

PETROLEUM DEVELOPMENT CORP Weld County CO

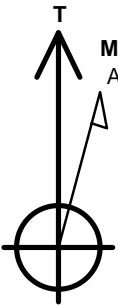
Well Name: **Spaur 10T-241**

Surface Location: Spaur 4N67W10LQ Pad Sec.10-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4830.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1360200.11	3173449.16	40.320480	-104.877950	
RKB -13' WELL @ 4843.0ft (RKB -13')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
50'E/W Hardline (10T-241)	1.0	2458.1	1109.6	Rectangle (Sides: L3980.1 W100.0)
SHL 329'FSL & 2393'FWL	1.0	0.0	0.0	Point
BHL 500'FNL & 1762'FEL	6983.0	4448.2	1109.6	Point



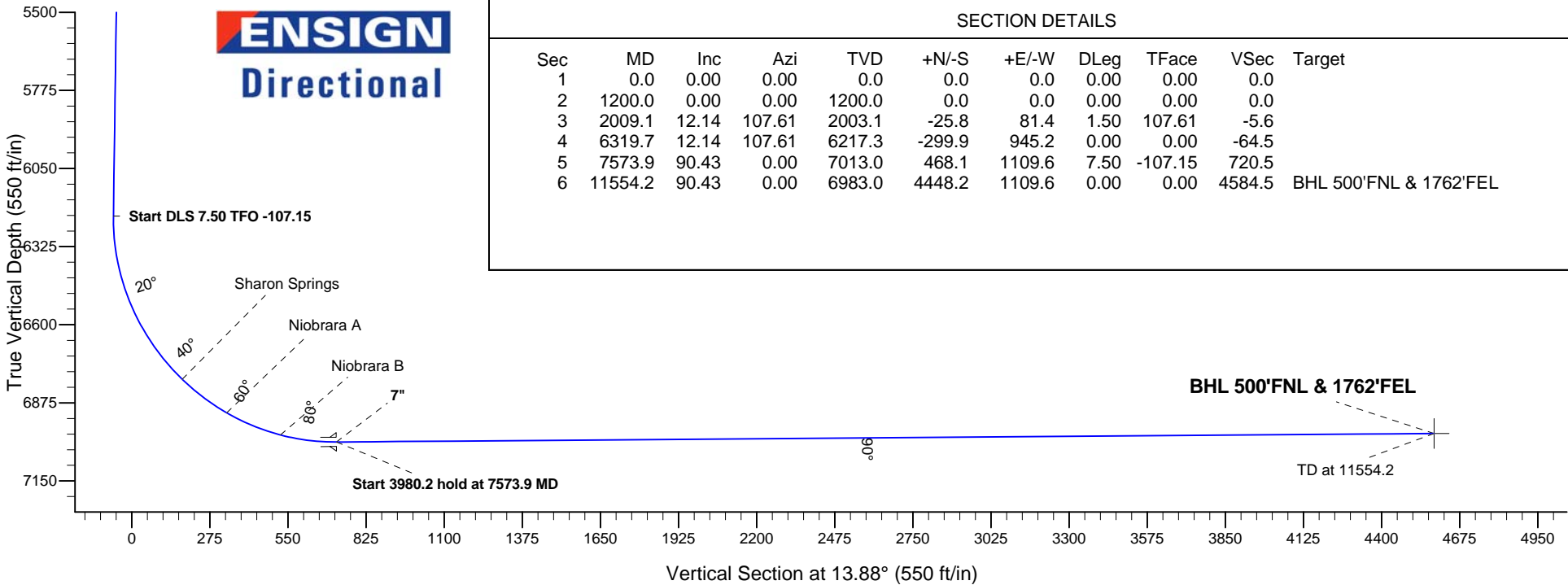
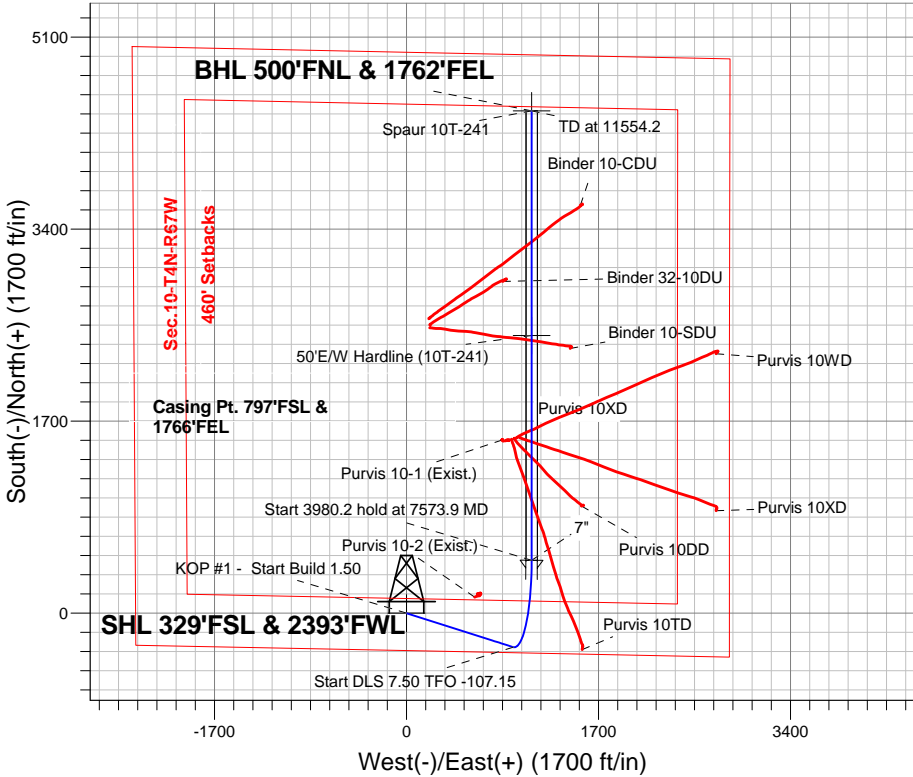
Azimuths to True North
Magnetic North: 8.38°

Magnetic Field
Strength: 52656.2snT
Dip Angle: 66.83°
Date: 6/16/2015
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	KOP #1 - Start Build 1.50
6217.3	6319.7	Start DLS 7.50 TFO -107.15
7013.0	7573.9	Start 3980.2 hold at 7573.9 MD
6983.0	11554.2	TD at 11554.2

Spaur 4N67W10LQ Pad Sec.10-T4N-R67W
Spaur 10T-241
Plan #2 (6-11-15)



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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	2009.1	12.14	107.61	2003.1	-25.8	81.4	1.50	107.61	-5.6	
4	6319.7	12.14	107.61	6217.3	-299.9	945.2	0.00	0.00	-64.5	
5	7573.9	90.43	0.00	7013.0	468.1	1109.6	7.50	-107.15	720.5	
6	11554.2	90.43	0.00	6983.0	4448.2	1109.6	0.00	0.00	4584.5	BHL 500'FNL & 1762'FEL



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T4N-R67W

Spaur 4N67W10LQ Pad Sec.10-T4N-R67W

Spaur 10T-241

Wellbore #1

Plan: Plan #2 (6-11-15)

Standard Planning Report

16 June, 2015

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Spaur 10T-241
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Project:	SEC.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	North Reference:	True
Well:	Spaur 10T-241	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-11-15)		

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 4N67W10LQ Pad Sec.10-T4N-R67W											
Site Position:						Northing:			1,360,247.47 ft			Latitude:			40.320610		
From:			Lat/Long			Easting:			3,173,448.83ft			Longitude:			-104.877950		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.40 °		

Well	Spaur 10T-241					
Well Position	+N-S	-47.4 ft	Northing:	1,360,200.11 ft	Latitude:	40.320480
	+E-W	0.0 ft	Easting:	3,173,449.16 ft	Longitude:	-104.877950
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,830.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/16/2015	8.38	66.83	52,656

Design	Plan #2 (6-11-15)			
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	13.88

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,009.1	12.14	107.61	2,003.1	-25.8	81.4	1.50	1.50	0.00	107.61	
6,319.7	12.14	107.61	6,217.3	-299.9	945.2	0.00	0.00	0.00	0.00	
7,573.9	90.43	0.00	7,013.0	468.1	1,109.6	7.50	6.24	-8.58	-107.15	
11,554.2	90.43	0.00	6,983.0	4,448.2	1,109.6	0.00	0.00	0.00	0.00	BHL 500'FNL & 176

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Project:	SEC.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	North Reference:	True
Well:	Spaur 10T-241	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-11-15)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1 - Start Build 1.50									
1,300.0	1.50	107.61	1,300.0	-0.4	1.2	-0.1	1.50	1.50	0.00
1,400.0	3.00	107.61	1,399.9	-1.6	5.0	-0.3	1.50	1.50	0.00
1,500.0	4.50	107.61	1,499.7	-3.6	11.2	-0.8	1.50	1.50	0.00
1,600.0	6.00	107.61	1,599.3	-6.3	19.9	-1.4	1.50	1.50	0.00
1,700.0	7.50	107.61	1,698.6	-9.9	31.1	-2.1	1.50	1.50	0.00
1,800.0	9.00	107.61	1,797.5	-14.2	44.8	-3.1	1.50	1.50	0.00
1,900.0	10.50	107.61	1,896.1	-19.3	61.0	-4.2	1.50	1.50	0.00
2,000.0	12.00	107.61	1,994.2	-25.2	79.6	-5.4	1.50	1.50	0.00
2,009.1	12.14	107.61	2,003.1	-25.8	81.4	-5.6	1.50	1.50	0.00
2,100.0	12.14	107.61	2,091.9	-31.6	99.6	-6.8	0.00	0.00	0.00
2,200.0	12.14	107.61	2,189.7	-38.0	119.6	-8.2	0.00	0.00	0.00
2,300.0	12.14	107.61	2,287.5	-44.3	139.7	-9.5	0.00	0.00	0.00
2,400.0	12.14	107.61	2,385.2	-50.7	159.7	-10.9	0.00	0.00	0.00
2,500.0	12.14	107.61	2,483.0	-57.0	179.8	-12.3	0.00	0.00	0.00
2,600.0	12.14	107.61	2,580.8	-63.4	199.8	-13.6	0.00	0.00	0.00
2,700.0	12.14	107.61	2,678.5	-69.8	219.8	-15.0	0.00	0.00	0.00
2,800.0	12.14	107.61	2,776.3	-76.1	239.9	-16.4	0.00	0.00	0.00
2,900.0	12.14	107.61	2,874.0	-82.5	259.9	-17.7	0.00	0.00	0.00
3,000.0	12.14	107.61	2,971.8	-88.8	280.0	-19.1	0.00	0.00	0.00
3,100.0	12.14	107.61	3,069.6	-95.2	300.0	-20.5	0.00	0.00	0.00
3,200.0	12.14	107.61	3,167.3	-101.6	320.0	-21.8	0.00	0.00	0.00
3,300.0	12.14	107.61	3,265.1	-107.9	340.1	-23.2	0.00	0.00	0.00
3,400.0	12.14	107.61	3,362.9	-114.3	360.1	-24.6	0.00	0.00	0.00
3,500.0	12.14	107.61	3,460.6	-120.6	380.2	-25.9	0.00	0.00	0.00
3,600.0	12.14	107.61	3,558.4	-127.0	400.2	-27.3	0.00	0.00	0.00
3,601.6	12.14	107.61	3,560.0	-127.1	400.5	-27.3	0.00	0.00	0.00
Parkman									
3,700.0	12.14	107.61	3,656.2	-133.3	420.2	-28.7	0.00	0.00	0.00
3,800.0	12.14	107.61	3,753.9	-139.7	440.3	-30.0	0.00	0.00	0.00
3,900.0	12.14	107.61	3,851.7	-146.1	460.3	-31.4	0.00	0.00	0.00
4,000.0	12.14	107.61	3,949.5	-152.4	480.4	-32.8	0.00	0.00	0.00
4,100.0	12.14	107.61	4,047.2	-158.8	500.4	-34.2	0.00	0.00	0.00
4,154.0	12.14	107.61	4,100.0	-162.2	511.2	-34.9	0.00	0.00	0.00
Sussex									
4,200.0	12.14	107.61	4,145.0	-165.1	520.4	-35.5	0.00	0.00	0.00
4,300.0	12.14	107.61	4,242.8	-171.5	540.5	-36.9	0.00	0.00	0.00
4,400.0	12.14	107.61	4,340.5	-177.9	560.5	-38.3	0.00	0.00	0.00
4,500.0	12.14	107.61	4,438.3	-184.2	580.6	-39.6	0.00	0.00	0.00
4,600.0	12.14	107.61	4,536.0	-190.6	600.6	-41.0	0.00	0.00	0.00

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Project:	SEC.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	North Reference:	True
Well:	Spaur 10T-241	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-11-15)		

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)
4,681.8	12.14	107.61	4,616.0	-195.8	617.0	-42.1	0.00	0.00	0.00
Shannon									
4,700.0	12.14	107.61	4,633.8	-196.9	620.6	-42.4	0.00	0.00	0.00
4,800.0	12.14	107.61	4,731.6	-203.3	640.7	-43.7	0.00	0.00	0.00
4,900.0	12.14	107.61	4,829.3	-209.7	660.7	-45.1	0.00	0.00	0.00
5,000.0	12.14	107.61	4,927.1	-216.0	680.8	-46.5	0.00	0.00	0.00
5,100.0	12.14	107.61	5,024.9	-222.4	700.8	-47.8	0.00	0.00	0.00
5,200.0	12.14	107.61	5,122.6	-228.7	720.9	-49.2	0.00	0.00	0.00
5,300.0	12.14	107.61	5,220.4	-235.1	740.9	-50.6	0.00	0.00	0.00
5,400.0	12.14	107.61	5,318.2	-241.5	760.9	-51.9	0.00	0.00	0.00
5,500.0	12.14	107.61	5,415.9	-247.8	781.0	-53.3	0.00	0.00	0.00
5,600.0	12.14	107.61	5,513.7	-254.2	801.0	-54.7	0.00	0.00	0.00
5,700.0	12.14	107.61	5,611.5	-260.5	821.1	-56.0	0.00	0.00	0.00
5,800.0	12.14	107.61	5,709.2	-266.9	841.1	-57.4	0.00	0.00	0.00
5,900.0	12.14	107.61	5,807.0	-273.3	861.1	-58.8	0.00	0.00	0.00
6,000.0	12.14	107.61	5,904.8	-279.6	881.2	-60.1	0.00	0.00	0.00
6,100.0	12.14	107.61	6,002.5	-286.0	901.2	-61.5	0.00	0.00	0.00
6,200.0	12.14	107.61	6,100.3	-292.3	921.3	-62.9	0.00	0.00	0.00
6,300.0	12.14	107.61	6,198.0	-298.7	941.3	-64.2	0.00	0.00	0.00
6,319.7	12.14	107.61	6,217.3	-299.9	945.2	-64.5	0.00	0.00	0.00
Start DLS 7.50 TFO -107.15									
6,400.0	11.83	78.33	6,295.9	-300.8	961.4	-61.5	7.50	-0.38	-36.46
6,500.0	15.20	49.12	6,393.3	-290.2	981.3	-46.4	7.50	3.36	-29.21
6,600.0	20.80	32.76	6,488.4	-266.6	1,000.9	-18.8	7.50	5.61	-16.36
6,700.0	27.30	23.50	6,579.7	-230.6	1,019.7	20.7	7.50	6.50	-9.26
6,800.0	34.19	17.66	6,665.6	-182.7	1,037.4	71.4	7.50	6.89	-5.84
6,900.0	41.27	13.60	6,744.6	-123.8	1,053.7	132.5	7.50	7.08	-4.06
6,965.4	45.97	11.53	6,792.0	-79.8	1,063.4	177.6	7.50	7.17	-3.17
Sharon Springs									
7,000.0	48.46	10.56	6,815.5	-54.9	1,068.3	202.9	7.50	7.21	-2.80
7,100.0	55.71	8.13	6,876.9	22.9	1,081.0	281.5	7.50	7.25	-2.43
7,162.5	60.26	6.82	6,910.0	75.4	1,087.9	334.1	7.50	7.29	-2.10
Niobrara A									
7,200.0	63.00	6.09	6,927.8	108.3	1,091.6	366.9	7.50	7.30	-1.95
7,300.0	70.32	4.29	6,967.4	199.6	1,099.9	457.6	7.50	7.32	-1.79
7,370.0	75.45	3.14	6,988.0	266.3	1,104.2	523.4	7.50	7.33	-1.65
Niobrara B									
7,400.0	77.66	2.66	6,995.0	295.5	1,105.7	552.0	7.50	7.34	-1.59
7,500.0	85.00	1.12	7,010.1	394.2	1,108.9	648.7	7.50	7.34	-1.54
7,573.9	90.43	0.00	7,013.0	468.1	1,109.6	720.5	7.50	7.35	-1.51
Start 3980.2 hold at 7573.9 MD - 7"									
7,600.0	90.43	0.00	7,012.8	494.2	1,109.6	745.8	0.01	0.01	0.00
7,700.0	90.43	0.00	7,012.0	594.2	1,109.6	842.9	0.00	0.00	0.00
7,800.0	90.43	0.00	7,011.3	694.1	1,109.6	940.0	0.00	0.00	0.00
7,900.0	90.43	0.00	7,010.5	794.1	1,109.6	1,037.1	0.00	0.00	0.00
8,000.0	90.43	0.00	7,009.8	894.1	1,109.6	1,134.1	0.00	0.00	0.00
8,100.0	90.43	0.00	7,009.0	994.1	1,109.6	1,231.2	0.00	0.00	0.00
8,200.0	90.43	0.00	7,008.3	1,094.1	1,109.6	1,328.3	0.00	0.00	0.00
8,300.0	90.43	0.00	7,007.5	1,194.1	1,109.6	1,425.4	0.00	0.00	0.00
8,400.0	90.43	0.00	7,006.8	1,294.1	1,109.6	1,522.5	0.00	0.00	0.00
8,500.0	90.43	0.00	7,006.0	1,394.1	1,109.6	1,619.5	0.00	0.00	0.00
8,600.0	90.43	0.00	7,005.3	1,494.1	1,109.6	1,716.6	0.00	0.00	0.00

