9	2.3	2.7	56.99	367.1	-691.3	782.2	777.2	4.99	156.893			
1,200.0	1,200.0	1,167.8	1,167.8	2.5	2.9	57.12	366.7	-691.8	781.1	775.7	5.44	143.715			
1,300.0	1,299.9	1,266.5	1,266.5	2.7	3.2	57.34	366.3	-692.6	779.2	773.3	5.89	132.291			
1,400.0	1,399.7	1,365.7	1,365.6	2.9	3.4	57.68	365.8	-693.5	776.6	770.2	6.35	122.220			
1,500.0	1,499.4	1,464.8	1,464.8	3.1	3.7	58.13	365.3	-694.6	773.1	766.2	6.83	113.240			
1,600.0	1,598.9	1,563.2	1,563.1	3.4	4.0	58.69	364.8	-695.8	768.8	761.5	7.31	105.209			
1,700.0	1,698.3	1,661.0	1,661.0	3.6	4.2	59.33	364.5	-697.1	764.1	756.3	7.79	98.035			
1,800.0	1,797.7	1,759.1	1,759.0	3.9	4.4	60.00	364.5	-698.4	759.6	751.3	8.28	91.721			
1,900.0	1,897.0	1,857.2	1,857.1	4.1	4.7	60.68	364.7	-699.8	755.3	746.6	8.77	86.169			
2,000.0	1,996.4	1,956.7	1,956.6	4.4	4.9	61.40	365.1	-701.3	751.3	742.1	9.25	81.222			
2,100.0	2,095.7	2,058.0	2,057.9	4.7	5.1	62.15	365.7	-702.6	747.3	737.6	9.74	76.740			
2,200.0	2,195.1	2,159.3	2,159.2	5.0	5.3	62.91	366.1	-703.5	743.1	732.9	10.23	72.620			
2,300.0	2,294.5	2,259.4	2,259.3	5.3	5.6	63.68	366.4	-704.4	738.9	728.2	10.74	68.802			
2,400.0	2,393.8	2,358.2	2,358.1	5.6	5.8	64.44	366.7	-705.2	734.8	723.6	11.25	65.307			
2,500.0	2,493.2	2,457.5	2,457.4	5.8	6.0	65.21	367.1	-706.1	731.0	719.2	11.77	62.099			
2,600.0	2,592.6	2,557.0	2,556.9	6.1	6.3	65.99	367.4	-707.0	727.2	714.9	12.30	59.120			
2,700.0	2,691.9	2,656.5	2,656.4	6.4	6.5	66.76	367.6	-708.0	723.6	710.7	12.84	56.347			
2,800.0	2,791.3	2,756.1	2,755.9	6.7	6.8	67.54	367.7	-709.0	720.1	706.7	13.39	53.772			
2,900.0	2,890.7	2,855.9	2,855.8	7.0	7.0	68.33	367.8	-710.1	716.7	702.7	13.95	51.384			
3,000.0	2,990.0	2,956.3	2,956.2	7.3	7.3	69.12	367.8	-711.1	713.3	698.8	14.51	49.163			
3,100.0	3,089.4	3,057.5	3,057.3	7.6	7.5	69.95	367.9	-711.8	710.0	694.9	15.05	47.178			
3,200.0	3,188.7	3,157.2	3,157.0	7.9	7.7	70.81	368.1	-712.0	706.5	691.0	15.55	45.442			
3,300.0	3,288.1	3,256.5	3,256.3	8.2	7.9	71.68	368.5	-712.3	703.3	687.3	16.04	43.858			
3,400.0	3,387.5	3,356.0	3,355.8	8.5	8.1	72.56	368.8	-712.4	700.2	683.7	16.53	42.367			
3,500.0	3,486.8	3,455.6	3,455.4	8.8	8.3	73.44	369.1	-712.7	697.3	680.2	17.04	40.910			
3,600.0	3,586.2	3,555.0	3,554.8	9.2	8.5	74.31	369.2	-713.0	694.4	676.8	17.59	39.468			
3,700.0	3,685.6	3,654.8	3,654.6	9.5	8.8	75.20	369.3	-713.4	691.8	673.6	18.15	38.110			
3,800.0	3,784.9	3,754.4	3,754.2	9.8	9.0	76.10	369.5	-713.6	689.2	670.5	18.71	36.839			
3,900.0	3,884.3	3,853.6	3,853.5	10.1	9.3	76.98	369.5	-714.0	686.9	667.6	19.28	35.632			
4,000.0	3,983.7	3,953.1	3,952.9	10.4	9.5	77.84	369.2	-714.6	684.7	664.8	19.85	34.498			
4,100.0	4,083.0	4,052.0	4,051.8	10.7	9.8	78.60	368.3	-716.1	682.6	662.2	20.41	33.449			
4,200.0	4,182.4	4,151.2	4,151.0	11.0	10.0	79.36	367.3	-717.9	680.8	659.8	20.97	32.467			
4,300.0	4,281.8	4,250.1	4,249.9	11.3	10.3	80.12	366.3	-719.6	679.1	657.6	21.53	31.539			
4,400.0	4,381.1	4,348.9	4,348.6	11.6	10.5	80.89	365.6	-721.3	677.8	655.7	22.10	30.667			
4,500.0	4,480.5	4,448.9	4,448.6	11.9	10.8	81.68	364.8	-723.1	676.5	653.9	22.67	29.837			
4,600.0	4,579.8	4,548.6	4,548.3	12.2	11.0	82.48	364.1	-724.7	675.4	652.1	23.25	29.053			
4,700.0	4,679.2	4,647.5	4,647.2	12.5	11.3	83.26	363.3	-726.4	674.4	650.5	23.82	28.315			
4,800.0	4,778.6	4,746.5	4,746.2	12.9	11.5	84.05	362.6	-728.2	673.6	649.2	24.39	27.619			
4,900.0	4,877.9	4,846.4	4,846.1	13.2	11.8	84.84	361.9	-730.1	673.0	648.0	24.96	26.958			

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.10-T4N-R67W - Spaur 10-3 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error: 0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,977.3	4,946.8	4,946.5	13.5	12.1	85.65	361.3	-731.7	672.4	646.8	25.54	26.328	
5,100.0	5,076.7	5,046.4	5,046.0	13.8	12.3	86.46	360.6	-733.2	671.8	645.7	26.11	25.731	
5,200.0	5,176.0	5,146.1	5,145.7	14.1	12.6	87.27	359.8	-734.9	671.5	644.8	26.68	25.167	
5,300.0	5,275.4	5,246.6	5,246.3	14.4	12.8	88.08	359.0	-736.5	671.1	643.9	27.25	24.627	
5,400.0	5,374.8	5,346.8	5,346.4	14.7	13.1	88.88	358.0	-738.0	670.8	642.9	27.82	24.114	
5,500.0	5,474.1	5,446.7	5,446.3	15.0	13.3	89.68	356.9	-739.7	670.5	642.1	28.38	23.626	
5,600.0	5,573.5	5,545.7	5,545.3	15.3	13.6	90.48	355.9	-741.1	670.3	641.4	28.94	23.163	
5,608.0	5,581.5	5,553.6	5,553.2	15.4	13.6	90.55	355.8	-741.2	670.3	641.3	28.98	23.130	
5,700.0	5,673.0	5,643.8	5,643.3	15.6	13.9	91.21	355.4	-741.9	670.4	641.0	29.45	22.767	
5,800.0	5,772.8	5,742.5	5,742.0	15.8	14.1	91.68	355.2	-742.7	670.8	640.9	29.89	22.440	
5,900.0	5,872.8	5,842.0	5,841.6	16.0	14.4	91.87	355.3	-743.3	671.2	640.9	30.31	22.141	
6,000.0	5,972.8	5,941.8	5,941.3	16.1	14.6	-27.13	355.3	-744.0	671.5	640.8	30.73	21.851	
6,100.0	6,072.8	6,040.6	6,040.1	16.3	14.9	-27.17	355.5	-744.6	671.9	640.8	31.14	21.578	
6,200.0	6,172.8	6,139.2	6,138.8	16.4	15.1	-27.22	355.8	-745.4	672.6	641.1	31.54	21.325	
6,300.0	6,272.8	6,237.6	6,237.1	16.6	15.4	-27.27	356.3	-746.2	673.4	641.5	31.94	21.085	
6,400.0	6,372.8	6,334.5	6,334.0	16.8	15.6	-27.33	357.1	-747.3	674.4	642.1	32.31	20.871	
6,500.0	6,472.2	6,434.6	6,434.2	16.9	15.8	-28.03	358.0	-748.6	667.3	634.9	32.39	20.599	
6,600.0	6,569.6	6,534.6	6,534.1	17.0	16.0	-29.75	358.7	-749.9	648.6	616.5	32.08	20.216	
6,700.0	6,663.2	6,630.5	6,630.0	17.0	16.3	-32.65	359.2	-750.6	618.9	587.4	31.46	19.672	
6,800.0	6,751.4	6,719.1	6,718.6	17.0	16.5	-36.98	359.6	-751.2	579.4	548.7	30.70	18.875	
6,900.0	6,832.7	6,801.7	6,801.2	17.0	16.7	-43.24	359.7	-751.8	532.0	501.8	30.15	17.645	
7,000.0	6,905.7	6,873.1	6,872.6	17.0	16.9	-51.48	359.8	-752.4	479.2	449.0	30.20	15.867	
7,100.0	6,969.3	6,936.8	6,936.3	17.0	17.0	-61.77	360.1	-753.0	424.6	393.6	31.10	13.656	
7,200.0	7,022.2	6,991.1	6,990.6	17.1	17.1	-72.94	360.4	-753.3	373.6	341.1	32.51	11.493	
7,300.0	7,063.6	7,033.7	7,033.2	17.4	17.2	-82.78	360.7	-753.4	334.1	300.4	33.74	9.902	
7,400.0	7,092.7	7,064.0	7,063.5	18.1	17.2	-89.38	361.0	-753.4	316.0	281.4	34.63	9.127	
7,414.4	7,095.9	7,067.3	7,066.8	18.2	17.2	-89.98	361.0	-753.4	315.7	281.0	34.75	9.085 CC, ES, SF	
7,500.0	7,109.2	7,081.5	7,081.0	18.9	17.3	-91.67	361.1	-753.4	326.8	291.3	35.52	9.202	
7,600.0	7,112.8	7,086.0	7,085.5	20.0	17.3	-90.05	361.2	-753.4	365.5	328.9	36.64	9.976	
7,700.0	7,112.0	7,086.1	7,085.6	21.2	17.3	-90.05	361.2	-753.4	424.8	387.0	37.83	11.230	
7,800.0	7,111.2	7,086.1	7,085.6	22.5	17.3	-90.06	361.2	-753.4	497.3	458.2	39.12	12.712	
7,900.0	7,110.4	7,086.2	7,085.7	23.8	17.3	-90.07	361.2	-753.4	578.1	537.6	40.50	14.273	
8,000.0	7,109.6	7,086.2	7,085.7	25.3	17.3	-90.07	361.2	-753.4	664.1	622.1	41.95	15.830	
8,100.0	7,108.8	7,086.2	7,085.7	26.8	17.3	-90.08	361.2	-753.4	753.6	710.1	43.46	17.338	
8,200.0	7,108.0	7,086.3	7,085.8	28.3	17.3	-90.09	361.2	-753.4	845.4	800.4	45.03	18.776	
8,300.0	7,107.2	7,086.3	7,085.8	29.9	17.3	-90.10	361.2	-753.4	938.9	892.3	46.63	20.135	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10I-201 - Wellbore #1 - Plan #1 (6-12-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (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		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-43.7	0.0	43.7					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-43.7	0.0	43.7	43.5	0.20	223.541		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-43.7	0.0	43.7	43.1	0.65	67.763 CC		
300.0	300.0	299.8	299.8	0.5	0.5	-178.31	-43.9	-1.3	43.9	42.8	1.08	40.550 ES		
400.0	400.0	399.5	399.4	0.8	0.8	-173.35	-44.3	-5.2	44.7	43.1	1.52	29.303		
500.0	500.0	499.0	498.7	1.0	1.0	-165.58	-45.1	-11.6	46.6	44.6	1.98	23.538		
600.0	600.0	598.0	597.3	1.2	1.2	-156.03	-46.2	-20.6	50.7	48.2	2.46	20.602		
700.0	700.0	696.5	695.1	1.4	1.5	-146.13	-47.6	-32.0	57.6	54.6	2.97	19.393		
800.0	800.0	794.3	791.9	1.7	1.8	-137.14	-49.3	-45.8	67.8	64.3	3.51	19.296 SF		
900.0	900.0	891.4	887.6	1.9	2.2	-129.65	-51.3	-61.9	81.4	77.3	4.09	19.895		
1,000.0	1,000.0	987.5	982.0	2.1	2.6	-123.72	-53.6	-80.3	98.2	93.5	4.70	20.905		
1,100.0	1,100.0	1,082.9	1,075.0	2.3	3.0	-0.13	-56.1	-100.8	117.2	112.4	4.80	24.424		
1,200.0	1,200.0	1,177.5	1,166.9	2.5	3.5	3.52	-58.9	-123.5	137.4	132.1	5.23	26.264		
1,300.0	1,299.9	1,271.4	1,257.4	2.7	4.0	6.52	-61.9	-148.2	158.6	152.9	5.67	27.967		
1,400.0	1,399.7	1,365.6	1,347.6	2.9	4.5	9.05	-65.3	-175.1	180.7	174.6	6.12	29.517		
1,500.0	1,499.4	1,463.0	1,440.7	3.1	5.1	11.21	-68.8	-203.6	202.1	195.6	6.58	30.715		
1,600.0	1,598.9	1,560.8	1,534.1	3.4	5.7	13.04	-72.3	-232.1	222.1	215.1	7.05	31.503		
1,700.0	1,698.3	1,658.8	1,627.8	3.6	6.3	14.68	-75.8	-260.8	240.9	233.4	7.53	31.980		
1,800.0	1,797.7	1,756.8	1,721.5	3.9	6.9	16.11	-79.3	-289.5	259.7	251.7	8.03	32.355		
1,900.0	1,897.0	1,854.8	1,815.1	4.1	7.5	17.35	-82.8	-318.1	278.6	270.1	8.53	32.673		
2,000.0	1,996.4	1,952.9	1,908.8	4.4	8.1	18.44	-86.4	-346.8	297.6	288.6	9.03	32.941		
2,100.0	2,095.7	2,050.9	2,002.5	4.7	8.7	19.39	-89.9	-375.4	316.7	307.1	9.55	33.166		
2,200.0	2,195.1	2,148.9	2,096.2	5.0	9.3	20.23	-93.4	-404.1	335.9	325.8	10.07	33.356		
2,300.0	2,294.5	2,247.0	2,189.9	5.3	9.9	20.98	-97.0	-432.8	355.1	344.5	10.59	33.516		
2,400.0	2,393.8	2,345.0	2,283.6	5.6	10.5	21.66	-100.5	-461.4	374.4	363.3	11.13	33.651		
