PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Spaur 10L-241**

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	Latittude	Longitude	Slot
0.0	0.0	1360168.95	3172640.73	40.320410	-104.880850	

RKB - 13' WELL @ 4853.0ft (RKB - 13')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50' E/W Hardline (10L-241)	1.0	2537.9	-722.1	Rectangle (Sides: L3980.8 W100.0)
SHL 285'FSL & 1583'FWL	1.0	0.0	0.0	Point
BHL 500'FNL & 889'FWL	6978.0	4528.4	-722.1	Point

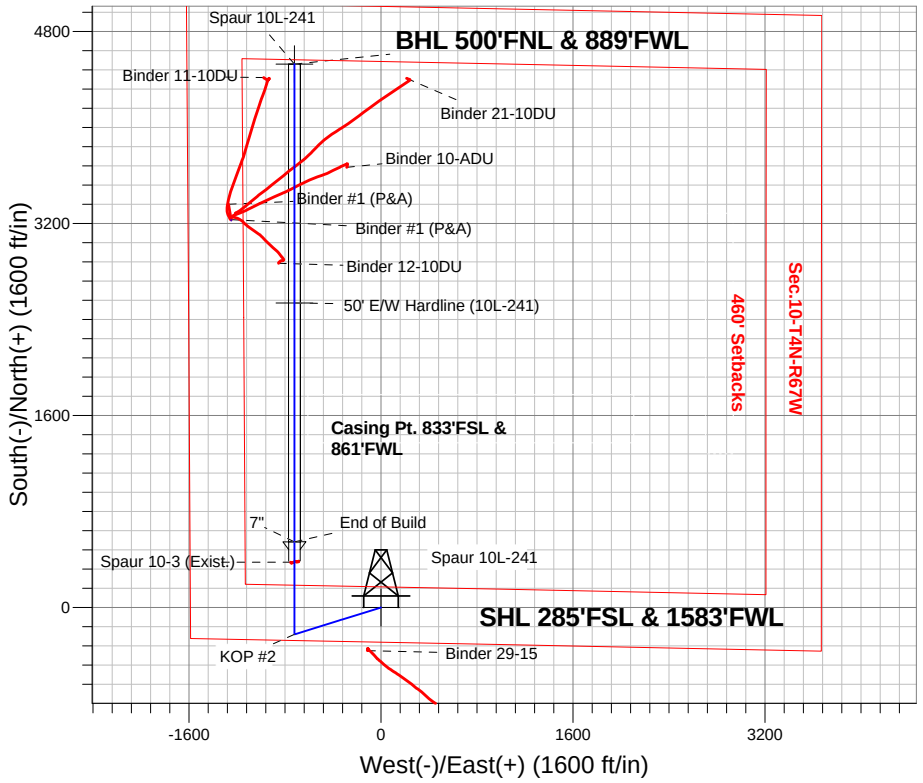
Azimuths to True North
Magnetic North: 8.38°

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

ANNOTATIONS

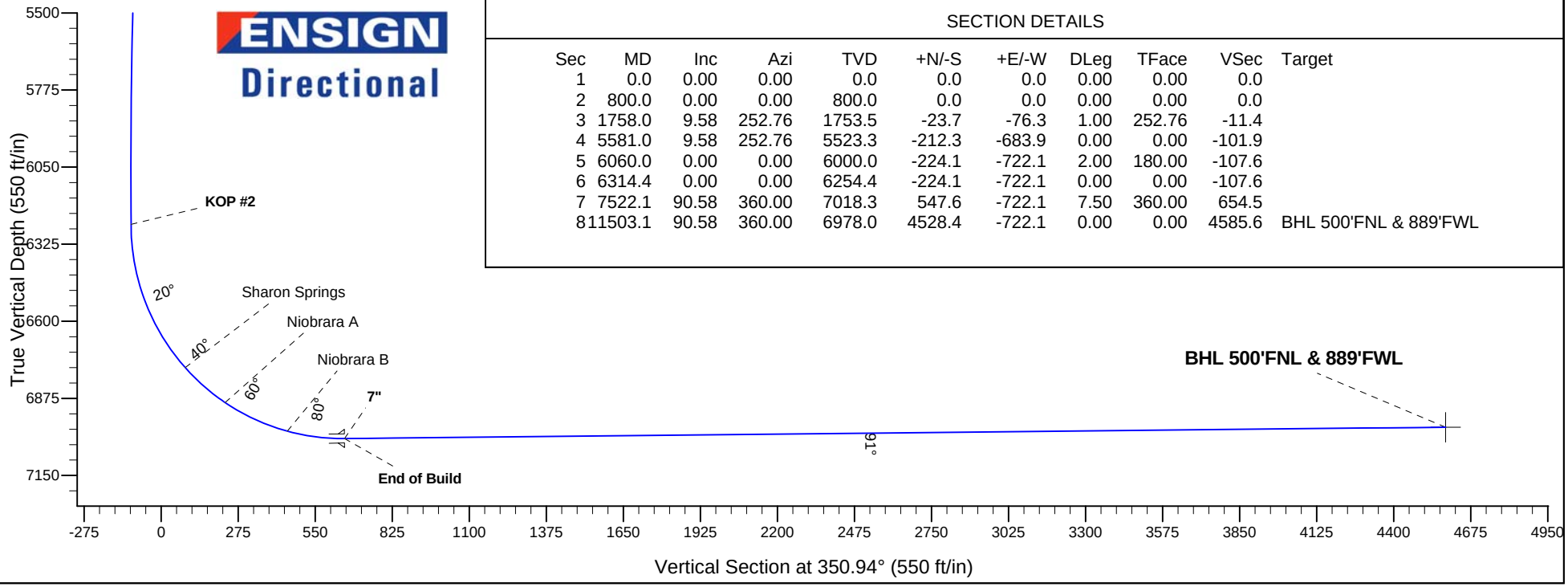
TVD	MD	Annotation
800.0	800.0	KOP #1
6254.4	6314.4	KOP #2
7018.3	7522.1	End of Build

Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W
Spaur 10L-241
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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1758.0	9.58	252.76	1753.5	-23.7	-76.3	1.00	252.76	-11.4	
4	5581.0	9.58	252.76	5523.3	-212.3	-683.9	0.00	0.00	-101.9	
5	6060.0	0.00	0.00	6000.0	-224.1	-722.1	2.00	180.00	-107.6	
6	6314.4	0.00	0.00	6254.4	-224.1	-722.1	0.00	0.00	-107.6	
7	7522.1	90.58	360.00	7018.3	547.6	-722.1	7.50	360.00	654.5	
8	11503.1	90.58	360.00	6978.0	4528.4	-722.1	0.00	0.00	4585.6	BHL 500'FNL & 889'FWL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T4N-R67W
Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W
Spaur 10L-241

Wellbore #1

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

Standard Planning Report

15 June, 2015

PDC ENERGY
Growing E&P Value

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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-241					
Well Position	**+N/-S**	-58.3 ft	**Northing:**	1,360,168.95 ft	**Latitude:**	40.320410
	+E/-W	0.0 ft	**Easting:**	3,172,640.73 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	350.94	

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,758.0	9.58	252.76	1,753.5	-23.7	-76.3	1.00	1.00	0.00	252.76	
5,581.0	9.58	252.76	5,523.3	-212.3	-683.9	0.00	0.00	0.00	0.00	
6,060.0	0.00	0.00	6,000.0	-224.1	-722.1	2.00	-2.00	0.00	180.00	
6,314.4	0.00	0.00	6,254.4	-224.1	-722.1	0.00	0.00	0.00	0.00	
7,522.1	90.58	360.00	7,018.3	547.6	-722.1	7.50	7.50	0.00	360.00	
11,503.1	90.58	360.00	6,978.0	4,528.4	-722.1	0.00	0.00	0.00	0.00	BHL 500'FNL & 88

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Well:	Spaur 10L-241	**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
KOP #1									
900.0	1.00	252.76	900.0	-0.3	-0.8	-0.1	1.00	1.00	0.00
1,000.0	2.00	252.76	1,000.0	-1.0	-3.3	-0.5	1.00	1.00	0.00
1,100.0	3.00	252.76	1,099.9	-2.3	-7.5	-1.1	1.00	1.00	0.00
1,200.0	4.00	252.76	1,199.7	-4.1	-13.3	-2.0	1.00	1.00	0.00
1,300.0	5.00	252.76	1,299.4	-6.5	-20.8	-3.1	1.00	1.00	0.00
1,400.0	6.00	252.76	1,398.9	-9.3	-30.0	-4.5	1.00	1.00	0.00
1,500.0	7.00	252.76	1,498.3	-12.7	-40.8	-6.1	1.00	1.00	0.00
1,600.0	8.00	252.76	1,597.4	-16.5	-53.3	-7.9	1.00	1.00	0.00
1,700.0	9.00	252.76	1,696.3	-20.9	-67.4	-10.0	1.00	1.00	0.00
1,758.0	9.58	252.76	1,753.5	-23.7	-76.3	-11.4	1.00	1.00	0.00
1,800.0	9.58	252.76	1,795.0	-25.8	-83.0	-12.4	0.00	0.00	0.00
1,900.0	9.58	252.76	1,893.6	-30.7	-98.9	-14.7	0.00	0.00	0.00
2,000.0	9.58	252.76	1,992.2	-35.6	-114.8	-17.1	0.00	0.00	0.00
2,100.0	9.58	252.76	2,090.8	-40.6	-130.7	-19.5	0.00	0.00	0.00
2,200.0	9.58	252.76	2,189.4	-45.5	-146.6	-21.8	0.00	0.00	0.00
2,300.0	9.58	252.76	2,288.0	-50.4	-162.5	-24.2	0.00	0.00	0.00
2,400.0	9.58	252.76	2,386.6	-55.4	-178.4	-26.6	0.00	0.00	0.00
2,500.0	9.58	252.76	2,485.2	-60.3	-194.2	-28.9	0.00	0.00	0.00
2,600.0	9.58	252.76	2,583.8	-65.2	-210.1	-31.3	0.00	0.00	0.00
2,700.0	9.58	252.76	2,682.4	-70.1	-226.0	-33.7	0.00	0.00	0.00
2,800.0	9.58	252.76	2,781.0	-75.1	-241.9	-36.0	0.00	0.00	0.00
2,900.0	9.58	252.76	2,879.6	-80.0	-257.8	-38.4	0.00	0.00	0.00
3,000.0	9.58	252.76	2,978.2	-84.9	-273.7	-40.8	0.00	0.00	0.00
3,100.0	9.58	252.76	3,076.8	-89.9	-289.6	-43.2	0.00	0.00	0.00
3,200.0	9.58	252.76	3,175.4	-94.8	-305.5	-45.5	0.00	0.00	0.00
3,300.0	9.58	252.76	3,274.0	-99.7	-321.4	-47.9	0.00	0.00	0.00
3,400.0	9.58	252.76	3,372.6	-104.7	-337.3	-50.3	0.00	0.00	0.00
3,500.0	9.58	252.76	3,471.3	-109.6	-353.2	-52.6	0.00	0.00	0.00
3,590.0	9.58	252.76	3,560.0	-114.0	-367.5	-54.8	0.00	0.00	0.00
Parkman									
3,600.0	9.58	252.76	3,569.9	-114.5	-369.1	-55.0	0.00	0.00	0.00
3,700.0	9.58	252.76	3,668.5	-119.5	-385.0	-57.4	0.00	0.00	0.00
3,800.0	9.58	252.76	3,767.1	-124.4	-400.9	-59.7	0.00	0.00	0.00
3,900.0	9.58	252.76	3,865.7	-129.3	-416.8	-62.1	0.00	0.00	0.00
4,000.0	9.58	252.76	3,964.3	-134.3	-432.7	-64.5	0.00	0.00	0.00
4,100.0	9.58	252.76	4,062.9	-139.2	-448.5	-66.8	0.00	0.00	0.00
4,137.6	9.58	252.76	4,100.0	-141.1	-454.5	-67.7	0.00	0.00	0.00
Sussex									
4,200.0	9.58	252.76	4,161.5	-144.1	-464.4	-69.2	0.00	0.00	0.00
4,300.0	9.58	252.76	4,260.1	-149.1	-480.3	-71.6	0.00	0.00	0.00
4,400.0	9.58	252.76	4,358.7	-154.0	-496.2	-73.9	0.00	0.00	0.00
4,500.0	9.58	252.76	4,457.3	-158.9	-512.1	-76.3	0.00	0.00	0.00

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Site:	Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W	**North Reference:**	True
Well:	Spaur 10L-241	**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)
4,600.0	9.58	252.76	4,555.9	-163.9	-528.0	-78.7	0.00	0.00	0.00
4,660.9	9.58	252.76	4,616.0	-166.9	-537.7	-80.1	0.00	0.00	0.00
Shannon									
4,700.0	9.58	252.76	4,654.5	-168.8	-543.9	-81.0	0.00	0.00	0.00
4,800.0	9.58	252.76	4,753.1	-173.7	-559.8	-83.4	0.00	0.00	0.00
4,900.0	9.58	252.76	4,851.7	-178.7	-575.7	-85.8	0.00	0.00	0.00
5,000.0	9.58	252.76	4,950.3	-183.6	-591.6	-88.2	0.00	0.00	0.00
5,100.0	9.58	252.76	5,048.9	-188.5	-607.5	-90.5	0.00	0.00	0.00
5,200.0	9.58	252.76	5,147.5	-193.5	-623.4	-92.9	0.00	0.00	0.00
5,300.0	9.58	252.76	5,246.2	-198.4	-639.3	-95.3	0.00	0.00	0.00
5,400.0	9.58	252.76	5,344.8	-203.3	-655.2	-97.6	0.00	0.00	0.00
5,500.0	9.58	252.76	5,443.4	-208.3	-671.1	-100.0	0.00	0.00	0.00
5,581.0	9.58	252.76	5,523.3	-212.3	-683.9	-101.9	0.00	0.00	0.00
5,600.0	9.20	252.76	5,542.0	-213.2	-686.9	-102.4	2.00	-2.00	0.00
5,700.0	7.20	252.76	5,641.0	-217.4	-700.5	-104.4	2.00	-2.00	0.00
5,800.0	5.20	252.76	5,740.4	-220.6	-710.8	-105.9	2.00	-2.00	0.00
5,900.0	3.20	252.76	5,840.1	-222.8	-717.8	-107.0	2.00	-2.00	0.00
6,000.0	1.20	252.76	5,940.0	-223.9	-721.5	-107.5	2.00	-2.00	0.00
6,060.0	0.00	0.00	6,000.0	-224.1	-722.1	-107.6	2.00	-2.00	0.00
6,100.0	0.00	0.00	6,040.0	-224.1	-722.1	-107.6	0.00	0.00	0.00
6,200.0	0.00	0.00	6,140.0	-224.1	-722.1	-107.6	0.00	0.00	0.00
6,300.0	0.00	0.00	6,240.0	-224.1	-722.1	-107.6	0.00	0.00	0.00
6,314.4	0.00	0.00	6,254.4	-224.1	-722.1	-107.6	0.00	0.00	0.00
KOP #2									
6,400.0	6.42	360.00	6,339.8	-219.3	-722.1	-102.9	7.50	7.50	0.00
6,500.0	13.92	360.00	6,438.2	-201.7	-722.1	-85.4	7.50	7.50	0.00
6,600.0	21.42	360.00	6,533.4	-171.3	-722.1	-55.5	7.50	7.50	0.00
6,700.0	28.92	360.00	6,623.8	-128.8	-722.1	-13.5	7.50	7.50	0.00
6,800.0	36.42	360.00	6,708.0	-74.9	-722.1	39.8	7.50	7.50	0.00
6,873.6	41.94	360.00	6,765.0	-28.4	-722.1	85.7	7.50	7.50	0.00
Sharon Springs									
6,900.0	43.92	360.00	6,784.3	-10.4	-722.1	103.4	7.50	7.50	0.00
7,000.0	51.42	360.00	6,851.6	63.5	-722.1	176.4	7.50	7.50	0.00
7,065.1	56.31	360.00	6,890.0	116.0	-722.1	228.3	7.50	7.50	0.00
Niobrara A									
7,100.0	58.92	360.00	6,908.7	145.5	-722.1	257.4	7.50	7.50	0.00
7,200.0	66.42	360.00	6,954.6	234.3	-722.1	345.0	7.50	7.50	0.00
7,300.0	73.92	360.00	6,988.5	328.3	-722.1	437.9	7.50	7.50	0.00
7,313.2	74.91	360.00	6,992.0	341.0	-722.1	450.4	7.50	7.50	0.00
Niobrara B									
7,400.0	81.42	360.00	7,009.8	425.9	-722.1	534.3	7.50	7.50	0.00
7,500.0	88.92	360.00	7,018.2	525.5	-722.1	632.6	7.50	7.50	0.00
7,522.1	90.58	360.00	7,018.3	547.6	-722.1	654.4	7.50	7.50	0.00
End of Build - 7"									
7,600.0	90.58	360.00	7,017.5	625.5	-722.1	731.4	0.00	0.00	0.00
7,700.0	90.58	360.00	7,016.5	725.4	-722.1	830.1	0.00	0.00	0.00
7,800.0	90.58	360.00	7,015.5	825.4	-722.1	928.8	0.00	0.00	0.00
7,900.0	90.58	360.00	7,014.5	925.4	-722.1	1,027.6	0.00	0.00	0.00
8,000.0	90.58	360.00	7,013.5	1,025.4	-722.1	1,126.3	0.00	0.00	0.00
8,100.0	90.58	360.00	7,012.4	1,125.4	-722.1	1,225.1	0.00	0.00	0.00
8,200.0	90.58	360.00	7,011.4	1,225.4	-722.1	1,323.8	0.00	0.00	0.00

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Well:	Spaur 10L-241	**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)
8,300.0	90.58	360.00	7,010.4	1,325.4	-722.1	1,422.6	0.00	0.00	0.00
8,400.0	90.58	360.00	7,009.4	1,425.4	-722.1	1,521.3	0.00	0.00	0.00
8,500.0	90.58	360.00	7,008.4	1,525.4	-722.1	1,620.1	0.00	0.00	0.00
8,600.0	90.58	360.00	7,007.4	1,625.4	-722.1	1,718.8	0.00	0.00	0.00
8,700.0	90.58	360.00	7,006.4	1,725.4	-722.1	1,817.6	0.00	0.00	0.00
8,800.0	90.58	360.00	7,005.4	1,825.4	-722.1	1,916.3	0.00	0.00	0.00
8,900.0	90.58	360.00	7,004.4	1,925.4	-722.1	2,015.1	0.00	0.00	0.00
9,000.0	90.58	360.00	7,003.3	2,025.4	-722.1	2,113.8	0.00	0.00	0.00
9,100.0	90.58	360.00	7,002.3	2,125.4	-722.1	2,212.6	0.00	0.00	0.00
9,200.0	90.58	360.00	7,001.3	2,225.4	-722.1	2,311.3	0.00	0.00	0.00
9,300.0	90.58	360.00	7,000.3	2,325.4	-722.1	2,410.1	0.00	0.00	0.00
9,400.0	90.58	360.00	6,999.3	2,425.4	-722.1	2,508.8	0.00	0.00	0.00
9,500.0	90.58	360.00	6,998.3	2,525.4	-722.1	2,607.6	0.00	0.00	0.00
9,600.0	90.58	360.00	6,997.3	2,625.3	-722.1	2,706.3	0.00	0.00	0.00
9,700.0	90.58	360.00	6,996.3	2,725.3	-722.1	2,805.0	0.00	0.00	0.00
9,800.0	90.58	360.00	6,995.2	2,825.3	-722.1	2,903.8	0.00	0.00	0.00
9,900.0	90.58	360.00	6,994.2	2,925.3	-722.1	3,002.5	0.00	0.00	0.00
10,000.0	90.58	360.00	6,993.2	3,025.3	-722.1	3,101.3	0.00	0.00	0.00
10,100.0	90.58	360.00	6,992.2	3,125.3	-722.1	3,200.0	0.00	0.00	0.00
10,200.0	90.58	360.00	6,991.2	3,225.3	-722.1	3,298.8	0.00	0.00	0.00
10,300.0	90.58	360.00	6,990.2	3,325.3	-722.1	3,397.5	0.00	0.00	0.00
10,400.0	90.58	360.00	6,989.2	3,425.3	-722.1	3,496.3	0.00	0.00	0.00
10,500.0	90.58	360.00	6,988.2	3,525.3	-722.1	3,595.0	0.00	0.00	0.00
10,600.0	90.58	360.00	6,987.1	3,625.3	-722.1	3,693.8	0.00	0.00	0.00
10,700.0	90.58	360.00	6,986.1	3,725.3	-722.1	3,792.5	0.00	0.00	0.00
10,800.0	90.58	360.00	6,985.1	3,825.3	-722.1	3,891.3	0.00	0.00	0.00
10,900.0	90.58	360.00	6,984.1	3,925.3	-722.1	3,990.0	0.00	0.00	0.00
11,000.0	90.58	360.00	6,983.1	4,025.3	-722.1	4,088.8	0.00	0.00	0.00
11,100.0	90.58	360.00	6,982.1	4,125.3	-722.1	4,187.5	0.00	0.00	0.00
11,200.0	90.58	360.00	6,981.1	4,225.3	-722.1	4,286.3	0.00	0.00	0.00
11,300.0	90.58	360.00	6,980.1	4,325.3	-722.1	4,385.0	0.00	0.00	0.00
11,400.0	90.58	360.00	6,979.0	4,425.3	-722.1	4,483.8	0.00	0.00	0.00
11,500.0	90.58	360.00	6,978.0	4,525.3	-722.1	4,582.5	0.00	0.00	0.00
11,503.1	90.58	360.00	6,978.0	4,528.4	-722.1	4,585.6	0.00	0.00	0.00