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Wellbore:	Wellbore #1		
Design:	Plan #2 (6-11-15)		

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)
8,700.0	90.43	0.00	7,004.5	1,594.1	1,109.6	1,813.7	0.00	0.00	0.00
8,800.0	90.43	0.00	7,003.8	1,694.1	1,109.6	1,910.8	0.00	0.00	0.00
8,900.0	90.43	0.00	7,003.0	1,794.1	1,109.6	2,007.9	0.00	0.00	0.00
9,000.0	90.43	0.00	7,002.2	1,894.1	1,109.6	2,104.9	0.00	0.00	0.00
9,100.0	90.43	0.00	7,001.5	1,994.1	1,109.6	2,202.0	0.00	0.00	0.00
9,200.0	90.43	0.00	7,000.7	2,094.1	1,109.6	2,299.1	0.00	0.00	0.00
9,300.0	90.43	0.00	7,000.0	2,194.1	1,109.6	2,396.2	0.00	0.00	0.00
9,400.0	90.43	0.00	6,999.2	2,294.1	1,109.6	2,493.3	0.00	0.00	0.00
9,500.0	90.43	0.00	6,998.5	2,394.1	1,109.6	2,590.3	0.00	0.00	0.00
9,600.0	90.43	0.00	6,997.7	2,494.1	1,109.6	2,687.4	0.00	0.00	0.00
9,700.0	90.43	0.00	6,997.0	2,594.1	1,109.6	2,784.5	0.00	0.00	0.00
9,800.0	90.43	0.00	6,996.2	2,694.1	1,109.6	2,881.6	0.00	0.00	0.00
9,900.0	90.43	0.00	6,995.5	2,794.1	1,109.6	2,978.7	0.00	0.00	0.00
10,000.0	90.43	0.00	6,994.7	2,894.1	1,109.6	3,075.7	0.00	0.00	0.00
10,100.0	90.43	0.00	6,994.0	2,994.1	1,109.6	3,172.8	0.00	0.00	0.00
10,200.0	90.43	0.00	6,993.2	3,094.1	1,109.6	3,269.9	0.00	0.00	0.00
10,300.0	90.43	0.00	6,992.4	3,194.1	1,109.6	3,367.0	0.00	0.00	0.00
10,400.0	90.43	0.00	6,991.7	3,294.1	1,109.6	3,464.0	0.00	0.00	0.00
10,500.0	90.43	0.00	6,990.9	3,394.1	1,109.6	3,561.1	0.00	0.00	0.00
10,600.0	90.43	0.00	6,990.2	3,494.1	1,109.6	3,658.2	0.00	0.00	0.00
10,700.0	90.43	0.00	6,989.4	3,594.1	1,109.6	3,755.3	0.00	0.00	0.00
10,800.0	90.43	0.00	6,988.7	3,694.1	1,109.6	3,852.4	0.00	0.00	0.00
10,900.0	90.43	0.00	6,987.9	3,794.1	1,109.6	3,949.4	0.00	0.00	0.00
11,000.0	90.43	0.00	6,987.2	3,894.1	1,109.6	4,046.5	0.00	0.00	0.00
11,100.0	90.43	0.00	6,986.4	3,994.1	1,109.6	4,143.6	0.00	0.00	0.00
11,200.0	90.43	0.00	6,985.7	4,094.1	1,109.6	4,240.7	0.00	0.00	0.00
11,300.0	90.43	0.00	6,984.9	4,194.0	1,109.6	4,337.8	0.00	0.00	0.00
11,400.0	90.43	0.00	6,984.2	4,294.0	1,109.6	4,434.8	0.00	0.00	0.00
11,500.0	90.43	0.00	6,983.4	4,394.0	1,109.6	4,531.9	0.00	0.00	0.00
11,554.2	90.43	0.00	6,983.0	4,448.2	1,109.6	4,584.5	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
50'E/W Hardline (10T- - plan misses target center by 2697.0ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Rectangle (sides W3,980.1 H100.0 D0.0)	0.00	0.00	1.0	2,458.1	1,109.6	1,362,665.87	3,174,541.43	40.327227	-104.873970
SHL 329'FSL & 2393'I - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,360,200.12	3,173,449.16	40.320480	-104.877950
BHL 500'FNL & 1762' - plan hits target center - Point	0.00	0.00	6,983.0	4,448.2	1,109.6	1,364,655.81	3,174,527.50	40.332690	-104.873970

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Spaur 10T-241
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Project:	SEC.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	North Reference:	True
Well:	Spaur 10T-241	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-11-15)		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,573.9	7,013.0	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,601.6	3,560.0	Parkman		0.00	
4,154.0	4,100.0	Sussex		0.00	
4,681.8	4,616.0	Shannon		0.00	
6,965.4	6,792.0	Sharon Springs		0.00	
7,162.5	6,910.0	Niobrara A		0.00	
7,370.0	6,988.0	Niobrara B		0.00	
	7,073.0	Niobrara C		0.00	
	7,190.0	Fort Hays		0.00	
	7,212.0	Codell		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,200.0	1,200.0	0.0	0.0	KOP #1 - Start Build 1.50
6,319.7	6,217.3	-299.9	945.2	Start DLS 7.50 TFO -107.15
7,573.9	7,013.0	468.1	1,109.6	Start 3980.2 hold at 7573.9 MD
11,554.2	6,983.0	4,448.2	1,109.6	TD at 11554.2



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.10-T4N-R67W

Spaur 4N67W10LQ Pad Sec.10-T4N-R67W

Spaur 10T-241

Wellbore #1

Plan #2 (6-11-15)

Anticollision Report

16 June, 2015



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (6-11-15)
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program		Date	6/16/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,554.2	Plan #2 (6-11-15) (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Binder 10-NDU Pad Sec.10-T4N-R67W						
Binder 10-CDU - Wellbore #1 - Wellbore #1	10,722.2	7,266.6	439.8	342.7	4.529	CC, ES, SF
Binder 10-SDU - Wellbore #1 - Wellbore #1	9,454.9	7,130.5	343.8	278.0	5.222	CC, ES
Binder 10-SDU - Wellbore #1 - Wellbore #1	9,500.0	7,129.6	346.8	280.1	5.202	SF
Binder 32-10DU - Wellbore #1 - Wellbore #1	10,050.0	7,029.3	246.1	169.9	3.230	CC, ES, SF
Existing Wells Sec.10-T4N-R67W						
Purvis 10-2 (Exist.) - Wellbore #1 - Wellbore #1	4,186.1	4,108.2	343.1	321.6	15.968	CC
Purvis 10-2 (Exist.) - Wellbore #1 - Wellbore #1	4,200.0	4,121.5	343.2	321.6	15.912	ES
Purvis 10-2 (Exist.) - Wellbore #1 - Wellbore #1	4,700.0	4,608.4	364.0	339.9	15.118	SF
Purvis 10TD Pad Sec. 10-T4N-R67W						
Purvis 10-1 (Exist.) - Wellbore #1 - Wellbore #1	8,645.1	6,970.6	259.0	209.8	5.267	CC, ES, SF
Purvis 10DD - Wellbore #1 - Wellbore #1	8,056.4	7,084.4	442.4	397.9	9.959	CC, ES
Purvis 10DD - Wellbore #1 - Wellbore #1	8,100.0	7,083.9	444.5	399.5	9.869	SF
Purvis 10TD - Wellbore #1 - Wellbore #1	6,800.0	6,998.7	537.5	487.8	10.830	SF
Purvis 10TD - Wellbore #1 - Wellbore #1	6,848.2	7,037.9	536.2	486.9	10.870	CC, ES
Purvis 10WD - Wellbore #1 - Wellbore #1						Out of range
Purvis 10XD - Wellbore #1 - Wellbore #1						Out of range

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Spaur 4N67W10LQ Pad Sec.10-T4N-R67W						
Spaur 10Q-321 - Wellbore #1 - Plan #3 (6-11-15)	1,200.0	1,199.0	18.2	13.1	3.544	CC, ES
Spaur 10Q-321 - Wellbore #1 - Plan #3 (6-11-15)	11,554.2	11,337.7	520.2	347.5	3.012	SF
Spaur 10Q-401 - Wellbore #1 - Plan #2 (6-11-15)	1,200.0	1,199.0	32.9	27.8	6.405	CC
Spaur 10Q-401 - Wellbore #1 - Plan #2 (6-11-15)	1,300.0	1,299.0	33.2	27.7	5.965	ES
Spaur 10Q-401 - Wellbore #1 - Plan #2 (6-11-15)	11,554.2	11,639.4	749.3	580.7	4.445	SF
Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)	800.0	800.0	29.1	25.8	8.719	CC
Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)	900.0	899.9	29.4	25.6	7.781	ES
Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)	11,554.2	11,661.0	600.0	424.2	3.413	SF
Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)	1,000.0	1,000.0	14.6	10.3	3.436	CC
Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)	1,100.0	1,099.9	14.9	10.3	3.195	ES
Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)	11,554.2	11,705.9	299.6	134.8	1.818	SF
Spaur 10T-321 - Wellbore #1 - Plan #1 (6-11-15)	366.3	367.3	58.3	56.9	41.780	CC
Spaur 10T-321 - Wellbore #1 - Plan #1 (6-11-15)	500.0	500.9	58.4	56.4	29.461	ES
Spaur 10T-321 - Wellbore #1 - Plan #1 (6-11-15)	1,000.0	995.5	77.5	73.2	17.944	SF
Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)	566.3	567.3	43.8	41.5	19.093	CC
Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)	700.0	700.8	44.1	41.2	15.303	ES
Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)	11,554.2	11,885.0	895.8	729.1	5.374	SF
Spaur 10Y-241 - Wellbore #1 - Plan #1 (6-11-15)	166.3	167.3	72.9	72.4	146.899	CC
Spaur 10Y-241 - Wellbore #1 - Plan #1 (6-11-15)	300.0	300.8	73.0	71.9	67.324	ES
Spaur 10Y-241 - Wellbore #1 - Plan #1 (6-11-15)	1,000.0	987.9	116.5	111.9	25.056	SF

Offset Design		Binder 10-NDU Pad Sec.10-T4N-R67W - Binder 10-CDU - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 ft		
Survey Program: 458-MWD														Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
9,900.0	6,995.5	7,281.6	6,963.9	59.4	34.2	93.21	3,616.2	1,549.0	932.3	850.7	81.64	11.420				
10,000.0	6,994.7	7,279.7	6,962.1	61.2	34.2	92.97	3,616.2	1,549.0	845.5	762.0	83.51	10.125				
10,100.0	6,994.0	7,277.9	6,960.2	63.0	34.2	92.73	3,616.2	1,549.1	761.9	676.5	85.38	8.923				
10,200.0	6,993.2	7,276.1	6,958.4	64.7	34.2	92.50	3,616.2	1,549.1	682.7	595.4	87.26	7.824				
10,300.0	6,992.4	7,274.3	6,956.6	66.5	34.2	92.26	3,616.3	1,549.1	609.6	520.5	89.14	6.839				
10,400.0	6,991.7	7,272.5	6,954.8	68.3	34.2	92.02	3,616.3	1,549.2	545.2	454.1	91.02	5.989				
10,500.0	6,990.9	7,270.7	6,953.0	70.1	34.2	91.79	3,616.3	1,549.2	492.7	399.8	92.91	5.303				
10,600.0	6,990.2	7,268.8	6,951.2	72.0	34.2	91.55	3,616.3	1,549.3	456.5	361.7	94.80	4.815				
10,700.0	6,989.4	7,267.0	6,949.3	73.8	34.2	91.31	3,616.3	1,549.3	440.4	343.7	96.69	4.554				
10,722.2	6,989.3	7,266.6	6,948.9	74.2	34.2	91.26	3,616.3	1,549.3	439.8	342.7	97.12	4.529	CC, ES, SF			
10,800.0	6,988.7	7,265.2	6,947.5	75.6	34.2	91.08	3,616.4	1,549.3	446.6	348.0	98.59	4.530				
10,900.0	6,987.9	7,263.4	6,945.7	77.4	34.2	90.84	3,616.4	1,549.4	474.4	373.9	100.49	4.721				
11,000.0	6,987.2	7,261.6	6,943.9	79.2	34.2	90.60	3,616.4	1,549.4	520.2	417.8	102.38	5.081				
11,100.0	6,986.4	7,259.8	6,942.1	81.1	34.2	90.37	3,616.4	1,549.5	579.7	475.5	104.28	5.559				
11,200.0	6,985.7	7,257.9	6,940.3	82.9	34.2	90.13	3,616.4	1,549.5	649.3	543.2	106.18	6.115				
11,300.0	6,984.9	7,256.1	6,938.4	84.8	34.2	89.89	3,616.5	1,549.5	726.1	618.0	108.08	6.718				
11,400.0	6,984.2	7,254.3	6,936.6	86.6	34.2	89.66	3,616.5	1,549.6	807.9	697.9	109.98	7.346				
11,500.0	6,983.4	7,252.5	6,934.8	88.5	34.2	89.42	3,616.5	1,549.6	893.4	781.5	111.88	7.985				
11,554.2	6,983.0	7,251.5	6,933.8	89.5	34.2	89.29	3,616.5	1,549.6	941.0	828.0	112.91	8.334				