2,500.0	2,493.2	2,443.0	2,377.2	5.8	11.2	22.27	-104.0	-490.1	393.7	382.1	11.66	33.765		
2,600.0	2,592.6	2,541.1	2,470.9	6.1	11.8	22.82	-107.5	-518.8	413.1	400.9	12.20	33.860		
2,700.0	2,691.9	2,639.1	2,564.6	6.4	12.4	23.32	-111.1	-547.4	432.5	419.7	12.74	33.941		
2,800.0	2,791.3	2,737.1	2,658.3	6.7	13.0	23.78	-114.6	-576.1	451.9	438.6	13.29	34.009		
2,900.0	2,890.7	2,835.2	2,752.0	7.0	13.6	24.20	-118.1	-604.7	471.4	457.5	13.84	34.066		
3,000.0	2,990.0	2,933.2	2,845.6	7.3	14.2	24.59	-121.6	-633.4	490.9	476.5	14.39	34.115		
3,100.0	3,089.4	3,031.2	2,939.3	7.6	14.9	24.95	-125.2	-662.1	510.4	495.4	14.94	34.155		
3,200.0	3,188.7	3,129.2	3,033.0	7.9	15.5	25.28	-128.7	-690.7	529.9	514.4	15.50	34.189		
3,300.0	3,288.1	3,227.3	3,126.7	8.2	16.1	25.59	-132.2	-719.4	549.4	533.4	16.06	34.217		
3,400.0	3,387.5	3,325.3	3,220.4	8.5	16.7	25.88	-135.7	-748.1	569.0	552.4	16.62	34.241		
3,500.0	3,486.8	3,423.3	3,314.0	8.8	17.3	26.15	-139.3	-776.7	588.5	571.4	17.18	34.260		
3,600.0	3,586.2	3,521.4	3,407.7	9.2	18.0	26.40	-142.8	-805.4	608.1	590.4	17.74	34.276		
3,700.0	3,685.6	3,619.4	3,501.4	9.5	18.6	26.63	-146.3	-834.0	627.7	609.4	18.31	34.289		
3,800.0	3,784.9	3,717.4	3,595.1	9.8	19.2	26.85	-149.8	-862.7	647.3	628.4	18.87	34.300		
3,900.0	3,884.3	3,815.5	3,688.8	10.1	19.8	27.06	-153.4	-891.4	666.9	647.5	19.44	34.308		
4,000.0	3,983.7	3,913.5	3,782.5	10.4	20.4	27.26	-156.9	-920.0	686.5	666.5	20.01	34.314		
4,100.0	4,083.0	4,011.5	3,876.1	10.7	21.1	27.44	-160.4	-948.7	706.1	685.6	20.58	34.318		
4,200.0	4,182.4	4,109.6	3,969.8	11.0	21.7	27.62	-163.9	-977.4	725.8	704.6	21.15	34.321		
4,300.0	4,281.8	4,207.6	4,063.5	11.3	22.3	27.78	-167.5	-1,006.0	745.4	723.7	21.72	34.323		
4,400.0	4,381.1	4,305.6	4,157.2	11.6	22.9	27.94	-171.0	-1,034.7	765.0	742.8	22.29	34.323		
4,500.0	4,480.5	4,403.7	4,250.9	11.9	23.5	28.09	-174.5	-1,063.3	784.7	761.8	22.86	34.323		
4,600.0	4,579.8	4,501.7	4,344.5	12.2	24.2	28.23	-178.0	-1,092.0	804.3	780.9	23.44	34.322		
4,700.0	4,679.2	4,599.7	4,438.2	12.5	24.8	28.37	-181.6	-1,120.7	824.0	800.0	24.01	34.320		
4,800.0	4,778.6	4,697.8	4,531.9	12.9	25.4	28.50	-185.1	-1,149.3	843.6	819.1	24.58	34.317		
4,900.0	4,877.9	4,795.8	4,625.6	13.2	26.0	28.62	-188.6	-1,178.0	863.3	838.2	25.16	34.314		
5,000.0	4,977.3	4,893.8	4,719.3	13.5	26.6	28.74	-192.2	-1,206.7	883.0	857.2	25.73	34.311		

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design										Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-201 - Wellbore #1 - Plan #1 (6-12-15)				Offset Site Error:		0.0 ft
Survey Program: 0-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
5,100.0	5,076.7	4,991.8	4,812.9	13.8	27.3	28.85	-195.7	-1,235.3	902.6	876.3	26.31	34.307				
5,200.0	5,176.0	5,089.9	4,906.6	14.1	27.9	28.96	-199.2	-1,264.0	922.3	895.4	26.89	34.303				
5,300.0	5,275.4	5,187.9	5,000.3	14.4	28.5	29.06	-202.7	-1,292.6	942.0	914.5	27.46	34.298				
5,400.0	5,374.8	5,285.9	5,094.0	14.7	29.1	29.16	-206.3	-1,321.3	961.7	933.6	28.04	34.293				
5,500.0	5,474.1	5,401.0	5,204.0	15.0	29.8	29.28	-210.3	-1,354.5	981.1	952.4	28.66	34.229				
5,600.0	5,573.5	5,551.1	5,349.3	15.3	30.4	29.47	-215.0	-1,392.2	996.5	967.2	29.31	33.994				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-321 - Wellbore #1 - Plan #2 (6-10-15)													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-29.1	0.0	29.1					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-29.1	0.0	29.1	28.9	0.20	148.999		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-29.1	0.0	29.1	28.5	0.65	45.167		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-29.1	0.0	29.1	28.0	1.09	26.618		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-29.1	0.0	29.1	27.6	1.54	18.869 CC		
500.0	500.0	499.9	499.9	1.0	1.0	-178.33	-29.3	-0.9	29.3	27.3	1.98	14.815 ES		
600.0	600.0	599.7	599.7	1.2	1.2	-173.44	-29.8	-3.4	30.0	27.6	2.41	12.450		
700.0	700.0	699.5	699.3	1.4	1.4	-165.87	-30.6	-7.7	31.5	28.7	2.85	11.072		
800.0	800.0	799.0	798.7	1.7	1.6	-156.67	-31.7	-13.7	34.5	31.2	3.30	10.461		
900.0	900.0	898.3	897.7	1.9	1.9	-147.22	-33.1	-21.3	39.4	35.6	3.76	10.466		
1,000.0	1,000.0	997.3	996.2	2.1	2.1	-138.67	-34.8	-30.6	46.5	42.2	4.25	10.941		
1,100.0	1,100.0	1,096.0	1,094.3	2.3	2.4	-12.76	-36.8	-41.5	54.9	50.3	4.63	11.862		
1,200.0	1,200.0	1,194.6	1,192.0	2.5	2.7	-7.26	-39.1	-54.1	63.8	58.7	5.05	12.643		
1,300.0	1,299.9	1,292.9	1,289.3	2.7	3.0	-2.72	-41.7	-68.3	73.0	67.5	5.47	13.347		
1,400.0	1,399.7	1,391.1	1,386.1	2.9	3.4	1.16	-44.7	-84.1	82.4	76.5	5.89	13.979		
1,500.0	1,499.4	1,489.0	1,482.5	3.1	3.7	4.55	-47.9	-101.5	92.0	85.7	6.32	14.549		
1,600.0	1,598.9	1,586.8	1,578.3	3.4	4.1	7.59	-51.4	-120.4	101.9	95.1	6.76	15.063		
1,700.0	1,698.3	1,684.3	1,673.6	3.6	4.5	10.34	-55.1	-141.0	112.2	105.0	7.21	15.552		
1,800.0	1,797.7	1,781.7	1,768.3	3.9	5.0	12.73	-59.2	-163.0	124.2	116.5	7.68	16.172		
1,900.0	1,897.0	1,880.8	1,864.6	4.1	5.4	14.75	-63.5	-186.1	137.1	128.9	8.16	16.803		
2,000.0	1,996.4	1,979.8	1,960.8	4.4	5.9	16.42	-67.7	-209.2	150.1	141.4	8.64	17.364		
2,100.0	2,095.7	2,078.9	2,057.1	4.7	6.4	17.82	-72.0	-232.3	163.2	154.1	9.14	17.862		
2,200.0	2,195.1	2,177.9	2,153.3	5.0	6.9	19.01	-76.3	-255.4	176.4	166.7	9.64	18.304		
2,300.0	2,294.5	2,277.0	2,249.5	5.3	7.4	20.04	-80.5	-278.5	189.6	179.5	10.14	18.697		
2,400.0	2,393.8	2,376.1	2,345.8	5.6	7.9	20.93	-84.8	-301.6	203.0	192.3	10.65	19.048		
2,500.0	2,493.2	2,475.1	2,442.0	5.8	8.4	21.72	-89.1	-324.7	216.3	205.1	11.17	19.363		
2,600.0	2,592.6	2,574.2	2,538.3	6.1	8.9	22.41	-93.3	-347.8	229.7	218.0	11.69	19.645		
2,700.0	2,691.9	2,673.3	2,634.5	6.4	9.4	23.03	-97.6	-370.8	243.1	230.9	12.22	19.899		
2,800.0	2,791.3	2,772.3	2,730.7	6.7	9.9	23.58	-101.8	-393.9	256.6	243.8	12.75	20.129		
2,900.0	2,890.7	2,871.4	2,827.0	7.0	10.4	24.07	-106.1	-417.0	270.0	256.8	13.28	20.337		
3,000.0	2,990.0	2,970.5	2,923.2	7.3	10.9	24.52	-110.4	-440.1	283.5	269.7	13.81	20.527		
3,100.0	3,089.4	3,069.5	3,019.5	7.6	11.4	24.93	-114.6	-463.2	297.0	282.7	14.35	20.700		
3,200.0	3,188.7	3,168.6	3,115.7	7.9	11.9	25.30	-118.9	-486.3	310.5	295.6	14.89	20.858		
3,300.0	3,288.1	3,267.6	3,212.0	8.2	12.4	25.65	-123.1	-509.4	324.1	308.6	15.43	21.003		
3,400.0	3,387.5	3,366.7	3,308.2	8.5	12.9	25.96	-127.4	-532.5	337.6	321.6	15.97	21.137		
3,500.0	3,486.8	3,465.8	3,404.4	8.8	13.4	26.25	-131.7	-555.6	351.1	334.6	16.52	21.261		
3,600.0	3,586.2	3,564.8	3,500.7	9.2	13.9	26.52	-135.9	-578.7	364.7	347.6	17.06	21.375		
3,700.0	3,685.6	3,663.9	3,596.9	9.5	14.4	26.77	-140.2	-601.8	378.2	360.6	17.61	21.481		
3,800.0	3,784.9	3,763.0	3,693.2	9.8	15.0	27.00	-144.4	-624.8	391.8	373.7	18.16	21.579		
3,900.0	3,884.3	3,862.0	3,789.4	10.1	15.5	27.22	-148.7	-647.9	405.4	386.7	18.71	21.671		
4,000.0	3,983.7	3,961.1	3,885.6	10.4	16.0	27.42	-153.0	-671.0	419.0	399.7	19.26	21.756		
4,100.0	4,083.0	4,060.2	3,981.9	10.7	16.5	27.61	-157.2	-694.1	432.5	412.7	19.81	21.836		
4,200.0	4,182.4	4,159.2	4,078.1	11.0	17.0	27.79	-161.5	-717.2	446.1	425.8	20.36	21.911		
4,300.0	4,281.8	4,258.3	4,174.4	11.3	17.5	27.96	-165.8	-740.3	459.7	438.8	20.91	21.981		
4,400.0	4,381.1	4,357.3	4,270.6	11.6	18.0	28.11	-170.0	-763.4	473.3	451.8	21.47	22.047		
4,500.0	4,480.5	4,456.4	4,366.8	11.9	18.5	28.26	-174.3	-786.5	486.9	464.9	22.02	22.109		
4,600.0	4,579.8	4,555.5	4,463.1	12.2	19.0	28.40	-178.5	-809.6	500.5	477.9	22.58	22.167		
4,700.0	4,679.2	4,654.5	4,559.3	12.5	19.6	28.54	-182.8	-832.7	514.1	491.0	23.13	22.223		
4,800.0	4,778.6	4,753.6	4,655.6	12.9	20.1	28.66	-187.1	-855.7	527.7	504.0	23.69	22.275		
4,900.0	4,877.9	4,852.7	4,751.8	13.2	20.6	28.78	-191.3	-878.8	541.3	517.1	24.25	22.324		
5,000.0	4,977.3	4,951.7	4,848.0	13.5	21.1	28.90	-195.6	-901.9	554.9	530.1	24.81	22.371		

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design		Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-321 - Wellbore #1 - Plan #2 (6-10-15)										Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
							+N/-S (ft)	+E/-W (ft)							
5,100.0	5,076.7	5,050.8	4,944.3	13.8	21.6	29.01	-199.8	-925.0	568.6	543.2	25.36	22.416			
5,200.0	5,176.0	5,149.9	5,040.5	14.1	22.1	29.11	-204.1	-948.1	582.2	556.2	25.92	22.458			
5,300.0	5,275.4	5,248.9	5,136.8	14.4	22.6	29.21	-208.4	-971.2	595.8	569.3	26.48	22.498			
5,400.0	5,374.8	5,348.0	5,233.0	14.7	23.1	29.31	-212.6	-994.3	609.4	582.4	27.04	22.536			
5,500.0	5,474.1	5,449.4	5,331.5	15.0	23.7	29.40	-217.0	-1,017.9	623.0	595.4	27.60	22.569			
5,600.0	5,573.5	5,576.0	5,455.2	15.3	24.1	29.57	-221.9	-1,044.3	634.1	605.9	28.19	22.498			
5,700.0	5,673.0	5,703.5	5,580.9	15.6	24.5	29.82	-225.7	-1,065.4	642.3	613.6	28.67	22.404			
5,800.0	5,772.8	5,831.5	5,708.0	15.8	24.8	29.95	-228.6	-1,081.0	649.1	620.1	29.05	22.344			
5,900.0	5,872.8	5,960.1	5,836.1	16.0	25.0	29.98	-230.5	-1,091.1	654.6	625.2	29.37	22.290			
6,000.0	5,972.8	6,088.9	5,964.9	16.1	25.2	-89.04	-231.3	-1,095.5	657.9	628.2	29.72	22.137			
6,100.0	6,072.8	6,196.9	6,072.8	16.3	25.3	-89.05	-231.3	-1,095.7	658.1	628.0	30.07	21.884			
6,200.0	6,172.8	6,296.9	6,172.8	16.4	25.4	-89.05	-231.3	-1,095.7	658.1	627.6	30.41	21.639			