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SHL 285'FSL & 1583'I - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,360,168.96	3,172,640.73	40.320410	-104.880850
BHL 500'FNL & 889'F - plan hits target center - Point	0.00	0.00	6,978.0	4,528.4	-722.1	1,364,691.96	3,171,887.07	40.332840	-104.883440
50' E/W Hardline (10L - plan misses target center by 2638.7ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W3,980.8 H100.0 D0.0)	0.00	0.00	1.0	2,537.9	-722.1	1,362,701.68	3,171,900.96	40.327376	-104.883440

Database:	EDM 2003.21 Single User Db	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-10-15)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,522.1	7,018.3	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,590.0	3,560.0	Parkman		0.00	
4,137.6	4,100.0	Sussex		0.00	
4,660.9	4,616.0	Shannon		0.00	
6,873.6	6,765.0	Sharon Springs		0.00	
7,065.1	6,890.0	Niobrara A		0.00	
7,313.2	6,992.0	Niobrara B		0.00	
	7,071.0	Niobrara C		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
800.0	800.0	0.0	0.0	KOP #1
6,314.4	6,254.4	-224.1	-722.1	KOP #2
7,522.1	7,018.3	547.6	-722.1	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T4N-R67W
Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W
Spaur 10L-241

Wellbore #1
Plan #2 (6-10-15)

Anticollision Report

12 June, 2015

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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** 6/11/2015