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Binder 10-NDU Pad Sec.10-T4N-R67W - Binder 10-SDU - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft	
Survey Program: 454-MWD														Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
8,600.0	7,005.3	7,146.1	6,969.6	37.9	27.5	93.46	2,348.9	1,453.2	921.4	870.7	50.66	18.186					
8,700.0	7,004.5	7,144.3	6,967.8	39.4	27.5	93.16	2,348.9	1,453.2	829.4	777.1	52.37	15.838					
8,800.0	7,003.8	7,142.6	6,966.0	40.9	27.5	92.87	2,348.9	1,453.2	739.6	685.5	54.10	13.672					
8,900.0	7,003.0	7,140.8	6,964.2	42.5	27.5	92.57	2,349.0	1,453.2	652.7	596.9	55.85	11.688					
9,000.0	7,002.2	7,138.9	6,962.4	44.1	27.5	92.27	2,349.0	1,453.3	570.2	512.6	57.62	9.896					
9,100.0	7,001.5	7,137.1	6,960.6	45.7	27.5	91.96	2,349.0	1,453.3	494.1	434.7	59.40	8.318					
9,200.0	7,000.7	7,135.3	6,958.7	47.4	27.5	91.65	2,349.0	1,453.3	428.0	366.8	61.20	6.994					
9,300.0	7,000.0	7,133.4	6,956.9	49.1	27.5	91.34	2,349.1	1,453.4	377.1	314.1	63.01	5.985					
9,400.0	6,999.2	7,131.5	6,955.0	50.8	27.5	91.03	2,349.1	1,453.4	348.2	283.3	64.83	5.371					
9,454.9	6,998.8	7,130.5	6,953.9	51.7	27.5	90.85	2,349.1	1,453.4	343.8	278.0	65.84	5.222 CC, ES					
9,500.0	6,998.5	7,129.6	6,953.1	52.5	27.5	90.71	2,349.1	1,453.4	346.8	280.1	66.66	5.202 SF					
9,600.0	6,997.7	7,127.7	6,951.1	54.2	27.5	90.39	2,349.1	1,453.4	373.2	304.7	68.50	5.448					
9,700.0	6,997.0	7,125.7	6,949.2	55.9	27.5	90.06	2,349.1	1,453.5	422.2	351.8	70.34	6.002					
9,800.0	6,996.2	7,123.8	6,947.2	57.7	27.5	89.74	2,349.2	1,453.5	487.1	414.9	72.19	6.746					
9,900.0	6,995.5	7,121.8	6,945.3	59.4	27.5	89.41	2,349.2	1,453.5	562.3	488.3	74.05	7.594					
10,000.0	6,994.7	7,119.8	6,943.3	61.2	27.5	89.07	2,349.2	1,453.6	644.3	568.4	75.91	8.488					
10,100.0	6,994.0	7,117.8	6,941.2	63.0	27.5	88.74	2,349.2	1,453.6	730.9	653.1	77.77	9.397					
10,200.0	6,993.2	7,115.7	6,939.2	64.7	27.5	88.40	2,349.3	1,453.6	820.4	740.8	79.64	10.302					
10,300.0	6,992.4	7,113.7	6,937.1	66.5	27.5	88.05	2,349.3	1,453.7	912.2	830.7	81.50	11.192					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 452-MWD												Offset Well Error:	0.0 ft
Binder 10-NDU Pad Sec.10-T4N-R67W - Binder 32-10DU - Wellbore #1 - Wellbore #1													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,100.0	7,001.5	7,049.1	6,958.6	45.7	19.8	-93.30	2,943.8	863.1	981.2	921.7	59.49	16.495	
9,200.0	7,000.7	7,047.0	6,956.5	47.4	19.8	-92.83	2,943.9	863.2	884.8	823.6	61.21	14.454	
9,300.0	7,000.0	7,045.0	6,954.5	49.1	19.8	-92.35	2,943.9	863.2	789.2	726.3	62.95	12.537	
9,400.0	6,999.2	7,042.9	6,952.4	50.8	19.8	-91.87	2,943.9	863.3	694.9	630.2	64.70	10.740	
9,500.0	6,998.5	7,040.8	6,950.3	52.5	19.8	-91.39	2,943.9	863.3	602.5	536.0	66.46	9.065	
9,600.0	6,997.7	7,038.8	6,948.2	54.2	19.8	-90.91	2,944.0	863.4	512.9	444.6	68.22	7.517	
9,700.0	6,997.0	7,036.7	6,946.2	55.9	19.7	-90.42	2,944.0	863.4	427.8	357.8	69.99	6.113	
9,800.0	6,996.2	7,034.6	6,944.1	57.7	19.7	-89.94	2,944.0	863.5	350.8	279.0	71.76	4.888	
9,900.0	6,995.5	7,032.5	6,942.0	59.4	19.7	-89.45	2,944.0	863.5	288.2	214.7	73.54	3.919	
10,000.0	6,994.7	7,030.4	6,939.9	61.2	19.7	-88.96	2,944.1	863.6	251.1	175.8	75.31	3.335	
10,050.0	6,994.3	7,029.3	6,938.8	62.1	19.7	-88.72	2,944.1	863.6	246.1	169.9	76.20	3.230 CC, ES, SF	
10,100.0	6,994.0	7,028.3	6,937.8	63.0	19.7	-88.47	2,944.1	863.6	251.1	174.0	77.09	3.257	
10,200.0	6,993.2	7,026.2	6,935.7	64.7	19.7	-87.98	2,944.1	863.6	288.2	209.3	78.87	3.654	
10,300.0	6,992.4	7,024.1	6,933.5	66.5	19.7	-87.49	2,944.2	863.7	350.7	270.1	80.64	4.349	
10,400.0	6,991.7	7,021.9	6,931.4	68.3	19.7	-86.99	2,944.2	863.7	427.8	345.3	82.42	5.190	
10,500.0	6,990.9	7,019.8	6,929.3	70.1	19.7	-86.50	2,944.2	863.8	512.8	428.6	84.19	6.091	
10,600.0	6,990.2	7,017.7	6,927.2	72.0	19.7	-86.00	2,944.3	863.8	602.4	516.4	85.95	7.008	
10,700.0	6,989.4	7,015.5	6,925.0	73.8	19.7	-85.51	2,944.3	863.9	694.8	607.1	87.72	7.921	
10,800.0	6,988.7	7,013.4	6,922.9	75.6	19.7	-85.01	2,944.3	863.9	789.1	699.7	89.48	8.819	
10,900.0	6,987.9	7,011.2	6,920.7	77.4	19.7	-84.51	2,944.3	864.0	884.7	793.4	91.23	9.697	
11,000.0	6,987.2	7,009.1	6,918.6	79.2	19.7	-84.01	2,944.4	864.0	981.1	888.1	92.98	10.552	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.10-T4N-R67W - Purvis 10-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	74.70	74.70	178.5	652.5	676.8				
100.0	100.0	75.0	75.0	0.1	0.1	74.70	74.70	178.6	652.7	676.7	676.5	0.20	3,427.421	
200.0	200.0	173.5	173.5	0.3	0.3	74.70	74.70	178.8	653.4	677.5	676.8	0.65	1,045.416	
300.0	300.0	274.9	274.9	0.5	0.6	74.71	74.71	178.8	654.2	678.2	677.1	1.14	595.236	
400.0	400.0	375.4	375.4	0.8	0.8	74.75	74.75	178.6	654.8	678.8	677.2	1.61	422.318	
500.0	500.0	477.0	477.0	1.0	1.1	74.84	74.84	177.6	655.6	679.2	677.1	2.05	330.767	
600.0	600.0	574.7	574.7	1.2	1.3	74.94	74.94	176.6	656.2	679.6	677.1	2.50	271.609	
700.0	700.0	674.7	674.7	1.4	1.5	75.02	75.02	175.8	657.2	680.3	677.3	2.98	228.364	
800.0	800.0	776.8	776.7	1.7	1.8	75.06	75.06	175.5	657.8	680.8	677.3	3.46	196.525	
900.0	900.0	876.4	876.3	1.9	2.0	75.10	75.10	175.1	658.2	681.1	677.2	3.94	172.803	
1,000.0	1,000.0	973.5	973.5	2.1	2.3	75.13	75.13	174.9	658.8	681.7	677.3	4.42	154.248	
1,100.0	1,100.0	1,078.2	1,078.2	2.3	2.6	75.20	75.20	174.3	659.7	682.3	677.4	4.90	139.373	
1,189.6	1,189.6	1,168.6	1,168.6	2.5	2.7	75.28	75.28	173.3	659.9	682.3	677.0	5.30	128.839	
1,200.0	1,200.0	1,178.9	1,178.8	2.6	2.8	75.29	75.29	173.2	659.9	682.3	676.9	5.34	127.741	
1,300.0	1,300.0	1,278.8	1,278.8	2.8	3.0	-32.29	-32.29	172.2	660.2	681.2	675.4	5.78	117.933	
1,400.0	1,399.9	1,377.3	1,377.3	3.0	3.2	-32.46	-32.46	171.8	660.4	678.0	671.8	6.21	109.209	
1,500.0	1,499.7	1,481.3	1,481.2	3.2	3.5	-32.74	-32.74	171.1	660.7	672.5	665.9	6.64	101.225	
1,600.0	1,599.3	1,582.9	1,582.8	3.4	3.6	-33.17	-33.17	170.0	660.4	664.3	657.3	7.00	94.893	
1,700.0	1,698.6	1,688.6	1,688.5	3.6	3.8	-33.80	-33.80	169.1	659.4	653.3	646.0	7.33	89.087	
1,800.0	1,797.5	1,788.1	1,788.0	3.9	3.9	-34.52	-34.52	167.3	658.1	639.6	631.9	7.70	83.040	
1,900.0	1,896.1	1,883.4	1,883.3	4.2	4.1	-35.40	-35.40	165.8	656.9	624.1	616.0	8.09	77.178	
2,000.0	1,994.2	1,982.9	1,982.7	4.5	4.2	-36.59	-36.59	164.9	655.8	606.9	598.4	8.48	71.578	
2,100.0	2,091.9	2,082.4	2,082.2	4.9	4.4	-37.81	-37.81	164.1	654.2	588.3	579.3	8.91	66.037	
2,200.0	2,189.7	2,177.7	2,177.6	5.2	4.6	-38.99	-38.99	162.8	652.9	569.9	560.5	9.38	60.721	
2,300.0	2,287.5	2,271.5	2,271.3	5.6	4.8	-40.17	-40.17	161.3	652.2	552.3	542.4	9.91	55.720	
2,400.0	2,385.2	2,371.7	2,371.5	6.0	5.0	-41.48	-41.48	159.5	651.9	535.3	524.8	10.48	51.057	
2,500.0	2,483.0	2,470.3	2,470.1	6.4	5.2	-42.87	-42.87	157.6	651.1	518.0	506.9	11.07	46.812	
2,600.0	2,580.8	2,567.4	2,567.2	6.8	5.5	-44.33	-44.33	155.8	650.3	501.1	489.4	11.66	42.986	
2,700.0	2,678.5	2,666.2	2,665.9	7.3	5.7	-45.96	-45.96	154.3	649.3	484.5	472.3	12.26	39.510	
2,800.0	2,776.3	2,763.6	2,763.3	7.7	5.9	-47.74	-47.74	153.2	647.9	468.2	455.3	12.85	36.439	
2,900.0	2,874.0	2,860.7	2,860.4	8.1	6.0	-49.78	-49.78	153.2	646.1	452.5	439.1	13.41	33.735	
3,000.0	2,971.8	2,958.0	2,957.7	8.6	6.1	-51.97	-51.97	153.1	644.3	437.4	423.4	14.00	31.255	
3,100.0	3,069.6	3,055.6	3,055.3	9.0	6.3	-54.29	-54.29	152.9	642.6	423.1	408.5	14.61	28.957	
3,200.0	3,167.3	3,153.2	3,152.9	9.4	6.5	-56.77	-56.77	152.7	640.8	409.3	394.1	15.26	26.826	
3,300.0	3,265.1	3,248.3	3,248.0	9.9	6.6	-59.29	-59.29	152.3	639.3	396.6	380.7	15.91	24.928	
3,400.0	3,362.9	3,343.6	3,343.2	10.3	6.7	-62.07	-62.07	153.0	638.0	385.6	369.1	16.55	23.303	
3,500.0	3,460.6	3,442.3	3,441.9	10.8	6.9	-65.10	-65.10	153.8	636.7	375.6	358.4	17.20	21.841	
3,600.0	3,558.4	3,540.8	3,540.5	11.2	7.0	-68.24	-68.24	154.0	635.2	366.3	348.5	17.89	20.481	
3,700.0	3,656.2	3,636.5	3,636.1	11.7	7.2	-71.43	-71.43	154.3	633.8	358.3	339.7	18.57	19.291	
3,800.0	3,753.9	3,731.2	3,730.8	12.1	7.3	-74.71	-74.71	155.2	633.0	352.3	333.1	19.22	18.333	
3,900.0	3,851.7	3,828.1	3,827.7	12.6	7.4	-78.06	-78.06	156.1	632.7	347.9	328.1	19.83	17.547	
4,000.0	3,949.5	3,924.3	3,923.9	13.1	7.4	-81.45	-81.45	157.5	632.8	345.4	325.0	20.42	16.914	
4,100.0	4,047.2	4,024.7	4,024.2	13.5	7.5	-84.99	-84.99	158.4	632.8	343.7	322.7	21.00	16.365	