6,300.0	6,272.8	6,396.9	6,272.8	16.6	25.6	-89.05	-231.3	-1,095.7	658.1	627.3	30.75	21.397			
6,333.0	6,305.8	6,429.8	6,305.8	16.6	25.6	-89.06	-231.3	-1,095.7	658.1	627.2	30.87	21.319			
6,400.0	6,372.8	6,496.5	6,372.4	16.8	25.7	-89.04	-230.9	-1,095.7	658.1	627.0	31.10	21.160			
6,500.0	6,472.2	6,595.0	6,470.4	16.9	25.8	-89.02	-221.1	-1,095.7	658.1	626.7	31.37	20.978			
6,600.0	6,569.6	6,693.6	6,566.3	17.0	25.8	-89.01	-198.9	-1,095.7	658.1	626.5	31.54	20.865			
6,700.0	6,663.2	6,792.1	6,658.6	17.0	25.9	-89.02	-164.5	-1,095.7	658.1	626.4	31.64	20.797			
6,800.0	6,751.4	6,890.7	6,745.7	17.0	25.9	-89.05	-118.4	-1,095.7	658.1	626.3	31.74	20.734			
6,900.0	6,832.7	6,989.3	6,826.1	17.0	25.9	-89.09	-61.6	-1,095.7	658.0	626.2	31.90	20.631			
7,000.0	6,905.7	7,088.0	6,898.7	17.0	25.9	-89.15	5.2	-1,095.7	658.0	625.8	32.20	20.438			
7,100.0	6,969.3	7,186.8	6,962.1	17.0	26.0	-89.22	80.9	-1,095.7	658.0	625.3	32.72	20.110			
7,200.0	7,022.2	7,285.7	7,015.2	17.1	26.1	-89.31	164.2	-1,095.7	658.0	624.5	33.53	19.623			
7,300.0	7,063.6	7,384.7	7,057.2	17.4	26.3	-89.41	253.9	-1,095.7	658.0	623.3	34.67	18.977			
7,400.0	7,092.7	7,483.9	7,087.3	18.1	26.6	-89.52	348.3	-1,095.7	658.0	621.8	36.15	18.200			
7,500.0	7,109.2	7,583.3	7,105.0	18.9	27.0	-89.63	446.0	-1,095.7	658.0	620.0	37.95	17.337			
7,600.0	7,112.8	7,682.8	7,109.8	20.0	27.5	-89.74	545.4	-1,095.7	658.0	618.0	40.02	16.441			
7,700.0	7,112.0	7,782.8	7,109.1	21.2	28.2	-89.75	645.4	-1,095.7	658.0	615.6	42.34	15.539			
7,800.0	7,111.2	7,882.8	7,108.3	22.5	29.0	-89.75	745.4	-1,095.7	658.0	613.1	44.87	14.664			
7,900.0	7,110.4	7,982.8	7,107.6	23.8	30.0	-89.76	845.4	-1,095.7	658.0	610.4	47.57	13.831			
8,000.0	7,109.6	8,082.8	7,106.8	25.3	31.0	-89.76	945.4	-1,095.7	658.0	607.5	50.42	13.050			
8,100.0	7,108.8	8,182.8	7,106.1	26.8	32.2	-89.76	1,045.4	-1,095.7	658.0	604.6	53.39	12.323			
8,200.0	7,108.0	8,282.8	7,105.3	28.3	33.4	-89.77	1,145.4	-1,095.7	658.0	601.5	56.47	11.651			
8,300.0	7,107.2	8,382.8	7,104.6	29.9	34.7	-89.77	1,245.4	-1,095.7	658.0	598.3	59.64	11.033			
8,400.0	7,106.4	8,482.8	7,103.8	31.5	36.1	-89.78	1,345.3	-1,095.7	658.0	595.1	62.88	10.464			
8,500.0	7,105.6	8,582.8	7,103.1	33.2	37.5	-89.78	1,445.3	-1,095.7	658.0	591.8	66.18	9.942			
8,600.0	7,104.8	8,682.8	7,102.3	34.8	39.0	-89.79	1,545.3	-1,095.7	658.0	588.4	69.54	9.461			
8,700.0	7,104.0	8,782.8	7,101.6	36.5	40.5	-89.79	1,645.3	-1,095.7	658.0	585.0	72.95	9.020			
8,800.0	7,103.2	8,882.8	7,100.8	38.3	42.1	-89.80	1,745.3	-1,095.7	658.0	581.6	76.40	8.612			
8,900.0	7,102.4	8,982.8	7,100.1	40.0	43.7	-89.80	1,845.3	-1,095.7	658.0	578.1	79.88	8.237			
9,000.0	7,101.6	9,082.8	7,099.3	41.8	45.3	-89.81	1,945.3	-1,095.7	658.0	574.6	83.40	7.890			
9,100.0	7,100.8	9,182.8	7,098.6	43.5	46.9	-89.81	2,045.3	-1,095.7	658.0	571.0	86.94	7.568			
9,200.0	7,100.0	9,282.8	7,097.8	45.3	48.6	-89.81	2,145.3	-1,095.7	658.0	567.5	90.50	7.270			
9,300.0	7,099.2	9,382.8	7,097.1	47.1	50.2	-89.82	2,245.3	-1,095.7	658.0	563.9	94.09	6.993			
9,400.0	7,098.4	9,482.8	7,096.3	48.9	51.9	-89.82	2,345.3	-1,095.7	658.0	560.3	97.70	6.735			
9,500.0	7,097.5	9,582.8	7,095.6	50.7	53.7	-89.83	2,445.3	-1,095.7	658.0	556.6	101.32	6.494			
9,600.0	7,096.7	9,682.8	7,094.8	52.5	55.4	-89.83	2,545.3	-1,095.7	658.0	553.0	104.96	6.269			
9,700.0	7,095.9	9,782.8	7,094.1	54.4	57.1	-89.84	2,645.3	-1,095.7	658.0	549.4	108.61	6.058			
9,800.0	7,095.1	9,882.8	7,093.3	56.2	58.9	-89.84	2,745.3	-1,095.7	658.0	545.7	112.28	5.860			
9,900.0	7,094.3	9,982.8	7,092.6	58.0	60.6	-89.85	2,845.3	-1,095.7	658.0	542.0	115.96	5.674			

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-321 - Wellbore #1 - Plan #2 (6-10-15)												Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (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	7,093.5	10,082.8	7,091.8	59.9	62.4	-89.85	2,945.3	-1,095.7	658.0	538.3	119.64	5.499			
10,100.0	7,092.7	10,182.8	7,091.1	61.7	64.2	-89.86	3,045.3	-1,095.7	658.0	534.6	123.34	5.335			
10,200.0	7,091.9	10,282.8	7,090.3	63.6	65.9	-89.86	3,145.3	-1,095.7	658.0	530.9	127.04	5.179			
10,300.0	7,091.1	10,382.8	7,089.6	65.4	67.7	-89.86	3,245.3	-1,095.7	658.0	527.2	130.75	5.032			
10,400.0	7,090.3	10,482.8	7,088.8	67.3	69.5	-89.87	3,345.3	-1,095.7	658.0	523.5	134.47	4.893			
10,500.0	7,089.5	10,582.8	7,088.1	69.1	71.3	-89.87	3,445.3	-1,095.7	658.0	519.8	138.20	4.761			
10,600.0	7,088.7	10,682.8	7,087.3	71.0	73.2	-89.88	3,545.3	-1,095.7	658.0	516.0	141.93	4.636			
10,700.0	7,087.9	10,782.8	7,086.6	72.9	75.0	-89.88	3,645.3	-1,095.7	658.0	512.3	145.67	4.517			
10,800.0	7,087.1	10,882.8	7,085.8	74.7	76.8	-89.89	3,745.3	-1,095.7	658.0	508.6	149.41	4.404			
10,900.0	7,086.3	10,982.8	7,085.1	76.6	78.6	-89.89	3,845.3	-1,095.7	658.0	504.8	153.16	4.296			
11,000.0	7,085.5	11,082.8	7,084.3	78.5	80.5	-89.90	3,945.3	-1,095.7	658.0	501.1	156.91	4.193			
11,100.0	7,084.7	11,182.8	7,083.6	80.4	82.3	-89.90	4,045.3	-1,095.7	658.0	497.3	160.67	4.095			
11,200.0	7,083.9	11,282.8	7,082.8	82.2	84.1	-89.91	4,145.3	-1,095.7	658.0	493.5	164.43	4.002			
11,300.0	7,083.1	11,382.8	7,082.1	84.1	86.0	-89.91	4,245.3	-1,095.7	658.0	489.8	168.19	3.912			
11,400.0	7,082.3	11,482.8	7,081.3	86.0	87.8	-89.92	4,345.3	-1,095.7	658.0	486.0	171.96	3.826			
11,500.0	7,081.5	11,582.8	7,080.6	87.9	89.7	-89.92	4,445.3	-1,095.7	658.0	482.2	175.73	3.744			
11,561.2	7,081.0	11,644.1	7,080.1	88.8	90.8	-89.92	4,506.5	-1,095.7	658.0	480.2	177.81	3.700 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-201 - Wellbore #1 - Plan #2 (6-10-15)													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	43.7	0.0	43.7					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	43.7	0.0	43.7	43.5	0.20	223.604		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	43.7	0.0	43.7	43.1	0.65	67.783		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	43.7	0.0	43.7	42.6	1.09	39.946		
400.0	400.0	400.0	400.0	0.8	0.8	0.00	43.7	0.0	43.7	42.2	1.54	28.317		
500.0	500.0	500.0	500.0	1.0	1.0	0.00	43.7	0.0	43.7	41.7	1.99	21.932		
600.0	600.0	600.0	600.0	1.2	1.2	0.00	43.7	0.0	43.7	41.3	2.44	17.897		
700.0	700.0	700.0	700.0	1.4	1.4	0.00	43.7	0.0	43.7	40.8	2.89	15.115		
800.0	800.0	800.0	800.0	1.7	1.7	0.00	43.7	0.0	43.7	40.4	3.34	13.082		
900.0	900.0	900.0	900.0	1.9	1.9	0.00	43.7	0.0	43.7	39.9	3.79	11.531		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	0.00	43.7	0.0	43.7	39.5	4.24	10.309 CC, ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	119.95	43.7	0.0	44.2	39.5	4.67	9.454		
1,200.0	1,200.0	1,200.0	1,200.0	2.5	2.6	122.80	43.7	0.0	45.5	40.4	5.08	8.953		
1,300.0	1,299.9	1,299.9	1,299.9	2.7	2.8	127.15	43.7	0.0	48.0	42.5	5.50	8.723		
1,400.0	1,399.7	1,399.7	1,399.7	2.9	3.0	132.49	43.7	0.0	51.9	46.0	5.93	8.757		
1,500.0	1,499.4	1,499.4	1,499.4	3.1	3.2	138.22	43.7	0.0	57.5	51.2	6.36	9.046		
1,600.0	1,598.9	1,598.9	1,598.9	3.4	3.5	143.80	43.7	0.0	65.0	58.2	6.79	9.572		
1,700.0	1,698.3	1,698.3	1,698.3	3.6	3.7	148.83	43.7	0.0	74.2	67.0	7.23	10.274		
1,800.0	1,797.7	1,797.7	1,797.7	3.9	3.9	152.80	43.7	0.0	84.1	76.4	7.67	10.972		
1,900.0	1,897.0	1,898.6	1,898.6	4.1	4.1	156.03	43.0	-0.4	93.4	85.4	8.08	11.563		
2,000.0	1,996.4	1,999.9	1,999.9	4.4	4.3	158.86	40.7	-1.7	101.3	92.8	8.47	11.952		
2,100.0	2,095.7	2,101.4	2,101.3	4.7	4.5	161.48	36.8	-3.9	107.6	98.7	8.87	12.128		
2,200.0	2,195.1	2,203.1	2,202.7	5.0	4.7	164.04	31.4	-7.0	112.4	103.2	9.28	12.119		
2,300.0	2,294.5	2,304.8	2,304.2	5.3	4.9	166.67	24.4	-11.0	115.8	106.1	9.69	11.951		
2,400.0	2,393.8	2,406.6	2,405.5	5.6	5.1	169.44	15.9	-15.9	117.6	107.5	10.10	11.648		
2,500.0	2,493.2	2,507.0	2,505.3	5.8	5.3	172.34	6.2	-21.4	118.6	108.0	10.52	11.270		
2,600.0	2,592.6	2,606.8	2,604.5	6.1	5.5	175.19	-3.4	-26.9	119.7	108.7	10.95	10.934		
2,700.0	2,691.9	2,706.7	2,703.7	6.4	5.8	177.98	-13.0	-32.3	121.1	109.7	11.38	10.639		
2,800.0	2,791.3	2,806.5	2,802.9	6.7	6.0	-179.30	-22.7	-37.8	122.8	111.0	11.83	10.380		
2,900.0	2,890.7	2,906.3	2,902.1	7.0	6.2	-176.66	-32.3	-43.3	124.8	112.5	12.29	10.152		
3,000.0	2,990.0	3,006.1	3,001.3	7.3	6.5	-174.11	-41.9	-48.8	127.0	114.3	12.77	9.950		
3,100.0	3,089.4	3,105.9	3,100.5	7.6	6.8	-171.65	-51.5	-54.3	129.5	116.3	13.25	9.773		
3,200.0	3,188.7	3,205.7	3,199.7	7.9	7.0	-169.28	-61.2	-59.8	132.2	118.5	13.75	9.616		
3,300.0	3,288.1	3,305.6	3,298.9	8.2	7.3	-167.02	-70.8	-65.3	135.1	120.9	14.26	9.476		
3,400.0	3,387.5	3,405.4	3,398.1	8.5	7.6	-164.85	-80.4	-70.8	138.3	123.5	14.78	9.353		
3,500.0	3,486.8	3,505.2	3,497.3	8.8	7.8	-162.78	-90.1	-76.2	141.6	126.3	15.31	9.244		
3,600.0	3,586.2	3,605.0	3,596.5	9.2	8.1	-160.81	-99.7	-81.7	145.1	129.2	15.86	9.148		
3,700.0	3,685.6	3,704.8	3,695.7	9.5	8.4	-158.93	-109.3	-87.2	148.7	132.3	16.41	9.062		
3,800.0	3,784.9	3,804.6	3,794.9	9.8	8.7	-157.15	-119.0	-92.7	152.5	135.5	16.97	8.987		
3,900.0	3,884.3	3,904.5	3,894.1	10.1	8.9	-155.45	-128.6	-98.2	156.5	138.9	17.54	8.921		
4,000.0	3,983.7	4,004.3	3,993.3	10.4	9.2	-153.84	-138.2	-103.7	160.5	142.4	18.12	8.862		
4,100.0	4,083.0	4,104.1	4,092.5	10.7	9.5	-152.31	-147.9	-109.2	164.7	146.0	18.70	8.811		
4,200.0	4,182.4	4,203.9	4,191.7	11.0	9.8	-150.85	-157.5	-114.7	169.0	149.8	19.28	8.766		