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,503.1	Plan #2 (6-10-15) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Binder 12-10DU Pad Sec.10-T4N-R67W						
Binder #1 (P&A) - Wellbore #1 - Design #1	10,206.1	6,911.1	527.0	446.9	6.578	CC, ES
Binder #1 (P&A) - Wellbore #1 - Design #1	10,300.0	6,910.2	535.3	453.4	6.539	SF
Binder #1 (P&A) - Wellbore #1 - Wellbore #1	10,311.4	6,907.8	545.6	464.5	6.726	CC, ES
Binder #1 (P&A) - Wellbore #1 - Wellbore #1	10,400.0	6,910.1	552.7	469.9	6.679	SF
Binder 10-ADU - Wellbore #1 - Wellbore #1	10,646.8	7,035.8	438.5	348.2	4.858	CC, ES
Binder 10-ADU - Wellbore #1 - Wellbore #1	10,700.0	7,035.1	441.7	350.4	4.840	SF
Binder 11-10DU - Wellbore #1 - Wellbore #1	11,378.4	7,069.7	238.5	126.7	2.133	CC, ES, SF
Binder 12-10DU - Wellbore #1 - Wellbore #1	9,849.8	6,960.6	129.0	54.7	1.738	CC, ES, SF
Binder 21-10DU - Wellbore #1 - Wellbore #1	11,380.3	7,281.1	947.2	833.7	8.344	CC
Binder 21-10DU - Wellbore #1 - Wellbore #1	11,400.0	7,281.2	947.4	833.5	8.319	ES
Binder 21-10DU - Wellbore #1 - Wellbore #1	11,503.1	7,282.0	955.1	839.3	8.246	SF
Existing Wells Sec.10-T4N-R67W						
Binder 29-15 - Wellbore #1 - Wellbore #1	4,544.6	4,648.7	478.0	454.6	20.448	CC, ES
Binder 29-15 - Wellbore #1 - Wellbore #1	4,900.0	4,958.7	491.7	466.6	19.557	SF
Spaur 10-3 (Exist.) - Wellbore #1 - Wellbore #1	7,348.1	6,971.6	31.1	-3.8	0.892	Level 1, CC, ES, SF
Spaur 4N67W10MLVT Pad Sec.10-T4N-R67W						
Spaur 10I-201 - Wellbore #1 - Plan #1 (6-12-15)	200.0	200.0	29.1	28.5	45.186	CC
Spaur 10I-201 - Wellbore #1 - Plan #1 (6-12-15)	300.0	299.9	29.3	28.3	27.099	ES
Spaur 10I-201 - Wellbore #1 - Plan #1 (6-12-15)	11,503.1	11,624.8	744.4	565.8	4.168	SF
Spaur 10I-321 - Wellbore #1 - Plan #2 (6-10-15)	400.0	400.0	14.6	13.0	9.437	CC
Spaur 10I-321 - Wellbore #1 - Plan #2 (6-10-15)	500.0	499.9	14.8	12.8	7.459	ES
Spaur 10I-321 - Wellbore #1 - Plan #2 (6-10-15)	11,503.1	11,652.1	387.3	215.7	2.257	SF
Spaur 10L-201 - Wellbore #1 - Plan #2 (6-10-15)	800.0	800.0	58.3	54.9	17.440	CC
Spaur 10L-201 - Wellbore #1 - Plan #2 (6-10-15)	900.0	900.0	58.6	54.8	15.514	ES
Spaur 10L-201 - Wellbore #1 - Plan #2 (6-10-15)	11,503.1	11,429.5	571.9	394.9	3.231	SF
Spaur 10L-301 - Wellbore #1 - Plan #2 (6-10-15)	800.0	800.0	14.6	11.2	4.358	CC
Spaur 10L-301 - Wellbore #1 - Plan #2 (6-10-15)	900.0	900.0	14.8	11.1	3.934	ES
Spaur 10L-301 - Wellbore #1 - Plan #2 (6-10-15)	11,503.1	11,560.6	302.5	132.3	1.777	SF
Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)	800.0	801.0	72.9	69.5	21.785	CC
Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)	900.0	901.0	73.1	69.3	19.363	ES
Spaur 10L-421 - Wellbore #1 - Plan #2 (6-10-15)	11,503.1	11,650.8	881.7	710.3	5.144	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 #1 (P&A) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,400.0	6,999.3	6,919.3	6,919.3	50.9	15.4	-90.89	3,231.4	-1,249.1	963.1	897.8	65.24	14.762	
9,500.0	6,998.3	6,918.3	6,918.3	52.7	15.4	-90.78	3,231.4	-1,249.1	881.1	814.0	67.07	13.137	
9,600.0	6,997.3	6,917.3	6,917.3	54.5	15.4	-90.67	3,231.4	-1,249.1	803.2	734.3	68.90	11.657	
9,700.0	6,996.3	6,916.3	6,916.3	56.3	15.4	-90.56	3,231.4	-1,249.1	730.7	659.9	70.74	10.329	
9,800.0	6,995.2	6,915.2	6,915.2	58.1	15.4	-90.45	3,231.4	-1,249.1	665.3	592.7	72.58	9.166	
9,900.0	6,994.2	6,914.2	6,914.2	60.0	15.4	-90.34	3,231.4	-1,249.1	609.4	535.0	74.43	8.188	
10,000.0	6,993.2	6,913.2	6,913.2	61.8	15.4	-90.23	3,231.4	-1,249.1	565.9	489.6	76.28	7.418	
10,100.0	6,992.2	6,912.2	6,912.2	63.6	15.4	-90.12	3,231.4	-1,249.1	537.6	459.4	78.14	6.880	
10,200.0	6,991.2	6,911.2	6,911.2	65.4	15.4	-90.01	3,231.4	-1,249.1	527.0	447.0	80.00	6.588	
10,206.1	6,991.1	6,911.1	6,911.1	65.6	15.4	-90.00	3,231.4	-1,249.1	527.0	446.9	80.11	6.578	CC, ES
10,300.0	6,990.2	6,910.2	6,910.2	67.3	15.4	-89.90	3,231.4	-1,249.1	535.3	453.4	81.86	6.539	SF
10,400.0	6,989.2	6,909.2	6,909.2	69.1	15.4	-89.79	3,231.4	-1,249.1	561.5	477.8	83.73	6.706	
10,500.0	6,988.2	6,908.2	6,908.2	71.0	15.4	-89.68	3,231.4	-1,249.1	603.4	517.8	85.60	7.049	
10,600.0	6,987.1	6,907.1	6,907.1	72.8	15.4	-89.57	3,231.4	-1,249.1	657.9	570.4	87.47	7.521	
10,700.0	6,986.1	6,906.1	6,906.1	74.7	15.4	-89.46	3,231.4	-1,249.1	722.2	632.9	89.35	8.084	
10,800.0	6,985.1	6,905.1	6,905.1	76.5	15.4	-89.35	3,231.4	-1,249.1	794.0	702.7	91.22	8.704	
10,900.0	6,984.1	6,904.1	6,904.1	78.4	15.4	-89.24	3,231.4	-1,249.1	871.3	778.2	93.10	9.359	
11,000.0	6,983.1	6,903.1	6,903.1	80.3	15.4	-89.13	3,231.4	-1,249.1	952.8	857.9	94.98	10.032	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 #1 (P&A) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 240-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,500.0	6,998.3	6,886.3	6,885.0	52.7	14.4	-87.37	3,335.9	-1,267.5	977.6	911.4	66.12	14.785	
9,600.0	6,997.3	6,888.9	6,887.7	54.5	14.4	-87.65	3,336.0	-1,267.5	896.4	828.4	67.95	13.191	
9,700.0	6,996.3	6,891.6	6,890.4	56.3	14.4	-87.93	3,336.1	-1,267.5	819.3	749.5	69.79	11.740	
9,800.0	6,995.2	6,894.3	6,893.0	58.1	14.4	-88.21	3,336.2	-1,267.6	747.7	676.1	71.63	10.438	
9,900.0	6,994.2	6,896.9	6,895.7	60.0	14.4	-88.49	3,336.3	-1,267.6	683.2	609.8	73.48	9.298	
10,000.0	6,993.2	6,899.6	6,898.3	61.8	14.4	-88.77	3,336.4	-1,267.6	628.2	552.8	75.33	8.339	
10,100.0	6,992.2	6,902.2	6,901.0	63.6	14.4	-89.05	3,336.5	-1,267.6	585.1	507.9	77.18	7.581	
10,200.0	6,991.2	6,904.9	6,903.6	65.4	14.4	-89.32	3,336.6	-1,267.6	556.8	477.8	79.04	7.045	
10,300.0	6,990.2	6,907.5	6,906.3	67.3	14.4	-89.60	3,336.7	-1,267.6	545.7	464.8	80.90	6.746	
10,311.4	6,990.1	6,907.8	6,906.6	67.5	14.4	-89.63	3,336.7	-1,267.6	545.6	464.5	81.11	6.726	CC, ES
10,400.0	6,989.2	6,910.1	6,908.9	69.1	14.4	-89.88	3,336.8	-1,267.7	552.7	469.9	82.76	6.679	SF
10,500.0	6,988.2	6,912.8	6,911.5	71.0	14.4	-90.15	3,336.9	-1,267.7	577.2	492.6	84.62	6.821	
10,600.0	6,987.1	6,915.4	6,914.1	72.8	14.4	-90.43	3,337.0	-1,267.7	617.1	530.7	86.48	7.136	
10,700.0	6,986.1	6,918.0	6,916.7	74.7	14.5	-90.70	3,337.1	-1,267.7	669.7	581.4	88.35	7.581	
10,800.0	6,985.1	6,920.6	6,919.4	76.5	14.5	-90.98	3,337.2	-1,267.7	732.2	642.0	90.21	8.117	
10,900.0	6,984.1	6,923.2	6,922.0	78.4	14.5	-91.25	3,337.3	-1,267.7	802.4	710.3	92.07	8.714	
11,000.0	6,983.1	6,925.8	6,924.6	80.3	14.5	-91.52	3,337.4	-1,267.8	878.3	784.4	93.94	9.350	
11,100.0	6,982.1	6,928.4	6,927.2	82.1	14.5	-91.79	3,337.5	-1,267.8	958.7	862.9	95.80	10.007	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,800.0	6,995.2	7,047.1	6,920.0	58.1	23.6	91.74	3,672.1	-283.7	953.5	879.0	74.51	12.797	
9,900.0	6,994.2	7,045.8	6,918.6	60.0	23.6	91.56	3,672.1	-283.7	865.9	789.6	76.36	11.341	
10,000.0	6,993.2	7,044.4	6,917.3	61.8	23.6	91.39	3,672.1	-283.7	781.4	703.1	78.21	9.991	
10,100.0	6,992.2	7,043.1	6,916.0	63.6	23.6	91.21	3,672.1	-283.6	700.8	620.8	80.06	8.754	
10,200.0	6,991.2	7,041.8	6,914.6	65.4	23.6	91.04	3,672.1	-283.6	626.0	544.1	81.92	7.641	
10,300.0	6,990.2	7,040.4	6,913.3	67.3	23.6	90.87	3,672.1	-283.6	559.0	475.2	83.78	6.672	
10,400.0	6,989.2	7,039.1	6,912.0	69.1	23.6	90.69	3,672.1	-283.6	503.1	417.5	85.65	5.875	
10,500.0	6,988.2	7,037.8	6,910.6	71.0	23.6	90.52	3,672.1	-283.6	462.4	374.9	87.51	5.284	
10,600.0	6,987.1	7,036.4	6,909.3	72.8	23.6	90.35	3,672.1	-283.6	441.0	351.6	89.38	4.934	
10,646.8	6,986.7	7,035.8	6,908.7	73.7	23.6	90.27	3,672.1	-283.6	438.5	348.2	90.26	4.858	CC, ES
10,700.0	6,986.1	7,035.1	6,908.0	74.7	23.6	90.17	3,672.1	-283.6	441.7	350.4	91.25	4.840	SF
10,800.0	6,985.1	7,033.8	6,906.7	76.5	23.6	90.00	3,672.1	-283.6	464.5	371.3	93.12	4.988	
10,900.0	6,984.1	7,032.5	6,905.4	78.4	23.6	89.83	3,672.1	-283.6	506.3	411.3	95.00	5.330	
11,000.0	6,983.1	7,031.2	6,904.0	80.3	23.6	89.66	3,672.1	-283.6	563.0	466.2	96.87	5.812	
11,100.0	6,982.1	7,029.9	6,902.7	82.1	23.6	89.49	3,672.1	-283.6	630.6	531.8	98.75	6.386	
11,200.0	6,981.1	7,028.5	6,901.4	84.0	23.6	89.31	3,672.1	-283.6	705.9	605.2	100.63	7.015	
11,300.0	6,980.1	7,027.2	6,900.1	85.9	23.6	89.14	3,672.1	-283.6	786.7	684.2	102.51	7.675	
11,400.0	6,979.0	7,025.9	6,898.8	87.7	23.6	88.97	3,672.1	-283.6	871.5	767.1	104.38	8.349	
11,500.0	6,978.0	7,024.6	6,897.5	89.6	23.6	88.80	3,672.1	-283.6	959.2	853.0	106.26	9.027	
11,503.1	6,978.0	7,024.6	6,897.5	89.7	23.6	88.80	3,672.1	-283.6	962.0	855.7	106.32	9.048	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 11-10DU - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 154-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,500.0	6,988.2	7,056.6	6,877.3	71.0	25.6	-84.72	4,403.3	-960.0	910.1	815.0	95.14	9.566	
10,600.0	6,987.1	7,058.0	6,878.7	72.8	25.6	-85.06	4,403.3	-960.0	814.1	717.0	97.04	8.389	
10,700.0	6,986.1	7,059.5	6,880.1	74.7	25.6	-85.41	4,403.3	-960.1	719.1	620.1	98.94	7.268	
10,800.0	6,985.1	7,060.9	6,881.6	76.5	25.6	-85.76	4,403.4	-960.1	625.6	524.8	100.84	6.204	
10,900.0	6,984.1	7,062.4	6,883.1	78.4	25.6	-86.11	4,403.4	-960.2	534.5	431.8	102.74	5.203	
11,000.0	6,983.1	7,063.9	6,884.6	80.3	25.6	-86.47	4,403.4	-960.2	447.3	342.6	104.64	4.274	
11,100.0	6,982.1	7,065.4	6,886.1	82.1	25.6	-86.83	4,403.5	-960.3	366.6	260.0	106.55	3.441	
11,200.0	6,981.1	7,068.0	6,888.7	84.0	25.6	-87.45	4,403.5	-960.4	297.9	189.4	108.46	2.746	
11,300.0	6,980.1	7,068.0	6,888.7	85.9	25.6	-87.45	4,403.5	-960.4	251.1	140.7	110.34	2.275	
11,378.4	6,979.3	7,069.7	6,890.4	87.3	25.6	-87.86	4,403.6	-960.4	238.5	126.7	111.84	2.133	CC, ES, SF
11,400.0	6,979.0	7,070.0	6,890.7	87.7	25.6	-87.94	4,403.6	-960.5	239.5	127.2	112.25	2.134	
11,500.0	6,978.0	7,071.6	6,892.3	89.6	25.6	-88.32	4,403.6	-960.5	267.7	153.6	114.15	2.345	
11,503.1	6,978.0	7,071.7	6,892.3	89.7	25.6	-88.33	4,403.6	-960.5	269.1	154.9	114.21	2.357	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,900.0	7,004.4	6,981.1	6,933.9	42.2	17.4	-98.43	2,874.9	-851.3	958.3	902.1	56.25	17.036	
9,000.0	7,003.3	6,979.0	6,931.7	43.9	17.4	-97.50	2,874.9	-851.2	859.4	801.2	58.14	14.780	
9,100.0	7,002.3	6,976.9	6,929.6	45.6	17.4	-96.56	2,875.0	-851.2	760.7	700.6	60.04	12.669	
9,200.0	7,001.3	6,974.7	6,927.4	47.4	17.4	-95.62	2,875.0	-851.2	662.4	600.4	61.94	10.693	
9,300.0	7,000.3	6,972.6	6,925.3	49.2	17.4	-94.67	2,875.0	-851.2	564.6	500.8	63.84	8.844	
9,400.0	6,999.3	6,970.4	6,923.2	50.9	17.4	-93.73	2,875.0	-851.1	467.9	402.1	65.74	7.116	
9,500.0	6,998.3	6,968.3	6,921.0	52.7	17.4	-92.78	2,875.1	-851.1	372.8	305.1	67.64	5.511	
9,600.0	6,997.3	6,966.1	6,918.8	54.5	17.4	-91.82	2,875.1	-851.1	281.1	211.6	69.53	4.043	
9,700.0	6,996.3	6,963.9	6,916.6	56.3	17.4	-90.85	2,875.1	-851.1	197.7	126.2	71.41	2.768	
9,800.0	6,995.2	6,961.7	6,914.4	58.1	17.4	-89.86	2,875.1	-851.0	138.2	65.0	73.29	1.886	
9,849.8	6,994.7	6,960.6	6,913.3	59.0	17.4	-89.36	2,875.2	-851.0	129.0	54.7	74.22	1.738	CC, ES, SF
9,900.0	6,994.2	6,959.4	6,912.2	60.0	17.4	-88.86	2,875.2	-851.0	138.4	63.2	75.15	1.841	
10,000.0	6,993.2	6,957.2	6,909.9	61.8	17.4	-87.85	2,875.2	-851.0	197.9	120.9	76.99	2.570	
10,100.0	6,992.2	6,954.8	6,907.6	63.6	17.4	-86.82	2,875.2	-851.0	281.4	202.6	78.81	3.570	
10,200.0	6,991.2	6,952.5	6,905.2	65.4	17.4	-85.78	2,875.3	-850.9	373.1	292.4	80.62	4.628	
10,300.0	6,990.2	6,950.1	6,902.9	67.3	17.4	-84.74	2,875.3	-850.9	468.2	385.8	82.40	5.682	
10,400.0	6,989.2	6,947.7	6,900.5	69.1	17.3	-83.68	2,875.3	-850.9	564.9	480.8	84.15	6.713	
10,500.0	6,988.2	6,945.3	6,898.0	71.0	17.3	-82.61	2,875.4	-850.9	662.7	576.8	85.87	7.717	
10,600.0	6,987.1	6,942.8	6,895.6	72.8	17.3	-81.53	2,875.4	-850.8	761.0	673.4	87.57	8.690	
10,700.0	6,986.1	6,940.3	6,893.1	74.7	17.3	-80.44	2,875.4	-850.8	859.7	770.4	89.23	9.635	
10,800.0	6,985.1	6,937.8	6,890.5	76.5	17.3	-79.34	2,875.5	-850.8	958.6	867.8	90.85	10.552	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,100.0	6,982.1	7,278.8	6,937.4	82.1	36.8	92.31	4,405.9	224.4	987.8	879.6	108.25	9.125	
11,200.0	6,981.1	7,279.6	6,938.2	84.0	36.8	92.36	4,405.9	224.3	964.2	854.1	110.13	8.755	
11,300.0	6,980.1	7,280.4	6,939.0	85.9	36.8	92.41	4,406.0	224.3	950.6	838.6	112.01	8.487	
11,380.3	6,979.2	7,281.1	6,939.7	87.4	36.8	92.45	4,406.0	224.3	947.2	833.7	113.52	8.344	CC
11,400.0	6,979.0	7,281.2	6,939.8	87.7	36.8	92.46	4,406.0	224.2	947.4	833.5	113.89	8.319	ES
11,500.0	6,978.0	7,282.0	6,940.6	89.6	36.8	92.50	4,406.0	224.2	954.7	839.0	115.77	8.247	
11,503.1	6,978.0	7,282.0	6,940.7	89.7	36.8	92.51	4,406.0	224.2	955.1	839.3	115.83	8.246	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	148.69	-830.3	505.0	971.8				
100.0	100.0	100.0	100.0	0.1	0.1	148.69	-830.3	505.0	971.8	971.6	0.21	4,620.373	
200.0	200.0	200.0	200.0	0.3	0.2	148.69	-830.3	505.0	971.8	971.2	0.55	1,775.126	
300.0	300.0	300.0	300.0	0.5	0.3	148.69	-830.3	505.0	971.8	970.9	0.88	1,098.602	
400.0	400.0	400.0	400.0	0.8	0.4	148.69	-830.3	505.0	971.8	970.6	1.22	795.447	
500.0	500.0	500.0	500.0	1.0	0.6	148.69	-830.3	505.0	971.8	970.2	1.56	623.417	
600.0	600.0	600.0	600.0	1.2	0.7	148.69	-830.3	505.0	971.8	969.9	1.90	512.565	
700.0	700.0	699.7	699.7	1.4	0.8	148.71	-830.4	504.7	971.8	969.5	2.29	424.006	
800.0	800.0	800.3	800.3	1.7	1.1	148.75	-830.8	504.1	971.8	969.1	2.72	356.796	
808.1	808.1	808.4	808.4	1.7	1.1	-104.00	-830.9	504.0	971.8	969.0	2.76	352.393	
900.0	900.0	900.9	900.9	1.9	1.3	-104.00	-831.3	503.3	972.0	968.8	3.14	309.673	
1,000.0	1,000.0	1,001.5	1,001.5	2.1	1.5	-104.09	-831.7	502.4	972.5	968.9	3.54	274.409	
1,100.0	1,099.9	1,102.5	1,102.5	2.3	1.7	-104.26	-832.1	501.3	973.3	969.3	3.97	245.047	
1,200.0	1,199.7	1,206.4	1,206.4	2.5	1.9	-104.54	-832.5	499.9	974.5	970.1	4.42	220.674	
1,300.0	1,299.4	1,418.9	1,418.2	2.7	2.4	-105.19	-823.2	487.2	969.2	964.1	5.13	188.830	
1,400.0	1,398.9	1,624.0	1,619.1	3.0	3.0	-105.53	-800.0	454.1	952.8	946.9	5.91	161.344	
1,500.0	1,498.3	1,717.4	1,709.6	3.2	3.4	-105.82	-786.7	435.5	933.1	926.7	6.39	146.111	
1,600.0	1,597.4	1,820.2	1,809.3	3.5	3.8	-106.23	-772.3	415.1	914.0	907.1	6.91	132.287	
1,700.0	1,696.3	1,913.8	1,900.4	3.8	4.1	-106.83	-758.5	397.9	895.6	888.2	7.42	120.675	
1,800.0	1,795.0	2,020.0	2,003.5	4.1	4.6	-107.62	-741.6	379.1	877.2	869.2	7.99	109.768	
1,900.0	1,893.6	2,112.8	2,093.5	4.5	5.0	-108.28	-726.5	362.8	858.7	850.1	8.54	100.552	
2,000.0	1,992.2	2,200.7	2,179.2	4.8	5.3	-108.94	-712.9	348.1	841.3	832.3	9.08	92.659	
2,100.0	2,090.8	2,299.0	2,275.0	5.2	5.7	-109.67	-698.5	331.5	824.9	815.2	9.66	85.416	
2,200.0	2,189.4	2,393.4	2,366.8	5.5	6.2	-110.30	-685.2	314.2	808.1	797.9	10.24	78.884	
2,300.0	2,288.0	2,509.9	2,479.8	5.9	6.7	-111.02	-668.6	291.2	790.4	779.5	10.91	72.465	
2,400.0	2,386.6	2,616.5	2,582.7	6.3	7.2	-111.71	-651.9	269.0	771.0	759.5	11.54	66.789	
2,500.0	2,485.2	2,714.1	2,676.8	6.6	7.7	-112.42	-635.8	248.8	751.2	739.0	12.14	61.877	
2,600.0	2,583.8	2,795.0	2,755.2	7.0	8.1	-113.09	-622.9	233.2	732.8	720.1	12.68	57.796	
2,700.0	2,682.4	2,900.9	2,857.9	7.4	8.6	-113.93	-607.6	212.8	715.7	702.4	13.29	53.837	
2,800.0	2,781.0	2,994.1	2,948.2	7.7	9.0	-114.57	-594.7	193.4	698.2	684.3	13.88	50.295	
2,900.0	2,879.6	3,074.4	3,026.1	8.1	9.4	-115.24	-583.4	177.8	681.7	667.2	14.42	47.259	
3,000.0	2,978.2	3,178.5	3,127.8	8.5	9.9	-116.20	-570.2	159.7	667.6	652.5	15.01	44.462	
3,100.0	3,076.8	3,277.5	3,224.1	8.9	10.3	-117.07	-557.1	140.8	652.1	636.5	15.60	41.794	
3,200.0	3,175.4	3,360.4	3,304.9	9.3	10.7	-117.81	-547.0	125.3	637.8	621.6	16.14	39.511	
3,300.0	3,274.0	3,461.6	3,404.0	9.7	11.1	-118.74	-536.3	108.0	625.9	609.2	16.71	37.451	
3,400.0	3,372.6	3,574.0	3,513.3	10.0	11.6	-119.82	-522.0	86.4	611.1	593.8	17.32	35.278	
3,500.0	3,471.3	3,669.8	3,606.5	10.4	12.1	-120.80	-509.6	67.8	596.3	578.4	17.88	33.347	
3,600.0	3,569.9	3,799.1	3,731.6	10.8	12.7	-122.40	-489.2	41.8	579.1	560.6	18.51	31.286	
3,700.0	3,668.5	3,898.8	3,827.2	11.2	13.3	-123.80	-471.3	20.3	559.7	540.6	19.07	29.353	
3,800.0	3,767.1	3,992.2	3,916.8	11.6	13.8	-125.24	-454.1	0.3	540.4	520.8	19.60	27.568	
3,900.0	3,865.7	4,073.0	3,994.7	12.0	14.2	-126.58	-439.9	-15.8	523.4	503.3	20.10	26.037	