4,186.1	4,131.4	4,108.2	4,107.8	13.9	7.6	-87.93	-87.93	158.9	632.9	343.1	321.6	21.49	15.968 CC	
4,200.0	4,145.0	4,121.5	4,121.0	14.0	7.6	-88.40	-88.40	159.0	633.0	343.2	321.6	21.57	15.912 ES	
4,300.0	4,242.8	4,216.8	4,216.3	14.4	7.7	-91.84	-91.84	160.3	632.7	344.5	322.3	22.12	15.575	
4,400.0	4,340.5	4,313.3	4,312.9	14.9	7.8	-95.33	-95.33	162.2	632.3	347.7	325.0	22.65	15.351	
4,500.0	4,438.3	4,413.4	4,412.9	15.3	7.9	-98.84	-98.84	163.8	632.0	351.8	328.7	23.15	15.195	
4,600.0	4,536.0	4,509.0	4,508.5	15.8	8.1	-102.07	-102.07	165.3	632.0	357.3	333.7	23.63	15.122	
4,700.0	4,633.8	4,608.4	4,607.9	16.3	8.2	-105.30	-105.30	166.9	632.2	364.0	339.9	24.08	15.118 SF	
4,800.0	4,731.6	4,705.7	4,705.2	16.7	8.3	-108.35	-108.35	168.2	632.2	371.7	347.2	24.51	15.167	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Existing Wells Sec.10-T4N-R67W - Purvis 10-2 (Exist.) - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,829.3	4,802.8	4,802.3	17.2	8.5	-111.24		169.7	632.5	380.5	355.6	24.91	15.274	
5,000.0	4,927.1	4,900.7	4,900.2	17.6	8.6	-114.04		171.3	632.6	390.3	365.0	25.30	15.427	
5,100.0	5,024.9	4,998.9	4,998.4	18.1	8.8	-116.75		172.7	632.4	401.0	375.3	25.68	15.616	
5,200.0	5,122.6	5,097.4	5,096.9	18.6	8.9	-119.35		173.9	632.1	412.3	386.3	26.04	15.832	
5,300.0	5,220.4	5,199.5	5,199.0	19.0	9.1	-121.90		174.5	632.0	423.8	397.4	26.39	16.057	
5,400.0	5,318.2	5,291.8	5,291.2	19.5	9.3	-124.11		175.1	631.7	436.2	409.4	26.75	16.307	
5,500.0	5,415.9	5,394.0	5,393.5	19.9	9.5	-126.44		175.9	631.0	449.5	422.4	27.10	16.587	
5,600.0	5,513.7	5,494.7	5,494.1	20.4	9.7	-128.62		175.7	630.6	462.5	435.0	27.44	16.851	
5,700.0	5,611.5	5,596.7	5,596.1	20.9	9.9	-130.73		174.8	630.4	475.3	447.5	27.77	17.117	
5,800.0	5,709.2	5,699.3	5,698.7	21.3	10.0	-132.72		173.1	630.6	487.8	459.7	28.08	17.374	
5,900.0	5,807.0	5,797.1	5,796.5	21.8	10.2	-134.51		171.0	631.2	500.3	472.0	28.39	17.627	
6,000.0	5,904.8	5,900.0	5,899.4	22.3	10.4	-136.29		168.4	632.1	512.8	484.1	28.69	17.874	
6,100.0	6,002.5	5,991.2	5,990.6	22.7	10.5	-137.78		166.3	632.9	525.9	496.9	29.01	18.131	
6,200.0	6,100.3	6,096.6	6,095.9	23.2	10.7	-139.40		164.1	633.9	539.6	510.3	29.32	18.404	
6,300.0	6,198.0	6,187.9	6,187.2	23.7	10.9	-140.74		162.0	634.9	553.3	523.7	29.64	18.668	
6,400.0	6,295.9	6,281.2	6,280.5	24.1	11.1	-113.30		160.3	634.7	565.1	535.1	30.04	18.815	
6,500.0	6,393.3	6,378.9	6,378.1	24.4	11.3	-87.14		158.5	633.8	567.6	537.5	30.02	18.903	
6,600.0	6,488.4	6,472.4	6,471.7	24.6	11.5	-74.86		157.0	633.4	560.8	531.2	29.66	18.910	
6,700.0	6,579.7	6,562.1	6,561.3	24.9	11.7	-70.84		155.9	633.0	546.7	517.6	29.10	18.785	
6,800.0	6,665.6	6,644.6	6,643.8	25.0	11.8	-71.38		154.6	632.1	527.3	498.7	28.61	18.430	
6,900.0	6,744.6	6,718.6	6,717.8	25.2	12.0	-74.56		153.4	630.7	505.8	477.4	28.43	17.788	
7,000.0	6,815.5	6,783.7	6,782.8	25.3	12.2	-79.11		152.4	628.8	486.1	457.4	28.68	16.949	
7,100.0	6,876.9	6,839.4	6,838.4	25.5	12.3	-83.91		151.4	626.6	472.5	443.3	29.24	16.162	
7,173.7	6,915.5	6,873.9	6,872.9	25.6	12.3	-86.99		150.8	625.0	469.1	439.3	29.79	15.749	
7,200.0	6,927.8	6,885.1	6,884.2	25.6	12.4	-87.95		150.6	624.5	469.6	439.7	29.92	15.696	
7,300.0	6,967.4	6,922.5	6,921.5	25.8	12.5	-90.64		149.9	622.6	480.5	449.9	30.63	15.687	
7,400.0	6,995.0	6,947.9	6,946.9	26.0	12.5	-91.14		149.4	621.3	506.6	475.3	31.35	16.161	
7,500.0	7,010.1	6,960.9	6,959.8	26.3	12.5	-89.18		149.2	620.7	547.1	515.1	32.02	17.084	
7,600.0	7,012.8	6,961.7	6,960.6	26.8	12.5	-86.05		149.1	620.6	599.3	566.7	32.60	18.382	
7,700.0	7,012.0	6,959.0	6,958.0	27.4	12.5	-85.74		149.2	620.8	661.9	628.3	33.59	19.705	
7,800.0	7,011.3	6,956.4	6,955.3	28.1	12.5	-85.43		149.2	620.9	732.8	698.1	34.69	21.123	
7,900.0	7,010.5	6,953.7	6,952.7	29.0	12.5	-85.12		149.3	621.0	809.9	774.0	35.89	22.563	
8,000.0	7,009.8	6,951.1	6,950.0	30.0	12.5	-84.81		149.3	621.2	891.5	854.3	37.18	23.978	
8,100.0	7,009.0	6,948.4	6,947.3	31.1	12.5	-84.50		149.4	621.3	976.6	938.0	38.54	25.341	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Purvis 10TD Pad Sec. 10-T4N-R67W - Purvis 10-1 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 100-NS-GYRO-MS												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
7,700.0	7,012.0	6,981.3	6,980.6	27.4	14.1	-92.58	1,539.2	850.6	979.9	944.2	35.64	27.491	
7,800.0	7,011.3	6,980.1	6,979.4	28.1	14.1	-92.32	1,539.2	850.6	883.8	847.0	36.78	24.028	
7,900.0	7,010.5	6,979.0	6,978.3	29.0	14.1	-92.06	1,539.2	850.6	788.8	750.7	38.02	20.746	
8,000.0	7,009.8	6,977.8	6,977.1	30.0	14.1	-91.81	1,539.2	850.6	695.1	655.7	39.34	17.668	
8,100.0	7,009.0	6,976.7	6,975.9	31.1	14.1	-91.55	1,539.2	850.6	603.4	562.7	40.73	14.815	
8,200.0	7,008.3	6,975.5	6,974.8	32.3	14.1	-91.30	1,539.2	850.6	514.9	472.7	42.19	12.206	
8,300.0	7,007.5	6,974.4	6,973.7	33.6	14.1	-91.05	1,539.2	850.6	431.4	387.8	43.69	9.875	
8,400.0	7,006.8	6,973.3	6,972.6	35.0	14.1	-90.81	1,539.2	850.6	356.6	311.3	45.24	7.882	
8,500.0	7,006.0	6,972.2	6,971.5	36.4	14.1	-90.56	1,539.2	850.6	296.9	250.0	46.82	6.340	
8,600.0	7,005.3	6,971.1	6,970.4	37.9	14.1	-90.32	1,539.2	850.6	262.9	214.5	48.44	5.427	
8,645.1	7,004.9	6,970.6	6,969.9	38.5	14.1	-90.21	1,539.2	850.6	259.0	209.8	49.18	5.267 CC, ES, SF	
8,700.0	7,004.5	6,970.0	6,969.3	39.4	14.1	-90.08	1,539.2	850.6	264.8	214.7	50.09	5.286	
8,800.0	7,003.8	6,968.9	6,968.2	40.9	14.1	-89.85	1,539.2	850.6	301.8	250.1	51.76	5.831	
8,900.0	7,003.0	6,967.9	6,967.2	42.5	14.1	-89.61	1,539.2	850.6	363.4	310.0	53.45	6.800	
9,000.0	7,002.2	6,966.8	6,966.1	44.1	14.1	-89.38	1,539.2	850.6	439.4	384.2	55.16	7.966	
9,100.0	7,001.5	6,965.8	6,965.1	45.7	14.1	-89.15	1,539.2	850.6	523.5	466.6	56.88	9.203	
9,200.0	7,000.7	6,964.8	6,964.1	47.4	14.1	-88.92	1,539.2	850.6	612.4	553.8	58.62	10.447	
9,300.0	7,000.0	6,963.8	6,963.0	49.1	14.1	-88.70	1,539.2	850.6	704.3	643.9	60.37	11.666	
9,400.0	6,999.2	6,962.7	6,962.0	50.8	14.1	-88.48	1,539.2	850.6	798.1	736.0	62.13	12.845	
9,500.0	6,998.5	6,961.7	6,961.0	52.5	14.1	-88.26	1,539.2	850.6	893.3	829.4	63.90	13.978	
9,600.0	6,997.7	6,960.8	6,960.1	54.2	14.1	-88.04	1,539.2	850.6	989.4	923.7	65.68	15.063	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Purvis 10TD Pad Sec. 10-T4N-R67W - Purvis 10DD - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program: 156-MWD													Offset Well Error:		0.0 ft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
7,200.0	6,927.8	7,012.4	6,905.3	25.6	21.0	43.39	951.1	1,552.8	960.9	927.6	33.24	28.911					
7,300.0	6,967.4	7,049.1	6,941.9	25.8	21.1	57.28	950.8	1,552.3	877.0	841.9	35.07	25.006					
7,400.0	6,995.0	7,074.6	6,967.4	26.0	21.1	71.86	950.6	1,552.0	792.8	755.6	37.16	21.333					
7,500.0	7,010.1	7,088.3	6,981.2	26.3	21.1	84.43	950.6	1,551.9	711.2	672.9	38.27	18.581					
7,600.0	7,012.8	7,090.4	6,983.2	26.8	21.1	91.28	950.5	1,551.9	635.6	596.8	38.80	16.381					
7,700.0	7,012.0	7,089.1	6,981.9	27.4	21.1	91.11	950.6	1,551.9	568.1	528.2	39.85	14.256					
7,800.0	7,011.3	7,087.8	6,980.6	28.1	21.1	90.94	950.6	1,551.9	511.3	470.3	41.01	12.468					
7,900.0	7,010.5	7,086.5	6,979.3	29.0	21.1	90.77	950.6	1,551.9	469.2	426.9	42.27	11.099					
8,000.0	7,009.8	7,085.2	6,978.0	30.0	21.1	90.60	950.6	1,552.0	445.9	402.3	43.62	10.223					
8,056.4	7,009.4	7,084.4	6,977.3	30.6	21.1	90.51	950.6	1,552.0	442.4	397.9	44.42	9.959 CC, ES					
8,100.0	7,009.0	7,083.9	6,976.7	31.1	21.1	90.43	950.6	1,552.0	444.5	399.5	45.04	9.869 SF					
8,200.0	7,008.3	7,082.5	6,975.4	32.3	21.1	90.26	950.6	1,552.0	465.1	418.6	46.52	9.998					
8,300.0	7,007.5	7,081.2	6,974.1	33.6	21.1	90.09	950.6	1,552.0	505.0	456.9	48.05	10.509					
8,400.0	7,006.8	7,079.9	6,972.7	35.0	21.1	89.92	950.6	1,552.0	560.1	510.5	49.63	11.286					
8,500.0	7,006.0	7,078.5	6,971.4	36.4	21.1	89.75	950.6	1,552.0	626.4	575.2	51.24	12.225					
8,600.0	7,005.3	7,077.2	6,970.1	37.9	21.1	89.57	950.6	1,552.0	700.8	647.9	52.89	13.251					
8,700.0	7,004.5	7,075.9	6,968.7	39.4	21.1	89.40	950.6	1,552.0	780.9	726.3	54.56	14.313					
8,800.0	7,003.8	7,074.5	6,967.4	40.9	21.1	89.22	950.6	1,552.0	865.2	808.9	56.26	15.379					
8,900.0	7,003.0	7,073.1	6,966.0	42.5	21.1	89.05	950.6	1,552.1	952.5	894.5	57.98	16.429					