4,300.0	4,281.8	4,303.7	4,290.9	11.3	10.1	-149.47	-167.1	-120.1	173.5	153.6	19.88	8.727		
4,400.0	4,381.1	4,403.5	4,390.1	11.6	10.4	-148.16	-176.8	-125.6	178.0	157.5	20.47	8.693		
4,500.0	4,480.5	4,503.4	4,489.3	11.9	10.7	-146.91	-186.4	-131.1	182.6	161.5	21.07	8.663		
4,600.0	4,579.8	4,603.2	4,588.5	12.2	11.0	-145.73	-196.0	-136.6	187.2	165.6	21.68	8.638		
4,700.0	4,679.2	4,702.8	4,687.5	12.5	11.3	-144.60	-205.6	-142.1	192.0	169.7	22.28	8.618		
4,800.0	4,778.6	4,800.0	4,784.3	12.9	11.5	-144.05	-213.4	-146.5	197.6	174.8	22.80	8.667		
4,900.0	4,877.9	4,897.2	4,881.3	13.2	11.7	-144.39	-218.3	-149.3	204.4	181.2	23.25	8.795		
5,000.0	4,977.3	4,993.9	4,978.0	13.5	11.9	-145.51	-220.4	-150.5	212.7	189.1	23.63	9.000		

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-201 - Wellbore #1 - Plan #2 (6-10-15)													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	
5,100.0	5,076.7	5,092.6	5,076.7	13.8	12.1	-147.13	-220.5	-150.6	222.0	198.1	23.99	9.257		
5,200.0	5,176.0	5,192.0	5,176.0	14.1	12.2	-148.64	-220.5	-150.6	231.6	207.3	24.34	9.515		
5,300.0	5,275.4	5,291.3	5,275.4	14.4	12.4	-150.03	-220.5	-150.6	241.3	216.6	24.70	9.769		
5,400.0	5,374.8	5,390.7	5,374.8	14.7	12.6	-151.31	-220.5	-150.6	251.1	226.1	25.07	10.018		
5,500.0	5,474.1	5,490.1	5,474.1	15.0	12.8	-152.49	-220.5	-150.6	261.1	235.6	25.44	10.263		
5,600.0	5,573.5	5,589.4	5,573.5	15.3	13.0	-153.59	-220.5	-150.6	271.1	245.3	25.81	10.503		
5,700.0	5,673.0	5,689.0	5,673.0	15.6	13.1	-154.54	-220.5	-150.6	279.8	253.6	26.19	10.686		
5,800.0	5,772.8	5,788.8	5,772.8	15.8	13.3	-155.12	-220.5	-150.6	285.4	258.9	26.52	10.761		
5,900.0	5,872.8	5,888.7	5,872.8	16.0	13.5	-155.37	-220.5	-150.6	287.9	261.0	26.86	10.719		
6,000.0	5,972.8	5,988.7	5,972.8	16.1	13.7	85.65	-220.5	-150.6	288.0	260.8	27.22	10.579		
6,100.0	6,072.8	6,088.7	6,072.8	16.3	13.9	85.65	-220.5	-150.6	288.0	260.4	27.60	10.435		
6,200.0	6,172.8	6,188.7	6,172.8	16.4	14.1	85.65	-220.5	-150.6	288.0	260.0	27.98	10.294		
6,260.8	6,233.6	6,249.5	6,233.6	16.5	14.2	85.65	-220.5	-150.6	288.0	259.8	28.21	10.210		
6,300.0	6,272.8	6,288.3	6,272.4	16.6	14.3	85.63	-220.3	-150.6	288.0	259.7	28.35	10.158		
6,400.0	6,372.8	6,384.8	6,368.4	16.8	14.4	84.11	-212.4	-150.6	288.7	260.1	28.60	10.096		
6,500.0	6,472.2	6,479.8	6,461.3	16.9	14.5	81.93	-192.8	-150.6	290.1	261.4	28.71	10.104		
6,600.0	6,569.6	6,573.6	6,550.0	17.0	14.6	79.92	-162.4	-150.6	291.7	263.0	28.75	10.146		
6,700.0	6,663.2	6,666.3	6,633.3	17.0	14.6	78.10	-121.8	-150.6	293.5	264.8	28.76	10.204		
6,800.0	6,751.4	6,758.1	6,710.3	17.0	14.6	76.48	-72.0	-150.6	295.4	266.6	28.79	10.259		
6,900.0	6,832.7	6,850.0	6,780.9	17.0	14.7	75.08	-13.2	-150.6	297.2	268.3	28.89	10.287		
7,000.0	6,905.7	6,939.5	6,842.4	17.0	14.8	73.95	51.8	-150.6	298.9	269.7	29.12	10.261		
7,100.0	6,969.3	7,029.4	6,896.1	17.0	15.0	73.05	123.8	-150.6	300.2	270.7	29.55	10.161		
7,200.0	7,022.2	7,118.8	6,940.7	17.1	15.4	72.40	201.2	-150.6	301.3	271.1	30.21	9.972		
7,300.0	7,063.6	7,208.0	6,975.9	17.4	16.0	72.02	283.1	-150.6	301.9	270.7	31.16	9.689		
7,400.0	7,092.7	7,297.1	7,001.4	18.1	16.7	71.90	368.5	-150.6	302.1	269.7	32.42	9.319		
7,500.0	7,109.2	7,386.2	7,016.7	18.9	17.5	72.04	456.2	-150.6	301.9	267.9	33.99	8.881		
7,600.0	7,112.8	7,475.4	7,021.7	20.0	18.5	72.39	545.2	-150.6	301.3	265.4	35.86	8.401		
7,640.8	7,112.5	7,515.7	7,021.4	20.5	19.0	72.40	585.5	-150.6	301.3	264.5	36.77	8.193		
7,700.0	7,112.0	7,574.9	7,020.9	21.2	19.7	72.40	644.7	-150.6	301.3	263.1	38.13	7.902		
7,800.0	7,111.2	7,674.9	7,020.2	22.5	21.0	72.41	744.7	-150.6	301.2	260.6	40.59	7.421		
7,900.0	7,110.4	7,774.9	7,019.4	23.8	22.3	72.42	844.7	-150.6	301.2	258.0	43.24	6.967		
8,000.0	7,109.6	7,874.9	7,018.7	25.3	23.8	72.43	944.7	-150.6	301.2	255.2	46.02	6.545		
8,100.0	7,108.8	7,974.9	7,017.9	26.8	25.3	72.44	1,044.7	-150.6	301.2	252.3	48.93	6.155		
8,200.0	7,108.0	8,074.9	7,017.2	28.3	26.9	72.45	1,144.7	-150.6	301.2	249.2	51.94	5.799		
8,300.0	7,107.2	8,174.9	7,016.4	29.9	28.5	72.46	1,244.7	-150.6	301.2	246.1	55.03	5.473		
8,400.0	7,106.4	8,274.9	7,015.7	31.5	30.1	72.47	1,344.7	-150.6	301.1	243.0	58.19	5.175		
8,500.0	7,105.6	8,374.9	7,014.9	33.2	31.8	72.48	1,444.7	-150.6	301.1	239.7	61.41	4.904		
8,600.0	7,104.8	8,474.9	7,014.2	34.8	33.5	72.49	1,544.7	-150.6	301.1	236.4	64.68	4.655		
8,700.0	7,104.0	8,574.9	7,013.4	36.5	35.3	72.50	1,644.7	-150.6	301.1	233.1	67.99	4.428		
8,800.0	7,103.2	8,674.9	7,012.7	38.3	37.0	72.51	1,744.7	-150.6	301.1	229.7	71.35	4.220		
8,900.0	7,102.4	8,774.9	7,011.9	40.0	38.8	72.52	1,844.7	-150.6	301.1	226.3	74.73	4.029		
9,000.0	7,101.6	8,874.9	7,011.2	41.8	40.5	72.53	1,944.7	-150.6	301.1	222.9	78.14	3.853		
9,100.0	7,100.8	8,974.9	7,010.4	43.5	42.3	72.54	2,044.7	-150.6	301.0	219.5	81.58	3.690		
9,200.0	7,100.0	9,074.9	7,009.7	45.3	44.1	72.55	2,144.7	-150.6	301.0	216.0	85.04	3.540		
9,300.0	7,099.2	9,174.9	7,008.9	47.1	45.9	72.56	2,244.7	-150.6	301.0	212.5	88.52	3.401		
9,400.0	7,098.4	9,274.9	7,008.2	48.9	47.7	72.57	2,344.7	-150.6	301.0	209.0	92.01	3.271		
9,500.0	7,097.5	9,374.9	7,007.4	50.7	49.6	72.57	2,444.7	-150.6	301.0	205.5	95.52	3.151		
9,600.0	7,096.7	9,474.9	7,006.7	52.5	51.4	72.58	2,544.7	-150.6	301.0	201.9	99.04	3.039		
9,700.0	7,095.9	9,574.9	7,005.9	54.4	53.2	72.59	2,644.7	-150.6	300.9	198.4	102.58	2.934		
9,800.0	7,095.1	9,674.9	7,005.2	56.2	55.1	72.60	2,744.6	-150.6	300.9	194.8	106.13	2.836		

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-201 - Wellbore #1 - Plan #2 (6-10-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
9,900.0	7,094.3	9,774.9	7,004.4	58.0	56.9	72.61	2,844.6	-150.6	300.9	191.2	109.68	2.743	
10,000.0	7,093.5	9,874.9	7,003.7	59.9	58.8	72.62	2,944.6	-150.6	300.9	187.6	113.25	2.657	
10,100.0	7,092.7	9,974.9	7,002.9	61.7	60.6	72.63	3,044.6	-150.6	300.9	184.1	116.83	2.575	
10,200.0	7,091.9	10,074.9	7,002.2	63.6	62.5	72.64	3,144.6	-150.6	300.9	180.5	120.41	2.499	
10,300.0	7,091.1	10,174.9	7,001.4	65.4	64.4	72.65	3,244.6	-150.6	300.9	176.9	124.00	2.426	
10,400.0	7,090.3	10,274.9	7,000.7	67.3	66.2	72.66	3,344.6	-150.6	300.8	173.2	127.59	2.358	
10,500.0	7,089.5	10,374.9	6,999.9	69.1	68.1	72.67	3,444.6	-150.6	300.8	169.6	131.19	2.293	
10,600.0	7,088.7	10,474.9	6,999.2	71.0	70.0	72.68	3,544.6	-150.6	300.8	166.0	134.80	2.231	
10,700.0	7,087.9	10,574.9	6,998.4	72.9	71.9	72.69	3,644.6	-150.6	300.8	162.4	138.41	2.173	
10,800.0	7,087.1	10,674.9	6,997.7	74.7	73.7	72.70	3,744.6	-150.6	300.8	158.7	142.03	2.118	
10,900.0	7,086.3	10,774.9	6,996.9	76.6	75.6	72.71	3,844.6	-150.6	300.8	155.1	145.65	2.065	
11,000.0	7,085.5	10,874.9	6,996.2	78.5	77.5	72.72	3,944.6	-150.6	300.7	151.5	149.28	2.015	
11,100.0	7,084.7	10,974.9	6,995.4	80.4	79.4	72.73	4,044.6	-150.6	300.7	147.8	152.91	1.967	
11,200.0	7,083.9	11,074.9	6,994.7	82.2	81.3	72.74	4,144.6	-150.6	300.7	144.2	156.54	1.921	
11,300.0	7,083.1	11,174.9	6,993.9	84.1	83.2	72.75	4,244.6	-150.6	300.7	140.5	160.18	1.877	
11,400.0	7,082.3	11,274.9	6,993.2	86.0	85.0	72.76	4,344.6	-150.6	300.7	136.9	163.82	1.835	
11,500.0	7,081.5	11,374.9	6,992.4	87.9	86.9	72.76	4,444.6	-150.6	300.7	133.2	167.46	1.795	
11,543.6	7,081.1	11,418.5	6,992.1	88.6	87.8	72.77	4,488.2	-150.6	300.7	131.8	168.89	1.780	
11,561.2	7,081.0	11,429.5	6,992.0	88.8	88.0	72.77	4,499.2	-150.6	300.7	131.4	169.35	1.776 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-241 - Wellbore #1 - Plan #2 (6-10-15)													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-14.6	0.0	14.6					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-14.6	0.0	14.6	14.4	0.20	74.479		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-14.6	0.0	14.6	13.9	0.65	22.577		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-14.6	0.0	14.6	13.5	1.09	13.305		
400.0	400.0	400.0	400.0	0.8	0.8	180.00	-14.6	0.0	14.6	13.0	1.54	9.432		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-14.6	0.0	14.6	12.6	1.99	7.305		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-14.6	0.0	14.6	12.1	2.44	5.961		
700.0	700.0	700.0	700.0	1.4	1.4	180.00	-14.6	0.0	14.6	11.7	2.89	5.035		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-14.6	0.0	14.6	11.2	3.34	4.358 CC		
900.0	900.0	899.9	899.9	1.9	1.9	-176.79	-14.8	-0.8	14.8	11.1	3.77	3.934 ES		
1,000.0	1,000.0	999.8	999.7	2.1	2.1	-167.96	-15.6	-3.3	15.9	11.8	4.19	3.803		
1,100.0	1,100.0	1,099.5	1,099.4	2.3	2.3	-38.83	-16.9	-7.5	17.8	13.2	4.60	3.866		
1,200.0	1,200.0	1,199.2	1,198.9	2.5	2.5	-29.96	-18.7	-13.3	19.9	14.9	5.00	3.975		
1,300.0	1,299.9	1,298.9	1,298.3	2.7	2.7	-22.11	-21.0	-20.7	22.1	16.7	5.40	4.100		
1,400.0	1,399.7	1,398.5	1,397.4	2.9	3.0	-15.06	-23.8	-29.8	24.6	18.8	5.81	4.239		
1,500.0	1,499.4	1,498.0	1,496.3	3.1	3.2	-8.66	-27.1	-40.6	27.3	21.1	6.22	4.390		
1,600.0	1,598.9	1,597.4	1,594.8	3.4	3.5	-2.82	-31.0	-52.9	30.2	23.6	6.64	4.553		
1,700.0	1,698.3	1,696.8	1,693.1	3.6	3.8	2.54	-35.3	-66.9	33.6	26.5	7.07	4.756		
1,800.0	1,797.7	1,796.2	1,791.2	3.9	4.1	7.13	-40.1	-82.4	38.6	31.1	7.51	5.146		
1,900.0	1,897.0	1,896.0	1,889.7	4.1	4.5	10.66	-45.1	-98.3	44.2	36.2	7.96	5.550		