4,000.0	3,964.3	4,158.0	4,077.5	12.4	14.6	-128.03	-427.2	-30.4	510.3	489.7	20.60	24.770	
4,100.0	4,062.9	4,241.2	4,158.8	12.7	14.9	-129.69	-414.5	-42.2	500.2	479.1	21.09	23.717	
4,200.0	4,161.5	4,334.9	4,250.7	13.1	15.3	-131.62	-400.9	-54.5	491.9	470.3	21.60	22.772	
4,300.0	4,260.1	4,426.2	4,340.6	13.5	15.6	-133.51	-388.9	-65.1	486.2	464.1	22.11	21.993	
4,400.0	4,358.7	4,523.1	4,436.0	13.9	16.0	-135.41	-377.1	-77.3	480.9	458.2	22.64	21.239	
4,500.0	4,457.3	4,608.4	4,520.3	14.3	16.3	-137.08	-367.9	-86.6	478.2	455.1	23.15	20.660	
4,544.6	4,501.3	4,648.7	4,560.2	14.5	16.4	-137.84	-364.0	-90.4	478.0	454.6	23.38	20.448	CC, ES
4,600.0	4,555.9	4,699.8	4,610.9	14.7	16.6	-138.75	-359.7	-95.1	478.3	454.7	23.66	20.214	
4,700.0	4,654.5	4,793.0	4,703.6	15.1	16.8	-140.22	-353.8	-103.3	480.3	456.2	24.17	19.871	
4,800.0	4,753.1	4,879.3	4,789.5	15.5	17.0	-141.63	-348.3	-109.5	484.3	459.7	24.67	19.634	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,851.7	4,958.7	4,868.7	15.9	17.2	-142.89	-344.1	-113.0	491.7	466.6	25.14	19.557	SF
5,000.0	4,950.3	5,032.3	4,942.3	16.3	17.3	-144.04	-341.6	-112.5	504.5	479.0	25.59	19.714	
5,100.0	5,048.9	5,124.6	5,034.5	16.6	17.4	-145.13	-341.5	-110.1	520.6	494.6	26.05	19.985	
5,200.0	5,147.5	5,231.2	5,141.0	17.0	17.5	-146.07	-343.5	-108.6	536.2	509.7	26.51	20.223	
5,300.0	5,246.2	5,331.2	5,241.0	17.4	17.6	-146.87	-345.5	-108.0	551.3	524.3	26.97	20.445	
5,400.0	5,344.8	5,433.6	5,343.5	17.8	17.7	-147.67	-347.0	-107.8	565.9	538.5	27.42	20.637	
5,500.0	5,443.4	5,536.0	5,445.8	18.2	17.8	-148.45	-348.3	-108.2	580.0	552.1	27.88	20.802	
5,600.0	5,542.0	5,638.4	5,548.3	18.6	18.0	-149.18	-349.7	-109.3	593.5	565.2	28.34	20.944	
5,700.0	5,641.0	5,739.3	5,649.1	18.9	18.1	-149.82	-351.2	-111.0	604.5	575.8	28.72	21.051	
5,800.0	5,740.4	5,834.9	5,744.7	19.1	18.2	-150.25	-352.5	-112.3	612.9	583.8	29.05	21.095	
5,900.0	5,840.1	5,932.7	5,842.5	19.3	18.3	-150.52	-353.6	-113.1	618.8	589.4	29.36	21.076	
6,000.0	5,940.0	6,031.9	5,941.6	19.4	18.5	-150.63	-354.5	-113.6	621.8	592.2	29.63	20.983	
6,100.0	6,040.0	6,131.1	6,040.8	19.6	18.6	102.15	-355.0	-113.9	622.1	592.2	29.92	20.794	
6,200.0	6,140.0	6,230.3	6,140.1	19.7	18.7	102.18	-355.3	-114.0	622.1	591.8	30.25	20.564	
6,300.0	6,240.0	6,330.3	6,240.1	19.8	18.9	102.19	-355.5	-114.1	622.1	591.5	30.59	20.334	
6,300.4	6,240.4	6,330.7	6,240.4	19.8	18.9	102.19	-355.5	-114.1	622.1	591.5	30.59	20.333	
6,400.0	6,339.8	6,430.1	6,339.8	20.0	19.0	102.55	-355.5	-114.1	623.1	592.1	30.96	20.122	
6,500.0	6,438.2	6,528.4	6,438.2	20.0	19.2	103.80	-355.6	-114.1	627.2	595.9	31.26	20.062	
6,600.0	6,533.4	6,623.5	6,533.3	20.1	19.3	105.78	-355.9	-114.2	635.3	603.8	31.47	20.189	
6,700.0	6,623.8	6,713.5	6,623.2	20.1	19.4	108.12	-356.4	-114.3	649.0	617.4	31.57	20.558	
6,800.0	6,708.0	6,796.6	6,706.3	20.1	19.5	110.38	-356.8	-114.3	670.0	638.4	31.56	21.229	
6,900.0	6,784.3	6,872.3	6,782.1	20.1	19.6	112.19	-356.9	-114.1	699.8	668.3	31.49	22.223	
7,000.0	6,851.6	6,939.4	6,849.2	20.2	19.7	113.15	-356.8	-113.8	739.3	707.9	31.48	23.490	
7,100.0	6,908.7	6,995.7	6,905.4	20.3	19.8	112.85	-356.6	-113.4	789.0	757.3	31.71	24.880	
7,200.0	6,954.6	7,040.5	6,950.2	20.5	19.9	110.89	-356.6	-113.1	848.5	816.1	32.41	26.181	
7,300.0	6,988.5	7,073.2	6,983.0	20.8	19.9	106.85	-356.7	-113.0	916.6	883.0	33.64	27.247	
7,400.0	7,009.8	7,093.6	7,003.3	21.3	19.9	100.27	-356.8	-112.8	991.8	956.7	35.17	28.198	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-60.62	386.2	-686.0	787.7				
100.0	100.0	71.3	71.3	0.1	0.1	-60.64	385.9	-686.1	787.2	787.0	0.19	4,086.442	
181.7	181.7	152.7	152.7	0.3	0.3	-60.70	385.2	-686.4	787.1	786.6	0.55	1,421.013	
200.0	200.0	170.8	170.8	0.3	0.3	-60.71	385.1	-686.5	787.1	786.5	0.64	1,223.603	
300.0	300.0	270.8	270.8	0.5	0.6	-60.77	384.4	-686.9	787.2	786.0	1.13	694.700	
400.0	400.0	369.0	369.0	0.8	0.8	-60.80	384.0	-687.3	787.3	785.7	1.61	488.100	
500.0	500.0	468.6	468.6	1.0	1.1	-60.85	383.7	-687.8	787.6	785.5	2.09	376.591	
600.0	600.0	568.7	568.7	1.2	1.4	-60.88	383.4	-688.3	787.9	785.3	2.57	306.344	
700.0	700.0	668.5	668.5	1.4	1.6	-60.92	383.1	-688.8	788.2	785.1	3.06	257.958	
800.0	800.0	767.8	767.8	1.7	1.9	-60.96	382.7	-689.4	788.5	785.0	3.54	222.726	
900.0	900.0	867.8	867.7	1.9	2.1	46.28	382.3	-690.1	788.4	784.4	4.01	196.645	
1,000.0	1,000.0	968.5	968.4	2.1	2.4	46.38	382.0	-690.8	786.9	782.5	4.47	176.134	
1,100.0	1,099.9	1,068.9	1,068.9	2.3	2.7	46.59	381.7	-691.3	784.2	779.3	4.93	158.923	
1,200.0	1,199.7	1,167.6	1,167.6	2.5	2.9	46.90	381.3	-691.8	780.3	774.9	5.40	144.391	
1,300.0	1,299.4	1,266.2	1,266.2	2.7	3.2	47.30	380.9	-692.6	775.4	769.6	5.88	131.864	
1,400.0	1,398.9	1,365.2	1,365.1	3.0	3.4	47.80	380.4	-693.5	769.5	763.2	6.37	120.869	
1,500.0	1,498.3	1,464.1	1,464.0	3.2	3.7	48.40	379.9	-694.6	762.6	755.7	6.86	111.094	
1,600.0	1,597.4	1,562.1	1,562.0	3.5	4.0	49.11	379.4	-695.7	754.7	747.3	7.37	102.370	
1,700.0	1,696.3	1,659.5	1,659.4	3.8	4.2	49.94	379.1	-697.0	746.0	738.1	7.89	94.577	
1,800.0	1,795.0	1,756.9	1,756.8	4.1	4.4	50.88	379.1	-698.4	736.7	728.2	8.41	87.547	
1,900.0	1,893.6	1,854.3	1,854.2	4.5	4.7	51.83	379.3	-699.8	727.5	718.6	8.95	81.308	
2,000.0	1,992.2	1,953.1	1,953.0	4.8	4.9	52.82	379.7	-701.3	718.7	709.2	9.48	75.775	
2,100.0	2,090.8	2,053.5	2,053.4	5.2	5.1	53.88	380.2	-702.5	710.0	700.0	10.03	70.795	
2,200.0	2,189.4	2,154.0	2,153.9	5.5	5.3	54.97	380.7	-703.5	701.3	690.7	10.58	66.258	
2,300.0	2,288.0	2,253.4	2,253.3	5.9	5.5	56.07	381.0	-704.3	692.6	681.5	11.15	62.097	
2,400.0	2,386.6	2,351.7	2,351.5	6.3	5.8	57.19	381.3	-705.1	684.2	672.5	11.73	58.313	
2,500.0	2,485.2	2,450.1	2,450.0	6.6	6.0	58.34	381.6	-706.0	676.2	663.9	12.32	54.872	
2,600.0	2,583.8	2,549.0	2,548.9	7.0	6.2	59.51	381.9	-706.9	668.4	655.5	12.93	51.709	
2,700.0	2,682.4	2,647.9	2,647.8	7.4	6.5	60.70	382.1	-707.9	660.9	647.4	13.54	48.797	
2,800.0	2,781.0	2,746.8	2,746.7	7.7	6.7	61.91	382.2	-708.9	653.7	639.5	14.17	46.119	
2,900.0	2,879.6	2,845.9	2,845.7	8.1	7.0	63.14	382.3	-710.0	646.7	631.9	14.81	43.660	
3,000.0	2,978.2	2,945.4	2,945.2	8.5	7.3	64.40	382.3	-711.0	640.0	624.5	15.46	41.396	
3,100.0	3,076.8	3,045.2	3,045.1	8.9	7.5	65.72	382.4	-711.7	633.4	617.3	16.09	39.365	
3,200.0	3,175.4	3,144.3	3,144.1	9.3	7.7	67.09	382.6	-712.0	627.0	610.4	16.69	37.579	
3,300.0	3,274.0	3,242.6	3,242.4	9.7	7.9	68.48	383.0	-712.2	621.1	603.8	17.27	35.969	
3,400.0	3,372.6	3,341.4	3,341.3	10.0	8.0	69.92	383.3	-712.4	615.5	597.7	17.85	34.474	
3,500.0	3,471.3	3,440.3	3,440.1	10.4	8.2	71.37	383.6	-712.7	610.3	591.9	18.46	33.059	
3,600.0	3,569.9	3,539.2	3,539.1	10.8	8.5	72.83	383.7	-713.0	605.4	586.3	19.11	31.688	
3,700.0	3,668.5	3,637.9	3,637.8	11.2	8.7	74.31	383.9	-713.3	601.0	581.2	19.76	30.410	
3,800.0	3,767.1	3,737.0	3,736.8	11.6	9.0	75.82	384.0	-713.5	596.9	576.5	20.42	29.235	
3,900.0	3,865.7	3,835.7	3,835.5	12.0	9.2	77.34	384.1	-713.9	593.2	572.1	21.08	28.143	
4,000.0	3,964.3	3,935.3	3,935.1	12.4	9.5	78.85	383.9	-714.4	589.8	568.1	21.75	27.123	
4,100.0	4,062.9	4,035.0	4,034.8	12.7	9.7	80.29	383.0	-715.8	586.7	564.3	22.41	26.184	
4,200.0	4,161.5	4,133.5	4,133.3	13.1	10.0	81.68	382.0	-717.6	583.9	560.8	23.06	25.323	
4,300.0	4,260.1	4,232.1	4,231.9	13.5	10.2	83.08	381.0	-719.3	581.5	557.8	23.71	24.524	
4,400.0	4,358.7	4,329.7	4,329.5	13.9	10.5	84.50	380.3	-721.0	579.6	555.3	24.36	23.792	
4,500.0	4,457.3	4,429.0	4,428.7	14.3	10.7	85.95	379.6	-722.7	578.2	553.2	25.02	23.111	
4,600.0	4,555.9	4,528.2	4,527.9	14.7	11.0	87.40	378.8	-724.4	577.1	551.4	25.67	22.481	
4,700.0	4,654.5	4,626.6	4,626.3	15.1	11.2	88.85	378.0	-726.1	576.4	550.1	26.32	21.903	
4,800.0	4,753.1	4,725.1	4,724.8	15.5	11.5	90.30	377.4	-727.8	576.1	549.2	26.96	21.371	
4,809.1	4,762.1	4,734.1	4,733.8	15.5	11.5	90.43	377.3	-727.9	576.1	549.1	27.02	21.325	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,851.7	4,824.1	4,823.8	15.9	11.7	91.74	376.7	-729.7	576.3	548.7	27.60	20.881	
5,000.0	4,950.3	4,923.2	4,922.9	16.3	12.0	93.20	376.0	-731.3	576.8	548.6	28.23	20.430	
5,100.0	5,048.9	5,022.5	5,022.2	16.6	12.3	94.68	375.3	-732.8	577.6	548.7	28.86	20.014	
5,200.0	5,147.5	5,121.2	5,120.9	17.0	12.5	96.13	374.6	-734.4	578.8	549.3	29.48	19.634	
5,300.0	5,246.2	5,221.1	5,220.7	17.4	12.8	97.59	373.8	-736.0	580.3	550.2	30.09	19.284	
5,400.0	5,344.8	5,320.7	5,320.3	17.8	13.0	99.05	372.8	-737.6	582.0	551.3	30.70	18.961	
5,500.0	5,443.4	5,420.1	5,419.7	18.2	13.3	100.48	371.7	-739.3	584.0	552.7	31.29	18.665	
5,600.0	5,542.0	5,518.2	5,517.7	18.6	13.5	101.89	370.7	-740.8	586.4	554.5	31.86	18.402	
5,700.0	5,641.0	5,614.2	5,613.8	18.9	13.8	103.15	370.1	-741.7	588.9	556.6	32.32	18.220	
5,800.0	5,740.4	5,712.4	5,712.0	19.1	14.0	104.12	369.8	-742.5	591.3	558.5	32.77	18.044	
5,900.0	5,840.1	5,811.0	5,810.6	19.3	14.3	104.77	369.8	-743.2	593.1	559.9	33.19	17.869	
6,000.0	5,940.0	5,911.0	5,910.5	19.4	14.5	105.09	369.9	-743.8	594.2	560.6	33.60	17.687	
6,100.0	6,040.0	6,010.3	6,009.8	19.6	14.8	-2.15	370.0	-744.4	594.5	560.5	33.98	17.493	
6,200.0	6,140.0	6,108.8	6,108.4	19.7	15.0	-2.22	370.3	-745.1	594.8	560.5	34.37	17.307	
6,300.0	6,240.0	6,208.8	6,208.3	19.8	15.3	-2.30	370.7	-746.0	595.3	560.5	34.76	17.127	
6,400.0	6,339.8	6,305.1	6,304.6	20.0	15.5	-2.42	371.4	-747.0	591.2	556.3	34.89	16.944	
6,500.0	6,438.2	6,404.0	6,403.5	20.0	15.7	-2.68	372.3	-748.2	574.6	540.1	34.48	16.666	
6,600.0	6,533.4	6,500.9	6,500.4	20.1	16.0	-3.09	373.1	-749.5	545.1	511.6	33.52	16.262	
6,700.0	6,623.8	6,593.0	6,592.5	20.1	16.2	-3.67	373.6	-750.4	503.2	471.2	32.04	15.705	
6,800.0	6,708.0	6,677.4	6,676.9	20.1	16.4	-4.55	373.9	-750.9	449.8	419.7	30.08	14.953	
6,900.0	6,784.3	6,754.8	6,754.3	20.1	16.6	-6.03	374.2	-751.4	385.8	358.0	27.73	13.910	
7,000.0	6,851.6	6,822.5	6,822.0	20.2	16.7	-8.73	374.3	-751.9	312.3	287.1	25.19	12.395	
7,100.0	6,908.7	6,879.1	6,878.6	20.3	16.9	-14.29	374.4	-752.4	231.0	207.9	23.04	10.024	
7,200.0	6,954.6	6,925.1	6,924.6	20.5	17.0	-28.37	374.6	-752.9	143.7	119.9	23.83	6.031	
7,300.0	6,988.5	6,959.5	6,959.0	20.8	17.1	-66.75	374.8	-753.1	56.0	23.1	32.89	1.701	
7,348.1	7,000.3	6,971.6	6,971.1	21.0	17.1	-89.69	374.9	-753.2	31.1	-3.8	34.89	0.892	Level 1, CC, ES, SF
7,400.0	7,009.8	6,981.5	6,981.0	21.3	17.1	-104.02	374.9	-753.3	59.7	25.7	34.00	1.756	
7,500.0	7,018.2	6,990.6	6,990.1	22.0	17.1	-96.80	375.0	-753.3	153.7	117.8	35.86	4.285	
7,600.0	7,017.5	6,990.6	6,990.1	22.9	17.1	-88.21	375.0	-753.3	252.4	214.8	37.58	6.716	
7,700.0	7,016.5	6,990.2	6,989.7	24.0	17.1	-87.57	375.0	-753.3	351.8	313.0	38.84	9.058	
7,800.0	7,015.5	6,989.9	6,989.4	25.2	17.1	-86.93	375.0	-753.3	451.5	411.3	40.19	11.234	
7,900.0	7,014.5	6,989.5	6,989.0	26.4	17.1	-86.29	375.0	-753.3	551.3	509.7	41.62	13.248	
8,000.0	7,013.5	6,989.2	6,988.7	27.8	17.1	-85.65	375.0	-753.3	651.2	608.1	43.10	15.111	
8,100.0	7,012.4	6,988.8	6,988.3	29.3	17.1	-85.00	375.0	-753.3	751.1	706.5	44.62	16.833	
8,200.0	7,011.4	6,988.5	6,988.0	30.7	17.1	-84.35	375.0	-753.3	851.0	804.8	46.19	18.426	
8,300.0	7,010.4	6,988.1	6,987.6	32.3	17.1	-83.70	375.0	-753.3	951.0	903.2	47.78	19.903	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-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	29.0	0.20	149.063	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-29.1	0.0	29.1	28.5	0.65	45.186	CC
300.0	300.0	299.9	299.9	0.5	0.5	-177.47	-29.3	-1.3	29.3	28.3	1.08	27.099	ES
400.0	400.0	399.6	399.5	0.8	0.8	-170.14	-29.8	-5.2	30.2	28.7	1.52	19.839	
500.0	500.0	499.1	498.8	1.0	1.0	-159.20	-30.6	-11.6	32.7	30.8	1.98	16.529	
600.0	600.0	598.2	597.5	1.2	1.2	-146.99	-31.7	-20.6	37.9	35.4	2.46	15.398	
700.0	700.0	696.7	695.3	1.4	1.5	-135.95	-33.1	-32.0	46.3	43.3	2.97	15.585	
800.0	800.0	794.6	792.2	1.7	1.8	-127.20	-34.8	-45.8	58.1	54.6	3.51	16.529	
900.0	900.0	891.8	888.1	1.9	2.2	-13.55	-36.8	-62.0	72.2	68.4	3.83	18.884	
1,000.0	1,000.0	988.5	982.9	2.1	2.6	-8.93	-39.1	-80.5	87.7	83.4	4.26	20.591	
1,100.0	1,099.9	1,084.7	1,076.8	2.3	3.0	-5.44	-41.6	-101.2	104.2	99.5	4.70	22.170	
1,200.0	1,199.7	1,180.2	1,169.5	2.5	3.5	-2.69	-44.4	-124.2	121.7	116.6	5.15	23.625	
1,300.0	1,299.4	1,275.2	1,261.1	2.7	4.0	-0.48	-47.5	-149.2	140.1	134.5	5.61	24.967	
1,400.0	1,398.9	1,370.7	1,352.5	3.0	4.5	1.37	-50.9	-176.6	159.3	153.2	6.09	26.170	
1,500.0	1,498.3	1,468.9	1,446.4	3.2	5.1	2.92	-54.4	-205.3	177.5	170.9	6.57	27.031	
1,600.0	1,597.4	1,567.5	1,540.5	3.5	5.7	4.20	-57.9	-234.1	194.1	187.0	7.06	27.494	
1,700.0	1,696.3	1,666.3	1,634.9	3.8	6.3	5.33	-61.5	-263.0	209.0	201.4	7.56	27.651	
1,800.0	1,795.0	1,765.3	1,729.5	4.1	6.9	6.35	-65.1	-291.9	222.4	214.4	8.07	27.561	
1,900.0	1,893.6	1,864.3	1,824.2	4.5	7.5	7.27	-68.6	-320.9	235.7	227.1	8.60	27.417	
2,000.0	1,992.2	1,963.4	1,918.9	4.8	8.2	8.10	-72.2	-349.9	248.9	239.8	9.13	27.277	
2,100.0	2,090.8	2,062.4	2,013.5	5.2	8.8	8.84	-75.7	-378.8	262.3	252.6	9.66	27.141	
2,200.0	2,189.4	2,161.5	2,108.2	5.5	9.4	9.51	-79.3	-407.8	275.6	265.4	10.20	27.009	
2,300.0	2,288.0	2,260.5	2,202.8	5.9	10.0	10.12	-82.9	-436.7	289.0	278.3	10.75	26.882	
2,400.0	2,386.6	2,359.6	2,297.5	6.3	10.6	10.67	-86.4	-465.7	302.4	291.1	11.30	26.759	
2,500.0	2,485.2	2,458.6	2,392.2	6.6	11.3	11.17	-90.0	-494.7	315.9	304.0	11.86	26.641	
2,600.0	2,583.8	2,557.7	2,486.8	7.0	11.9	11.64	-93.6	-523.6	329.4	317.0	12.42	26.528	
2,700.0	2,682.4	2,656.8	2,581.5	7.4	12.5	12.07	-97.1	-552.6	342.9	329.9	12.98	26.419	
2,800.0	2,781.0	2,755.8	2,676.1	7.7	13.1	12.46	-100.7	-581.6	356.4	342.8	13.54	26.314	
2,900.0	2,879.6	2,854.9	2,770.8	8.1	13.8	12.83	-104.3	-610.5	369.9	355.8	14.11	26.214	
3,000.0	2,978.2	2,953.9	2,865.5	8.5	14.4	13.17	-107.8	-639.5	383.4	368.8	14.68	26.118	
3,100.0	3,076.8	3,053.0	2,960.1	8.9	15.0	13.49	-111.4	-668.4	397.0	381.7	15.25	26.026	
3,200.0	3,175.4	3,152.0	3,054.8	9.3	15.6	13.79	-114.9	-697.4	410.5	394.7	15.83	25.938	
3,300.0	3,274.0	3,251.1	3,149.4	9.7	16.3	14.07	-118.5	-726.4	424.1	407.7	16.40	25.854	
3,400.0	3,372.6	3,350.1	3,244.1	10.0	16.9	14.33	-122.1	-755.3	437.7	420.7	16.98	25.773	
3,500.0	3,471.3	3,449.2	3,338.8	10.4	17.5	14.57	-125.6	-784.3	451.3	433.7	17.56	25.695	
3,600.0	3,569.9	3,548.2	3,433.4	10.8	18.1	14.80	-129.2	-813.2	464.9	446.7	18.14	25.621	
3,700.0	3,668.5	3,647.3	3,528.1	11.2	18.8	15.02	-132.8	-842.2	478.5	459.8	18.73	25.550	
3,800.0	3,767.1	3,746.4	3,622.7	11.6	19.4	15.22	-136.3	-871.2	492.1	472.8	19.31	25.481	
3,900.0	3,865.7	3,845.4	3,717.4	12.0	20.0	15.42	-139.9	-900.1	505.7	485.8	19.90	25.416	
4,000.0	3,964.3	3,944.5	3,812.0	12.4	20.6	15.60	-143.4	-929.1	519.3	498.9	20.48	25.352	
4,100.0	4,062.9	4,043.5	3,906.7	12.7	21.3	15.78	-147.0	-958.1	533.0	511.9	21.07	25.292	
4,200.0	4,161.5	4,142.6	4,001.4	13.1	21.9	15.94	-150.6	-987.0	546.6	524.9	21.66	25.233	
4,300.0	4,260.1	4,241.6	4,096.0	13.5	22.5	16.10	-154.1	-1,016.0	560.2	538.0	22.25	25.177	
4,400.0	4,358.7	4,340.7	4,190.7	13.9	23.1	16.25	-157.7	-1,044.9	573.9	551.0	22.84	25.123	
4,500.0	4,457.3	4,439.7	4,285.3	14.3	23.8	16.40	-161.3	-1,073.9	587.5	564.1	23.43	25.071	
4,600.0	4,555.9	4,538.8	4,380.0	14.7	24.4	16.53	-164.8	-1,102.9	601.2	577.1	24.03	25.021	
4,700.0	4,654.5	4,637.8	4,474.7	15.1	25.0	16.67	-168.4	-1,131.8	614.8	590.2	24.62	24.973	
4,800.0	4,753.1	4,736.9	4,569.3	15.5	25.6	16.79	-171.9	-1,160.8	628.5	603.3	25.21	24.926	
4,900.0	4,851.7	4,836.0	4,664.0	15.9	26.3	16.91	-175.5	-1,189.7	642.1	616.3	25.81	24.881	
5,000.0	4,950.3	4,935.0	4,758.6	16.3	26.9	17.03	-179.1	-1,218.7	655.8	629.4	26.40	24.838	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,048.9	5,034.1	4,853.3	16.6	27.5	17.14	-182.6	-1,247.7	669.4	642.4	27.00	24.796	
5,200.0	5,147.5	5,133.1	4,948.0	17.0	28.2	17.24	-186.2	-1,276.6	683.1	655.5	27.59	24.756	
5,300.0	5,246.2	5,232.2	5,042.6	17.4	28.8	17.34	-189.8	-1,305.6	696.8	668.6	28.19	24.716	
5,400.0	5,344.8	5,331.2	5,137.3	17.8	29.4	17.44	-193.3	-1,334.6	710.4	681.6	28.79	24.679	
5,500.0	5,443.4	5,456.8	5,257.8	18.2	30.0	17.58	-197.6	-1,369.4	722.7	693.2	29.43	24.559	