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 155-MWD													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
3,800.0	3,753.9	4,028.1	3,767.0	12.1	25.0	-44.19	289.8	1,340.0	998.1	963.1	35.04	28.486		
3,900.0	3,851.7	4,117.3	3,848.7	12.6	25.7	-42.80	256.0	1,352.1	978.8	942.7	36.04	27.159		
4,000.0	3,949.5	4,214.9	3,938.3	13.1	26.4	-41.26	219.5	1,365.1	960.0	923.0	37.07	25.901		
4,100.0	4,047.2	4,323.2	4,038.9	13.5	27.2	-39.67	181.6	1,377.7	941.4	903.3	38.10	24.708		
4,200.0	4,145.0	4,417.3	4,126.8	14.0	27.8	-38.32	149.3	1,387.2	922.2	883.2	39.02	23.636		
4,300.0	4,242.8	4,501.6	4,205.2	14.4	28.4	-37.00	119.8	1,396.8	904.5	864.6	39.86	22.694		
4,400.0	4,340.5	4,582.5	4,280.4	14.9	28.9	-35.70	92.0	1,407.0	888.8	848.1	40.66	21.861		
4,500.0	4,438.3	4,667.5	4,359.3	15.3	29.5	-34.27	62.7	1,419.4	875.5	834.0	41.47	21.112		
4,600.0	4,536.0	4,758.3	4,442.7	15.8	30.2	-32.58	29.9	1,433.4	863.4	821.1	42.30	20.413		
4,700.0	4,633.8	4,846.3	4,523.6	16.3	30.9	-30.90	-1.8	1,447.9	853.2	810.2	43.07	19.809		
4,800.0	4,731.6	4,948.8	4,617.8	16.7	31.6	-28.93	-38.4	1,464.5	843.7	799.9	43.87	19.231		
4,900.0	4,829.3	5,047.8	4,709.0	17.2	32.3	-26.98	-73.8	1,480.0	834.8	790.2	44.61	18.715		
5,000.0	4,927.1	5,152.8	4,806.2	17.6	33.1	-24.97	-110.2	1,495.6	826.0	780.7	45.30	18.234		
5,100.0	5,024.9	5,268.4	4,914.8	18.1	33.8	-22.96	-146.9	1,510.5	816.6	770.6	45.96	17.768		
5,200.0	5,122.6	5,380.4	5,021.8	18.6	34.5	-21.31	-178.0	1,522.1	805.4	758.9	46.54	17.304		
5,300.0	5,220.4	5,491.0	5,128.6	19.0	35.0	-19.90	-205.1	1,531.6	793.2	746.2	47.07	16.851		
5,400.0	5,318.2	5,605.8	5,240.8	19.5	35.5	-18.78	-227.9	1,539.0	779.3	731.7	47.58	16.379		
5,500.0	5,415.9	5,712.8	5,346.5	19.9	35.8	-18.08	-244.4	1,544.3	764.1	716.1	48.05	15.901		
5,600.0	5,513.7	5,815.8	5,448.7	20.4	36.1	-17.66	-256.4	1,548.5	748.0	699.5	48.52	15.416		
5,700.0	5,611.5	5,917.3	5,549.7	20.9	36.4	-17.43	-265.8	1,552.2	731.6	682.6	48.98	14.936		
5,800.0	5,709.2	6,022.9	5,654.9	21.3	36.6	-17.37	-273.2	1,555.4	714.6	665.1	49.46	14.449		
5,900.0	5,807.0	6,126.3	5,758.2	21.8	36.7	-17.45	-278.8	1,557.6	696.6	646.7	49.93	13.951		
6,000.0	5,904.8	6,227.9	5,859.6	22.3	36.9	-17.66	-282.8	1,559.2	678.1	627.6	50.42	13.449		
6,100.0	6,002.5	6,326.0	5,957.7	22.7	37.0	-18.01	-285.1	1,560.5	659.3	608.4	50.91	12.952		
6,200.0	6,100.3	6,427.2	6,058.9	23.2	37.1	-18.45	-286.8	1,561.6	640.4	589.0	51.42	12.455		
6,300.0	6,198.0	6,527.5	6,159.2	23.7	37.2	-18.94	-288.3	1,562.2	621.0	569.1	51.94	11.957		
6,400.0	6,295.9	6,626.5	6,258.2	24.1	37.3	10.86	-290.0	1,562.7	601.4	549.4	51.99	11.568		
6,500.0	6,393.3	6,725.6	6,357.2	24.4	37.4	42.07	-292.0	1,562.8	581.5	529.9	51.61	11.267		
6,600.0	6,488.4	6,821.0	6,452.6	24.6	37.5	61.70	-294.2	1,562.7	562.5	511.5	51.01	11.028		
6,700.0	6,579.7	6,911.9	6,543.5	24.9	37.6	75.19	-296.6	1,562.5	546.9	496.6	50.32	10.869		
6,800.0	6,665.6	6,998.7	6,630.3	25.0	37.7	85.79	-299.2	1,562.1	537.5	487.8	49.63	10.830 SF		
6,848.2	6,704.6	7,037.9	6,669.4	25.1	37.8	90.15	-300.4	1,561.7	536.2	486.9	49.33	10.870 CC, ES		
6,900.0	6,744.6	7,077.6	6,709.1	25.2	37.8	94.32	-301.5	1,561.3	537.8	488.8	49.00	10.975		
7,000.0	6,815.5	7,145.5	6,776.9	25.3	37.9	100.73	-303.4	1,560.6	551.5	502.9	48.56	11.357		
7,100.0	6,876.9	7,204.2	6,835.6	25.5	37.9	105.10	-305.2	1,560.0	580.7	532.2	48.43	11.991		
7,200.0	6,927.8	7,252.4	6,883.9	25.6	38.0	107.20	-306.6	1,559.6	625.5	576.6	48.87	12.799		
7,300.0	6,967.4	7,288.7	6,920.1	25.8	38.0	106.63	-307.8	1,559.2	684.5	634.3	50.18	13.640		
7,400.0	6,995.0	7,312.7	6,944.1	26.0	38.1	102.88	-308.5	1,559.0	755.4	702.9	52.48	14.395		
7,500.0	7,010.1	7,324.1	6,955.5	26.3	38.1	95.19	-308.9	1,558.8	835.0	779.7	55.32	15.095		
7,600.0	7,012.8	7,323.6	6,954.9	26.8	38.1	86.44	-308.9	1,558.8	920.4	863.2	57.20	16.091		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10Q-321 - Wellbore #1 - Plan #3 (6-11-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	0.00	18.2	0.0	18.2				
100.0	100.0	99.0	99.0	0.1	0.1	0.00	18.2	0.0	18.2	18.0	0.19	93.598	
200.0	200.0	199.0	199.0	0.3	0.3	0.00	18.2	0.0	18.2	17.6	0.64	28.330	
300.0	300.0	299.0	299.0	0.5	0.5	0.00	18.2	0.0	18.2	17.1	1.09	16.671	
400.0	400.0	399.0	399.0	0.8	0.8	0.00	18.2	0.0	18.2	16.7	1.54	11.811	
500.0	500.0	499.0	499.0	1.0	1.0	0.00	18.2	0.0	18.2	16.2	1.99	9.145	
600.0	600.0	599.0	599.0	1.2	1.2	0.00	18.2	0.0	18.2	15.8	2.44	7.461	
700.0	700.0	699.0	699.0	1.4	1.4	0.00	18.2	0.0	18.2	15.3	2.89	6.300	
800.0	800.0	799.0	799.0	1.7	1.7	0.00	18.2	0.0	18.2	14.9	3.34	5.452	
900.0	900.0	899.0	899.0	1.9	1.9	0.00	18.2	0.0	18.2	14.4	3.79	4.806	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	0.00	18.2	0.0	18.2	14.0	4.24	4.296	
1,100.0	1,100.0	1,099.0	1,099.0	2.3	2.3	0.00	18.2	0.0	18.2	13.5	4.69	3.884	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	0.00	18.2	0.0	18.2	13.1	5.14	3.544 CC, ES	
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	-111.43	18.2	0.0	18.6	13.1	5.57	3.348	
1,400.0	1,399.9	1,398.9	1,398.9	3.0	3.0	-121.72	18.2	0.0	20.4	14.4	5.99	3.409	
1,500.0	1,499.7	1,499.1	1,499.0	3.2	3.2	-132.37	18.0	1.3	23.7	17.4	6.39	3.714	
1,600.0	1,599.3	1,599.3	1,599.2	3.4	3.4	-139.66	17.3	5.1	27.9	21.1	6.79	4.114	
1,700.0	1,698.6	1,699.7	1,699.4	3.6	3.6	-144.50	16.2	11.6	32.7	25.5	7.19	4.542	
1,800.0	1,797.5	1,800.3	1,799.6	3.9	3.9	-147.65	14.6	20.6	37.8	30.2	7.60	4.968	
1,900.0	1,896.1	1,900.2	1,898.9	4.2	4.1	-150.29	12.7	31.4	43.8	35.8	8.02	5.461	
2,000.0	1,994.2	1,999.8	1,997.9	4.5	4.3	-153.57	10.9	42.2	52.2	43.8	8.44	6.185	
2,100.0	2,091.9	2,099.3	2,096.8	4.9	4.6	-156.56	9.0	52.9	62.1	53.2	8.88	6.994	
2,200.0	2,189.7	2,198.8	2,195.6	5.2	4.8	-158.72	7.1	63.7	72.2	62.8	9.33	7.732	
2,300.0	2,287.5	2,298.2	2,294.5	5.6	5.1	-160.35	5.3	74.5	82.3	72.5	9.79	8.404	
2,400.0	2,385.2	2,397.7	2,393.4	6.0	5.4	-161.63	3.4	85.2	92.5	82.2	10.26	9.017	
2,500.0	2,483.0	2,497.2	2,492.2	6.4	5.6	-162.65	1.5	96.0	102.7	92.0	10.73	9.575	
2,600.0	2,580.8	2,596.6	2,591.1	6.8	5.9	-163.49	-0.4	106.7	113.0	101.8	11.20	10.086	
2,700.0	2,678.5	2,696.1	2,689.9	7.3	6.2	-164.18	-2.2	117.5	123.2	111.6	11.68	10.554	
2,800.0	2,776.3	2,795.5	2,788.8	7.7	6.4	-164.77	-4.1	128.3	133.5	121.4	12.16	10.984	
2,900.0	2,874.0	2,895.0	2,887.7	8.1	6.7	-165.28	-6.0	139.0	143.8	131.2	12.64	11.380	
3,000.0	2,971.8	2,994.5	2,986.5	8.6	7.0	-165.72	-7.8	149.8	154.1	141.0	13.12	11.745	
3,100.0	3,069.6	3,093.9	3,085.4	9.0	7.3	-166.10	-9.7	160.5	164.4	150.8	13.61	12.083	
3,200.0	3,167.3	3,193.4	3,184.2	9.4	7.6	-166.44	-11.6	171.3	174.7	160.7	14.10	12.396	
3,300.0	3,265.1	3,292.8	3,283.1	9.9	7.9	-166.74	-13.5	182.1	185.1	170.5	14.59	12.687	
3,400.0	3,362.9	3,392.3	3,382.0	10.3	8.2	-167.01	-15.3	192.8	195.4	180.3	15.08	12.959	
3,500.0	3,460.6	3,491.8	3,480.8	10.8	8.4	-167.25	-17.2	203.6	205.7	190.2	15.57	13.212	
3,600.0	3,558.4	3,591.2	3,579.7	11.2	8.7	-167.47	-19.1	214.3	216.1	200.0	16.07	13.449	
3,700.0	3,656.2	3,690.7	3,678.5	11.7	9.0	-167.67	-21.0	225.1	226.4	209.8	16.56	13.671	
3,800.0	3,753.9	3,790.2	3,777.4	12.1	9.3	-167.85	-22.8	235.9	236.8	219.7	17.06	13.879	
3,900.0	3,851.7	3,889.6	3,876.3	12.6	9.6	-168.01	-24.7	246.6	247.1	229.5	17.56	14.075	
4,000.0	3,949.5	3,989.1	3,975.1	13.1	9.9	-168.17	-26.6	257.4	257.4	239.4	18.05	14.259	
4,100.0	4,047.2	4,088.5	4,074.0	13.5	10.2	-168.31	-28.4	268.1	267.8	249.2	18.55	14.433	
4,200.0	4,145.0	4,188.0	4,172.8	14.0	10.5	-168.44	-30.3	278.9	278.1	259.1	19.05	14.598	
4,300.0	4,242.8	4,287.5	4,271.7	14.4	10.8	-168.56	-32.2	289.6	288.5	268.9	19.55	14.753	
4,400.0	4,340.5	4,386.9	4,370.6	14.9	11.1	-168.67	-34.1	300.4	298.8	278.8	20.06	14.901	
4,500.0	4,438.3	4,486.4	4,469.4	15.3	11.4	-168.77	-35.9	311.2	309.2	288.6	20.56	15.040	
4,600.0	4,536.0	4,585.8	4,568.3	15.8	11.7	-168.87	-37.8	321.9	319.5	298.5	21.06	15.173	
4,700.0	4,633.8	4,685.3	4,667.1	16.3	12.0	-168.97	-39.7	332.7	329.9	308.3	21.56	15.300	
4,800.0	4,731.6	4,784.8	4,766.0	16.7	12.3	-169.05	-41.5	343.4	340.3	318.2	22.07	15.420	
4,900.0	4,829.3	4,884.2	4,864.9	17.2	12.6	-169.13	-43.4	354.2	350.6	328.0	22.57	15.534	
5,000.0	4,927.1	4,983.7	4,963.7	17.6	12.9	-169.21	-45.3	365.0	361.0	337.9	23.07	15.644	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10Q-321 - Wellbore #1 - Plan #3 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,024.9	5,083.1	5,062.6	18.1	13.2	-169.28	-169.28	-47.2	375.7	371.3	347.7	23.58	15.748	
5,200.0	5,122.6	5,182.6	5,161.4	18.6	13.5	-169.35	-169.35	-49.0	386.5	381.7	357.6	24.08	15.848	
5,300.0	5,220.4	5,282.1	5,260.3	19.0	13.8	-169.42	-169.42	-50.9	397.2	392.0	367.4	24.59	15.943	
5,400.0	5,318.2	5,381.5	5,359.1	19.5	14.1	-169.48	-169.48	-52.8	408.0	402.4	377.3	25.10	16.035	
5,500.0	5,415.9	5,481.0	5,458.0	19.9	14.4	-169.54	-169.54	-54.7	418.8	412.8	387.1	25.60	16.122	
5,600.0	5,513.7	5,580.5	5,556.9	20.4	14.7	-169.59	-169.59	-56.5	429.5	423.1	397.0	26.11	16.206	
5,700.0	5,611.5	5,679.9	5,655.7	20.9	15.0	-169.64	-169.64	-58.4	440.3	433.5	406.9	26.61	16.287	
5,800.0	5,709.2	5,779.4	5,754.6	21.3	15.3	-169.69	-169.69	-60.3	451.0	443.8	416.7	27.12	16.365	
5,900.0	5,807.0	5,878.8	5,853.4	21.8	15.6	-169.74	-169.74	-62.1	461.8	454.2	426.6	27.63	16.439	
6,000.0	5,904.8	5,978.3	5,952.3	22.3	15.9	-169.79	-169.79	-64.0	472.6	464.6	436.4	28.14	16.511	
6,100.0	6,002.5	6,077.8	6,051.2	22.7	16.2	-169.83	-169.83	-65.9	483.3	474.9	446.3	28.64	16.580	
6,200.0	6,100.3	6,177.2	6,150.0	23.2	16.5	-169.87	-169.87	-67.8	494.1	485.3	456.1	29.15	16.647	
6,300.0	6,198.0	6,276.7	6,248.9	23.7	16.8	-169.92	-169.92	-69.6	504.8	495.6	466.0	29.66	16.711	
6,400.0	6,295.9	6,374.0	6,345.6	24.1	17.1	-141.26	-141.26	-71.4	515.4	504.1	473.9	30.22	16.683	
6,500.0	6,393.3	6,450.0	6,421.1	24.4	17.3	-113.32	-113.32	-68.4	523.6	509.5	478.9	30.60	16.652	
6,600.0	6,488.4	6,527.8	6,497.6	24.6	17.5	-98.56	-98.56	-57.4	531.9	513.6	482.7	30.89	16.629	
6,700.0	6,579.7	6,605.5	6,572.6	24.9	17.6	-91.19	-91.19	-38.7	540.1	516.6	485.4	31.13	16.595	
6,800.0	6,665.6	6,684.2	6,646.1	25.0	17.8	-87.56	-87.56	-12.1	548.1	518.5	487.1	31.37	16.526	
6,900.0	6,744.6	6,763.9	6,717.5	25.2	18.0	-86.01	-86.01	22.5	555.9	519.5	487.8	31.68	16.395	
7,000.0	6,815.5	6,844.9	6,785.9	25.3	18.1	-85.78	-85.78	65.1	563.4	519.7	487.6	32.11	16.184	
7,100.0	6,876.9	6,927.5	6,850.7	25.5	18.3	-86.48	-86.48	115.8	570.5	519.5	486.8	32.71	15.881	
7,200.0	6,927.8	7,012.0	6,910.9	25.6	18.5	-87.86	-87.86	174.6	577.1	519.0	485.5	33.52	15.484	