2,000.0	1,996.4	1,995.9	1,988.1	4.4	4.8	13.40	-50.0	-114.1	49.9	41.4	8.42	5.920		
2,100.0	2,095.7	2,095.7	2,086.5	4.7	5.1	15.57	-54.9	-130.0	55.6	46.7	8.90	6.254		
2,200.0	2,195.1	2,195.5	2,184.9	5.0	5.5	17.34	-59.8	-145.8	61.5	52.1	9.38	6.557		
2,300.0	2,294.5	2,295.3	2,283.3	5.3	5.9	18.79	-64.8	-161.7	67.4	57.5	9.86	6.830		
2,400.0	2,393.8	2,395.1	2,381.8	5.6	6.2	20.01	-69.7	-177.6	73.3	62.9	10.36	7.077		
2,500.0	2,493.2	2,494.9	2,480.2	5.8	6.6	21.05	-74.6	-193.4	79.2	68.4	10.85	7.300		
2,600.0	2,592.6	2,594.7	2,578.6	6.1	7.0	21.95	-79.5	-209.3	85.2	73.9	11.36	7.503		
2,700.0	2,691.9	2,694.6	2,677.0	6.4	7.3	22.72	-84.4	-225.2	91.2	79.3	11.86	7.688		
2,800.0	2,791.3	2,794.4	2,775.5	6.7	7.7	23.40	-89.4	-241.0	97.2	84.8	12.37	7.857		
2,900.0	2,890.7	2,894.2	2,873.9	7.0	8.1	24.00	-94.3	-256.9	103.2	90.3	12.89	8.011		
3,000.0	2,990.0	2,994.0	2,972.3	7.3	8.5	24.54	-99.2	-272.8	109.3	95.9	13.40	8.152		
3,100.0	3,089.4	3,093.8	3,070.7	7.6	8.9	25.02	-104.1	-288.6	115.3	101.4	13.92	8.283		
3,200.0	3,188.7	3,193.6	3,169.1	7.9	9.2	25.45	-109.1	-304.5	121.3	106.9	14.44	8.403		
3,300.0	3,288.1	3,293.4	3,267.6	8.2	9.6	25.84	-114.0	-320.4	127.4	112.4	14.96	8.514		
3,400.0	3,387.5	3,393.2	3,366.0	8.5	10.0	26.19	-118.9	-336.2	133.4	118.0	15.49	8.617		
3,500.0	3,486.8	3,493.1	3,464.4	8.8	10.4	26.52	-123.8	-352.1	139.5	123.5	16.01	8.713		
3,600.0	3,586.2	3,592.9	3,562.8	9.2	10.8	26.82	-128.8	-367.9	145.6	129.0	16.54	8.802		
3,700.0	3,685.6	3,692.7	3,661.2	9.5	11.2	27.09	-133.7	-383.8	151.6	134.6	17.07	8.885		
3,800.0	3,784.9	3,792.5	3,759.7	9.8	11.6	27.34	-138.6	-399.7	157.7	140.1	17.60	8.963		
3,900.0	3,884.3	3,892.3	3,858.1	10.1	11.9	27.57	-143.5	-415.5	163.8	145.7	18.13	9.036		
4,000.0	3,983.7	3,992.1	3,956.5	10.4	12.3	27.79	-148.4	-431.4	169.9	151.2	18.66	9.104		
4,100.0	4,083.0	4,091.9	4,054.9	10.7	12.7	27.99	-153.4	-447.3	175.9	156.7	19.19	9.168		
4,200.0	4,182.4	4,191.8	4,153.4	11.0	13.1	28.18	-158.3	-463.1	182.0	162.3	19.72	9.229		
4,300.0	4,281.8	4,291.6	4,251.8	11.3	13.5	28.36	-163.2	-479.0	188.1	167.8	20.26	9.286		
4,400.0	4,381.1	4,391.4	4,350.2	11.6	13.9	28.52	-168.1	-494.9	194.2	173.4	20.79	9.340		
4,500.0	4,480.5	4,491.2	4,448.6	11.9	14.3	28.68	-173.1	-510.7	200.3	178.9	21.33	9.391		
4,600.0	4,579.8	4,591.0	4,547.0	12.2	14.7	28.82	-178.0	-526.6	206.3	184.5	21.86	9.439		
4,700.0	4,679.2	4,690.8	4,645.5	12.5	15.0	28.96	-182.9	-542.4	212.4	190.0	22.40	9.485		
4,800.0	4,778.6	4,790.6	4,743.9	12.9	15.4	29.09	-187.8	-558.3	218.5	195.6	22.93	9.528		
4,900.0	4,877.9	4,890.4	4,842.3	13.2	15.8	29.22	-192.8	-574.2	224.6	201.1	23.47	9.570		
5,000.0	4,977.3	4,990.3	4,940.7	13.5	16.2	29.33	-197.7	-590.0	230.7	206.7	24.01	9.609		

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-241 - Wellbore #1 - Plan #2 (6-10-15)											Offset Site Error:		0.0 ft
Survey Program: 0-MWD											Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance				Warning		
Measured Depth (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
5,100.0	5,076.7	5,090.1	5,039.1	13.8	16.6	29.44	-202.6	-605.9	236.8	212.3	24.55	9.647	
5,200.0	5,176.0	5,189.9	5,137.6	14.1	17.0	29.55	-207.5	-621.8	242.9	217.8	25.09	9.683	
5,300.0	5,275.4	5,289.7	5,236.0	14.4	17.4	29.65	-212.5	-637.6	249.0	223.4	25.62	9.717	
5,400.0	5,374.8	5,389.5	5,334.4	14.7	17.8	29.74	-217.4	-653.5	255.1	228.9	26.16	9.749	
5,500.0	5,474.1	5,489.3	5,432.8	15.0	18.2	29.83	-222.3	-669.4	261.2	234.5	26.70	9.781	
5,600.0	5,573.5	5,589.9	5,532.0	15.3	18.6	29.92	-227.3	-685.3	267.3	240.0	27.24	9.810	
5,700.0	5,673.0	5,699.6	5,640.5	15.6	18.9	30.04	-232.0	-700.5	272.6	244.9	27.69	9.845	
5,800.0	5,772.8	5,809.5	5,749.8	15.8	19.1	30.03	-235.4	-711.6	277.4	249.4	28.05	9.890	
5,900.0	5,872.8	5,919.6	5,859.7	16.0	19.3	29.89	-237.6	-718.8	281.5	253.2	28.35	9.931	
6,000.0	5,972.8	6,029.9	5,969.9	16.1	19.5	-89.26	-238.6	-721.9	284.3	255.6	28.68	9.912	
6,100.0	6,072.8	6,132.8	6,072.8	16.3	19.6	-89.27	-238.7	-722.1	284.4	255.4	29.04	9.795	
6,200.0	6,172.8	6,232.8	6,172.8	16.4	19.7	-89.27	-238.7	-722.1	284.4	255.0	29.39	9.677	
6,259.4	6,232.2	6,292.2	6,232.2	16.5	19.8	-89.27	-238.7	-722.1	284.4	254.8	29.60	9.608	
6,300.0	6,272.8	6,332.7	6,272.7	16.6	19.9	-89.22	-238.4	-722.1	284.4	254.7	29.75	9.560	
6,400.0	6,372.8	6,431.3	6,370.9	16.8	20.0	-87.53	-229.7	-722.1	284.6	254.4	30.25	9.409	
6,500.0	6,472.2	6,528.3	6,465.5	16.9	20.1	-85.14	-208.9	-722.1	285.4	254.7	30.75	9.283	
6,600.0	6,569.6	6,623.9	6,555.5	17.0	20.1	-82.86	-176.8	-722.1	286.6	255.5	31.10	9.215	
6,700.0	6,663.2	6,718.2	6,639.6	17.0	20.1	-80.73	-134.4	-722.1	288.2	256.9	31.32	9.200	
6,800.0	6,751.4	6,811.4	6,717.0	17.0	20.1	-78.78	-82.6	-722.1	290.0	258.5	31.43	9.224	
6,900.0	6,832.7	6,903.5	6,786.9	17.0	20.1	-77.02	-22.5	-722.1	291.9	260.4	31.50	9.266	
7,000.0	6,905.7	6,994.9	6,848.4	17.0	20.2	-75.50	44.9	-722.1	293.8	262.2	31.62	9.292	
7,100.0	6,969.3	7,085.5	6,901.1	17.0	20.3	-74.21	118.5	-722.1	295.6	263.7	31.90	9.265	
7,200.0	7,022.2	7,175.5	6,944.4	17.1	20.4	-73.17	197.4	-722.1	297.1	264.7	32.45	9.155	
7,300.0	7,063.6	7,265.0	6,978.0	17.4	20.6	-72.39	280.3	-722.1	298.4	265.0	33.38	8.938	
7,400.0	7,092.7	7,354.3	7,001.6	18.1	21.0	-71.87	366.3	-722.1	299.2	264.5	34.74	8.614	
7,500.0	7,109.2	7,443.3	7,015.0	18.9	21.6	-71.61	454.3	-722.1	299.7	263.1	36.54	8.201	
7,600.0	7,112.8	7,533.5	7,018.2	20.0	22.3	-71.60	544.4	-722.1	299.7	261.0	38.69	7.746	
7,700.0	7,112.0	7,633.5	7,017.2	21.2	23.3	-71.56	644.4	-722.1	299.8	258.8	40.98	7.315	
7,800.0	7,111.2	7,733.5	7,016.2	22.5	24.4	-71.52	744.4	-722.1	299.8	256.4	43.45	6.901	
7,900.0	7,110.4	7,833.5	7,015.1	23.8	25.6	-71.48	844.4	-722.1	299.9	253.8	46.07	6.509	
8,000.0	7,109.6	7,933.5	7,014.1	25.3	26.9	-71.44	944.4	-722.1	300.0	251.1	48.83	6.143	
8,100.0	7,108.8	8,033.5	7,013.1	26.8	28.3	-71.41	1,044.4	-722.1	300.0	248.3	51.70	5.803	
8,200.0	7,108.0	8,133.5	7,012.1	28.3	29.8	-71.37	1,144.4	-722.1	300.1	245.4	54.67	5.490	
8,300.0	7,107.2	8,233.5	7,011.1	29.9	31.3	-71.33	1,244.4	-722.1	300.2	242.5	57.71	5.201	
8,400.0	7,106.4	8,333.5	7,010.1	31.5	32.8	-71.29	1,344.4	-722.1	300.2	239.4	60.82	4.936	
8,500.0	7,105.6	8,433.5	7,009.1	33.2	34.4	-71.25	1,444.4	-722.1	300.3	236.3	63.99	4.693	
8,600.0	7,104.8	8,533.5	7,008.1	34.8	36.0	-71.22	1,544.4	-722.1	300.4	233.2	67.20	4.469	
8,700.0	7,104.0	8,633.5	7,007.0	36.5	37.7	-71.18	1,644.4	-722.1	300.4	230.0	70.46	4.264	
8,800.0	7,103.2	8,733.5	7,006.0	38.3	39.3	-71.14	1,744.4	-722.1	300.5	226.8	73.76	4.074	
8,900.0	7,102.4	8,833.5	7,005.0	40.0	41.0	-71.10	1,844.4	-722.1	300.6	223.5	77.08	3.899	
9,000.0	7,101.6	8,933.5	7,004.0	41.8	42.8	-71.07	1,944.4	-722.1	300.6	220.2	80.43	3.738	
9,100.0	7,100.8	9,033.5	7,003.0	43.5	44.5	-71.03	2,044.4	-722.1	300.7	216.9	83.81	3.588	
9,200.0	7,100.0	9,133.5	7,002.0	45.3	46.2	-70.99	2,144.4	-722.1	300.8	213.6	87.21	3.449	
9,300.0	7,099.2	9,233.5	7,001.0	47.1	48.0	-70.95	2,244.3	-722.1	300.8	210.2	90.62	3.320	
9,400.0	7,098.4	9,333.5	7,000.0	48.9	49.8	-70.91	2,344.3	-722.1	300.9	206.9	94.05	3.200	
9,500.0	7,097.5	9,433.5	6,998.9	50.7	51.5	-70.88	2,444.3	-722.1	301.0	203.5	97.50	3.087	
9,600.0	7,096.7	9,533.5	6,997.9	52.5	53.3	-70.84	2,544.3	-722.1	301.1	200.1	100.95	2.982	
9,700.0	7,095.9	9,633.5	6,996.9	54.4	55.1	-70.80	2,644.3	-722.1	301.1	196.7	104.42	2.884	
9,800.0	7,095.1	9,733.5	6,995.9	56.2	56.9	-70.76	2,744.3	-722.1	301.2	193.3	107.90	2.791	
9,900.0	7,094.3	9,833.5	6,994.9	58.0	58.8	-70.73	2,844.3	-722.1	301.3	189.9	111.39	2.705	

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-241 - Wellbore #1 - Plan #2 (6-10-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (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	7,093.5	9,933.5	6,993.9	59.9	60.6	-70.69	2,944.3	-722.1	301.3	186.4	114.88	2.623	
10,100.0	7,092.7	10,033.5	6,992.9	61.7	62.4	-70.65	3,044.3	-722.1	301.4	183.0	118.39	2.546	
10,200.0	7,091.9	10,133.5	6,991.9	63.6	64.2	-70.61	3,144.3	-722.1	301.5	179.6	121.89	2.473	
10,300.0	7,091.1	10,233.5	6,990.9	65.4	66.1	-70.58	3,244.3	-722.1	301.5	176.1	125.41	2.404	
10,400.0	7,090.3	10,333.5	6,989.8	67.3	67.9	-70.54	3,344.3	-722.1	301.6	172.7	128.93	2.339	
10,500.0	7,089.5	10,433.5	6,988.8	69.1	69.8	-70.50	3,444.3	-722.1	301.7	169.2	132.45	2.278	
10,600.0	7,088.7	10,533.5	6,987.8	71.0	71.6	-70.46	3,544.3	-722.1	301.7	165.8	135.98	2.219	
10,700.0	7,087.9	10,633.5	6,986.8	72.9	73.5	-70.43	3,644.3	-722.1	301.8	162.3	139.51	2.163	
10,800.0	7,087.1	10,733.5	6,985.8	74.7	75.3	-70.39	3,744.3	-722.1	301.9	158.8	143.05	2.110	
10,900.0	7,086.3	10,833.5	6,984.8	76.6	77.2	-70.35	3,844.3	-722.1	302.0	155.4	146.59	2.060	
11,000.0	7,085.5	10,933.5	6,983.8	78.5	79.0	-70.31	3,944.3	-722.1	302.0	151.9	150.13	2.012	
11,100.0	7,084.7	11,033.5	6,982.8	80.4	80.9	-70.28	4,044.2	-722.1	302.1	148.4	153.67	1.966	
11,200.0	7,083.9	11,133.5	6,981.7	82.2	82.8	-70.24	4,144.2	-722.1	302.2	145.0	157.22	1.922	
11,300.0	7,083.1	11,233.5	6,980.7	84.1	84.6	-70.20	4,244.2	-722.1	302.2	141.5	160.76	1.880	
11,400.0	7,082.3	11,333.5	6,979.7	86.0	86.5	-70.16	4,344.2	-722.1	302.3	138.0	164.31	1.840	