5,600.0	5,542.0	5,589.9	5,387.2	18.6	30.6	17.79	-201.5	-1,400.7	730.5	700.4	30.04	24.318	
5,700.0	5,641.0	5,723.7	5,518.4	18.9	31.0	18.01	-204.6	-1,426.0	735.9	705.4	30.51	24.119	
5,800.0	5,740.4	5,857.8	5,651.1	19.1	31.4	18.18	-206.9	-1,445.3	740.0	709.1	30.91	23.941	
5,900.0	5,840.1	5,992.2	5,784.9	19.3	31.6	18.29	-208.6	-1,458.5	742.8	711.6	31.24	23.781	
6,000.0	5,940.0	6,126.8	5,919.2	19.4	31.8	18.35	-209.4	-1,465.3	744.3	712.8	31.49	23.639	
6,100.0	6,040.0	6,247.5	6,040.0	19.6	31.9	-88.88	-209.5	-1,466.5	744.5	712.8	31.74	23.454	
6,200.0	6,140.0	6,347.5	6,140.0	19.7	32.0	-88.88	-209.5	-1,466.5	744.5	712.5	32.07	23.217	
6,300.0	6,240.0	6,447.5	6,240.0	19.8	32.1	-88.88	-209.5	-1,466.5	744.5	712.1	32.39	22.985	
6,400.0	6,339.8	6,545.7	6,337.9	20.0	32.2	-88.79	-203.7	-1,466.5	744.6	711.9	32.70	22.768	
6,500.0	6,438.2	6,643.6	6,434.0	20.0	32.2	-88.70	-185.4	-1,466.5	744.6	711.7	32.91	22.624	
6,600.0	6,533.4	6,741.3	6,526.8	20.1	32.3	-88.64	-155.0	-1,466.5	744.6	711.6	33.04	22.536	
6,700.0	6,623.8	6,839.1	6,615.0	20.1	32.3	-88.60	-113.0	-1,466.5	744.6	711.5	33.14	22.470	
6,800.0	6,708.0	6,936.7	6,697.1	20.1	32.3	-88.59	-60.1	-1,466.5	744.6	711.4	33.27	22.383	
6,900.0	6,784.3	7,034.4	6,771.7	20.1	32.4	-88.60	2.7	-1,466.5	744.6	711.1	33.50	22.224	
7,000.0	6,851.6	7,132.1	6,837.7	20.2	32.4	-88.63	74.6	-1,466.5	744.6	710.7	33.93	21.943	
7,100.0	6,908.7	7,229.8	6,894.1	20.3	32.5	-88.68	154.4	-1,466.5	744.6	710.0	34.62	21.509	
7,200.0	6,954.6	7,327.7	6,939.9	20.5	32.7	-88.76	240.9	-1,466.5	744.6	709.0	35.62	20.906	
7,300.0	6,988.5	7,425.7	6,974.3	20.8	32.9	-88.86	332.6	-1,466.5	744.5	707.6	36.95	20.151	
7,400.0	7,009.8	7,523.9	6,996.7	21.3	33.2	-88.98	428.1	-1,466.5	744.5	705.9	38.61	19.284	
7,500.0	7,018.2	7,622.3	7,006.6	22.0	33.5	-89.11	525.9	-1,466.5	744.5	703.9	40.55	18.358	
7,600.0	7,017.5	7,721.8	7,006.8	22.9	34.0	-89.18	625.4	-1,466.5	744.5	701.7	42.74	17.417	
7,700.0	7,016.5	7,821.8	7,006.3	24.0	34.6	-89.22	725.4	-1,466.5	744.5	699.3	45.15	16.488	
7,800.0	7,015.5	7,921.8	7,005.8	25.2	35.3	-89.26	825.4	-1,466.5	744.5	696.7	47.74	15.592	
7,900.0	7,014.5	8,021.8	7,005.3	26.4	36.1	-89.29	925.4	-1,466.5	744.4	694.0	50.50	14.743	
8,000.0	7,013.5	8,121.8	7,004.8	27.8	37.0	-89.33	1,025.4	-1,466.5	744.4	691.1	53.38	13.946	
8,100.0	7,012.4	8,221.8	7,004.3	29.3	38.0	-89.37	1,125.4	-1,466.5	744.4	688.1	56.38	13.204	
8,200.0	7,011.4	8,321.8	7,003.8	30.7	39.1	-89.41	1,225.4	-1,466.5	744.4	685.0	59.47	12.517	
8,300.0	7,010.4	8,421.8	7,003.3	32.3	40.2	-89.45	1,325.4	-1,466.5	744.4	681.8	62.65	11.882	
8,400.0	7,009.4	8,521.8	7,002.8	33.9	41.4	-89.49	1,425.4	-1,466.5	744.4	678.5	65.90	11.297	
8,500.0	7,008.4	8,621.8	7,002.3	35.5	42.7	-89.53	1,525.4	-1,466.5	744.4	675.2	69.20	10.757	
8,600.0	7,007.4	8,721.8	7,001.8	37.1	44.0	-89.57	1,625.4	-1,466.5	744.4	671.9	72.56	10.259	
8,700.0	7,006.4	8,821.8	7,001.3	38.8	45.4	-89.61	1,725.4	-1,466.5	744.4	668.4	75.97	9.799	
8,800.0	7,005.4	8,921.8	7,000.8	40.5	46.8	-89.65	1,825.4	-1,466.5	744.4	665.0	79.41	9.374	
8,900.0	7,004.4	9,021.8	7,000.2	42.2	48.3	-89.68	1,925.4	-1,466.5	744.4	661.5	82.88	8.981	
9,000.0	7,003.3	9,121.8	6,999.7	43.9	49.8	-89.72	2,025.4	-1,466.5	744.4	658.0	86.39	8.617	
9,100.0	7,002.3	9,221.8	6,999.2	45.6	51.3	-89.76	2,125.4	-1,466.5	744.4	654.5	89.93	8.278	
9,200.0	7,001.3	9,321.8	6,998.7	47.4	52.9	-89.80	2,225.4	-1,466.5	744.4	650.9	93.48	7.963	
9,300.0	7,000.3	9,421.8	6,998.2	49.2	54.4	-89.84	2,325.4	-1,466.5	744.4	647.3	97.06	7.669	
9,400.0	6,999.3	9,521.8	6,997.7	50.9	56.0	-89.88	2,425.4	-1,466.5	744.4	643.7	100.66	7.395	
9,500.0	6,998.3	9,621.8	6,997.2	52.7	57.7	-89.92	2,525.3	-1,466.5	744.4	640.1	104.28	7.139	
9,600.0	6,997.3	9,721.8	6,996.7	54.5	59.3	-89.96	2,625.3	-1,466.5	744.4	636.5	107.90	6.899	
9,700.0	6,996.3	9,821.7	6,996.2	56.3	61.0	-90.00	2,725.3	-1,466.5	744.4	632.8	111.55	6.673	
9,710.4	6,996.1	9,832.1	6,996.1	56.5	61.1	-90.00	2,735.7	-1,466.5	744.4	632.5	111.93	6.651	
9,800.0	6,995.2	9,921.7	6,995.7	58.1	62.6	-90.03	2,825.3	-1,466.5	744.4	629.2	115.20	6.462	
9,900.0	6,994.2	10,021.7	6,995.2	60.0	64.3	-90.07	2,925.3	-1,466.5	744.4	625.5	118.87	6.262	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,993.2	10,121.7	6,994.7	61.8	66.0	-90.11	3,025.3	-1,466.5	744.4	621.8	122.55	6.074	
10,100.0	6,992.2	10,221.7	6,994.2	63.6	67.8	-90.15	3,125.3	-1,466.5	744.4	618.2	126.23	5.897	
10,200.0	6,991.2	10,321.7	6,993.7	65.4	69.5	-90.19	3,225.3	-1,466.5	744.4	614.5	129.93	5.729	
10,300.0	6,990.2	10,421.7	6,993.2	67.3	71.2	-90.23	3,325.3	-1,466.5	744.4	610.8	133.63	5.570	
10,400.0	6,989.2	10,521.7	6,992.7	69.1	73.0	-90.27	3,425.3	-1,466.5	744.4	607.1	137.34	5.420	
10,500.0	6,988.2	10,621.7	6,992.2	71.0	74.7	-90.31	3,525.3	-1,466.5	744.4	603.3	141.06	5.277	
10,600.0	6,987.1	10,721.7	6,991.6	72.8	76.5	-90.35	3,625.3	-1,466.5	744.4	599.6	144.78	5.142	
10,700.0	6,986.1	10,821.7	6,991.1	74.7	78.3	-90.39	3,725.3	-1,466.5	744.4	595.9	148.51	5.013	
10,800.0	6,985.1	10,921.7	6,990.6	76.5	80.0	-90.42	3,825.3	-1,466.5	744.4	592.2	152.24	4.890	
10,900.0	6,984.1	11,021.7	6,990.1	78.4	81.8	-90.46	3,925.3	-1,466.5	744.4	588.4	155.98	4.772	
11,000.0	6,983.1	11,121.7	6,989.6	80.3	83.6	-90.50	4,025.3	-1,466.5	744.4	584.7	159.72	4.661	
11,100.0	6,982.1	11,221.7	6,989.1	82.1	85.4	-90.54	4,125.3	-1,466.5	744.4	581.0	163.47	4.554	
11,200.0	6,981.1	11,321.7	6,988.6	84.0	87.2	-90.58	4,225.3	-1,466.5	744.4	577.2	167.22	4.452	
11,300.0	6,980.1	11,421.7	6,988.1	85.9	89.0	-90.62	4,325.3	-1,466.5	744.4	573.5	170.98	4.354	
11,400.0	6,979.0	11,521.7	6,987.6	87.7	90.8	-90.66	4,425.3	-1,466.5	744.4	569.7	174.73	4.260	
11,500.0	6,978.0	11,621.7	6,987.1	89.6	92.7	-90.70	4,525.3	-1,466.5	744.4	566.0	178.49	4.171	
11,503.1	6,978.0	11,624.8	6,987.1	89.7	92.7	-90.70	4,528.4	-1,466.5	744.4	565.8	178.61	4.168	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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-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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-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	74.521	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-14.6	0.0	14.6	13.9	0.65	22.590	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-14.6	0.0	14.6	13.5	1.09	13.313	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-14.6	0.0	14.6	13.0	1.54	9.437	CC
500.0	500.0	499.9	499.9	1.0	1.0	-176.67	-14.7	-0.9	14.8	12.8	1.98	7.459	ES
600.0	600.0	599.8	599.8	1.2	1.2	-167.30	-15.2	-3.4	15.6	13.2	2.41	6.476	
700.0	700.0	699.6	699.5	1.4	1.4	-154.29	-16.0	-7.7	17.8	14.9	2.85	6.238	
800.0	800.0	799.2	798.8	1.7	1.6	-141.36	-17.1	-13.7	21.9	18.6	3.30	6.643	
900.0	900.0	898.6	897.9	1.9	1.9	-24.42	-18.5	-21.3	27.5	23.8	3.72	7.401	
1,000.0	1,000.0	997.9	996.8	2.1	2.1	-17.81	-20.2	-30.6	33.5	29.4	4.13	8.113	
1,100.0	1,099.9	1,097.0	1,095.3	2.3	2.4	-12.97	-22.3	-41.6	39.8	35.2	4.56	8.734	
1,200.0	1,199.7	1,196.1	1,193.5	2.5	2.7	-9.23	-24.6	-54.3	46.2	41.2	4.99	9.267	
1,300.0	1,299.4	1,295.0	1,291.4	2.7	3.0	-6.19	-27.2	-68.6	52.7	47.3	5.42	9.722	
1,400.0	1,398.9	1,393.8	1,388.8	3.0	3.4	-3.64	-30.2	-84.5	59.3	53.4	5.86	10.111	
1,500.0	1,498.3	1,492.5	1,485.9	3.2	3.7	-1.44	-33.4	-102.1	65.9	59.6	6.31	10.444	
1,600.0	1,597.4	1,591.1	1,582.5	3.5	4.1	0.52	-37.0	-121.3	72.6	65.8	6.77	10.728	
1,700.0	1,696.3	1,689.5	1,678.7	3.8	4.5	2.29	-40.8	-142.1	79.3	72.1	7.23	10.970	
1,800.0	1,795.0	1,788.1	1,774.5	4.1	5.0	3.90	-44.9	-164.5	86.2	78.5	7.71	11.180	
1,900.0	1,893.6	1,887.8	1,871.4	4.5	5.5	5.32	-49.2	-187.8	93.5	85.2	8.21	11.386	
2,000.0	1,992.2	1,987.5	1,968.3	4.8	6.0	6.53	-53.5	-211.0	100.7	92.0	8.71	11.564	
2,100.0	2,090.8	2,087.2	2,065.2	5.2	6.4	7.59	-57.8	-234.2	108.1	98.9	9.22	11.718	
2,200.0	2,189.4	2,186.9	2,162.0	5.5	6.9	8.50	-62.1	-257.5	115.4	105.7	9.74	11.851	
2,300.0	2,288.0	2,286.6	2,258.9	5.9	7.4	9.31	-66.4	-280.7	122.8	112.6	10.26	11.967	
2,400.0	2,386.6	2,386.4	2,355.8	6.3	7.9	10.02	-70.7	-304.0	130.2	119.5	10.79	12.068	
2,500.0	2,485.2	2,486.1	2,452.6	6.6	8.4	10.66	-75.0	-327.2	137.7	126.4	11.33	12.156	
2,600.0	2,583.8	2,585.8	2,549.5	7.0	8.9	11.23	-79.2	-350.5	145.1	133.3	11.86	12.234	
2,700.0	2,682.4	2,685.5	2,646.4	7.4	9.4	11.75	-83.5	-373.7	152.6	140.2	12.40	12.302	
2,800.0	2,781.0	2,785.2	2,743.3	7.7	9.9	12.22	-87.8	-396.9	160.1	147.1	12.95	12.362	
2,900.0	2,879.6	2,884.9	2,840.1	8.1	10.5	12.64	-92.1	-420.2	167.5	154.0	13.49	12.415	
3,000.0	2,978.2	2,984.6	2,937.0	8.5	11.0	13.03	-96.4	-443.4	175.0	161.0	14.04	12.462	
3,100.0	3,076.8	3,084.3	3,033.9	8.9	11.5	13.39	-100.7	-466.7	182.5	167.9	14.60	12.504	
3,200.0	3,175.4	3,184.1	3,130.7	9.3	12.0	13.72	-105.0	-489.9	190.0	174.9	15.15	12.542	
3,300.0	3,274.0	3,283.8	3,227.6	9.7	12.5	14.03	-109.3	-513.1	197.5	181.8	15.71	12.576	
3,400.0	3,372.6	3,383.5	3,324.5	10.0	13.0	14.31	-113.6	-536.4	205.0	188.8	16.26	12.606	
3,500.0	3,471.3	3,483.2	3,421.4	10.4	13.5	14.57	-117.8	-559.6	212.6	195.7	16.82	12.634	
3,600.0	3,569.9	3,582.9	3,518.2	10.8	14.0	14.82	-122.1	-582.9	220.1	202.7	17.39	12.659	
3,700.0	3,668.5	3,682.6	3,615.1	11.2	14.5	15.04	-126.4	-606.1	227.6	209.6	17.95	12.681	
3,800.0	3,767.1	3,782.3	3,712.0	11.6	15.1	15.26	-130.7	-629.4	235.1	216.6	18.51	12.701	
3,900.0	3,865.7	3,882.0	3,808.8	12.0	15.6	15.46	-135.0	-652.6	242.7	223.6	19.08	12.720	
4,000.0	3,964.3	3,981.8	3,905.7	12.4	16.1	15.65	-139.3	-675.8	250.2	230.5	19.64	12.737	
4,100.0	4,062.9	4,081.5	4,002.6	12.7	16.6	15.82	-143.6	-699.1	257.7	237.5	20.21	12.752	
4,200.0	4,161.5	4,181.2	4,099.5	13.1	17.1	15.99	-147.9	-722.3	265.3	244.5	20.78	12.766	
4,300.0	4,260.1	4,280.9	4,196.3	13.5	17.6	16.15	-152.2	-745.6	272.8	251.5	21.35	12.779	
4,400.0	4,358.7	4,380.6	4,293.2	13.9	18.1	16.30	-156.5	-768.8	280.4	258.4	21.92	12.791	
4,500.0	4,457.3	4,480.3	4,390.1	14.3	18.7	16.44	-160.7	-792.0	287.9	265.4	22.49	12.802	
4,600.0	4,555.9	4,580.0	4,486.9	14.7	19.2	16.58	-165.0	-815.3	295.4	272.4	23.06	12.812	
4,700.0	4,654.5	4,679.7	4,583.8	15.1	19.7	16.70	-169.3	-838.5	303.0	279.4	23.63	12.822	
4,800.0	4,753.1	4,779.5	4,680.7	15.5	20.2	16.82	-173.6	-861.8	310.5	286.3	24.20	12.830	
4,900.0	4,851.7	4,879.2	4,777.5	15.9	20.7	16.94	-177.9	-885.0	318.1	293.3	24.78	12.838	
5,000.0	4,950.3	4,978.9	4,874.4	16.3	21.2	17.05	-182.2	-908.3	325.6	300.3	25.35	12.846	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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-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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,048.9	5,078.6	4,971.3	16.6	21.7	17.16	-186.5	-931.5	333.2	307.3	25.92	12.853	
5,200.0	5,147.5	5,178.3	5,068.2	17.0	22.3	17.26	-190.8	-954.7	340.8	314.3	26.50	12.859	
5,300.0	5,246.2	5,278.0	5,165.0	17.4	22.8	17.35	-195.1	-978.0	348.3	321.2	27.07	12.865	
5,400.0	5,344.8	5,377.7	5,261.9	17.8	23.3	17.45	-199.3	-1,001.2	355.9	328.2	27.65	12.871	
5,500.0	5,443.4	5,483.0	5,364.2	18.2	23.8	17.55	-203.8	-1,025.4	363.1	334.9	28.23	12.863	
5,600.0	5,542.0	5,597.2	5,476.1	18.6	24.2	17.77	-208.0	-1,048.2	367.3	338.5	28.79	12.759	
5,700.0	5,641.0	5,711.6	5,588.9	18.9	24.5	18.00	-211.4	-1,066.5	369.7	340.5	29.24	12.645	
5,800.0	5,740.4	5,826.1	5,702.5	19.1	24.8	18.18	-214.0	-1,080.5	371.6	342.0	29.63	12.542	
5,900.0	5,840.1	5,940.7	5,816.7	19.3	25.0	18.29	-215.7	-1,089.9	372.9	342.9	29.96	12.447	
6,000.0	5,940.0	6,055.3	5,931.2	19.4	25.2	18.36	-216.6	-1,094.9	373.6	343.3	30.22	12.361	
6,100.0	6,040.0	6,164.1	6,040.0	19.6	25.3	-88.88	-216.8	-1,095.7	373.7	343.2	30.50	12.253	
6,200.0	6,140.0	6,264.1	6,140.0	19.7	25.4	-88.88	-216.8	-1,095.7	373.7	342.8	30.83	12.119	
6,300.0	6,240.0	6,364.1	6,240.0	19.8	25.5	-88.88	-216.8	-1,095.7	373.7	342.5	31.17	11.987	
6,400.0	6,339.8	6,463.9	6,339.8	20.0	25.6	-89.61	-216.8	-1,095.7	373.6	342.2	31.38	11.907	
6,421.4	6,361.0	6,485.1	6,361.0	20.0	25.6	-90.00	-216.6	-1,095.7	373.6	342.2	31.37	11.908	
6,500.0	6,438.2	6,563.7	6,439.3	20.0	25.7	-91.44	-211.0	-1,095.7	373.7	342.4	31.35	11.921	
6,600.0	6,533.4	6,665.0	6,538.8	20.1	25.8	-93.26	-192.0	-1,095.7	374.2	342.9	31.29	11.959	
6,700.0	6,623.8	6,768.0	6,636.4	20.1	25.8	-95.02	-159.4	-1,095.7	375.1	343.8	31.26	11.999	
6,800.0	6,708.0	6,872.7	6,730.2	20.1	25.9	-96.71	-113.1	-1,095.7	376.2	344.9	31.30	12.017	
6,900.0	6,784.3	6,979.0	6,818.1	20.1	25.9	-98.29	-53.4	-1,095.7	377.6	346.1	31.48	11.993	
7,000.0	6,851.6	7,087.0	6,898.0	20.2	25.9	-99.71	19.1	-1,095.7	379.1	347.2	31.84	11.907	
7,100.0	6,908.7	7,196.4	6,967.7	20.3	26.0	-100.96	103.3	-1,095.7	380.6	348.2	32.39	11.749	
7,200.0	6,954.6	7,307.2	7,025.4	20.5	26.1	-102.01	197.8	-1,095.7	382.0	348.8	33.20	11.506	
7,300.0	6,988.5	7,419.2	7,069.1	20.8	26.4	-102.83	300.8	-1,095.7	383.2	348.9	34.26	11.184	
7,400.0	7,009.8	7,532.0	7,097.5	21.3	26.8	-103.41	409.9	-1,095.7	384.1	348.5	35.59	10.791	
7,500.0	7,018.2	7,645.4	7,109.5	22.0	27.3	-103.74	522.5	-1,095.7	384.6	347.4	37.18	10.344	
7,600.0	7,017.5	7,749.0	7,109.3	22.9	28.0	-103.81	626.1	-1,095.7	384.7	345.4	39.26	9.798	
7,700.0	7,016.5	7,849.0	7,108.6	24.0	28.7	-103.85	726.1	-1,095.7	384.8	343.2	41.61	9.246	
7,800.0	7,015.5	7,949.0	7,107.8	25.2	29.6	-103.89	826.1	-1,095.7	384.8	340.7	44.16	8.715	
7,900.0	7,014.5	8,049.0	7,107.1	26.4	30.7	-103.92	926.1	-1,095.7	384.9	338.0	46.86	8.214	
8,000.0	7,013.5	8,149.0	7,106.3	27.8	31.8	-103.96	1,026.1	-1,095.7	385.0	335.3	49.69	7.747	
8,100.0	7,012.4	8,249.0	7,105.6	29.3	33.0	-104.00	1,126.1	-1,095.7	385.0	332.4	52.64	7.314	
8,200.0	7,011.4	8,349.0	7,104.8	30.7	34.3	-104.04	1,226.1	-1,095.7	385.1	329.4	55.68	6.916	
8,300.0	7,010.4	8,449.0	7,104.1	32.3	35.6	-104.07	1,326.1	-1,095.7	385.2	326.4	58.80	6.550	
8,400.0	7,009.4	8,549.0	7,103.3	33.9	37.1	-104.11	1,426.1	-1,095.7	385.2	323.2	61.99	6.214	
8,500.0	7,008.4	8,649.0	7,102.6	35.5	38.5	-104.15	1,526.1	-1,095.7	385.3	320.1	65.23	5.906	
8,600.0	7,007.4	8,749.0	7,101.8	37.1	40.0	-104.19	1,626.1	-1,095.7	385.3	316.8	68.52	5.624	
8,700.0	7,006.4	8,849.0	7,101.1	38.8	41.6	-104.23	1,726.1	-1,095.7	385.4	313.6	71.86	5.364	
8,800.0	7,005.4	8,949.0	7,100.3	40.5	43.1	-104.26	1,826.1	-1,095.7	385.5	310.2	75.23	5.124	
8,900.0	7,004.4	9,049.0	7,099.6	42.2	44.7	-104.30	1,926.1	-1,095.7	385.5	306.9	78.63	4.903	
9,000.0	7,003.3	9,149.0	7,098.8	43.9	46.4	-104.34	2,026.1	-1,095.7	385.6	303.5	82.05	4.699	
9,100.0	7,002.3	9,249.0	7,098.1	45.6	48.0	-104.38	2,126.1	-1,095.7	385.7	300.2	85.51	4.510	
9,200.0	7,001.3	9,349.0	7,097.3	47.4	49.7	-104.41	2,226.1	-1,095.7	385.7	296.8	88.98	4.335	
9,300.0	7,000.3	9,449.0	7,096.6	49.2	51.4	-104.45	2,326.1	-1,095.7	385.8	293.3	92.47	4.172	
9,400.0	6,999.3	9,549.0	7,095.8	50.9	53.1	-104.49	2,426.1	-1,095.7	385.9	289.9	95.98	4.020	
9,500.0	6,998.3	9,649.0	7,095.1	52.7	54.8	-104.53	2,526.1	-1,095.7	385.9	286.4	99.50	3.879	
9,600.0	6,997.3	9,749.0	7,094.3	54.5	56.5	-104.57	2,626.1	-1,095.7	386.0	283.0	103.03	3.746	
9,700.0	6,996.3	9,849.0	7,093.6	56.3	58.3	-104.60	2,726.1	-1,095.7	386.1	279.5	106.58	3.622	
9,800.0	6,995.2	9,949.0	7,092.8	58.1	60.0	-104.64	2,826.1	-1,095.7	386.1	276.0	110.14	3.506	
9,900.0	6,994.2	10,049.0	7,092.1	60.0	61.8	-104.68	2,926.1	-1,095.7	386.2	272.5	113.70	3.397	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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-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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,993.2	10,149.0	7,091.3	61.8	63.6	-104.72	3,026.1	-1,095.7	386.3	269.0	117.27	3.294	
10,100.0	6,992.2	10,249.0	7,090.6	63.6	65.3	-104.75	3,126.1	-1,095.7	386.3	265.5	120.85	3.197	
10,200.0	6,991.2	10,349.0	7,089.8	65.4	67.1	-104.79	3,226.1	-1,095.7	386.4	262.0	124.44	3.105	
10,300.0	6,990.2	10,449.0	7,089.1	67.3	68.9	-104.83	3,326.1	-1,095.7	386.5	258.4	128.04	3.018	
10,400.0	6,989.2	10,549.0	7,088.3	69.1	70.7	-104.87	3,426.1	-1,095.7	386.5	254.9	131.63	2.936	