7,300.0	6,967.4	7,100.0	6,966.4	25.8	18.8	-89.84	-89.84	242.6	583.2	518.4	483.9	34.56	15.001	
7,400.0	6,995.0	7,187.9	7,013.7	26.0	19.2	-92.20	-92.20	316.5	588.4	518.1	482.2	35.84	14.457	
7,458.3	7,005.3	7,241.4	7,038.2	26.2	19.5	-93.79	-93.79	363.9	591.1	518.0	481.3	36.72	14.107	
7,500.0	7,010.1	7,280.2	7,053.9	26.3	19.7	-95.00	-95.00	399.3	592.8	518.0	480.6	37.38	13.859	
7,600.0	7,012.8	7,376.0	7,084.8	26.8	20.4	-98.09	-98.09	489.9	596.3	518.5	479.3	39.21	13.224	
7,700.0	7,012.0	7,477.6	7,105.1	27.4	21.3	-100.42	-100.42	589.4	598.6	519.6	478.3	41.32	12.578	
7,800.0	7,011.3	7,583.3	7,112.0	28.1	22.4	-101.28	-101.28	694.7	599.4	520.2	476.6	43.67	11.914	
7,900.0	7,010.5	7,683.5	7,111.3	29.0	23.5	-101.28	-101.28	794.9	599.4	520.2	474.1	46.15	11.272	
8,000.0	7,009.8	7,783.5	7,110.5	30.0	24.8	-101.28	-101.28	894.9	599.4	520.2	471.4	48.80	10.661	
8,100.0	7,009.0	7,883.5	7,109.8	31.1	26.1	-101.28	-101.28	994.9	599.4	520.2	468.7	51.59	10.085	
8,200.0	7,008.3	7,983.5	7,109.0	32.3	27.6	-101.28	-101.28	1,094.9	599.4	520.2	465.8	54.49	9.547	
8,300.0	7,007.5	8,083.5	7,108.3	33.6	29.0	-101.28	-101.28	1,194.9	599.4	520.2	462.7	57.50	9.048	
8,400.0	7,006.8	8,183.5	7,107.5	35.0	30.5	-101.28	-101.28	1,294.9	599.4	520.2	459.7	60.59	8.586	
8,500.0	7,006.0	8,283.5	7,106.7	36.4	32.1	-101.28	-101.28	1,394.9	599.4	520.2	456.5	63.76	8.159	
8,600.0	7,005.3	8,383.5	7,106.0	37.9	33.7	-101.28	-101.28	1,494.9	599.4	520.2	453.3	66.99	7.766	
8,700.0	7,004.5	8,483.5	7,105.2	39.4	35.3	-101.28	-101.28	1,594.9	599.4	520.2	450.0	70.28	7.403	
8,800.0	7,003.8	8,583.5	7,104.5	40.9	37.0	-101.28	-101.28	1,694.9	599.4	520.2	446.6	73.61	7.068	
8,900.0	7,003.0	8,683.5	7,103.7	42.5	38.7	-101.28	-101.28	1,794.9	599.4	520.2	443.3	76.98	6.758	
9,000.0	7,002.2	8,783.5	7,103.0	44.1	40.4	-101.28	-101.28	1,894.9	599.4	520.2	439.9	80.39	6.471	
9,100.0	7,001.5	8,883.5	7,102.2	45.7	42.1	-101.28	-101.28	1,994.9	599.4	520.2	436.4	83.83	6.206	
9,200.0	7,000.7	8,983.5	7,101.5	47.4	43.8	-101.28	-101.28	2,094.9	599.4	520.2	432.9	87.30	5.959	
9,300.0	7,000.0	9,083.5	7,100.7	49.1	45.6	-101.28	-101.28	2,194.9	599.4	520.2	429.5	90.79	5.730	
9,400.0	6,999.2	9,183.5	7,100.0	50.8	47.4	-101.28	-101.28	2,294.9	599.4	520.2	425.9	94.31	5.516	
9,500.0	6,998.5	9,283.5	7,099.2	52.5	49.1	-101.28	-101.28	2,394.9	599.4	520.2	422.4	97.84	5.317	
9,600.0	6,997.7	9,383.5	7,098.5	54.2	50.9	-101.28	-101.28	2,494.9	599.4	520.2	418.9	101.39	5.131	
9,700.0	6,997.0	9,483.5	7,097.7	55.9	52.7	-101.28	-101.28	2,594.9	599.4	520.2	415.3	104.96	4.957	
9,800.0	6,996.2	9,583.5	7,096.9	57.7	54.5	-101.28	-101.28	2,694.9	599.4	520.2	411.7	108.54	4.793	
9,900.0	6,995.5	9,683.5	7,096.2	59.4	56.3	-101.28	-101.28	2,794.9	599.4	520.2	408.1	112.14	4.639	
10,000.0	6,994.7	9,783.5	7,095.4	61.2	58.2	-101.28	-101.28	2,894.9	599.4	520.2	404.5	115.74	4.495	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10Q-321 - Wellbore #1 - Plan #3 (6-11-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,994.0	9,883.5	7,094.7	63.0	60.0	-101.28	2,994.8	599.4	520.2	400.9	119.36	4.359	
10,200.0	6,993.2	9,983.5	7,093.9	64.7	61.8	-101.28	3,094.8	599.4	520.2	397.3	122.98	4.230	
10,300.0	6,992.4	10,083.5	7,093.2	66.5	63.7	-101.28	3,194.8	599.4	520.2	393.6	126.62	4.109	
10,400.0	6,991.7	10,183.5	7,092.4	68.3	65.5	-101.28	3,294.8	599.4	520.2	390.0	130.26	3.994	
10,500.0	6,990.9	10,283.5	7,091.7	70.1	67.3	-101.28	3,394.8	599.4	520.2	386.3	133.91	3.885	
10,600.0	6,990.2	10,383.5	7,090.9	72.0	69.2	-101.28	3,494.8	599.4	520.2	382.7	137.57	3.782	
10,700.0	6,989.4	10,483.5	7,090.2	73.8	71.0	-101.28	3,594.8	599.4	520.2	379.0	141.23	3.684	
10,800.0	6,988.7	10,583.5	7,089.4	75.6	72.9	-101.28	3,694.8	599.4	520.2	375.3	144.90	3.590	
10,900.0	6,987.9	10,683.5	7,088.7	77.4	74.8	-101.28	3,794.8	599.4	520.2	371.7	148.58	3.502	
11,000.0	6,987.2	10,783.5	7,087.9	79.2	76.6	-101.28	3,894.8	599.4	520.2	368.0	152.25	3.417	
11,100.0	6,986.4	10,883.5	7,087.1	81.1	78.5	-101.28	3,994.8	599.4	520.2	364.3	155.94	3.336	
11,200.0	6,985.7	10,983.5	7,086.4	82.9	80.4	-101.28	4,094.8	599.4	520.2	360.6	159.63	3.259	
11,300.0	6,984.9	11,083.5	7,085.6	84.8	82.2	-101.28	4,194.8	599.4	520.2	356.9	163.32	3.185	
11,400.0	6,984.2	11,183.5	7,084.9	86.6	84.1	-101.28	4,294.8	599.4	520.2	353.2	167.02	3.115	
11,500.0	6,983.4	11,283.5	7,084.1	88.5	86.0	-101.28	4,394.8	599.4	520.2	349.5	170.71	3.047	
11,554.2	6,983.0	11,337.7	7,083.7	89.5	87.0	-101.28	4,449.0	599.4	520.2	347.5	172.72	3.012 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10Q-401 - Wellbore #1 - Plan #2 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	4.86		32.8	2.8	32.9				
100.0	100.0	99.0	99.0	0.1	0.1	4.86		32.8	2.8	32.9	32.7	0.19	169.144	
200.0	200.0	199.0	199.0	0.3	0.3	4.86		32.8	2.8	32.9	32.3	0.64	51.196	
300.0	300.0	299.0	299.0	0.5	0.5	4.86		32.8	2.8	32.9	31.8	1.09	30.127	
400.0	400.0	399.0	399.0	0.8	0.8	4.86		32.8	2.8	32.9	31.4	1.54	21.344	
500.0	500.0	499.0	499.0	1.0	1.0	4.86		32.8	2.8	32.9	30.9	1.99	16.526	
600.0	600.0	599.0	599.0	1.2	1.2	4.86		32.8	2.8	32.9	30.5	2.44	13.482	
700.0	700.0	699.0	699.0	1.4	1.4	4.86		32.8	2.8	32.9	30.0	2.89	11.386	
800.0	800.0	799.0	799.0	1.7	1.7	4.86		32.8	2.8	32.9	29.6	3.34	9.853	
900.0	900.0	899.0	899.0	1.9	1.9	4.86		32.8	2.8	32.9	29.1	3.79	8.684	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	4.86		32.8	2.8	32.9	28.7	4.24	7.763	
1,100.0	1,100.0	1,099.0	1,099.0	2.3	2.3	4.86		32.8	2.8	32.9	28.2	4.69	7.019	
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	4.86		32.8	2.8	32.9	27.8	5.14	6.405 CC	
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	-104.94		32.8	2.8	33.2	27.7	5.57	5.965 ES	
1,400.0	1,399.9	1,398.9	1,398.9	3.0	3.0	-111.24		32.8	2.8	34.4	28.5	5.99	5.752	
1,500.0	1,499.7	1,498.7	1,498.7	3.2	3.2	-120.59		32.8	2.8	37.3	30.9	6.41	5.819	
1,600.0	1,599.3	1,598.3	1,598.3	3.4	3.5	-131.13		32.8	2.8	42.7	35.9	6.84	6.246	
1,700.0	1,698.6	1,697.6	1,697.6	3.6	3.7	-140.97		32.8	2.8	51.2	44.0	7.26	7.056	
1,800.0	1,797.5	1,796.5	1,796.5	3.9	3.9	-149.09		32.8	2.8	63.1	55.4	7.68	8.214	
1,900.0	1,896.1	1,895.1	1,895.1	4.2	4.1	-155.37		32.8	2.8	78.1	70.0	8.09	9.657	
2,000.0	1,994.2	1,993.2	1,993.2	4.5	4.4	-160.12		32.8	2.8	96.2	87.7	8.50	11.325	
2,100.0	2,091.9	2,093.7	2,093.7	4.9	4.6	-163.81		32.0	3.6	115.2	106.3	8.91	12.921	
2,200.0	2,189.7	2,195.4	2,195.3	5.2	4.7	-166.72		29.4	6.4	131.9	122.6	9.31	14.159	
2,300.0	2,287.5	2,297.8	2,297.5	5.6	4.9	-169.24		24.8	11.2	146.3	136.6	9.72	15.045	
2,400.0	2,385.2	2,400.8	2,400.1	6.0	5.1	-171.60		18.4	18.1	158.4	148.2	10.14	15.614	
2,500.0	2,483.0	2,500.8	2,499.5	6.4	5.3	-173.76		10.9	26.0	169.0	158.4	10.57	15.990	
2,600.0	2,580.8	2,600.1	2,598.2	6.8	5.6	-175.66		3.4	34.0	179.7	168.7	11.00	16.336	
2,700.0	2,678.5	2,699.3	2,696.8	7.3	5.8	-177.34		-4.1	41.9	190.6	179.2	11.44	16.657	
2,800.0	2,776.3	2,798.6	2,795.5	7.7	6.0	-178.84		-11.5	49.8	201.7	189.8	11.90	16.953	
2,900.0	2,874.0	2,897.9	2,894.1	8.1	6.3	-179.82		-19.0	57.8	212.9	200.5	12.36	17.225	
3,000.0	2,971.8	2,997.1	2,992.8	8.6	6.5	-178.62		-26.5	65.7	224.2	211.4	12.83	17.475	
3,100.0	3,069.6	3,096.4	3,091.4	9.0	6.8	-177.52		-34.0	73.7	235.6	222.3	13.31	17.703	
3,200.0	3,167.3	3,195.6	3,190.1	9.4	7.0	-176.53		-41.5	81.6	247.0	233.3	13.79	17.911	
3,300.0	3,265.1	3,294.9	3,288.7	9.9	7.3	-175.63		-48.9	89.5	258.6	244.3	14.29	18.101	
3,400.0	3,362.9	3,394.1	3,387.4	10.3	7.5	-174.81		-56.4	97.5	270.2	255.4	14.78	18.274	
3,500.0	3,460.6	3,493.4	3,486.0	10.8	7.8	-174.05		-63.9	105.4	281.8	266.5	15.29	18.433	
3,600.0	3,558.4	3,592.6	3,584.7	11.2	8.1	-173.35		-71.4	113.3	293.5	277.7	15.80	18.578	
3,700.0	3,656.2	3,691.9	3,683.3	11.7	8.3	-172.71		-78.8	121.3	305.2	288.9	16.31	18.710	
3,800.0	3,753.9	3,791.1	3,782.0	12.1	8.6	-172.11		-86.3	129.2	317.0	300.1	16.83	18.831	
3,900.0	3,851.7	3,890.4	3,880.7	12.6	8.9	-171.56		-93.8	137.1	328.7	311.4	17.36	18.942	
4,000.0	3,949.5	3,989.7	3,979.3	13.1	9.2	-171.04		-101.3	145.1	340.6	322.7	17.88	19.044	
4,100.0	4,047.2	4,088.9	4,078.0	13.5	9.5	-170.56		-108.7	153.0	352.4	334.0	18.41	19.138	
4,200.0	4,145.0	4,188.2	4,176.6	14.0	9.7	-170.11		-116.2	161.0	364.3	345.3	18.95	19.224	
4,300.0	4,242.8	4,287.4	4,275.3	14.4	10.0	-169.69		-123.7	168.9	376.2	356.7	19.49	19.304	
4,400.0	4,340.5	4,386.7	4,373.9	14.9	10.3	-169.30		-131.2	176.8	388.1	368.0	20.03	19.377	
4,500.0	4,438.3	4,485.9	4,472.6	15.3	10.6	-168.93		-138.7	184.8	400.0	379.4	20.57	19.445	
4,600.0	4,536.0	4,585.2	4,571.2	15.8	10.9	-168.58		-146.1	192.7	411.9	390.8	21.12	19.507	
4,700.0	4,633.8	4,684.4	4,669.9	16.3	11.2	-168.25		-153.6	200.6	423.9	402.2	21.66	19.565	
4,800.0	4,731.6	4,783.7	4,768.5	16.7	11.5	-167.93		-161.1	208.6	435.8	413.6	22.21	19.619	
4,900.0	4,829.3	4,882.9	4,867.2	17.2	11.7	-167.64		-168.6	216.5	447.8	425.0	22.77	19.669	
5,000.0	4,927.1	4,982.2	4,965.8	17.6	12.0	-167.36		-176.0	224.4	459.8	436.5	23.32	19.716	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10Q-401 - Wellbore #1 - Plan #2 (6-11-15)												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
5,100.0	5,024.9	5,081.5	5,064.5	18.1	12.3	167.09	-183.5	232.4	471.8	447.9	23.88	19.759	
5,200.0	5,122.6	5,180.7	5,163.2	18.6	12.6	166.84	-191.0	240.3	483.8	459.4	24.44	19.799	
5,300.0	5,220.4	5,280.0	5,261.8	19.0	12.9	166.60	-198.5	248.2	495.8	470.8	24.99	19.837	
5,400.0	5,318.2	5,379.2	5,360.5	19.5	13.2	166.37	-205.9	256.2	507.8	482.3	25.56	19.872	
5,500.0	5,415.9	5,478.5	5,459.1	19.9	13.5	166.15	-213.4	264.1	519.9	493.8	26.12	19.905	
5,600.0	5,513.7	5,577.7	5,557.8	20.4	13.8	165.94	-220.9	272.1	531.9	505.2	26.68	19.936	
5,700.0	5,611.5	5,677.0	5,656.4	20.9	14.1	165.74	-228.4	280.0	544.0	516.7	27.25	19.965	
5,800.0	5,709.2	5,776.2	5,755.1	21.3	14.4	165.55	-235.9	287.9	556.0	528.2	27.81	19.992	
5,900.0	5,807.0	5,875.5	5,853.7	21.8	14.7	165.37	-243.3	295.9	568.1	539.7	28.38	20.018	
6,000.0	5,904.8	5,974.7	5,952.4	22.3	15.0	165.19	-250.8	303.8	580.1	551.2	28.95	20.042	
6,100.0	6,002.5	6,074.0	6,051.0	22.7	15.3	165.03	-258.3	311.7	592.2	562.7	29.52	20.064	
6,200.0	6,100.3	6,173.3	6,149.7	23.2	15.6	164.86	-265.8	319.7	604.3	574.2	30.09	20.086	
6,300.0	6,198.0	6,272.5	6,248.3	23.7	15.9	164.71	-273.2	327.6	616.4	585.7	30.66	20.106	
6,400.0	6,295.9	6,371.6	6,346.8	24.1	16.2	-166.44	-280.7	335.5	628.3	597.2	31.15	20.172	
6,500.0	6,393.3	6,468.8	6,443.6	24.4	16.4	-138.55	-286.0	343.3	640.1	608.5	31.64	20.234	
6,600.0	6,488.4	6,567.1	6,541.3	24.6	16.6	-123.60	-279.9	351.2	652.1	620.1	31.99	20.383	