11,500.0	7,081.5	11,433.5	6,978.7	87.9	88.4	-70.13	4,444.2	-722.1	302.4	134.5	167.86	1.801	
11,561.2	7,081.0	11,494.8	6,978.1	88.8	89.5	-70.10	4,505.5	-722.1	302.4	132.6	169.82	1.781 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-321 - Wellbore #1 - Plan #2 (6-10-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (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		
0.0	0.0	1.0	1.0	0.0	0.0	0.00	29.2	0.0	29.2					
100.0	100.0	101.0	101.0	0.1	0.1	0.00	29.2	0.0	29.2	29.0	0.20	147.389		
200.0	200.0	201.0	201.0	0.3	0.3	0.00	29.2	0.0	29.2	28.5	0.65	45.036		
300.0	300.0	301.0	301.0	0.5	0.5	0.00	29.2	0.0	29.2	28.1	1.10	26.578		
400.0	400.0	401.0	401.0	0.8	0.8	0.00	29.2	0.0	29.2	27.6	1.55	18.852		
500.0	500.0	501.0	501.0	1.0	1.0	0.00	29.2	0.0	29.2	27.2	2.00	14.606		
600.0	600.0	601.0	601.0	1.2	1.2	0.00	29.2	0.0	29.2	26.7	2.45	11.921		
700.0	700.0	701.0	701.0	1.4	1.4	0.00	29.2	0.0	29.2	26.3	2.89	10.070		
800.0	800.0	801.0	801.0	1.7	1.7	0.00	29.2	0.0	29.2	25.8	3.34	8.717		
900.0	900.0	901.0	901.0	1.9	1.9	0.00	29.2	0.0	29.2	25.4	3.79	7.684		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	0.00	29.2	0.0	29.2	24.9	4.24	6.870 CC, ES		
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	120.44	29.2	0.0	29.6	24.9	4.67	6.332		
1,200.0	1,200.0	1,201.0	1,201.0	2.5	2.6	124.60	29.2	0.0	31.0	25.9	5.09	6.094		
1,300.0	1,299.9	1,300.9	1,300.9	2.7	2.8	130.70	29.2	0.0	33.7	28.2	5.51	6.113		
1,400.0	1,399.7	1,400.7	1,400.7	2.9	3.0	137.68	29.2	0.0	37.9	32.0	5.93	6.395		
1,500.0	1,499.4	1,500.5	1,500.5	3.1	3.2	145.65	28.6	0.7	43.9	37.5	6.33	6.923		
1,600.0	1,598.9	1,600.1	1,600.0	3.4	3.4	154.44	26.9	2.7	51.8	45.1	6.72	7.715		
1,700.0	1,698.3	1,699.2	1,699.0	3.6	3.6	162.83	24.2	6.0	62.2	55.1	7.11	8.751		
1,800.0	1,797.7	1,797.9	1,797.6	3.9	3.8	170.07	20.4	10.7	74.0	66.5	7.51	9.858		
1,900.0	1,897.0	1,896.3	1,895.7	4.1	4.0	176.32	15.5	16.6	87.2	79.3	7.92	11.008		
2,000.0	1,996.4	1,994.2	1,993.2	4.4	4.2	-178.23	9.6	23.8	101.9	93.5	8.35	12.195		
2,100.0	2,095.7	2,091.7	2,090.0	4.7	4.4	-173.45	2.7	32.2	117.9	109.2	8.79	13.411		
2,200.0	2,195.1	2,189.4	2,187.0	5.0	4.7	-169.36	-5.1	41.7	135.3	126.1	9.25	14.628		
2,300.0	2,294.5	2,287.5	2,284.3	5.3	4.9	-166.16	-12.9	51.2	153.3	143.6	9.72	15.774		
2,400.0	2,393.8	2,385.6	2,381.6	5.6	5.2	-163.64	-20.7	60.7	171.6	161.4	10.19	16.839		
2,500.0	2,493.2	2,483.6	2,478.8	5.8	5.5	-161.60	-28.5	70.3	190.2	179.6	10.67	17.823		
2,600.0	2,592.6	2,581.7	2,576.1	6.1	5.7	-159.93	-36.3	79.8	209.0	197.9	11.16	18.731		
2,700.0	2,691.9	2,679.7	2,673.4	6.4	6.0	-158.53	-44.2	89.3	227.9	216.3	11.65	19.568		
2,800.0	2,791.3	2,777.8	2,770.7	6.7	6.3	-157.35	-52.0	98.8	247.0	234.8	12.14	20.340		
2,900.0	2,890.7	2,875.8	2,867.9	7.0	6.6	-156.34	-59.8	108.4	266.1	253.5	12.64	21.053		
3,000.0	2,990.0	2,973.9	2,965.2	7.3	6.9	-155.46	-67.6	117.9	285.3	272.2	13.14	21.712		
3,100.0	3,089.4	3,071.9	3,062.5	7.6	7.2	-154.69	-75.5	127.4	304.6	290.9	13.64	22.323		
3,200.0	3,188.7	3,170.0	3,159.7	7.9	7.5	-154.02	-83.3	137.0	323.8	309.7	14.15	22.890		
3,300.0	3,288.1	3,268.0	3,257.0	8.2	7.8	-153.42	-91.1	146.5	343.2	328.5	14.66	23.417		
3,400.0	3,387.5	3,366.1	3,354.3	8.5	8.1	-152.88	-98.9	156.0	362.6	347.4	15.16	23.908		
3,500.0	3,486.8	3,464.1	3,451.6	8.8	8.4	-152.40	-106.8	165.5	381.9	366.3	15.68	24.366		
3,600.0	3,586.2	3,562.2	3,548.8	9.2	8.7	-151.97	-114.6	175.1	401.4	385.2	16.19	24.794		
3,700.0	3,685.6	3,660.2	3,646.1	9.5	9.0	-151.57	-122.4	184.6	420.8	404.1	16.70	25.195		
3,800.0	3,784.9	3,758.3	3,743.4	9.8	9.3	-151.21	-130.2	194.1	440.3	423.0	17.22	25.572		
3,900.0	3,884.3	3,856.3	3,840.7	10.1	9.6	-150.88	-138.0	203.7	459.7	442.0	17.73	25.925		
4,000.0	3,983.7	3,954.4	3,937.9	10.4	9.9	-150.58	-145.9	213.2	479.2	461.0	18.25	26.258		
4,100.0	4,083.0	4,052.5	4,035.2	10.7	10.2	-150.30	-153.7	222.7	498.7	480.0	18.77	26.572		
4,200.0	4,182.4	4,150.5	4,132.5	11.0	10.5	-150.05	-161.5	232.3	518.2	498.9	19.29	26.868		
4,300.0	4,281.8	4,248.6	4,229.8	11.3	10.8	-149.81	-169.3	241.8	537.7	517.9	19.81	27.148		
4,400.0	4,381.1	4,346.6	4,327.0	11.6	11.2	-149.58	-177.2	251.3	557.3	536.9	20.33	27.412		
4,500.0	4,480.5	4,444.7	4,424.3	11.9	11.5	-149.38	-185.0	260.8	576.8	556.0	20.85	27.664		
4,600.0	4,579.8	4,542.7	4,521.6	12.2	11.8	-149.18	-192.8	270.4	596.3	575.0	21.37	27.902		
4,700.0	4,679.2	4,640.8	4,618.9	12.5	12.1	-149.00	-200.6	279.9	615.9	594.0	21.90	28.128		
4,800.0	4,778.6	4,738.8	4,716.1	12.9	12.4	-148.83	-208.5	289.4	635.4	613.0	22.42	28.344		
4,900.0	4,877.9	4,836.9	4,813.4	13.2	12.7	-148.67	-216.3	299.0	655.0	632.1	22.94	28.549		
5,000.0	4,977.3	4,934.9	4,910.7	13.5	13.1	-148.52	-224.1	308.5	674.6	651.1	23.47	28.744		

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-321 - Wellbore #1 - Plan #2 (6-10-15)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (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
5,100.0	5,076.7	5,033.0	5,008.0	13.8	13.4	-148.38	-231.9	318.0	694.1	670.1	23.99	28.931	
5,200.0	5,176.0	5,131.0	5,105.2	14.1	13.7	-148.24	-239.7	327.5	713.7	689.2	24.52	29.109	
5,300.0	5,275.4	5,245.4	5,218.8	14.4	14.0	-148.15	-248.2	337.8	732.6	707.5	25.05	29.248	
5,400.0	5,374.8	5,369.9	5,343.0	14.7	14.3	-148.28	-254.2	345.2	748.2	722.7	25.55	29.284	
5,500.0	5,474.1	5,495.5	5,468.4	15.0	14.5	-148.65	-256.8	348.4	760.5	734.4	26.04	29.208	
5,600.0	5,573.5	5,601.5	5,574.5	15.3	14.7	-149.11	-256.9	348.5	770.2	743.8	26.49	29.080	
5,700.0	5,673.0	5,701.0	5,674.0	15.6	14.8	-149.56	-256.9	348.5	778.6	751.6	26.94	28.903	
5,800.0	5,772.8	5,800.8	5,773.8	15.8	15.0	-149.84	-256.9	348.5	783.9	756.6	27.33	28.684	
5,900.0	5,872.8	5,900.8	5,873.8	16.0	15.2	-149.96	-256.9	348.5	786.2	758.5	27.69	28.393	
6,000.0	5,972.8	6,000.8	5,973.8	16.1	15.3	91.07	-256.9	348.5	786.3	758.3	28.05	28.030	
6,100.0	6,072.8	6,100.8	6,073.8	16.3	15.5	91.07	-256.9	348.5	786.3	757.9	28.41	27.674	
6,200.0	6,172.8	6,200.8	6,173.8	16.4	15.7	91.07	-256.9	348.5	786.3	757.6	28.78	27.326	
6,300.0	6,272.8	6,300.8	6,273.8	16.6	15.8	91.07	-256.9	348.5	786.3	757.2	29.14	26.983	
6,400.0	6,372.8	6,401.4	6,374.3	16.8	16.0	91.05	-256.3	348.5	786.3	756.8	29.51	26.651	
6,500.0	6,472.2	6,503.2	6,475.5	16.9	16.1	90.98	-245.5	348.5	786.3	756.6	29.78	26.408	
6,600.0	6,569.6	6,604.9	6,574.3	17.0	16.2	90.89	-221.4	348.5	786.3	756.4	29.93	26.269	
6,700.0	6,663.2	6,706.4	6,668.7	17.0	16.2	90.78	-184.4	348.5	786.3	756.3	30.02	26.194	
6,800.0	6,751.4	6,807.8	6,757.3	17.0	16.2	90.66	-135.4	348.5	786.3	756.2	30.09	26.128	
6,900.0	6,832.7	6,908.8	6,838.4	17.0	16.2	90.53	-75.3	348.5	786.2	756.0	30.24	26.004	
7,000.0	6,905.7	7,009.7	6,910.8	17.0	16.2	90.40	-5.1	348.5	786.2	755.7	30.53	25.751	
7,100.0	6,969.3	7,110.2	6,973.1	17.0	16.2	90.25	73.7	348.5	786.2	755.2	31.06	25.311	
7,200.0	7,022.2	7,210.5	7,024.4	17.1	16.2	90.10	159.8	348.5	786.2	754.3	31.89	24.651	
7,266.5	7,051.0	7,277.0	7,052.0	17.3	16.3	90.00	220.3	348.5	786.2	753.6	32.65	24.077	
7,300.0	7,063.6	7,310.5	7,063.9	17.4	16.6	89.95	251.6	348.5	786.2	753.1	33.06	23.778	
7,400.0	7,092.7	7,410.3	7,091.0	18.1	17.4	89.80	347.5	348.5	786.2	751.6	34.58	22.735	
7,500.0	7,109.2	7,509.8	7,105.4	18.9	18.3	89.65	445.9	348.5	786.2	749.8	36.42	21.589	
7,600.0	7,112.8	7,609.3	7,107.6	20.0	19.4	89.55	545.3	348.5	786.2	747.7	38.53	20.406	
7,700.0	7,112.0	7,709.3	7,106.8	21.2	20.6	89.55	645.3	348.5	786.2	745.3	40.89	19.228	
7,800.0	7,111.2	7,809.3	7,106.1	22.5	21.9	89.56	745.3	348.5	786.2	742.8	43.46	18.090	
7,900.0	7,110.4	7,909.3	7,105.3	23.8	23.3	89.56	845.3	348.5	786.2	740.0	46.21	17.014	
8,000.0	7,109.6	8,009.3	7,104.6	25.3	24.7	89.56	945.3	348.5	786.2	737.1	49.11	16.011	
8,100.0	7,108.8	8,109.3	7,103.8	26.8	26.2	89.57	1,045.3	348.5	786.2	734.1	52.12	15.084	
8,200.0	7,108.0	8,209.3	7,103.1	28.3	27.8	89.57	1,145.3	348.5	786.2	731.0	55.24	14.232	
8,300.0	7,107.2	8,309.3	7,102.3	29.9	29.4	89.57	1,245.3	348.5	786.2	727.8	58.45	13.452	
8,400.0	7,106.4	8,409.3	7,101.6	31.5	31.0	89.58	1,345.3	348.5	786.2	724.5	61.72	12.738	
8,500.0	7,105.6	8,509.3	7,100.8	33.2	32.6	89.58	1,445.3	348.5	786.2	721.2	65.06	12.084	
8,600.0	7,104.8	8,609.3	7,100.1	34.8	34.3	89.59	1,545.3	348.5	786.2	717.8	68.45	11.485	
8,700.0	7,104.0	8,709.3	7,099.3	36.5	36.0	89.59	1,645.3	348.5	786.2	714.3	71.89	10.936	
8,800.0	7,103.2	8,809.3	7,098.6	38.3	37.8	89.59	1,745.3	348.5	786.2	710.9	75.37	10.432	
8,900.0	7,102.4	8,909.3	7,097.8	40.0	39.5	89.60	1,845.3	348.5	786.2	707.4	78.88	9.968	
9,000.0	7,101.6	9,009.3	7,097.1	41.8	41.3	89.60	1,945.3	348.5	786.2	703.8	82.41	9.540	
9,100.0	7,100.8	9,109.3	7,096.3	43.5	43.0	89.60	2,045.3	348.5	786.2	700.3	85.98	9.145	
9,200.0	7,100.0	9,209.3	7,095.6	45.3	44.8	89.61	2,145.3	348.5	786.2	696.7	89.57	8.778	
9,300.0	7,099.2	9,309.3	7,094.8	47.1	46.6	89.61	2,245.3	348.5	786.2	693.1	93.17	8.438	
9,400.0	7,098.4	9,409.3	7,094.1	48.9	48.4	89.62	2,345.3	348.5	786.2	689.4	96.80	8.122	
9,500.0	7,097.5	9,509.3	7,093.3	50.7	50.3	89.62	2,445.3	348.5	786.2	685.8	100.44	7.828	
9,600.0	7,096.7	9,609.3	7,092.6	52.5	52.1	89.62	2,545.3	348.5	786.2	682.1	104.09	7.553	
9,700.0	7,095.9	9,709.3	7,091.8	54.4	53.9	89.63	2,645.3	348.5	786.2	678.5	107.76	7.296	