10,500.0	6,988.2	10,649.0	7,087.6	71.0	72.5	-104.90	3,526.0	-1,095.7	386.6	251.4	135.24	2.859	
10,600.0	6,987.1	10,749.0	7,086.8	72.8	74.4	-104.94	3,626.0	-1,095.7	386.7	247.8	138.85	2.785	
10,700.0	6,986.1	10,849.0	7,086.1	74.7	76.2	-104.98	3,726.0	-1,095.7	386.7	244.3	142.46	2.715	
10,800.0	6,985.1	10,949.0	7,085.3	76.5	78.0	-105.02	3,826.0	-1,095.7	386.8	240.7	146.07	2.648	
10,900.0	6,984.1	11,049.0	7,084.6	78.4	79.8	-105.05	3,926.0	-1,095.7	386.9	237.2	149.69	2.584	
11,000.0	6,983.1	11,149.0	7,083.8	80.3	81.7	-105.09	4,026.0	-1,095.7	386.9	233.6	153.31	2.524	
11,100.0	6,982.1	11,249.0	7,083.1	82.1	83.5	-105.13	4,126.0	-1,095.7	387.0	230.1	156.94	2.466	
11,200.0	6,981.1	11,349.0	7,082.3	84.0	85.3	-105.17	4,226.0	-1,095.7	387.1	226.5	160.57	2.411	
11,300.0	6,980.1	11,449.0	7,081.6	85.9	87.2	-105.20	4,326.0	-1,095.7	387.1	222.9	164.19	2.358	
11,400.0	6,979.0	11,549.0	7,080.8	87.7	89.0	-105.24	4,426.0	-1,095.7	387.2	219.4	167.82	2.307	
11,500.0	6,978.0	11,649.0	7,080.1	89.6	90.9	-105.28	4,526.0	-1,095.7	387.3	215.8	171.46	2.259	
11,503.1	6,978.0	11,652.1	7,080.0	89.7	90.9	-105.28	4,529.1	-1,095.7	387.3	215.7	171.57	2.257	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	58.3	0.0	58.3				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	58.3	0.0	58.3	58.1	0.20	298.083	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	58.3	0.0	58.3	57.6	0.65	90.360	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	58.3	0.0	58.3	57.2	1.09	53.251	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	58.3	0.0	58.3	56.7	1.54	37.749	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	58.3	0.0	58.3	56.3	1.99	29.237	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	58.3	0.0	58.3	55.8	2.44	23.858	
700.0	700.0	700.0	700.0	1.4	1.4	0.00	58.3	0.0	58.3	55.4	2.89	20.150	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	58.3	0.0	58.3	54.9	3.34	17.440	CC
900.0	900.0	900.0	900.0	1.9	1.9	108.05	58.3	0.0	58.6	54.8	3.77	15.514	ES
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	110.45	58.3	0.0	59.4	55.2	4.19	14.164	
1,100.0	1,099.9	1,099.9	1,099.9	2.3	2.3	114.26	58.3	0.0	61.1	56.5	4.62	13.210	
1,200.0	1,199.7	1,199.7	1,199.7	2.5	2.6	119.24	58.3	0.0	63.8	58.8	5.06	12.615	
1,300.0	1,299.4	1,299.4	1,299.4	2.7	2.8	124.97	58.3	0.0	68.0	62.5	5.50	12.362	
1,400.0	1,398.9	1,398.9	1,398.9	3.0	3.0	131.00	58.3	0.0	73.9	68.0	5.95	12.431	
1,500.0	1,498.3	1,498.3	1,498.3	3.2	3.2	136.92	58.3	0.0	81.8	75.4	6.39	12.798	
1,600.0	1,597.4	1,597.4	1,597.4	3.5	3.5	142.41	58.3	0.0	91.8	85.0	6.84	13.426	
1,700.0	1,696.3	1,696.3	1,696.3	3.8	3.7	147.31	58.3	0.0	104.0	96.7	7.28	14.277	
1,800.0	1,795.0	1,795.0	1,795.0	4.1	3.9	151.54	58.3	0.0	118.1	110.4	7.73	15.284	
1,900.0	1,893.6	1,895.7	1,895.7	4.5	4.1	155.13	57.6	-0.4	132.3	124.1	8.16	16.220	
2,000.0	1,992.2	1,996.8	1,996.8	4.8	4.3	158.27	55.4	-1.7	145.2	136.7	8.56	16.970	
2,100.0	2,090.8	2,098.4	2,098.2	5.2	4.5	161.16	51.5	-3.8	156.9	147.9	8.96	17.506	
2,200.0	2,189.4	2,200.1	2,199.8	5.5	4.7	163.92	46.2	-6.9	167.4	158.0	9.37	17.853	
2,300.0	2,288.0	2,302.1	2,301.4	5.9	4.9	166.64	39.2	-10.9	176.6	166.8	9.79	18.038	
2,400.0	2,386.6	2,404.1	2,403.0	6.3	5.1	169.38	30.6	-15.8	184.7	174.5	10.21	18.080	
2,500.0	2,485.2	2,504.4	2,502.7	6.6	5.3	172.08	21.1	-21.2	192.0	181.3	10.64	18.036	
2,600.0	2,583.8	2,603.7	2,601.4	7.0	5.5	174.56	11.5	-26.7	199.6	188.5	11.09	18.006	
2,700.0	2,682.4	2,703.1	2,700.1	7.4	5.7	176.86	1.9	-32.1	207.6	196.1	11.54	17.990	
2,800.0	2,781.0	2,802.4	2,798.9	7.7	6.0	178.99	-7.7	-37.6	215.9	203.9	12.01	17.981	
2,900.0	2,879.6	2,901.8	2,897.6	8.1	6.2	-179.04	-17.3	-43.1	224.4	212.0	12.48	17.978	
3,000.0	2,978.2	3,001.1	2,996.3	8.5	6.5	-177.22	-26.9	-48.5	233.3	220.3	12.97	17.978	
3,100.0	3,076.8	3,100.5	3,095.1	8.9	6.7	-175.53	-36.5	-54.0	242.3	228.8	13.48	17.979	
3,200.0	3,175.4	3,199.8	3,193.8	9.3	7.0	-173.96	-46.0	-59.5	251.5	237.5	13.99	17.981	
3,300.0	3,274.0	3,299.2	3,292.5	9.7	7.3	-172.50	-55.6	-64.9	260.9	246.4	14.51	17.982	
3,400.0	3,372.6	3,398.5	3,391.2	10.0	7.5	-171.15	-65.2	-70.4	270.5	255.4	15.04	17.983	
3,500.0	3,471.3	3,497.8	3,490.0	10.4	7.8	-169.89	-74.8	-75.8	280.1	264.6	15.58	17.983	
3,600.0	3,569.9	3,597.2	3,588.7	10.8	8.1	-168.71	-84.4	-81.3	290.0	273.8	16.12	17.983	
3,700.0	3,668.5	3,696.5	3,687.4	11.2	8.4	-167.61	-94.0	-86.8	299.9	283.2	16.68	17.982	
3,800.0	3,767.1	3,795.9	3,786.2	11.6	8.6	-166.58	-103.6	-92.2	309.9	292.7	17.24	17.981	
3,900.0	3,865.7	3,895.2	3,884.9	12.0	8.9	-165.61	-113.1	-97.7	320.1	302.3	17.80	17.979	
4,000.0	3,964.3	3,994.6	3,983.6	12.4	9.2	-164.71	-122.7	-103.2	330.3	311.9	18.37	17.976	
4,100.0	4,062.9	4,093.9	4,082.4	12.7	9.5	-163.86	-132.3	-108.6	340.6	321.6	18.95	17.973	
4,200.0	4,161.5	4,193.3	4,181.1	13.1	9.8	-163.06	-141.9	-114.1	350.9	331.4	19.53	17.971	
4,300.0	4,260.1	4,292.6	4,279.8	13.5	10.1	-162.30	-151.5	-119.5	361.3	341.2	20.11	17.967	
4,400.0	4,358.7	4,392.0	4,378.6	13.9	10.4	-161.59	-161.1	-125.0	371.8	351.1	20.70	17.964	
4,500.0	4,457.3	4,491.3	4,477.3	14.3	10.6	-160.92	-170.7	-130.5	382.4	361.1	21.29	17.961	
4,600.0	4,555.9	4,590.6	4,576.0	14.7	10.9	-160.28	-180.2	-135.9	392.9	371.1	21.88	17.957	
4,700.0	4,654.5	4,690.0	4,674.7	15.1	11.2	-159.67	-189.8	-141.4	403.6	381.1	22.48	17.954	
4,800.0	4,753.1	4,783.8	4,768.1	15.5	11.4	-159.30	-197.7	-145.9	414.9	391.9	23.00	18.040	
4,900.0	4,851.7	4,876.9	4,861.0	15.9	11.6	-159.31	-203.0	-148.9	427.6	404.1	23.47	18.220	
5,000.0	4,950.3	4,969.5	4,953.6	16.3	11.8	-159.67	-205.6	-150.4	441.8	417.9	23.89	18.489	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,048.9	5,064.9	5,048.9	16.6	12.0	-160.33	-205.9	-150.6	457.3	433.0	24.29	18.822	
5,200.0	5,147.5	5,163.5	5,147.5	17.0	12.2	-161.00	-205.9	-150.6	473.0	448.3	24.69	19.155	
5,300.0	5,246.2	5,262.1	5,246.2	17.4	12.4	-161.64	-205.9	-150.6	488.8	463.7	25.09	19.479	
5,400.0	5,344.8	5,360.7	5,344.8	17.8	12.5	-162.23	-205.9	-150.6	504.6	479.1	25.50	19.792	
5,500.0	5,443.4	5,459.3	5,443.4	18.2	12.7	-162.79	-205.9	-150.6	520.5	494.6	25.90	20.094	
5,600.0	5,542.0	5,557.9	5,542.0	18.6	12.9	-163.33	-205.9	-150.6	536.4	510.1	26.32	20.382	
5,700.0	5,641.0	5,656.9	5,641.0	18.9	13.1	-163.83	-205.9	-150.6	550.1	523.4	26.70	20.599	
5,800.0	5,740.4	5,756.3	5,740.4	19.1	13.3	-164.20	-205.9	-150.6	560.5	533.4	27.07	20.703	
5,900.0	5,840.1	5,856.0	5,840.1	19.3	13.5	-164.44	-205.9	-150.6	567.5	540.1	27.42	20.699	
6,000.0	5,940.0	5,956.0	5,940.0	19.4	13.6	-164.56	-205.9	-150.6	571.2	543.5	27.74	20.592	
6,100.0	6,040.0	6,056.0	6,040.0	19.6	13.8	88.18	-205.9	-150.6	571.8	543.7	28.08	20.367	
6,200.0	6,140.0	6,156.0	6,140.0	19.7	14.0	88.18	-205.9	-150.6	571.8	543.4	28.45	20.101	
6,300.0	6,240.0	6,256.0	6,240.0	19.8	14.2	88.18	-205.9	-150.6	571.8	543.0	28.82	19.841	
6,400.0	6,339.8	6,354.1	6,338.0	20.0	14.4	88.22	-201.7	-150.6	571.8	542.7	29.15	19.617	
6,500.0	6,438.2	6,451.8	6,434.3	20.0	14.5	88.31	-185.2	-150.6	571.8	542.4	29.37	19.467	
6,600.0	6,533.4	6,550.0	6,528.1	20.1	14.6	88.42	-156.5	-150.6	571.8	542.2	29.52	19.370	
6,700.0	6,623.8	6,647.8	6,617.1	20.1	14.6	88.56	-116.1	-150.6	571.7	542.1	29.63	19.294	
6,800.0	6,708.0	6,746.0	6,700.5	20.1	14.6	88.72	-64.5	-150.6	571.7	541.9	29.78	19.199	
6,900.0	6,784.3	6,844.5	6,776.9	20.1	14.7	88.90	-2.4	-150.6	571.6	541.6	30.03	19.036	
7,000.0	6,851.6	6,943.2	6,844.8	20.2	14.8	89.11	69.2	-150.6	571.6	541.1	30.47	18.757	
7,100.0	6,908.7	7,042.1	6,903.0	20.3	15.0	89.33	149.1	-150.6	571.6	540.4	31.18	18.331	
7,200.0	6,954.6	7,141.4	6,950.5	20.5	15.5	89.56	236.1	-150.6	571.6	539.3	32.21	17.745	
7,300.0	6,988.5	7,240.9	6,986.5	20.8	16.2	89.79	328.9	-150.6	571.5	538.0	33.59	17.017	
7,385.4	7,007.5	7,326.1	7,007.5	21.2	17.0	90.00	411.4	-150.6	571.5	536.5	35.05	16.307	
7,400.0	7,009.8	7,340.8	7,010.1	21.3	17.1	90.04	425.8	-150.6	571.5	536.2	35.31	16.187	
7,500.0	7,018.2	7,441.0	7,021.0	22.0	18.1	90.28	525.3	-150.6	571.5	534.2	37.34	15.306	
7,600.0	7,017.5	7,541.1	7,021.2	22.9	19.3	90.37	625.5	-150.6	571.5	531.9	39.63	14.421	
7,700.0	7,016.5	7,641.1	7,020.4	24.0	20.5	90.39	725.5	-150.6	571.6	529.4	42.13	13.565	
7,800.0	7,015.5	7,741.1	7,019.7	25.2	21.9	90.42	825.5	-150.6	571.6	526.7	44.83	12.750	
7,900.0	7,014.5	7,841.1	7,018.9	26.4	23.3	90.45	925.5	-150.6	571.6	523.9	47.67	11.989	
8,000.0	7,013.5	7,941.1	7,018.2	27.8	24.8	90.47	1,025.5	-150.6	571.6	520.9	50.65	11.283	
8,100.0	7,012.4	8,041.1	7,017.4	29.3	26.4	90.50	1,125.5	-150.6	571.6	517.8	53.74	10.635	
8,200.0	7,011.4	8,141.1	7,016.7	30.7	28.0	90.53	1,225.5	-150.6	571.6	514.6	56.92	10.041	
8,300.0	7,010.4	8,241.1	7,015.9	32.3	29.6	90.55	1,325.5	-150.6	571.6	511.4	60.18	9.497	
8,400.0	7,009.4	8,341.1	7,015.2	33.9	31.3	90.58	1,425.5	-150.6	571.6	508.1	63.51	9.000	
8,500.0	7,008.4	8,441.1	7,014.4	35.5	33.0	90.60	1,525.4	-150.6	571.6	504.7	66.88	8.546	
8,600.0	7,007.4	8,541.1	7,013.7	37.1	34.7	90.63	1,625.4	-150.6	571.6	501.3	70.31	8.129	
8,700.0	7,006.4	8,641.1	7,012.9	38.8	36.4	90.66	1,725.4	-150.6	571.6	497.8	73.78	7.748	
8,800.0	7,005.4	8,741.1	7,012.2	40.5	38.2	90.68	1,825.4	-150.6	571.6	494.3	77.28	7.396	
8,900.0	7,004.4	8,841.1	7,011.4	42.2	39.9	90.71	1,925.4	-150.6	571.6	490.8	80.81	7.073	
9,000.0	7,003.3	8,941.1	7,010.7	43.9	41.7	90.74	2,025.4	-150.6	571.6	487.2	84.37	6.775	
9,100.0	7,002.3	9,041.1	7,009.9	45.6	43.5	90.76	2,125.4	-150.6	571.6	483.6	87.95	6.499	
9,200.0	7,001.3	9,141.1	7,009.2	47.4	45.3	90.79	2,225.4	-150.6	571.6	480.0	91.55	6.243	
9,300.0	7,000.3	9,241.1	7,008.4	49.2	47.1	90.81	2,325.4	-150.6	571.6	476.4	95.18	6.006	
9,400.0	6,999.3	9,341.1	7,007.7	50.9	49.0	90.84	2,425.4	-150.6	571.6	472.8	98.81	5.785	
9,500.0	6,998.3	9,441.1	7,006.9	52.7	50.8	90.87	2,525.4	-150.6	571.6	469.1	102.47	5.578	
9,600.0	6,997.3	9,541.1	7,006.2	54.5	52.6	90.89	2,625.4	-150.6	571.6	465.5	106.13	5.386	
9,700.0	6,996.3	9,641.1	7,005.4	56.3	54.5	90.92	2,725.4	-150.6	571.6	461.8	109.81	5.205	
9,800.0	6,995.2	9,741.1	7,004.7	58.1	56.3	90.95	2,825.4	-150.6	571.6	458.1	113.50	5.036	
9,900.0	6,994.2	9,841.1	7,003.9	60.0	58.2	90.97	2,925.4	-150.6	571.6	454.4	117.20	4.877	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,993.2	9,941.1	7,003.2	61.8	60.0	91.00	3,025.4	-150.6	571.6	450.7	120.90	4.728	
10,100.0	6,992.2	10,041.1	7,002.4	63.6	61.9	91.02	3,125.4	-150.6	571.6	447.0	124.62	4.587	
10,200.0	6,991.2	10,141.1	7,001.7	65.4	63.7	91.05	3,225.4	-150.6	571.6	443.3	128.34	4.454	
10,300.0	6,990.2	10,241.1	7,000.9	67.3	65.6	91.08	3,325.4	-150.6	571.6	439.6	132.07	4.328	
10,400.0	6,989.2	10,341.1	7,000.2	69.1	67.5	91.10	3,425.4	-150.6	571.6	435.8	135.80	4.209	
10,500.0	6,988.2	10,441.1	6,999.4	71.0	69.3	91.13	3,525.4	-150.6	571.6	432.1	139.54	4.097	
10,600.0	6,987.1	10,541.1	6,998.7	72.8	71.2	91.16	3,625.4	-150.6	571.7	428.4	143.29	3.990	
10,700.0	6,986.1	10,641.1	6,997.9	74.7	73.1	91.18	3,725.4	-150.6	571.7	424.6	147.04	3.888	
10,800.0	6,985.1	10,741.1	6,997.2	76.5	75.0	91.21	3,825.4	-150.6	571.7	420.9	150.79	3.791	
10,900.0	6,984.1	10,841.1	6,996.4	78.4	76.9	91.23	3,925.4	-150.6	571.7	417.1	154.55	3.699	
11,000.0	6,983.1	10,941.1	6,995.7	80.3	78.7	91.26	4,025.4	-150.6	571.7	413.4	158.31	3.611	
11,100.0	6,982.1	11,041.1	6,994.9	82.1	80.6	91.29	4,125.4	-150.6	571.7	409.6	162.08	3.527	
11,200.0	6,981.1	11,141.1	6,994.2	84.0	82.5	91.31	4,225.4	-150.6	571.7	405.8	165.85	3.447	
11,300.0	6,980.1	11,241.1	6,993.4	85.9	84.4	91.34	4,325.4	-150.6	571.7	402.1	169.62	3.370	
11,400.0	6,979.0	11,341.1	6,992.7	87.7	86.3	91.37	4,425.4	-150.6	571.7	398.3	173.39	3.297	
11,456.6	6,978.5	11,397.7	6,992.2	88.8	87.4	91.38	4,481.9	-150.6	571.7	396.2	175.53	3.257	
11,500.0	6,978.0	11,429.5	6,992.0	89.6	88.0	91.39	4,513.8	-150.6	571.8	394.9	176.95	3.232	
11,503.1	6,978.0	11,429.5	6,992.0	89.7	88.0	91.39	4,513.8	-150.6	571.9	394.9	177.01	3.231	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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-301 - Wellbore #1 - Plan #2 (6-10-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	14.6	0.0	14.6				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	14.6	0.0	14.6	14.4	0.20	74.479	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	14.6	0.0	14.6	13.9	0.65	22.577	
300.0	300.0	300.0	300.0	0.5	0.5	0.00	14.6	0.0	14.6	13.5	1.09	13.305	
400.0	400.0	400.0	400.0	0.8	0.8	0.00	14.6	0.0	14.6	13.0	1.54	9.432	
500.0	500.0	500.0	500.0	1.0	1.0	0.00	14.6	0.0	14.6	12.6	1.99	7.305	
600.0	600.0	600.0	600.0	1.2	1.2	0.00	14.6	0.0	14.6	12.1	2.44	5.961	
700.0	700.0	700.0	700.0	1.4	1.4	0.00	14.6	0.0	14.6	11.7	2.89	5.035	
800.0	800.0	800.0	800.0	1.7	1.7	0.00	14.6	0.0	14.6	11.2	3.34	4.358	CC
900.0	900.0	900.0	900.0	1.9	1.9	110.46	14.6	0.0	14.8	11.1	3.77	3.934	ES
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	119.29	14.6	0.0	16.0	11.8	4.19	3.803	
1,100.0	1,099.9	1,100.1	1,100.1	2.3	2.3	129.48	14.1	-0.8	17.8	13.2	4.60	3.867	
1,200.0	1,199.7	1,200.3	1,200.3	2.5	2.5	138.37	12.9	-3.1	19.9	14.9	5.00	3.978	
1,300.0	1,299.4	1,300.6	1,300.4	2.7	2.7	146.26	10.7	-6.9	22.2	16.8	5.40	4.105	
1,400.0	1,398.9	1,400.9	1,400.6	3.0	2.9	153.34	7.8	-12.3	24.7	18.9	5.81	4.247	
1,500.0	1,498.3	1,501.3	1,500.6	3.2	3.1	159.77	4.0	-19.2	27.4	21.1	6.22	4.402	
1,600.0	1,597.4	1,601.7	1,600.6	3.5	3.4	165.66	-0.7	-27.6	30.3	23.7	6.63	4.568	
1,700.0	1,696.3	1,701.7	1,700.0	3.8	3.6	171.03	-6.0	-37.2	33.9	26.8	7.05	4.807	
1,800.0	1,795.0	1,801.5	1,799.2	4.1	3.9	175.54	-11.3	-46.8	39.2	31.7	7.48	5.243	
1,900.0	1,893.6	1,901.3	1,898.4	4.5	4.1	178.95	-16.6	-56.4	45.1	37.1	7.93	5.678	
2,000.0	1,992.2	2,001.1	1,997.6	4.8	4.4	-178.42	-21.9	-65.9	51.0	42.6	8.40	6.074	
2,100.0	2,090.8	2,100.9	2,096.8	5.2	4.7	-176.34	-27.2	-75.5	57.0	48.2	8.87	6.432	
2,200.0	2,189.4	2,200.7	2,196.0	5.5	5.0	-174.66	-32.6	-85.1	63.1	53.8	9.35	6.755	
2,300.0	2,288.0	2,300.5	2,295.2	5.9	5.3	-173.28	-37.9	-94.7	69.3	59.4	9.83	7.046	
2,400.0	2,386.6	2,400.3	2,394.4	6.3	5.5	-172.12	-43.2	-104.3	75.4	65.1	10.32	7.309	
2,500.0	2,485.2	2,500.1	2,493.6	6.6	5.8	-171.14	-48.5	-113.9	81.6	70.8	10.82	7.547	
2,600.0	2,583.8	2,599.9	2,592.8	7.0	6.1	-170.30	-53.8	-123.5	87.9	76.5	11.32	7.764	
2,700.0	2,682.4	2,699.7	2,692.0	7.4	6.4	-169.57	-59.1	-133.1	94.1	82.3	11.82	7.961	
2,800.0	2,781.0	2,799.5	2,791.2	7.7	6.7	-168.93	-64.4	-142.7	100.3	88.0	12.32	8.141	
2,900.0	2,879.6	2,899.3	2,890.4	8.1	7.0	-168.36	-69.7	-152.3	106.6	93.8	12.83	8.305	
3,000.0	2,978.2	2,999.1	2,989.6	8.5	7.3	-167.86	-75.0	-161.9	112.9	99.5	13.35	8.457	
3,100.0	3,076.8	3,098.9	3,088.8	8.9	7.6	-167.41	-80.3	-171.5	119.1	105.3	13.86	8.596	
3,200.0	3,175.4	3,198.7	3,188.0	9.3	7.9	-167.01	-85.7	-181.1	125.4	111.0	14.37	8.725	
3,300.0	3,274.0	3,298.5	3,287.2	9.7	8.2	-166.64	-91.0	-190.6	131.7	116.8	14.89	8.844	
3,400.0	3,372.6	3,398.3	3,386.3	10.0	8.5	-166.31	-96.3	-200.2	138.0	122.6	15.41	8.954	
3,500.0	3,471.3	3,498.1	3,485.5	10.4	8.8	-166.00	-101.6	-209.8	144.3	128.4	15.93	9.057	
3,600.0	3,569.9	3,597.9	3,584.7	10.8	9.1	-165.73	-106.9	-219.4	150.6	134.1	16.45	9.152	
3,700.0	3,668.5	3,697.7	3,683.9	11.2	9.4	-165.47	-112.2	-229.0	156.9	139.9	16.98	9.242	
3,800.0	3,767.1	3,797.5	3,783.1	11.6	9.7	-165.23	-117.5	-238.6	163.2	145.7	17.50	9.325	
3,900.0	3,865.7	3,897.3	3,882.3	12.0	10.0	-165.02	-122.8	-248.2	169.5	151.5	18.03	9.403	
4,000.0	3,964.3	3,997.1	3,981.5	12.4	10.3	-164.81	-128.1	-257.8	175.8	157.3	18.55	9.477	
4,100.0	4,062.9	4,096.9	4,080.7	12.7	10.6	-164.62	-133.4	-267.4	182.1	163.1	19.08	9.546	
4,200.0	4,161.5	4,196.7	4,179.9	13.1	10.9	-164.45	-138.8	-277.0	188.4	168.8	19.61	9.611	
4,300.0	4,260.1	4,296.5	4,279.1	13.5	11.2	-164.28	-144.1	-286.6	194.8	174.6	20.13	9.673	
4,400.0	4,358.7	4,396.3	4,378.3	13.9	11.5	-164.13	-149.4	-296.2	201.1	180.4	20.66	9.731	
4,500.0	4,457.3	4,496.1	4,477.5	14.3	11.8	-163.98	-154.7	-305.7	207.4	186.2	21.19	9.786	
4,600.0	4,555.9	4,595.9	4,576.7	14.7	12.1	-163.85	-160.0	-315.3	213.7	192.0	21.72	9.838	