6,700.0	6,579.7	6,667.7	6,639.7	24.9	16.7	-115.76	-260.7	359.1	664.1	631.9	32.23	20.603	
6,800.0	6,665.6	6,770.9	6,737.1	25.0	16.8	-111.36	-227.8	366.9	675.9	643.5	32.39	20.866	
6,900.0	6,744.6	6,876.9	6,831.5	25.2	16.8	-108.74	-180.6	374.4	687.2	654.7	32.52	21.130	
7,000.0	6,815.5	6,985.6	6,920.7	25.3	16.8	-107.15	-119.0	381.6	697.8	665.1	32.71	21.336	
7,100.0	6,876.9	7,097.2	7,002.3	25.5	16.8	-106.19	-43.2	388.1	707.5	674.4	33.04	21.414	
7,200.0	6,927.8	7,211.6	7,073.5	25.6	16.7	-105.64	45.9	393.8	715.8	682.2	33.62	21.291	
7,300.0	6,967.4	7,328.5	7,131.8	25.8	16.7	-105.36	147.0	398.4	722.6	688.1	34.55	20.917	
7,400.0	6,995.0	7,447.5	7,174.7	26.0	17.3	-105.28	257.9	401.8	727.7	691.8	35.88	20.282	
7,500.0	7,010.1	7,568.3	7,200.2	26.3	18.3	-105.33	375.8	403.8	730.8	693.2	37.64	19.415	
7,600.0	7,012.8	7,685.6	7,207.1	26.8	19.5	-105.48	492.8	404.3	731.9	692.2	39.72	18.428	
7,700.0	7,012.0	7,785.6	7,207.8	27.4	20.6	-105.59	592.8	404.3	732.3	690.5	41.81	17.515	
7,800.0	7,011.3	7,885.6	7,208.5	28.1	21.8	-105.70	692.8	404.3	732.7	688.6	44.11	16.612	
7,900.0	7,010.5	7,985.6	7,209.2	29.0	23.1	-105.81	792.7	404.3	733.1	686.5	46.59	15.736	
8,000.0	7,009.8	8,085.6	7,210.0	30.0	24.5	-105.92	892.7	404.3	733.5	684.3	49.22	14.903	
8,100.0	7,009.0	8,185.5	7,210.7	31.1	26.0	-106.03	992.7	404.3	733.9	681.9	51.98	14.119	
8,200.0	7,008.3	8,285.5	7,211.4	32.3	27.5	-106.13	1,092.7	404.3	734.3	679.4	54.85	13.387	
8,300.0	7,007.5	8,385.5	7,212.1	33.6	29.0	-106.24	1,192.7	404.3	734.7	676.9	57.81	12.709	
8,400.0	7,006.8	8,485.5	7,212.8	35.0	30.6	-106.35	1,292.7	404.3	735.1	674.3	60.85	12.081	
8,500.0	7,006.0	8,585.5	7,213.5	36.4	32.2	-106.46	1,392.7	404.3	735.5	671.6	63.95	11.501	
8,600.0	7,005.3	8,685.5	7,214.2	37.9	33.9	-106.57	1,492.7	404.3	735.9	668.8	67.12	10.965	
8,700.0	7,004.5	8,785.5	7,214.9	39.4	35.6	-106.68	1,592.6	404.3	736.3	666.0	70.32	10.471	
8,800.0	7,003.8	8,885.5	7,215.6	40.9	37.3	-106.79	1,692.6	404.3	736.8	663.2	73.58	10.014	
8,900.0	7,003.0	8,985.5	7,216.3	42.5	39.0	-106.90	1,792.6	404.3	737.2	660.3	76.86	9.591	
9,000.0	7,002.2	9,085.4	7,217.0	44.1	40.7	-107.00	1,892.6	404.3	737.6	657.4	80.18	9.200	
9,100.0	7,001.5	9,185.4	7,217.7	45.7	42.5	-107.11	1,992.6	404.3	738.0	654.5	83.52	8.837	
9,200.0	7,000.7	9,285.4	7,218.4	47.4	44.3	-107.22	2,092.6	404.3	738.5	651.6	86.88	8.500	
9,300.0	7,000.0	9,385.4	7,219.1	49.1	46.1	-107.33	2,192.6	404.3	738.9	648.6	90.27	8.186	
9,400.0	6,999.2	9,485.4	7,219.8	50.8	47.8	-107.44	2,292.5	404.3	739.3	645.7	93.67	7.893	
9,500.0	6,998.5	9,585.4	7,220.5	52.5	49.6	-107.54	2,392.5	404.3	739.8	642.7	97.09	7.620	
9,600.0	6,997.7	9,685.4	7,221.2	54.2	51.5	-107.65	2,492.5	404.3	740.2	639.7	100.52	7.364	
9,700.0	6,997.0	9,785.4	7,221.9	55.9	53.3	-107.76	2,592.5	404.3	740.7	636.7	103.96	7.125	
9,800.0	6,996.2	9,885.4	7,222.6	57.7	55.1	-107.87	2,692.5	404.3	741.1	633.7	107.41	6.900	
9,900.0	6,995.5	9,985.3	7,223.3	59.4	56.9	-107.97	2,792.5	404.3	741.6	630.7	110.87	6.689	
10,000.0	6,994.7	10,085.3	7,224.0	61.2	58.8	-108.08	2,892.5	404.3	742.0	627.7	114.34	6.490	
10,100.0	6,994.0	10,185.3	7,224.7	63.0	60.6	-108.19	2,992.5	404.3	742.5	624.6	117.81	6.302	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10Q-401 - Wellbore #1 - Plan #2 (6-11-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	6,993.2	10,285.3	7,225.4	64.7	62.4	-108.29	3,092.4	404.3	742.9	621.6	121.29	6.125	
10,300.0	6,992.4	10,385.3	7,226.1	66.5	64.3	-108.40	3,192.4	404.3	743.4	618.6	124.77	5.958	
10,400.0	6,991.7	10,485.3	7,226.8	68.3	66.2	-108.51	3,292.4	404.3	743.8	615.6	128.26	5.800	
10,500.0	6,990.9	10,585.3	7,227.5	70.1	68.0	-108.61	3,392.4	404.3	744.3	612.6	131.74	5.650	
10,600.0	6,990.2	10,685.3	7,228.2	72.0	69.9	-108.72	3,492.4	404.3	744.8	609.5	135.24	5.507	
10,700.0	6,989.4	10,785.3	7,228.9	73.8	71.7	-108.82	3,592.4	404.3	745.2	606.5	138.73	5.372	
10,800.0	6,988.7	10,885.3	7,229.6	75.6	73.6	-108.93	3,692.4	404.3	745.7	603.5	142.23	5.243	
10,900.0	6,987.9	10,985.2	7,230.3	77.4	75.5	-109.04	3,792.4	404.3	746.2	600.5	145.72	5.121	
11,000.0	6,987.2	11,085.2	7,231.0	79.2	77.3	-109.14	3,892.3	404.3	746.7	597.4	149.22	5.004	
11,100.0	6,986.4	11,185.2	7,231.7	81.1	79.2	-109.25	3,992.3	404.3	747.1	594.4	152.72	4.892	
11,200.0	6,985.7	11,285.2	7,232.4	82.9	81.1	-109.35	4,092.3	404.3	747.6	591.4	156.21	4.786	
11,300.0	6,984.9	11,385.2	7,233.1	84.8	83.0	-109.46	4,192.3	404.3	748.1	588.4	159.71	4.684	
11,400.0	6,984.2	11,485.2	7,233.8	86.6	84.8	-109.56	4,292.3	404.3	748.6	585.4	163.21	4.587	
11,500.0	6,983.4	11,585.2	7,234.5	88.5	86.7	-109.67	4,392.3	404.3	749.1	582.4	166.70	4.493	
11,554.2	6,983.0	11,639.4	7,234.9	89.5	87.7	-109.72	4,446.5	404.3	749.3	580.7	168.60	4.445 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-180.00	-29.1	0.0	29.1				
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-180.00	-29.1	0.0	29.1	28.9	0.20	149.020	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-180.00	-29.1	0.0	29.1	28.5	0.65	45.173	
300.0	300.0	300.0	300.0	0.5	0.5	-180.00	-180.00	-29.1	0.0	29.1	28.0	1.09	26.622	
400.0	400.0	400.0	400.0	0.8	0.8	-180.00	-180.00	-29.1	0.0	29.1	27.6	1.54	18.872	
500.0	500.0	500.0	500.0	1.0	1.0	-180.00	-180.00	-29.1	0.0	29.1	27.1	1.99	14.616	
600.0	600.0	600.0	600.0	1.2	1.2	-180.00	-180.00	-29.1	0.0	29.1	26.7	2.44	11.927	
700.0	700.0	700.0	700.0	1.4	1.4	-180.00	-180.00	-29.1	0.0	29.1	26.2	2.89	10.074	
800.0	800.0	800.0	800.0	1.7	1.7	-180.00	-180.00	-29.1	0.0	29.1	25.8	3.34	8.719 CC	
900.0	900.0	899.9	899.8	1.9	1.9	177.49	-29.4	1.3	29.4	25.6	3.78	7.781 ES		
1,000.0	1,000.0	999.6	999.5	2.1	2.1	170.26	-30.0	5.1	30.4	26.2	4.20	7.242		
1,100.0	1,100.0	1,099.0	1,098.7	2.3	2.3	159.59	-31.0	11.5	33.1	28.5	4.64	7.147		
1,200.0	1,200.0	1,198.1	1,197.3	2.6	2.5	147.80	-32.5	20.5	38.5	33.4	5.09	7.565		
1,300.0	1,300.0	1,296.7	1,295.3	2.8	2.8	30.30	-34.3	31.8	45.9	40.4	5.50	8.345		
1,400.0	1,399.9	1,395.1	1,392.7	3.0	3.0	22.98	-36.6	45.7	54.1	48.2	5.91	9.155		
1,500.0	1,499.7	1,493.3	1,489.5	3.2	3.3	17.35	-39.2	61.9	62.8	56.5	6.33	9.928		
1,600.0	1,599.3	1,591.1	1,585.5	3.4	3.7	12.86	-42.3	80.6	71.8	65.1	6.75	10.643		
1,700.0	1,698.6	1,688.7	1,680.7	3.6	4.1	9.15	-45.7	101.6	81.0	73.8	7.17	11.296		
1,800.0	1,797.5	1,786.1	1,775.2	3.9	4.5	6.00	-49.5	124.9	90.3	82.7	7.60	11.887		
1,900.0	1,896.1	1,883.2	1,868.7	4.2	5.0	3.25	-53.7	150.6	99.8	91.7	8.03	12.420		
2,000.0	1,994.2	1,981.4	1,962.7	4.5	5.5	0.79	-58.2	178.6	109.0	100.5	8.48	12.851		
2,100.0	2,091.9	2,080.9	2,057.9	4.9	6.0	-1.33	-62.9	207.3	117.2	108.2	8.97	13.067		
2,200.0	2,189.7	2,180.5	2,153.2	5.2	6.6	-3.18	-67.6	236.0	125.5	116.0	9.47	13.254		
2,300.0	2,287.5	2,280.1	2,248.4	5.6	7.2	-4.80	-72.3	264.7	133.9	123.9	9.98	13.418		
2,400.0	2,385.2	2,379.7	2,343.7	6.0	7.7	-6.23	-76.9	293.4	142.4	131.9	10.50	13.560		
2,500.0	2,483.0	2,479.2	2,438.9	6.4	8.3	-7.49	-81.6	322.1	151.0	140.0	11.04	13.682		
2,600.0	2,580.8	2,578.8	2,534.1	6.8	8.9	-8.62	-86.3	350.8	159.7	148.1	11.58	13.787		
2,700.0	2,678.5	2,678.4	2,629.4	7.3	9.5	-9.63	-91.0	379.5	168.4	156.2	12.14	13.875		
2,800.0	2,776.3	2,778.0	2,724.6	7.7	10.1	-10.54	-95.7	408.2	177.1	164.4	12.70	13.949		
2,900.0	2,874.0	2,877.6	2,819.8	8.1	10.7	-11.37	-100.3	436.9	185.9	172.7	13.27	14.011		
3,000.0	2,971.8	2,977.1	2,915.1	8.6	11.3	-12.12	-105.0	465.6	194.8	180.9	13.85	14.062		
3,100.0	3,069.6	3,076.7	3,010.3	9.0	11.9	-12.80	-109.7	494.3	203.6	189.2	14.44	14.104		
3,200.0	3,167.3	3,176.3	3,105.5	9.4	12.5	-13.43	-114.4	523.0	212.5	197.5	15.03	14.139		
3,300.0	3,265.1	3,275.9	3,200.8	9.9	13.1	-14.01	-119.0	551.7	221.5	205.8	15.63	14.167		
3,400.0	3,362.9	3,375.4	3,296.0	10.3	13.7	-14.54	-123.7	580.4	230.4	214.2	16.24	14.189		
3,500.0	3,460.6	3,475.0	3,391.3	10.8	14.4	-15.04	-128.4	609.1	239.3	222.5	16.85	14.207		
3,600.0	3,558.4	3,574.6	3,486.5	11.2	15.0	-15.49	-133.1	637.8	248.3	230.8	17.46	14.220		
3,700.0	3,656.2	3,674.2	3,581.7	11.7	15.6	-15.92	-137.8	666.5	257.3	239.2	18.08	14.230		
3,800.0	3,753.9	3,773.8	3,677.0	12.1	16.2	-16.32	-142.4	695.2	266.3	247.6	18.70	14.237		
3,900.0	3,851.7	3,873.3	3,772.2	12.6	16.8	-16.69	-147.1	723.9	275.3	256.0	19.33	14.241		
4,000.0	3,949.5	3,972.9	3,867.4	13.1	17.4	-17.03	-151.8	752.6	284.3	264.4	19.96	14.244		
4,100.0	4,047.2	4,072.5	3,962.7	13.5	18.0	-17.36	-156.5	781.3	293.4	272.8	20.60	14.244		
4,200.0	4,145.0	4,172.1	4,057.9	14.0	18.7	-17.67	-161.1	810.0	302.4	281.2	21.23	14.243		
4,300.0	4,242.8	4,271.6	4,153.2	14.4	19.3	-17.96	-165.8	838.7	311.4	289.6	21.87	14.241		
4,400.0	4,340.5	4,371.2	4,248.4	14.9	19.9	-18.23	-170.5	867.4	320.5	298.0	22.51	14.237		
4,500.0	4,438.3	4,470.8	4,343.6	15.3	20.5	-18.49	-175.2	896.1	329.6	306.4	23.15	14.233		
4,600.0	4,536.0	4,570.4	4,438.9	15.8	21.1	-18.73	-179.8	924.8	338.6	314.8	23.80	14.228		
4,700.0	4,633.8	4,670.0	4,534.1	16.3	21.8	-18.96	-184.5	953.5	347.7	323.3	24.45	14.222		
4,800.0	4,731.6	4,769.5	4,629.3	16.7	22.4	-19.18	-189.2	982.2	356.8	331.7	25.10	14.216		
4,900.0	4,829.3	4,869.1	4,724.6	17.2	23.0	-19.39	-193.9	1,010.9	365.9	340.1	25.75	14.209		
5,000.0	4,927.1	4,968.7	4,819.8	17.6	23.6	-19.59	-198.6	1,039.6	375.0	348.6	26.40	14.202		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.0	5,024.9	5,068.3	4,915.1	18.1	24.2	-19.78	-203.2	1,068.3	384.0	357.0	27.06	14.195		
5,200.0	5,122.6	5,167.8	5,010.3	18.6	24.9	-19.96	-207.9	1,097.0	393.1	365.4	27.71	14.187		
5,300.0	5,220.4	5,267.4	5,105.5	19.0	25.5	-20.13	-212.6	1,125.7	402.2	373.9	28.37	14.180		
5,400.0	5,318.2	5,367.0	5,200.8	19.5	26.1	-20.29	-217.3	1,154.4	411.3	382.3	29.03	14.172		
5,500.0	5,415.9	5,466.6	5,296.0	19.9	26.7	-20.45	-221.9	1,183.1	420.5	390.8	29.68	14.164		
5,600.0	5,513.7	5,566.2	5,391.2	20.4	27.3	-20.60	-226.6	1,211.8	429.6	399.2	30.35	14.156		
5,700.0	5,611.5	5,665.7	5,486.5	20.9	28.0	-20.75	-231.3	1,240.5	438.7	407.7	31.01	14.148		
5,800.0	5,709.2	5,765.3	5,581.7	21.3	28.6	-20.88	-236.0	1,269.2	447.8	416.1	31.67	14.140		
5,900.0	5,807.0	5,864.9	5,677.0	21.8	29.2	-21.02	-240.6	1,297.9	456.9	424.6	32.33	14.132		
6,000.0	5,904.8	5,964.5	5,772.2	22.3	29.8	-21.14	-245.3	1,326.6	466.0	433.0	33.00	14.124		
6,100.0	6,002.5	6,064.0	5,867.4	22.7	30.4	-21.27	-250.0	1,355.3	475.1	441.5	33.66	14.116		
6,200.0	6,100.3	6,163.6	5,962.7	23.2	31.1	-21.39	-254.7	1,384.0	484.3	449.9	34.33	14.108		
6,300.0	6,198.0	6,263.2	6,057.9	23.7	31.7	-21.50	-259.4	1,412.7	493.4	458.4	34.99	14.100		
6,400.0	6,295.9	6,362.7	6,153.1	24.1	32.3	7.01	-264.0	1,441.4	502.2	466.6	35.62	14.100		