9,800.0	7,095.1	9,809.3	7,091.1	56.2	55.7	89.63	2,745.3	348.5	786.2	674.8	111.44	7.055	
9,900.0	7,094.3	9,909.3	7,090.3	58.0	57.6	89.64	2,845.3	348.5	786.2	671.1	115.13	6.829	

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-321 - Wellbore #1 - Plan #2 (6-10-15)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
10,000.0	7,093.5	10,009.3	7,089.6	59.9	59.4	89.64	2,945.3	348.5	786.2	667.4	118.83	6.616	
10,100.0	7,092.7	10,109.3	7,088.8	61.7	61.3	89.64	3,045.3	348.5	786.2	663.7	122.54	6.416	
10,200.0	7,091.9	10,209.3	7,088.1	63.6	63.1	89.65	3,145.3	348.5	786.2	660.0	126.25	6.227	
10,300.0	7,091.1	10,309.3	7,087.3	65.4	65.0	89.65	3,245.3	348.5	786.2	656.3	129.98	6.049	
10,400.0	7,090.3	10,409.3	7,086.6	67.3	66.8	89.65	3,345.3	348.5	786.2	652.5	133.71	5.880	
10,500.0	7,089.5	10,509.3	7,085.8	69.1	68.7	89.66	3,445.3	348.5	786.2	648.8	137.44	5.720	
10,600.0	7,088.7	10,609.3	7,085.1	71.0	70.6	89.66	3,545.3	348.5	786.2	645.0	141.18	5.569	
10,700.0	7,087.9	10,709.3	7,084.3	72.9	72.4	89.67	3,645.3	348.5	786.2	641.3	144.93	5.425	
10,800.0	7,087.1	10,809.3	7,083.6	74.7	74.3	89.67	3,745.3	348.5	786.2	637.5	148.68	5.288	
10,900.0	7,086.3	10,909.3	7,082.8	76.6	76.2	89.67	3,845.3	348.5	786.2	633.8	152.43	5.158	
11,000.0	7,085.5	11,009.3	7,082.1	78.5	78.1	89.68	3,945.3	348.5	786.2	630.0	156.19	5.034	
11,100.0	7,084.7	11,109.3	7,081.3	80.4	79.9	89.68	4,045.2	348.5	786.2	626.3	159.96	4.915	
11,200.0	7,083.9	11,209.3	7,080.6	82.2	81.8	89.68	4,145.2	348.5	786.2	622.5	163.72	4.802	
11,300.0	7,083.1	11,309.3	7,079.8	84.1	83.7	89.69	4,245.2	348.5	786.2	618.7	167.49	4.694	
11,400.0	7,082.3	11,409.3	7,079.1	86.0	85.6	89.69	4,345.2	348.5	786.2	615.0	171.27	4.591	
11,500.0	7,081.5	11,509.3	7,078.3	87.9	87.5	89.70	4,445.2	348.5	786.2	611.2	175.04	4.492	
11,537.2	7,081.2	11,546.5	7,078.0	88.5	88.2	89.70	4,482.4	348.5	786.2	609.9	176.31	4.459	
11,561.2	7,081.0	11,552.3	7,078.0	88.8	88.3	89.70	4,488.3	348.5	786.4	609.6	176.79	4.448 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	0.00	58.3	0.0	58.3					
100.0	100.0	101.0	101.0	0.1	0.1	0.00	58.3	0.0	58.3	58.1	0.20	294.737		
200.0	200.0	201.0	201.0	0.3	0.3	0.00	58.3	0.0	58.3	57.7	0.65	90.059		
300.0	300.0	301.0	301.0	0.5	0.5	0.00	58.3	0.0	58.3	57.2	1.10	53.149		
400.0	400.0	401.0	401.0	0.8	0.8	0.00	58.3	0.0	58.3	56.8	1.55	37.699		
500.0	500.0	501.0	501.0	1.0	1.0	0.00	58.3	0.0	58.3	56.3	2.00	29.208		
600.0	600.0	601.0	601.0	1.2	1.2	0.00	58.3	0.0	58.3	55.9	2.45	23.839		
700.0	700.0	701.0	701.0	1.4	1.4	0.00	58.3	0.0	58.3	55.4	2.89	20.137		
800.0	800.0	801.0	801.0	1.7	1.7	0.00	58.3	0.0	58.3	55.0	3.34	17.431		
900.0	900.0	901.0	901.0	1.9	1.9	0.00	58.3	0.0	58.3	54.5	3.79	15.365		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	0.00	58.3	0.0	58.3	54.1	4.24	13.738 CC		
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	119.71	58.3	0.0	58.7	54.1	4.67	12.568 ES		
1,200.0	1,200.0	1,201.0	1,201.0	2.5	2.6	121.87	58.3	0.0	60.1	55.0	5.09	11.809		
1,300.0	1,299.9	1,300.9	1,300.9	2.7	2.8	125.24	58.3	0.0	62.5	57.0	5.51	11.345		
1,400.0	1,399.7	1,400.7	1,400.7	2.9	3.0	129.53	58.3	0.0	66.2	60.3	5.93	11.154		
1,500.0	1,499.4	1,500.4	1,500.4	3.1	3.2	134.34	58.3	0.0	71.4	65.1	6.37	11.224		
1,600.0	1,598.9	1,599.9	1,599.9	3.4	3.5	139.30	58.3	0.0	78.5	71.7	6.80	11.538		
1,700.0	1,698.3	1,699.3	1,699.3	3.6	3.7	144.02	58.3	0.0	87.2	79.9	7.24	12.043		
1,800.0	1,797.7	1,798.7	1,798.7	3.9	3.9	147.94	58.3	0.0	96.5	88.8	7.68	12.569		
1,900.0	1,897.0	1,898.0	1,898.0	4.1	4.1	151.16	58.3	0.0	106.3	98.1	8.12	13.082		
2,000.0	1,996.4	1,997.4	1,997.4	4.4	4.4	153.83	58.3	0.0	116.3	107.7	8.57	13.573		
2,100.0	2,095.7	2,096.7	2,096.7	4.7	4.6	156.08	58.3	0.0	126.5	117.5	9.01	14.037		
2,200.0	2,195.1	2,196.1	2,196.1	5.0	4.8	157.99	58.3	0.0	136.9	127.4	9.46	14.474		
2,300.0	2,294.5	2,296.6	2,296.6	5.3	5.0	159.93	57.5	0.3	147.0	137.1	9.88	14.885		
2,400.0	2,393.8	2,397.2	2,397.1	5.6	5.2	162.20	55.1	1.2	156.5	146.3	10.27	15.244		
2,500.0	2,493.2	2,497.6	2,497.5	5.8	5.4	164.76	51.1	2.8	165.6	154.9	10.66	15.530		
2,600.0	2,592.6	2,598.0	2,597.7	6.1	5.5	167.60	45.4	5.1	174.3	163.3	11.06	15.760		
2,700.0	2,691.9	2,698.2	2,697.5	6.4	5.7	170.67	38.2	7.9	182.9	171.5	11.47	15.954		
2,800.0	2,791.3	2,798.1	2,797.0	6.7	5.9	173.96	29.3	11.4	191.6	179.7	11.88	16.124		
2,900.0	2,890.7	2,897.2	2,895.6	7.0	6.1	177.31	19.2	15.4	200.6	188.3	12.31	16.292		
3,000.0	2,990.0	2,996.2	2,993.9	7.3	6.3	-179.61	9.1	19.4	210.2	197.5	12.76	16.478		
3,100.0	3,089.4	3,095.1	3,092.2	7.6	6.6	-176.81	-1.0	23.4	220.4	207.2	13.21	16.678		
3,200.0	3,188.7	3,194.0	3,190.5	7.9	6.8	-174.25	-11.2	27.3	231.0	217.4	13.68	16.884		
3,300.0	3,288.1	3,292.9	3,288.9	8.2	7.0	-171.93	-21.3	31.3	242.1	227.9	14.16	17.093		
3,400.0	3,387.5	3,391.9	3,387.2	8.5	7.3	-169.80	-31.4	35.3	253.5	238.9	14.65	17.302		
3,500.0	3,486.8	3,490.8	3,485.5	8.8	7.5	-167.87	-41.5	39.3	265.3	250.1	15.15	17.509		
3,600.0	3,586.2	3,589.7	3,583.8	9.2	7.8	-166.09	-51.7	43.3	277.3	261.6	15.66	17.713		
3,700.0	3,685.6	3,688.6	3,682.1	9.5	8.0	-164.47	-61.8	47.3	289.6	273.4	16.17	17.912		
3,800.0	3,784.9	3,787.5	3,780.5	9.8	8.3	-162.97	-71.9	51.3	302.0	285.4	16.68	18.106		
3,900.0	3,884.3	3,886.5	3,878.8	10.1	8.5	-161.60	-82.0	55.2	314.7	297.5	17.20	18.293		
4,000.0	3,983.7	3,985.4	3,977.1	10.4	8.8	-160.33	-92.2	59.2	327.5	309.8	17.73	18.475		
4,100.0	4,083.0	4,084.3	4,075.4	10.7	9.1	-159.16	-102.3	63.2	340.5	322.2	18.26	18.651		
4,200.0	4,182.4	4,183.2	4,173.8	11.0	9.3	-158.07	-112.4	67.2	353.6	334.8	18.79	18.821		
4,300.0	4,281.8	4,282.2	4,272.1	11.3	9.6	-157.06	-122.5	71.2	366.8	347.5	19.32	18.984		
4,400.0	4,381.1	4,381.1	4,370.4	11.6	9.9	-156.13	-132.7	75.2	380.1	360.3	19.86	19.142		
4,500.0	4,480.5	4,480.0	4,468.7	11.9	10.2	-155.25	-142.8	79.2	393.6	373.2	20.40	19.294		
4,600.0	4,579.8	4,578.9	4,567.0	12.2	10.4	-154.43	-152.9	83.1	407.1	386.1	20.94	19.440		
4,700.0	4,679.2	4,677.8	4,665.4	12.5	10.7	-153.67	-163.0	87.1	420.6	399.2	21.48	19.581		
4,800.0	4,778.6	4,776.8	4,763.7	12.9	11.0	-152.95	-173.2	91.1	434.3	412.3	22.03	19.717		
4,900.0	4,877.9	4,875.7	4,862.0	13.2	11.3	-152.28	-183.3	95.1	448.0	425.4	22.57	19.848		
5,000.0	4,977.3	4,974.6	4,960.3	13.5	11.6	-151.65	-193.4	99.1	461.8	438.6	23.12	19.974		

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (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
5,100.0	5,076.7	5,073.5	5,058.7	13.8	11.8	-151.05	-203.5	103.1	475.6	451.9	23.67	20.095	
5,200.0	5,176.0	5,172.5	5,157.0	14.1	12.1	-150.49	-213.7	107.1	489.5	465.2	24.22	20.212	
5,300.0	5,275.4	5,271.4	5,255.3	14.4	12.4	-149.95	-223.8	111.0	503.4	478.6	24.77	20.325	
5,400.0	5,374.8	5,370.3	5,353.6	14.7	12.7	-149.45	-233.9	115.0	517.3	492.0	25.32	20.434	
5,500.0	5,474.1	5,474.6	5,457.3	15.0	13.0	-149.04	-243.7	118.9	531.0	505.1	25.86	20.534	
5,600.0	5,573.5	5,581.8	5,564.3	15.3	13.2	-149.01	-250.3	121.5	543.2	516.9	26.35	20.613	
5,700.0	5,673.0	5,689.4	5,671.9	15.6	13.4	-149.37	-253.2	122.6	552.7	525.9	26.81	20.612	
5,800.0	5,772.8	5,791.3	5,773.8	15.8	13.6	-149.74	-253.3	122.7	558.1	530.9	27.19	20.523	
5,900.0	5,872.8	5,891.3	5,873.8	16.0	13.8	-149.90	-253.3	122.7	560.4	532.8	27.54	20.349	
6,000.0	5,972.8	5,991.3	5,973.8	16.1	14.0	91.13	-253.3	122.7	560.5	532.6	27.90	20.091	
6,100.0	6,072.8	6,091.3	6,073.8	16.3	14.2	91.13	-253.3	122.7	560.5	532.2	28.26	19.834	
6,200.0	6,172.8	6,191.3	6,173.8	16.4	14.4	91.13	-253.3	122.7	560.5	531.9	28.62	19.581	
6,300.0	6,272.8	6,291.3	6,273.8	16.6	14.5	91.13	-253.3	122.7	560.5	531.5	28.99	19.334	
6,356.5	6,329.3	6,347.8	6,330.3	16.7	14.6	91.18	-253.3	122.7	560.5	531.3	29.20	19.196	
6,400.0	6,372.8	6,391.3	6,373.8	16.8	14.7	91.16	-253.3	122.7	560.5	531.1	29.36	19.092	
6,500.0	6,472.2	6,491.4	6,473.9	16.9	14.9	92.09	-252.9	122.7	560.8	531.1	29.71	18.876	
6,600.0	6,569.6	6,594.3	6,576.1	17.0	15.0	93.37	-242.5	122.7	561.4	531.4	29.96	18.738	
6,700.0	6,663.2	6,698.9	6,677.8	17.0	15.1	94.60	-218.0	122.7	562.2	532.1	30.10	18.681	
6,800.0	6,751.4	6,805.4	6,776.8	17.0	15.1	95.75	-179.0	122.7	563.3	533.1	30.16	18.675	
6,900.0	6,832.7	6,913.7	6,870.9	17.0	15.2	96.81	-125.7	122.7	564.4	534.2	30.23	18.672	
7,000.0	6,905.7	7,023.6	6,957.8	17.0	15.2	97.75	-58.5	122.7	565.6	535.2	30.39	18.611	
7,100.0	6,969.3	7,135.0	7,035.1	17.0	15.3	98.55	21.6	122.7	566.7	536.0	30.75	18.427	
7,200.0	7,022.2	7,247.8	7,100.7	17.1	15.6	99.19	113.2	122.7	567.7	536.3	31.43	18.065	
7,300.0	7,063.6	7,361.6	7,152.4	17.4	16.1	99.65	214.4	122.7	568.4	535.9	32.49	17.494	
7,400.0	7,092.7	7,476.0	7,188.8	18.1	16.9	99.92	322.9	122.7	568.9	534.9	33.99	16.738	
7,500.0	7,109.2	7,590.9	7,208.5	18.9	17.9	100.00	435.8	122.7	569.0	533.1	35.90	15.852	
7,580.3	7,113.7	7,680.3	7,212.3	19.8	18.8	99.88	525.2	122.7	568.8	531.1	37.67	15.100	
7,600.0	7,112.8	7,700.1	7,212.4	20.0	19.0	99.98	544.9	122.7	569.0	530.9	38.09	14.939	
7,700.0	7,112.0	7,800.1	7,212.9	21.2	20.1	100.10	644.9	122.7	569.2	528.8	40.40	14.090	
7,800.0	7,111.2	7,900.1	7,213.3	22.5	21.4	100.23	744.9	122.7	569.4	526.5	42.91	13.269	
7,900.0	7,110.4	8,000.0	7,213.8	23.8	22.8	100.36	844.9	122.7	569.7	524.1	45.60	12.492	