4,700.0	4,654.5	4,695.7	4,675.9	15.1	12.4	-163.72	-165.3	-324.9	220.0	197.8	22.25	9.888	
4,800.0	4,753.1	4,795.5	4,775.1	15.5	12.7	-163.60	-170.6	-334.5	226.4	203.6	22.79	9.935	
4,900.0	4,851.7	4,895.3	4,874.3	15.9	13.0	-163.48	-175.9	-344.1	232.7	209.4	23.32	9.979	
5,000.0	4,950.3	4,995.1	4,973.5	16.3	13.4	-163.37	-181.2	-353.7	239.0	215.2	23.85	10.022	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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-301 - Wellbore #1 - Plan #2 (6-10-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,048.9	5,094.9	5,072.7	16.6	13.7	-163.27	-186.5	-363.3	245.3	221.0	24.38	10.063	
5,200.0	5,147.5	5,194.7	5,171.9	17.0	14.0	-163.17	-191.9	-372.9	251.7	226.8	24.91	10.101	
5,300.0	5,246.2	5,294.5	5,271.0	17.4	14.3	-163.08	-197.2	-382.5	258.0	232.5	25.45	10.138	
5,400.0	5,344.8	5,394.3	5,370.2	17.8	14.6	-162.99	-202.5	-392.1	264.3	238.3	25.98	10.174	
5,500.0	5,443.4	5,494.1	5,469.4	18.2	14.9	-162.91	-207.8	-401.7	270.6	244.1	26.51	10.208	
5,600.0	5,542.0	5,593.9	5,568.6	18.6	15.2	-162.83	-213.1	-411.3	276.9	249.9	27.05	10.238	
5,700.0	5,641.0	5,693.8	5,667.9	18.9	15.5	-162.63	-218.4	-420.9	280.9	253.4	27.56	10.196	
5,800.0	5,740.4	5,787.2	5,760.9	19.1	15.8	-162.34	-222.9	-429.0	282.6	254.6	28.00	10.095	
5,900.0	5,840.1	5,879.3	5,852.8	19.3	15.9	-162.14	-225.9	-434.4	283.7	255.4	28.35	10.008	
6,000.0	5,940.0	5,971.4	5,944.8	19.4	16.1	-162.04	-227.5	-437.2	284.3	255.7	28.64	9.926	
6,100.0	6,040.0	6,066.6	6,040.0	19.6	16.2	90.73	-227.7	-437.7	284.4	255.4	28.95	9.824	
6,200.0	6,140.0	6,166.6	6,140.0	19.7	16.4	90.73	-227.7	-437.7	284.4	255.1	29.30	9.706	
6,300.0	6,240.0	6,266.6	6,240.0	19.8	16.6	90.73	-227.7	-437.7	284.4	254.7	29.66	9.590	
6,308.2	6,248.2	6,274.8	6,248.2	19.8	16.6	90.74	-227.7	-437.7	284.4	254.7	29.69	9.581	
6,400.0	6,339.8	6,366.4	6,339.8	20.0	16.7	91.69	-227.7	-437.7	284.5	254.4	30.10	9.451	
6,500.0	6,438.2	6,467.5	6,440.7	20.0	16.9	94.13	-222.2	-437.7	285.1	254.5	30.64	9.306	
6,600.0	6,533.4	6,570.4	6,541.7	20.1	17.0	96.53	-203.0	-437.7	286.3	255.2	31.03	9.224	
6,700.0	6,623.8	6,675.0	6,640.8	20.1	17.0	98.81	-169.8	-437.7	287.8	256.5	31.27	9.203	
6,800.0	6,708.0	6,781.3	6,735.9	20.1	17.0	100.93	-122.5	-437.7	289.7	258.3	31.39	9.230	
6,900.0	6,784.3	6,889.4	6,824.9	20.1	17.0	102.85	-61.4	-437.7	291.7	260.3	31.45	9.277	
7,000.0	6,851.6	6,999.0	6,905.5	20.2	17.0	104.53	12.8	-437.7	293.8	262.3	31.58	9.305	
7,100.0	6,908.7	7,110.0	6,975.4	20.3	17.1	105.94	98.9	-437.7	295.8	263.9	31.93	9.265	
7,200.0	6,954.6	7,222.2	7,032.7	20.5	17.2	107.05	195.3	-437.7	297.5	264.8	32.66	9.107	
7,300.0	6,988.5	7,335.4	7,075.5	20.8	17.6	107.84	299.9	-437.7	298.7	264.9	33.88	8.817	
7,400.0	7,009.8	7,449.2	7,102.5	21.3	18.5	108.29	410.4	-437.7	299.5	263.9	35.64	8.404	
7,500.0	7,018.2	7,563.4	7,112.9	22.0	19.6	108.41	523.9	-437.7	299.7	261.8	37.92	7.905	
7,532.9	7,018.7	7,598.5	7,112.8	22.3	20.0	108.32	559.1	-437.7	299.6	260.9	38.68	7.744	
7,600.0	7,017.5	7,665.6	7,112.3	22.9	20.8	108.43	626.2	-437.7	299.7	259.5	40.22	7.453	
7,700.0	7,016.5	7,765.6	7,111.5	24.0	22.0	108.47	726.2	-437.7	299.8	257.2	42.63	7.033	
7,800.0	7,015.5	7,865.6	7,110.7	25.2	23.4	108.51	826.2	-437.7	299.9	254.7	45.20	6.634	
7,900.0	7,014.5	7,965.6	7,109.9	26.4	24.8	108.54	926.2	-437.7	299.9	252.0	47.92	6.259	
8,000.0	7,013.5	8,065.6	7,109.1	27.8	26.3	108.58	1,026.2	-437.7	300.0	249.3	50.76	5.911	
8,100.0	7,012.4	8,165.6	7,108.3	29.3	27.8	108.62	1,126.2	-437.7	300.1	246.4	53.69	5.589	
8,200.0	7,011.4	8,265.6	7,107.5	30.7	29.4	108.66	1,226.2	-437.7	300.1	243.4	56.71	5.293	
8,300.0	7,010.4	8,365.6	7,106.7	32.3	31.0	108.70	1,326.2	-437.7	300.2	240.4	59.80	5.020	
8,400.0	7,009.4	8,465.6	7,105.8	33.9	32.6	108.73	1,426.2	-437.7	300.3	237.3	62.95	4.770	
8,500.0	7,008.4	8,565.6	7,105.0	35.5	34.3	108.77	1,526.2	-437.7	300.3	234.2	66.15	4.541	
8,600.0	7,007.4	8,665.6	7,104.2	37.1	36.0	108.81	1,626.2	-437.7	300.4	231.0	69.39	4.329	
8,700.0	7,006.4	8,765.6	7,103.4	38.8	37.7	108.85	1,726.2	-437.7	300.5	227.8	72.67	4.135	
8,800.0	7,005.4	8,865.6	7,102.6	40.5	39.4	108.88	1,826.2	-437.7	300.6	224.6	75.99	3.955	
8,900.0	7,004.4	8,965.6	7,101.8	42.2	41.2	108.92	1,926.2	-437.7	300.6	221.3	79.33	3.789	
9,000.0	7,003.3	9,065.6	7,101.0	43.9	43.0	108.96	2,026.2	-437.7	300.7	218.0	82.70	3.636	
9,100.0	7,002.3	9,165.6	7,100.2	45.6	44.7	109.00	2,126.2	-437.7	300.8	214.7	86.09	3.493	
9,200.0	7,001.3	9,265.6	7,099.4	47.4	46.5	109.04	2,226.2	-437.7	300.8	211.3	89.50	3.361	
9,300.0	7,000.3	9,365.6	7,098.6	49.2	48.3	109.07	2,326.2	-437.7	300.9	208.0	92.92	3.238	
9,400.0	6,999.3	9,465.6	7,097.8	50.9	50.1	109.11	2,426.1	-437.7	301.0	204.6	96.36	3.123	
9,500.0	6,998.3	9,565.6	7,097.0	52.7	51.9	109.15	2,526.1	-437.7	301.0	201.2	99.82	3.016	
9,600.0	6,997.3	9,665.6	7,096.2	54.5	53.8	109.19	2,626.1	-437.7	301.1	197.8	103.28	2.915	
9,700.0	6,996.3	9,765.6	7,095.4	56.3	55.6	109.22	2,726.1	-437.7	301.2	194.4	106.76	2.821	
9,800.0	6,995.2	9,865.6	7,094.6	58.1	57.4	109.26	2,826.1	-437.7	301.2	191.0	110.24	2.732	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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-301 - Wellbore #1 - Plan #2 (6-10-15)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,900.0	6,994.2	9,965.6	7,093.8	60.0	59.3	109.30	2,926.1	-437.7	301.3	187.6	113.74	2.649	
10,000.0	6,993.2	10,065.6	7,093.0	61.8	61.1	109.34	3,026.1	-437.7	301.4	184.1	117.24	2.571	
10,100.0	6,992.2	10,165.6	7,092.2	63.6	63.0	109.37	3,126.1	-437.7	301.4	180.7	120.74	2.497	
10,200.0	6,991.2	10,265.6	7,091.4	65.4	64.8	109.41	3,226.1	-437.7	301.5	177.3	124.25	2.427	
10,300.0	6,990.2	10,365.6	7,090.6	67.3	66.7	109.45	3,326.1	-437.7	301.6	173.8	127.77	2.360	
10,400.0	6,989.2	10,465.6	7,089.8	69.1	68.5	109.49	3,426.1	-437.7	301.7	170.4	131.30	2.298	
10,500.0	6,988.2	10,565.6	7,089.0	71.0	70.4	109.52	3,526.1	-437.7	301.7	166.9	134.82	2.238	
10,600.0	6,987.1	10,665.6	7,088.2	72.8	72.3	109.56	3,626.1	-437.7	301.8	163.4	138.35	2.181	
10,700.0	6,986.1	10,765.6	7,087.4	74.7	74.1	109.60	3,726.1	-437.7	301.9	160.0	141.89	2.127	
10,800.0	6,985.1	10,865.6	7,086.6	76.5	76.0	109.64	3,826.1	-437.7	301.9	156.5	145.42	2.076	
10,900.0	6,984.1	10,965.6	7,085.8	78.4	77.9	109.67	3,926.1	-437.7	302.0	153.0	148.96	2.027	
11,000.0	6,983.1	11,065.6	7,085.0	80.3	79.8	109.71	4,026.1	-437.7	302.1	149.6	152.51	1.981	
11,100.0	6,982.1	11,165.6	7,084.2	82.1	81.6	109.75	4,126.1	-437.7	302.1	146.1	156.05	1.936	
11,200.0	6,981.1	11,265.6	7,083.4	84.0	83.5	109.79	4,226.1	-437.7	302.2	142.6	159.60	1.894	
11,300.0	6,980.1	11,365.6	7,082.6	85.9	85.4	109.82	4,326.1	-437.7	302.3	139.1	163.15	1.853	
11,400.0	6,979.0	11,465.6	7,081.8	87.7	87.3	109.86	4,426.1	-437.7	302.4	135.7	166.70	1.814	
11,456.9	6,978.5	11,522.6	7,081.3	88.8	88.3	109.88	4,483.0	-437.7	302.4	133.7	168.72	1.792	
11,500.0	6,978.0	11,560.6	7,081.0	89.6	89.1	109.90	4,521.1	-437.7	302.5	132.3	170.16	1.778	
11,503.1	6,978.0	11,560.6	7,081.0	89.7	89.1	109.90	4,521.1	-437.7	302.5	132.3	170.21	1.777	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	0.00	72.9	0.0	72.9				
100.0	100.0	101.0	101.0	0.1	0.1	0.00	72.9	0.0	72.9	72.7	0.20	368.370	
200.0	200.0	201.0	201.0	0.3	0.3	0.00	72.9	0.0	72.9	72.2	0.65	112.557	
300.0	300.0	301.0	301.0	0.5	0.5	0.00	72.9	0.0	72.9	71.8	1.10	66.427	
400.0	400.0	401.0	401.0	0.8	0.8	0.00	72.9	0.0	72.9	71.3	1.55	47.117	
500.0	500.0	501.0	501.0	1.0	1.0	0.00	72.9	0.0	72.9	70.9	2.00	36.505	
600.0	600.0	601.0	601.0	1.2	1.2	0.00	72.9	0.0	72.9	70.4	2.45	29.795	
700.0	700.0	701.0	701.0	1.4	1.4	0.00	72.9	0.0	72.9	70.0	2.89	25.168	
800.0	800.0	801.0	801.0	1.7	1.7	0.00	72.9	0.0	72.9	69.5	3.34	21.785	CC
900.0	900.0	901.0	901.0	1.9	1.9	107.89	72.9	0.0	73.1	69.3	3.78	19.363	ES
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	109.81	72.9	0.0	74.0	69.8	4.20	17.624	
1,100.0	1,099.9	1,100.9	1,100.9	2.3	2.3	112.91	72.9	0.0	75.6	70.9	4.63	16.334	
1,200.0	1,199.7	1,200.7	1,200.7	2.5	2.6	117.01	72.9	0.0	78.1	73.1	5.06	15.434	
1,300.0	1,299.4	1,300.4	1,300.4	2.7	2.8	121.85	72.9	0.0	82.0	76.5	5.51	14.893	
1,400.0	1,398.9	1,399.9	1,399.9	3.0	3.0	127.13	72.9	0.0	87.5	81.5	5.96	14.686	
1,500.0	1,498.3	1,499.3	1,499.3	3.2	3.2	132.53	72.9	0.0	94.7	88.3	6.41	14.789	
1,600.0	1,597.4	1,598.4	1,598.4	3.5	3.5	137.75	72.9	0.0	104.0	97.2	6.86	15.172	
1,700.0	1,696.3	1,697.3	1,697.3	3.8	3.7	142.60	72.9	0.0	115.5	108.2	7.31	15.801	
1,800.0	1,795.0	1,796.0	1,796.0	4.1	3.9	146.96	72.9	0.0	128.9	121.1	7.76	16.614	
1,900.0	1,893.6	1,894.6	1,894.6	4.5	4.1	150.58	72.9	0.0	143.2	135.0	8.21	17.435	
2,000.0	1,992.2	1,993.2	1,993.2	4.8	4.4	153.54	72.9	0.0	157.9	149.3	8.67	18.224	
2,100.0	2,090.8	2,091.8	2,091.8	5.2	4.6	155.99	72.9	0.0	173.0	163.9	9.12	18.972	
2,200.0	2,189.4	2,190.4	2,190.4	5.5	4.8	158.04	72.9	0.0	188.4	178.8	9.58	19.674	
2,300.0	2,288.0	2,289.8	2,289.8	5.9	5.0	160.00	72.2	0.3	203.7	193.7	10.01	20.364	
2,400.0	2,386.6	2,389.3	2,389.3	6.3	5.2	162.11	70.0	1.1	218.9	208.5	10.41	21.036	
2,500.0	2,485.2	2,488.6	2,488.5	6.6	5.3	164.37	66.1	2.7	234.0	223.2	10.81	21.654	
2,600.0	2,583.8	2,587.7	2,587.4	7.0	5.5	166.73	60.7	4.8	249.1	237.9	11.21	22.225	
2,700.0	2,682.4	2,686.5	2,685.9	7.4	5.7	169.19	53.7	7.6	264.4	252.8	11.62	22.759	
2,800.0	2,781.0	2,785.0	2,784.0	7.7	5.9	171.72	45.1	10.9	280.0	267.9	12.03	23.263	
2,900.0	2,879.6	2,883.0	2,881.4	8.1	6.1	174.25	35.2	14.8	296.0	283.5	12.47	23.745	
3,000.0	2,978.2	2,980.9	2,978.7	8.5	6.3	176.55	25.2	18.8	312.5	299.6	12.91	24.205	
3,100.0	3,076.8	3,078.8	3,076.0	8.9	6.5	178.62	15.2	22.7	329.5	316.1	13.37	24.646	
3,200.0	3,175.4	3,176.6	3,173.3	9.3	6.8	-179.51	5.2	26.6	346.9	333.0	13.84	25.062	
3,300.0	3,274.0	3,274.5	3,270.5	9.7	7.0	-177.81	-4.8	30.6	364.6	350.3	14.32	25.455	
3,400.0	3,372.6	3,372.4	3,367.8	10.0	7.2	-176.28	-14.8	34.5	382.6	367.7	14.81	25.825	
3,500.0	3,471.3	3,470.3	3,465.1	10.4	7.5	-174.88	-24.9	38.5	400.8	385.5	15.31	26.173	
3,600.0	3,569.9	3,568.1	3,562.4	10.8	7.7	-173.60	-34.9	42.4	419.2	403.4	15.82	26.500	
3,700.0	3,668.5	3,666.0	3,659.7	11.2	8.0	-172.43	-44.9	46.4	437.8	421.5	16.33	26.806	
3,800.0	3,767.1	3,763.9	3,756.9	11.6	8.2	-171.36	-54.9	50.3	456.6	439.8	16.85	27.095	
3,900.0	3,865.7	3,861.7	3,854.2	12.0	8.5	-170.37	-64.9	54.2	475.6	458.2	17.38	27.366	
4,000.0	3,964.3	3,959.6	3,951.5	12.4	8.7	-169.46	-75.0	58.2	494.6	476.7	17.91	27.621	
4,100.0	4,062.9	4,057.5	4,048.8	12.7	9.0	-168.61	-85.0	62.1	513.8	495.3	18.44	27.861	
4,200.0	4,161.5	4,155.4	4,146.0	13.1	9.3	-167.82	-95.0	66.1	533.0	514.1	18.98	28.088	
4,300.0	4,260.1	4,253.2	4,243.3	13.5	9.5	-167.09	-105.0	70.0	552.4	532.9	19.52	28.302	
4,400.0	4,358.7	4,351.1	4,340.6	13.9	9.8	-166.41	-115.0	74.0	571.8	551.8	20.06	28.504	
4,500.0	4,457.3	4,449.0	4,437.9	14.3	10.1	-165.77	-125.0	77.9	591.4	570.7	20.61	28.695	
4,600.0	4,555.9	4,546.8	4,535.2	14.7	10.3	-165.18	-135.1	81.9	610.9	589.8	21.16	28.876	
4,700.0	4,654.5	4,644.7	4,632.4	15.1	10.6	-164.62	-145.1	85.8	630.6	608.9	21.71	29.047	
4,800.0	4,753.1	4,742.6	4,729.7	15.5	10.9	-164.09	-155.1	89.7	650.3	628.0	22.26	29.210	
4,900.0	4,851.7	4,840.5	4,827.0	15.9	11.2	-163.60	-165.1	93.7	670.0	647.2	22.82	29.365	
5,000.0	4,950.3	4,938.3	4,924.3	16.3	11.5	-163.13	-175.1	97.6	689.8	666.4	23.37	29.512	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,048.9	5,036.2	5,021.5	16.6	11.7	-162.69	-185.1	101.6	709.6	685.7	23.93	29.652	
5,200.0	5,147.5	5,134.1	5,118.8	17.0	12.0	-162.27	-195.2	105.5	729.5	705.0	24.49	29.786	
5,300.0	5,246.2	5,231.9	5,216.1	17.4	12.3	-161.88	-205.2	109.5	749.4	724.4	25.05	29.913	
5,400.0	5,344.8	5,329.8	5,313.4	17.8	12.6	-161.51	-215.2	113.4	769.3	743.7	25.62	30.035	
5,500.0	5,443.4	5,430.8	5,413.8	18.2	12.9	-161.15	-225.4	117.4	789.3	763.1	26.18	30.149	
5,600.0	5,542.0	5,540.9	5,523.5	18.6	13.1	-161.01	-233.7	120.7	808.1	781.3	26.72	30.239	
5,700.0	5,641.0	5,652.1	5,634.6	18.9	13.4	-161.16	-238.0	122.4	823.2	796.0	27.20	30.266	
5,800.0	5,740.4	5,758.9	5,741.4	19.1	13.6	-161.44	-238.7	122.7	833.7	806.1	27.61	30.192	
5,900.0	5,840.1	5,858.6	5,841.1	19.3	13.7	-161.64	-238.7	122.7	840.6	812.7	27.98	30.047	
6,000.0	5,940.0	5,958.5	5,941.0	19.4	13.9	-161.75	-238.7	122.7	844.3	816.0	28.31	29.822	
6,100.0	6,040.0	6,058.5	6,041.0	19.6	14.1	90.99	-238.7	122.7	844.9	816.2	28.65	29.492	
6,200.0	6,140.0	6,158.5	6,141.0	19.7	14.3	90.99	-238.7	122.7	844.9	815.9	29.01	29.127	
6,300.0	6,240.0	6,258.5	6,241.0	19.8	14.5	90.99	-238.7	122.7	844.9	815.5	29.37	28.768	
6,400.0	6,339.8	6,358.3	6,340.8	20.0	14.7	91.31	-238.7	122.7	845.0	815.3	29.73	28.423	
6,500.0	6,438.2	6,456.7	6,439.2	20.0	14.8	92.44	-238.7	122.7	845.6	815.5	30.07	28.117	
6,600.0	6,533.4	6,559.8	6,542.0	20.1	15.0	94.07	-233.0	122.7	847.0	816.7	30.36	27.898	
6,700.0	6,623.8	6,667.2	6,647.4	20.1	15.1	95.68	-212.3	122.7	849.2	818.6	30.53	27.810	
6,800.0	6,708.0	6,778.9	6,752.7	20.1	15.1	97.21	-175.5	122.7	851.8	821.2	30.62	27.817	
6,900.0	6,784.3	6,894.9	6,855.1	20.1	15.2	98.64	-121.4	122.7	854.9	824.2	30.70	27.846	
7,000.0	6,851.6	7,015.2	6,951.5	20.2	15.2	99.92	-49.5	122.7	858.0	827.1	30.88	27.789	
7,100.0	6,908.7	7,139.7	7,038.1	20.3	15.3	101.03	39.8	122.7	861.0	829.7	31.29	27.519	
7,200.0	6,954.6	7,268.0	7,111.0	20.5	15.6	101.90	145.1	122.7	863.5	831.5	32.08	26.915	
7,300.0	6,988.5	7,399.1	7,166.2	20.8	16.3	102.52	264.0	122.7	865.4	832.1	33.37	25.932	
7,400.0	7,009.8	7,532.3	7,200.6	21.3	17.3	102.85	392.4	122.7	866.5	831.2	35.22	24.604	
7,500.0	7,018.2	7,665.1	7,212.2	22.0	18.6	102.87	524.5	122.7	866.5	829.0	37.54	23.082	
7,521.5	7,018.5	7,686.6	7,212.3	22.2	18.8	102.85	546.1	122.7	866.5	828.5	38.01	22.794	
7,600.0	7,017.5	7,765.1	7,212.7	22.9	19.7	102.94	624.5	122.7	866.8	827.0	39.78	21.788	
7,700.0	7,016.5	7,865.1	7,213.2	24.0	21.0	103.04	724.5	122.7	867.1	824.9	42.20	20.547	
7,800.0	7,015.5	7,965.1	7,213.6	25.2	22.3	103.14	824.5	122.7	867.5	822.7	44.80	19.362	
7,900.0	7,014.5	8,065.1	7,214.1	26.4	23.7	103.23	924.5	122.7	867.8	820.2	47.55	18.248	
8,000.0	7,013.5	8,165.1	7,214.6	27.8	25.2	103.33	1,024.5	122.7	868.1	817.7	50.43	17.214	
8,100.0	7,012.4	8,265.1	7,215.0	29.3	26.7	103.42	1,124.5	122.7	868.5	815.1	53.42	16.259	
8,200.0	7,011.4	8,365.0	7,215.5	30.7	28.3	103.52	1,224.5	122.7	868.8	812.3	56.49	15.381	
8,300.0	7,010.4	8,465.0	7,216.0	32.3	29.9	103.61	1,324.5	122.7	869.2	809.5	59.63	14.575	
8,400.0	7,009.4	8,565.0	7,216.5	33.9	31.6	103.71	1,424.4	122.7	869.5	806.7	62.84	13.837	
8,500.0	7,008.4	8,665.0	7,216.9	35.5	33.3	103.80	1,524.4	122.7	869.9	803.8	66.10	13.160	
8,600.0	7,007.4	8,765.0	7,217.4	37.1	35.0	103.90	1,624.4	122.7	870.2	800.8	69.41	12.538	
8,700.0	7,006.4	8,865.0	7,217.9	38.8	36.7	103.99	1,724.4	122.7	870.6	797.8	72.75	11.967	
8,800.0	7,005.4	8,965.0	7,218.3	40.5	38.4	104.09	1,824.4	122.7	871.0	794.8	76.12	11.441	
8,900.0	7,004.4	9,065.0	7,218.8	42.2	40.2	104.18	1,924.4	122.7	871.3	791.8	79.53	10.956	
9,000.0	7,003.3	9,165.0	7,219.3	43.9	42.0	104.27	2,024.4	122.7	871.7	788.7	82.96	10.508	
9,100.0	7,002.3	9,264.9	7,219.8	45.6	43.8	104.37	2,124.4	122.7	872.0	785.6	86.41	10.092	
9,200.0	7,001.3	9,364.9	7,220.2	47.4	45.6	104.46	2,224.3	122.7	872.4	782.5	89.87	9.707	
9,300.0	7,000.3	9,464.9	7,220.7	49.2	47.4	104.56	2,324.3	122.7	872.8	779.4	93.36	9.349	
9,400.0	6,999.3	9,564.9	7,221.2	50.9	49.2	104.65	2,424.3	122.7	873.2	776.3	96.85	9.015	
9,500.0	6,998.3	9,664.9	7,221.6	52.7	51.0	104.75	2,524.3	122.7	873.5	773.2	100.36	8.704	
9,600.0	6,997.3	9,764.9	7,222.1	54.5	52.8	104.84	2,624.3	122.7	873.9	770.0	103.88	8.412	
9,700.0	6,996.3	9,864.9	7,222.6	56.3	54.7	104.93	2,724.3	122.7	874.3	766.9	107.41	8.140	
9,800.0	6,995.2	9,964.9	7,223.1	58.1	56.5	105.03	2,824.3	122.7	874.7	763.7	110.95	7.884	
9,900.0	6,994.2	10,064.9	7,223.5	60.0	58.4	105.12	2,924.3	122.7	875.1	760.6	114.49	7.643	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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