8,000.0	7,109.6	8,100.0	7,214.3	25.3	24.2	100.48	944.9	122.7	569.9	521.5	48.44	11.766	
8,100.0	7,108.8	8,200.0	7,214.7	26.8	25.7	100.61	1,044.9	122.7	570.1	518.7	51.39	11.094	
8,200.0	7,108.0	8,300.0	7,215.2	28.3	27.3	100.73	1,144.9	122.7	570.4	515.9	54.44	10.477	
8,300.0	7,107.2	8,400.0	7,215.7	29.9	28.9	100.86	1,244.9	122.7	570.6	513.0	57.57	9.911	
8,400.0	7,106.4	8,500.0	7,216.2	31.5	30.5	100.98	1,344.9	122.7	570.8	510.1	60.78	9.392	
8,500.0	7,105.6	8,600.0	7,216.6	33.2	32.2	101.11	1,444.8	122.7	571.1	507.0	64.04	8.918	
8,600.0	7,104.8	8,700.0	7,217.1	34.8	33.9	101.23	1,544.8	122.7	571.3	504.0	67.35	8.483	
8,700.0	7,104.0	8,800.0	7,217.6	36.5	35.6	101.36	1,644.8	122.7	571.6	500.9	70.70	8.084	
8,800.0	7,103.2	8,900.0	7,218.0	38.3	37.3	101.49	1,744.8	122.7	571.8	497.7	74.09	7.718	
8,900.0	7,102.4	9,000.0	7,218.5	40.0	39.1	101.61	1,844.8	122.7	572.1	494.6	77.51	7.381	
9,000.0	7,101.6	9,100.0	7,219.0	41.8	40.8	101.74	1,944.8	122.7	572.4	491.4	80.96	7.070	
9,100.0	7,100.8	9,200.0	7,219.5	43.5	42.6	101.86	2,044.8	122.7	572.6	488.2	84.42	6.783	
9,200.0	7,100.0	9,299.9	7,219.9	45.3	44.4	101.98	2,144.8	122.7	572.9	485.0	87.91	6.517	
9,300.0	7,099.2	9,399.9	7,220.4	47.1	46.2	102.11	2,244.8	122.7	573.1	481.7	91.41	6.270	
9,400.0	7,098.4	9,499.9	7,220.9	48.9	48.0	102.23	2,344.8	122.7	573.4	478.5	94.93	6.040	
9,500.0	7,097.5	9,599.9	7,221.3	50.7	49.8	102.36	2,444.8	122.7	573.7	475.2	98.46	5.826	
9,600.0	7,096.7	9,699.9	7,221.8	52.5	51.6	102.48	2,544.7	122.7	574.0	471.9	102.01	5.627	
9,700.0	7,095.9	9,799.9	7,222.3	54.4	53.5	102.61	2,644.7	122.7	574.2	468.7	105.56	5.440	
9,800.0	7,095.1	9,899.9	7,222.7	56.2	55.3	102.73	2,744.7	122.7	574.5	465.4	109.12	5.265	

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 Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)		
9,900.0	7,094.3	9,999.9	7,223.2	58.0	57.2	102.85	2,844.7	122.7	574.8	462.1	112.68	5.101	
10,000.0	7,093.5	10,099.9	7,223.7	59.9	59.0	102.98	2,944.7	122.7	575.1	458.8	116.26	4.947	
10,100.0	7,092.7	10,199.9	7,224.2	61.7	60.9	103.10	3,044.7	122.7	575.4	455.5	119.83	4.801	
10,200.0	7,091.9	10,299.9	7,224.6	63.6	62.7	103.23	3,144.7	122.7	575.7	452.2	123.41	4.664	
10,300.0	7,091.1	10,399.9	7,225.1	65.4	64.6	103.35	3,244.7	122.7	575.9	448.9	127.00	4.535	
10,400.0	7,090.3	10,499.8	7,225.6	67.3	66.4	103.47	3,344.7	122.7	576.2	445.7	130.59	4.413	
10,500.0	7,089.5	10,599.8	7,226.0	69.1	68.3	103.59	3,444.7	122.7	576.5	442.4	134.18	4.297	
10,600.0	7,088.7	10,699.8	7,226.5	71.0	70.2	103.72	3,544.7	122.7	576.8	439.1	137.77	4.187	
10,700.0	7,087.9	10,799.8	7,227.0	72.9	72.1	103.84	3,644.6	122.7	577.1	435.8	141.36	4.083	
10,800.0	7,087.1	10,899.8	7,227.5	74.7	73.9	103.96	3,744.6	122.7	577.5	432.5	144.96	3.984	
10,900.0	7,086.3	10,999.8	7,227.9	76.6	75.8	104.09	3,844.6	122.7	577.8	429.2	148.55	3.889	
11,000.0	7,085.5	11,099.8	7,228.4	78.5	77.7	104.21	3,944.6	122.7	578.1	425.9	152.14	3.799	
11,100.0	7,084.7	11,199.8	7,228.9	80.4	79.6	104.33	4,044.6	122.7	578.4	422.6	155.74	3.714	
11,200.0	7,083.9	11,299.8	7,229.3	82.2	81.4	104.45	4,144.6	122.7	578.7	419.4	159.33	3.632	
11,300.0	7,083.1	11,399.8	7,229.8	84.1	83.3	104.58	4,244.6	122.7	579.0	416.1	162.93	3.554	
11,400.0	7,082.3	11,499.8	7,230.3	86.0	85.2	104.70	4,344.6	122.7	579.3	412.8	166.52	3.479	
11,500.0	7,081.5	11,599.8	7,230.8	87.9	87.1	104.82	4,444.6	122.7	579.7	409.6	170.11	3.408	
11,561.2	7,081.0	11,650.8	7,231.0	88.8	88.1	104.88	4,495.6	122.7	580.0	408.0	171.91	3.374 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	0.00	14.6	0.0	14.6					
100.0	100.0	101.0	101.0	0.1	0.1	0.00	14.6	0.0	14.6	14.4	0.20	73.716		
200.0	200.0	201.0	201.0	0.3	0.3	0.00	14.6	0.0	14.6	13.9	0.65	22.524		
300.0	300.0	301.0	301.0	0.5	0.5	0.00	14.6	0.0	14.6	13.5	1.10	13.293		
400.0	400.0	401.0	401.0	0.8	0.8	0.00	14.6	0.0	14.6	13.0	1.55	9.429		
500.0	500.0	501.0	501.0	1.0	1.0	0.00	14.6	0.0	14.6	12.6	2.00	7.305		
600.0	600.0	601.0	601.0	1.2	1.2	0.00	14.6	0.0	14.6	12.1	2.45	5.962		
700.0	700.0	701.0	701.0	1.4	1.4	0.00	14.6	0.0	14.6	11.7	2.89	5.036		
800.0	800.0	801.0	801.0	1.7	1.7	0.00	14.6	0.0	14.6	11.2	3.34	4.360		
900.0	900.0	901.1	901.1	1.9	1.9	3.34	14.3	0.8	14.3	10.5	3.78	3.785		
1,000.0	1,000.0	1,001.1	1,001.1	2.1	2.1	13.90	13.3	3.3	13.7	9.5	4.19	3.273		
1,020.0	1,020.0	1,021.1	1,021.1	2.2	2.1	136.05	13.1	4.0	13.7	9.4	4.28	3.200 CC, ES		
1,100.0	1,100.0	1,101.0	1,100.8	2.3	2.3	152.71	11.8	7.4	14.7	10.1	4.60	3.187 SF		
1,200.0	1,200.0	1,200.5	1,200.2	2.5	2.5	173.95	9.6	13.1	19.7	14.7	5.00	3.942		
1,300.0	1,299.9	1,299.6	1,299.0	2.7	2.7	-172.36	6.8	20.3	29.3	23.9	5.41	5.417		
1,400.0	1,399.7	1,398.1	1,397.0	2.9	3.0	-164.83	3.5	29.2	42.8	37.0	5.82	7.349		
1,500.0	1,499.4	1,495.8	1,494.1	3.1	3.2	-160.62	-0.4	39.4	59.7	53.5	6.24	9.567		
1,600.0	1,598.9	1,592.7	1,590.2	3.4	3.5	-158.13	-4.9	51.2	79.9	73.2	6.67	11.976		
1,700.0	1,698.3	1,688.6	1,685.1	3.6	3.8	-156.57	-9.9	64.3	103.0	95.9	7.11	14.477		
1,800.0	1,797.7	1,783.8	1,778.9	3.9	4.1	-155.32	-15.4	78.7	127.7	120.2	7.57	16.881		
1,900.0	1,897.0	1,880.0	1,873.7	4.1	4.4	-154.29	-21.3	94.4	153.5	145.5	8.03	19.116		
2,000.0	1,996.4	1,976.6	1,968.9	4.4	4.7	-153.55	-27.3	110.0	179.3	170.8	8.50	21.096		
2,100.0	2,095.7	2,073.2	2,064.0	4.7	5.1	-153.00	-33.2	125.7	205.1	196.1	8.97	22.860		
2,200.0	2,195.1	2,169.8	2,159.1	5.0	5.4	-152.58	-39.2	141.4	231.0	221.5	9.45	24.434		
2,300.0	2,294.5	2,266.4	2,254.2	5.3	5.8	-152.23	-45.1	157.1	256.8	246.9	9.94	25.845		
2,400.0	2,393.8	2,363.0	2,349.3	5.6	6.1	-151.95	-51.1	172.8	282.7	272.2	10.42	27.115		
2,500.0	2,493.2	2,459.6	2,444.5	5.8	6.5	-151.72	-57.1	188.4	308.5	297.6	10.92	28.263		
2,600.0	2,592.6	2,556.2	2,539.6	6.1	6.9	-151.53	-63.0	204.1	334.4	323.0	11.41	29.304		
2,700.0	2,691.9	2,652.7	2,634.7	6.4	7.2	-151.36	-69.0	219.8	360.3	348.3	11.91	30.253		
2,800.0	2,791.3	2,749.3	2,729.8	6.7	7.6	-151.21	-75.0	235.5	386.1	373.7	12.41	31.120		
2,900.0	2,890.7	2,845.9	2,825.0	7.0	8.0	-151.08	-80.9	251.2	412.0	399.1	12.91	31.915		
3,000.0	2,990.0	2,942.5	2,920.1	7.3	8.4	-150.97	-86.9	266.8	437.9	424.5	13.41	32.646		
3,100.0	3,089.4	3,039.1	3,015.2	7.6	8.7	-150.87	-92.8	282.5	463.8	449.8	13.92	33.320		
3,200.0	3,188.7	3,135.7	3,110.3	7.9	9.1	-150.78	-98.8	298.2	489.6	475.2	14.42	33.944		
3,300.0	3,288.1	3,232.3	3,205.4	8.2	9.5	-150.70	-104.8	313.9	515.5	500.6	14.93	34.523		
3,400.0	3,387.5	3,328.9	3,300.6	8.5	9.9	-150.63	-110.7	329.6	541.4	526.0	15.44	35.060		
3,500.0	3,486.8	3,425.5	3,395.7	8.8	10.3	-150.56	-116.7	345.2	567.3	551.3	15.95	35.561		
3,600.0	3,586.2	3,522.1	3,490.8	9.2	10.6	-150.50	-122.7	360.9	593.2	576.7	16.46	36.029		
3,700.0	3,685.6	3,618.7	3,585.9	9.5	11.0	-150.45	-128.6	376.6	619.0	602.1	16.98	36.467		
3,800.0	3,784.9	3,715.2	3,681.1	9.8	11.4	-150.40	-134.6	392.3	644.9	627.4	17.49	36.877		
3,900.0	3,884.3	3,811.8	3,776.2	10.1	11.8	-150.35	-140.5	408.0	670.8	652.8	18.00	37.262		
4,000.0	3,983.7	3,908.4	3,871.3	10.4	12.2	-150.31	-146.5	423.7	696.7	678.2	18.52	37.625		
4,100.0	4,083.0	4,005.0	3,966.4	10.7	12.6	-150.27	-152.5	439.3	722.6	703.5	19.03	37.966		
4,200.0	4,182.4	4,101.6	4,061.6	11.0	12.9	-150.23	-158.4	455.0	748.5	728.9	19.55	38.289		
4,300.0	4,281.8	4,198.2	4,156.7	11.3	13.3	-150.19	-164.4	470.7	774.3	754.3	20.06	38.594		
4,400.0	4,381.1	4,294.8	4,251.8	11.6	13.7	-150.16	-170.4	486.4	800.2	779.6	20.58	38.882		
4,500.0	4,480.5	4,391.4	4,346.9	11.9	14.1	-150.13	-176.3	502.1	826.1	805.0	21.10	39.155		
4,600.0	4,579.8	4,488.0	4,442.0	12.2	14.5	-150.10	-182.3	517.7	852.0	830.4	21.62	39.415		
4,700.0	4,679.2	4,584.6	4,537.2	12.5	14.9	-150.07	-188.2	533.4	877.9	855.7	22.13	39.661		
4,800.0	4,778.6	4,681.2	4,632.3	12.9	15.3	-150.05	-194.2	549.1	903.8	881.1	22.65	39.896		
4,900.0	4,877.9	4,777.7	4,727.4	13.2	15.6	-150.02	-200.2	564.8	929.6	906.5	23.17	40.119		

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

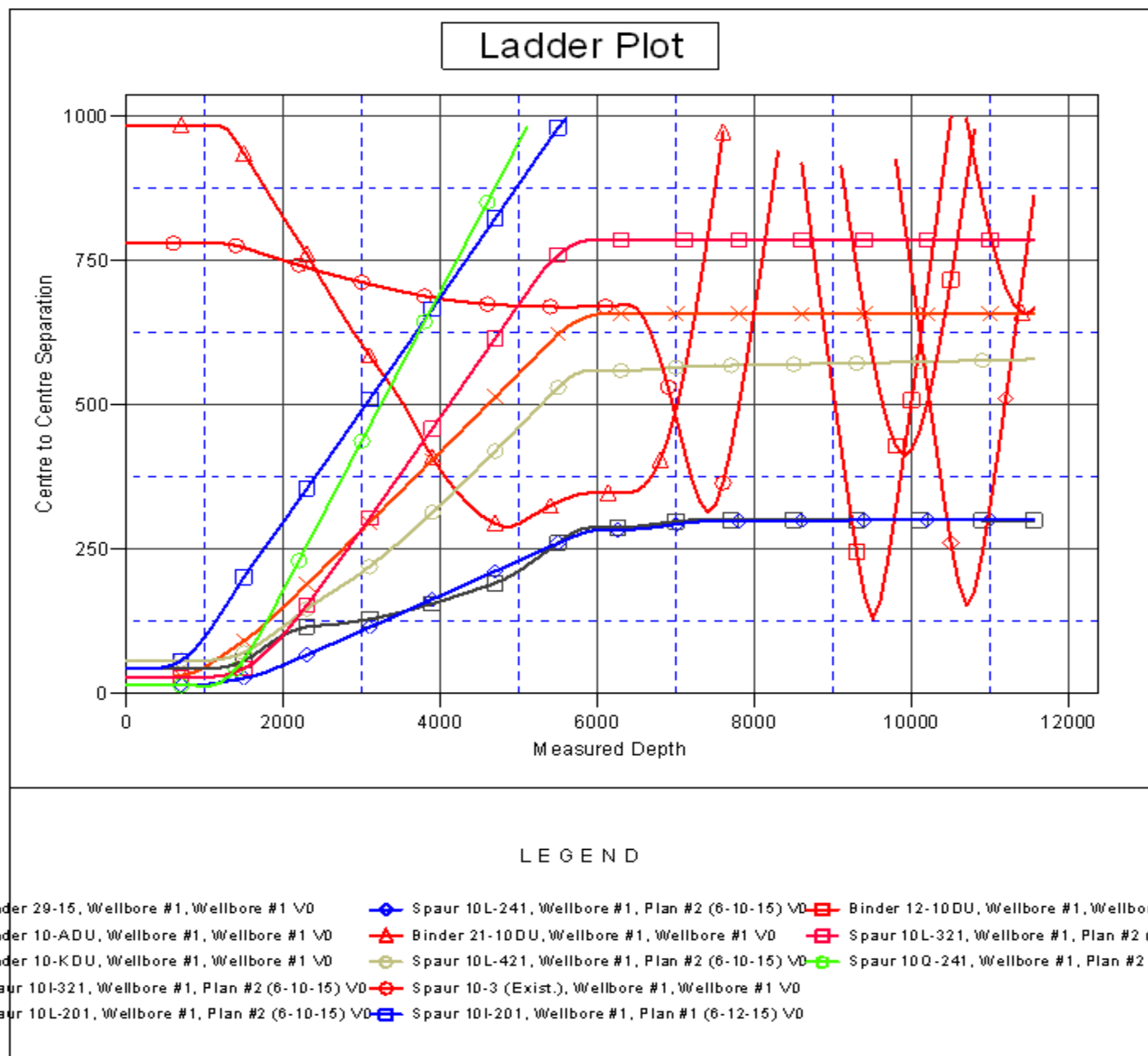
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Offset Design												Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W - Spaur 10Q-241 - Wellbore #1 - Plan #2 (6-10-15)		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 +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning				
5,000.0	4,977.3	4,874.3	4,822.5	13.5	16.0	-150.00	-206.1	580.5	955.5	931.8	23.69	40.332					
5,100.0	5,076.7	4,970.9	4,917.7	13.8	16.4	-149.98	-212.1	596.1	981.4	957.2	24.21	40.536					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4853.0ft (RKB - 13')
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: Spaur 10L-301
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.40°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10L-301
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4853.0ft (RKB - 13')
Reference Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4853.0ft (RKB - 13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10L-301	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #2 (6-10-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4853.0ft (RKB - 13')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Spaur 10L-301
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.40°