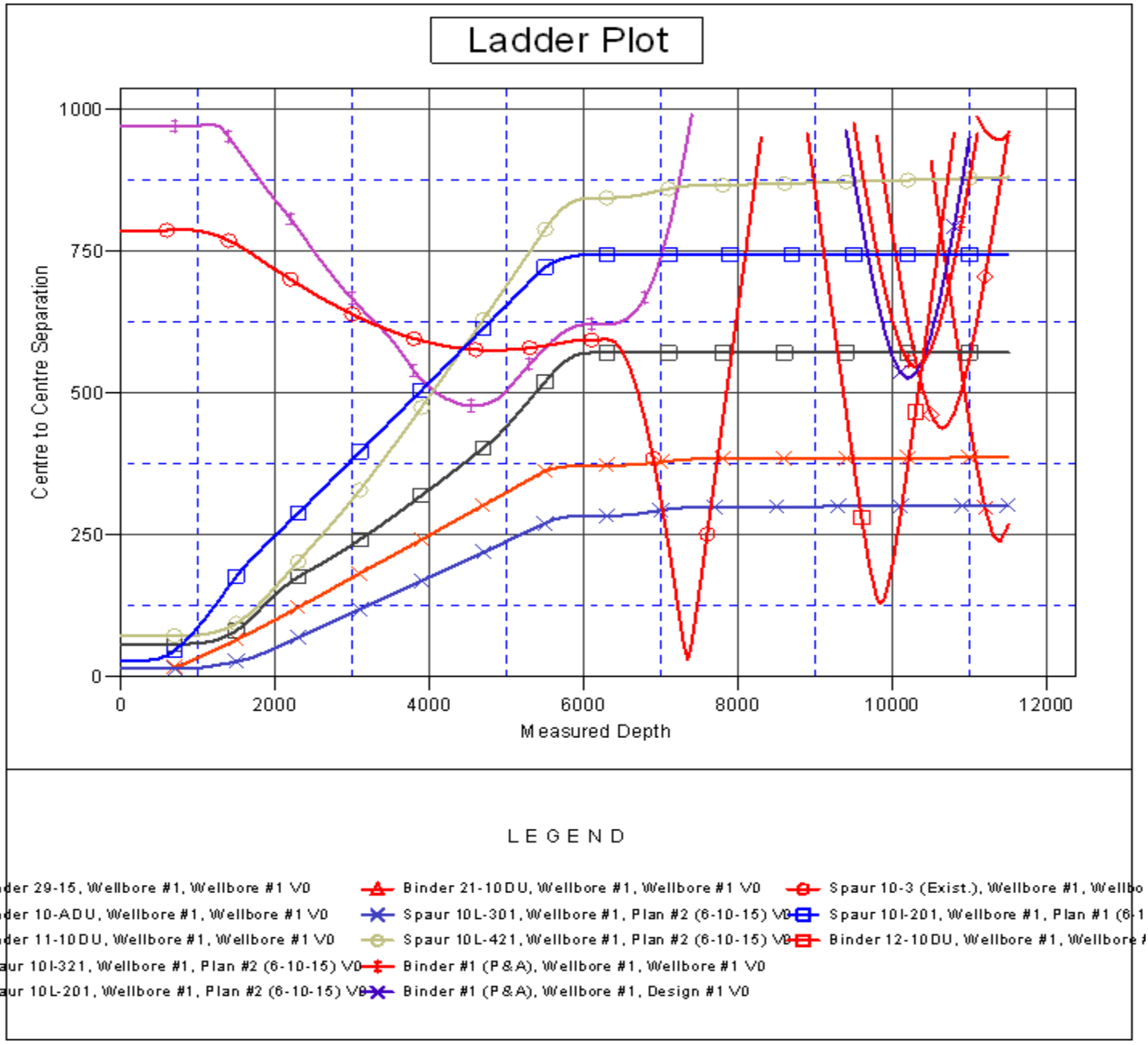
Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,993.2	10,164.9	7,224.0	61.8	60.2	105.22	3,024.2	122.7	875.5	757.4	118.04	7.416	
10,100.0	6,992.2	10,264.8	7,224.5	63.6	62.1	105.31	3,124.2	122.7	875.8	754.2	121.60	7.203	
10,200.0	6,991.2	10,364.8	7,224.9	65.4	63.9	105.40	3,224.2	122.7	876.2	751.1	125.16	7.001	
10,300.0	6,990.2	10,464.8	7,225.4	67.3	65.8	105.50	3,324.2	122.7	876.6	747.9	128.72	6.810	
10,400.0	6,989.2	10,564.8	7,225.9	69.1	67.7	105.59	3,424.2	122.7	877.0	744.7	132.29	6.630	
10,500.0	6,988.2	10,664.8	7,226.4	71.0	69.5	105.68	3,524.2	122.7	877.4	741.6	135.86	6.459	
10,600.0	6,987.1	10,764.8	7,226.8	72.8	71.4	105.78	3,624.2	122.7	877.8	738.4	139.43	6.296	
10,700.0	6,986.1	10,864.8	7,227.3	74.7	73.3	105.87	3,724.2	122.7	878.2	735.2	143.00	6.142	
10,800.0	6,985.1	10,964.8	7,227.8	76.5	75.1	105.96	3,824.1	122.7	878.6	732.1	146.57	5.995	
10,900.0	6,984.1	11,064.8	7,228.2	78.4	77.0	106.06	3,924.1	122.7	879.1	728.9	150.15	5.855	
11,000.0	6,983.1	11,164.7	7,228.7	80.3	78.9	106.15	4,024.1	122.7	879.5	725.7	153.72	5.721	
11,100.0	6,982.1	11,264.7	7,229.2	82.1	80.8	106.24	4,124.1	122.7	879.9	722.6	157.30	5.594	
11,200.0	6,981.1	11,364.7	7,229.7	84.0	82.7	106.33	4,224.1	122.7	880.3	719.4	160.88	5.472	
11,300.0	6,980.1	11,464.7	7,230.1	85.9	84.6	106.43	4,324.1	122.7	880.7	716.3	164.45	5.355	
11,400.0	6,979.0	11,564.7	7,230.6	87.7	86.4	106.52	4,424.1	122.7	881.1	713.1	168.03	5.244	
11,500.0	6,978.0	11,650.8	7,231.0	89.6	88.1	106.60	4,510.1	122.7	881.7	710.3	171.36	5.145	
11,503.1	6,978.0	11,650.8	7,231.0	89.7	88.1	106.60	4,510.1	122.7	881.7	710.3	171.42	5.144	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well Spaur 10L-241
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-241	**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-241
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-241
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-241	**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-241
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.40°