6,500.0	6,393.3	6,461.0	6,247.1	24.4	32.9	36.62	-268.7	1,469.8	510.3	474.5	35.75	14.273		
6,600.0	6,488.4	6,556.9	6,338.8	24.6	33.4	54.25	-269.7	1,497.4	518.6	483.0	35.58	14.574		
6,700.0	6,579.7	6,655.1	6,432.2	24.9	33.9	64.77	-258.8	1,525.6	527.7	492.3	35.44	14.891		
6,800.0	6,665.6	6,756.8	6,526.7	25.0	34.4	71.80	-234.4	1,554.1	537.6	502.2	35.41	15.183		
6,900.0	6,744.6	6,862.4	6,620.5	25.2	34.8	76.95	-195.4	1,582.5	547.9	512.4	35.54	15.418		
7,000.0	6,815.5	6,972.2	6,711.7	25.3	35.2	80.94	-140.9	1,610.1	558.3	522.5	35.86	15.571		
7,100.0	6,876.9	7,086.5	6,797.5	25.5	35.6	84.15	-70.4	1,636.2	568.5	532.1	36.38	15.627		
7,200.0	6,927.8	7,205.3	6,875.1	25.6	35.9	86.74	16.2	1,659.7	578.0	540.9	37.10	15.578		
7,300.0	6,967.4	7,328.6	6,941.1	25.8	36.3	88.81	118.3	1,679.9	586.3	548.2	38.02	15.419		
7,400.0	6,995.0	7,455.9	6,991.7	26.0	36.6	90.40	234.0	1,695.4	592.9	553.8	39.16	15.141		
7,500.0	7,010.1	7,586.7	7,023.9	26.3	36.9	91.51	360.2	1,705.4	597.6	557.1	40.53	14.745		
7,600.0	7,012.8	7,720.0	7,035.0	26.8	37.3	92.12	492.8	1,709.0	599.8	557.6	42.25	14.197		
7,700.0	7,012.0	7,821.6	7,034.3	27.4	37.7	92.12	594.3	1,709.0	599.8	555.6	44.28	13.546		
7,800.0	7,011.3	7,921.6	7,033.5	28.1	38.1	92.12	694.3	1,709.0	599.8	553.3	46.49	12.901		
7,900.0	7,010.5	8,021.6	7,032.8	29.0	38.7	92.12	794.3	1,709.0	599.8	550.9	48.91	12.265		
8,000.0	7,009.8	8,121.6	7,032.0	30.0	39.3	92.12	894.3	1,709.0	599.8	548.3	51.49	11.648		
8,100.0	7,009.0	8,221.6	7,031.3	31.1	40.0	92.12	994.3	1,709.0	599.8	545.6	54.23	11.061		
8,200.0	7,008.3	8,321.6	7,030.5	32.3	40.8	92.12	1,094.3	1,709.0	599.8	542.7	57.09	10.507		
8,300.0	7,007.5	8,421.6	7,029.8	33.6	41.7	92.12	1,194.3	1,709.0	599.8	539.8	60.06	9.987		
8,400.0	7,006.8	8,521.6	7,029.0	35.0	42.6	92.12	1,294.3	1,709.0	599.8	536.7	63.13	9.502		
8,500.0	7,006.0	8,621.6	7,028.2	36.4	43.7	92.12	1,394.3	1,709.0	599.8	533.6	66.27	9.051		
8,600.0	7,005.3	8,721.6	7,027.5	37.9	44.8	92.12	1,494.3	1,709.0	599.8	530.3	69.48	8.633		
8,700.0	7,004.5	8,821.6	7,026.7	39.4	46.0	92.12	1,594.3	1,709.0	599.8	527.1	72.76	8.244		
8,800.0	7,003.8	8,921.6	7,026.0	40.9	47.2	92.12	1,694.3	1,709.0	599.8	523.7	76.08	7.884		
8,900.0	7,003.0	9,021.6	7,025.2	42.5	48.5	92.12	1,794.3	1,709.0	599.8	520.4	79.46	7.549		
9,000.0	7,002.2	9,121.6	7,024.5	44.1	49.9	92.12	1,894.3	1,709.0	599.8	517.0	82.87	7.238		
9,100.0	7,001.5	9,221.6	7,023.7	45.7	51.2	92.12	1,994.3	1,709.0	599.8	513.5	86.32	6.949		
9,200.0	7,000.7	9,321.6	7,023.0	47.4	52.7	92.12	2,094.3	1,709.0	599.8	510.0	89.80	6.680		
9,300.0	7,000.0	9,421.6	7,022.2	49.1	54.1	92.12	2,194.3	1,709.0	599.8	506.5	93.31	6.429		
9,400.0	6,999.2	9,521.6	7,021.5	50.8	55.6	92.12	2,294.3	1,709.0	599.8	503.0	96.84	6.194		
9,500.0	6,998.5	9,621.6	7,020.7	52.5	57.2	92.12	2,394.3	1,709.0	599.8	499.4	100.39	5.975		
9,600.0	6,997.7	9,721.6	7,019.9	54.2	58.7	92.12	2,494.3	1,709.0	599.8	495.9	103.97	5.769		
9,700.0	6,997.0	9,821.6	7,019.2	55.9	60.3	92.12	2,594.3	1,709.0	599.8	492.3	107.56	5.577		
9,800.0	6,996.2	9,921.6	7,018.4	57.7	61.9	92.12	2,694.3	1,709.0	599.8	488.7	111.17	5.396		
9,900.0	6,995.5	10,021.6	7,017.7	59.4	63.5	92.12	2,794.3	1,709.0	599.8	485.0	114.80	5.225		
10,000.0	6,994.7	10,121.6	7,016.9	61.2	65.2	92.12	2,894.3	1,709.0	599.8	481.4	118.43	5.065		
10,100.0	6,994.0	10,221.6	7,016.2	63.0	66.8	92.12	2,994.3	1,709.0	599.8	477.7	122.08	4.913		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design											Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-201 - Wellbore #1 - Plan #1 (6-11-15)		Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)	
10,200.0	6,993.2	10,321.6	7,015.4	64.7	68.5	92.12	3,094.2	1,709.0	599.8	474.1	125.74	4.770		
10,300.0	6,992.4	10,421.6	7,014.7	66.5	70.2	92.12	3,194.2	1,709.0	599.8	470.4	129.42	4.635		
10,400.0	6,991.7	10,521.6	7,013.9	68.3	71.9	92.12	3,294.2	1,709.0	599.8	466.7	133.10	4.507		
10,500.0	6,990.9	10,621.6	7,013.1	70.1	73.6	92.12	3,394.2	1,709.0	599.8	463.0	136.78	4.385		
10,600.0	6,990.2	10,721.6	7,012.4	72.0	75.3	92.12	3,494.2	1,709.0	599.8	459.3	140.48	4.270		
10,700.0	6,989.4	10,821.6	7,011.6	73.8	77.0	92.12	3,594.2	1,709.0	599.8	455.6	144.19	4.160		
10,800.0	6,988.7	10,921.6	7,010.9	75.6	78.8	92.12	3,694.2	1,709.0	599.8	451.9	147.90	4.056		
10,900.0	6,987.9	11,021.6	7,010.1	77.4	80.5	92.12	3,794.2	1,709.0	599.8	448.2	151.61	3.956		
11,000.0	6,987.2	11,121.6	7,009.4	79.2	82.3	92.12	3,894.2	1,709.0	599.8	444.5	155.34	3.861		
11,100.0	6,986.4	11,221.6	7,008.6	81.1	84.1	92.12	3,994.2	1,709.0	599.8	440.8	159.06	3.771		
11,200.0	6,985.7	11,321.6	7,007.9	82.9	85.8	92.12	4,094.2	1,709.0	599.8	437.0	162.80	3.685		
11,300.0	6,984.9	11,421.6	7,007.1	84.8	87.6	92.12	4,194.2	1,709.0	599.8	433.3	166.54	3.602		
11,400.0	6,984.2	11,521.6	7,006.4	86.6	89.4	92.12	4,294.2	1,709.0	599.8	429.6	170.28	3.523		
11,500.0	6,983.4	11,621.6	7,005.6	88.5	91.2	92.12	4,394.2	1,709.0	599.8	425.8	174.03	3.447		
11,534.4	6,983.1	11,656.0	7,005.3	89.1	91.8	92.12	4,428.6	1,709.0	599.8	424.5	175.31	3.421		
11,554.2	6,983.0	11,661.0	7,005.3	89.5	91.9	92.12	4,433.7	1,709.0	600.0	424.2	175.78	3.413 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design		Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)											Offset Site Error: 0.0 ft	
Survey Program: 0-MWDD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.0	0.0	0.0	0.0	0.0	0.0	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		
500.0	500.0	500.0	500.0	1.0	1.0	180.00	-14.6	0.0	14.6	12.6	1.99	7.309		
600.0	600.0	600.0	600.0	1.2	1.2	180.00	-14.6	0.0	14.6	12.1	2.44	5.964		
700.0	700.0	700.0	700.0	1.4	1.4	180.00	-14.6	0.0	14.6	11.7	2.89	5.038		
800.0	800.0	800.0	800.0	1.7	1.7	180.00	-14.6	0.0	14.6	11.2	3.34	4.360		
900.0	900.0	900.0	900.0	1.9	1.9	180.00	-14.6	0.0	14.6	10.8	3.79	3.843		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	180.00	-14.6	0.0	14.6	10.3	4.24	3.436 CC		
1,100.0	1,100.0	1,099.9	1,099.9	2.3	2.3	175.12	-14.9	1.3	14.9	10.3	4.67	3.195 ES		
1,200.0	1,200.0	1,199.6	1,199.5	2.6	2.5	162.21	-15.8	5.1	16.6	11.5	5.10	3.258		
1,300.0	1,300.0	1,299.2	1,298.9	2.8	2.7	41.44	-17.3	11.4	19.8	14.3	5.51	3.590		
1,400.0	1,399.9	1,398.6	1,397.9	3.0	3.0	31.90	-19.5	20.2	23.6	17.7	5.90	3.991		
1,500.0	1,499.7	1,497.9	1,496.5	3.2	3.2	24.82	-22.2	31.5	27.7	21.4	6.30	4.396		
1,600.0	1,599.3	1,597.1	1,594.7	3.4	3.5	19.36	-25.5	45.3	32.1	25.4	6.71	4.784		
1,700.0	1,698.6	1,696.1	1,692.3	3.6	3.8	14.98	-29.4	61.5	36.6	29.5	7.12	5.145		
1,800.0	1,797.5	1,795.0	1,789.3	3.9	4.1	11.36	-33.9	80.1	41.3	33.7	7.54	5.476		
1,900.0	1,896.1	1,893.8	1,885.7	4.2	4.5	8.27	-39.0	101.2	46.0	38.0	7.96	5.778		
2,000.0	1,994.2	1,993.0	1,981.9	4.5	4.9	5.60	-44.7	124.5	50.5	42.1	8.39	6.020		
2,100.0	2,091.9	2,092.9	2,078.8	4.9	5.3	3.41	-50.4	148.4	53.9	45.1	8.85	6.095		
2,200.0	2,189.7	2,192.9	2,175.6	5.2	5.8	1.49	-56.2	172.3	57.5	48.1	9.33	6.159		
2,300.0	2,287.5	2,292.8	2,272.5	5.6	6.2	-0.22	-62.0	196.1	61.0	51.2	9.82	6.217		
2,400.0	2,385.2	2,392.7	2,369.3	6.0	6.7	-1.73	-67.8	220.0	64.6	54.3	10.31	6.268		
2,500.0	2,483.0	2,492.6	2,466.2	6.4	7.2	-3.08	-73.5	243.9	68.3	57.5	10.82	6.313		
2,600.0	2,580.8	2,592.5	2,563.1	6.8	7.7	-4.29	-79.3	267.7	72.0	60.7	11.34	6.352		
2,700.0	2,678.5	2,692.5	2,659.9	7.3	8.2	-5.39	-85.1	291.6	75.7	63.9	11.86	6.385		
2,800.0	2,776.3	2,792.4	2,756.8	7.7	8.7	-6.38	-90.9	315.5	79.5	67.1	12.39	6.413		
2,900.0	2,874.0	2,892.3	2,853.6	8.1	9.2	-7.28	-96.6	339.4	83.2	70.3	12.93	6.437		
3,000.0	2,971.8	2,992.2	2,950.5	8.6	9.7	-8.10	-102.4	363.2	87.0	73.6	13.48	6.456		
3,100.0	3,069.6	3,092.1	3,047.3	9.0	10.2	-8.86	-108.2	387.1	90.8	76.8	14.03	6.473		
3,200.0	3,167.3	3,192.1	3,144.2	9.4	10.7	-9.55	-113.9	411.0	94.7	80.1	14.59	6.486		
3,300.0	3,265.1	3,292.0	3,241.0	9.9	11.3	-10.19	-119.7	434.9	98.5	83.3	15.16	6.496		
3,400.0	3,362.9	3,391.9	3,337.9	10.3	11.8	-10.79	-125.5	458.7	102.3	86.6	15.73	6.505		
3,500.0	3,460.6	3,491.8	3,434.8	10.8	12.3	-11.33	-131.3	482.6	106.2	89.9	16.31	6.511		
3,600.0	3,558.4	3,591.7	3,531.6	11.2	12.8	-11.84	-137.0	506.5	110.1	93.2	16.89	6.516		
3,700.0	3,656.2	3,691.7	3,628.5	11.7	13.3	-12.32	-142.8	530.3	113.9	96.5	17.48	6.519		
3,800.0	3,753.9	3,791.6	3,725.3	12.1	13.9	-12.77	-148.6	554.2	117.8	99.7	18.07	6.521		
3,900.0	3,851.7	3,891.5	3,822.2	12.6	14.4	-13.18	-154.3	578.1	121.7	103.0	18.66	6.522		
4,000.0	3,949.5	3,991.4	3,919.0	13.1	14.9	-13.57	-160.1	602.0	125.6	106.3	19.26	6.522		
4,100.0	4,047.2	4,091.3	4,015.9	13.5	15.4	-13.94	-165.9	625.8	129.5	109.6	19.85	6.521		
4,200.0	4,145.0	4,191.3	4,112.7	14.0	16.0	-14.28	-171.7	649.7	133.4	112.9	20.46	6.520		
4,300.0	4,242.8	4,291.2	4,209.6	14.4	16.5	-14.61	-177.4	673.6	137.3	116.2	21.06	6.518		
4,400.0	4,340.5	4,391.1	4,306.5	14.9	17.0	-14.92	-183.2	697.5	141.2	119.5	21.67	6.516		
4,500.0	4,438.3	4,491.0	4,403.3	15.3	17.5	-15.21	-189.0	721.3	145.1	122.8	22.28	6.513		
4,600.0	4,536.0	4,590.9	4,500.2	15.8	18.1	-15.49	-194.7	745.2	149.0	126.1	22.89	6.510		
4,700.0	4,633.8	4,690.9	4,597.0	16.3	18.6	-15.75	-200.5	769.1	153.0	129.4	23.51	6.507		
4,800.0	4,731.6	4,790.8	4,693.9	16.7	19.1	-16.00	-206.3	792.9	156.9	132.8	24.12	6.503		
4,900.0	4,829.3	4,890.7	4,790.7	17.2	19.6	-16.23	-212.1	816.8	160.8	136.1	24.74	6.500		
5,000.0	4,927.1	4,990.6	4,887.6	17.6	20.2	-16.46	-217.8	840.7	164.7	139.4	25.36	6.496		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,024.9	5,090.6	4,984.4	18.1	20.7	-16.67	-223.6	864.6	168.7	142.7	25.98	6.492		
5,200.0	5,122.6	5,190.5	5,081.3	18.6	21.2	-16.88	-229.4	888.4	172.6	146.0	26.61	6.488		
5,300.0	5,220.4	5,290.4	5,178.1	19.0	21.8	-17.07	-235.2	912.3	176.5	149.3	27.23	6.483		
5,400.0	5,318.2	5,390.3	5,275.0	19.5	22.3	-17.26	-240.9	936.2	180.5	152.6	27.86	6.479		
5,500.0	5,415.9	5,490.2	5,371.9	19.9	22.8	-17.44	-246.7	960.0	184.4	155.9	28.48	6.475		
5,600.0	5,513.7	5,590.2	5,468.7	20.4	23.3	-17.61	-252.5	983.9	188.4	159.3	29.11	6.471		
5,700.0	5,611.5	5,690.1	5,565.6	20.9	23.9	-17.78	-258.2	1,007.8	192.3	162.6	29.74	6.467		
5,800.0	5,709.2	5,790.0	5,662.4	21.3	24.4	-17.93	-264.0	1,031.7	196.3	165.9	30.37	6.462		
5,900.0	5,807.0	5,889.9	5,759.3	21.8	24.9	-18.09	-269.8	1,055.5	200.2	169.2	31.00	6.458		
6,000.0	5,904.8	5,989.8	5,856.1	22.3	25.5	-18.23	-275.6	1,079.4	204.2	172.5	31.63	6.454		
6,100.0	6,002.5	6,089.8	5,953.0	22.7	26.0	-18.37	-281.3	1,103.3	208.1	175.8	32.26	6.450		
6,200.0	6,100.3	6,189.7	6,049.8	23.2	26.5	-18.51	-287.1	1,127.2	212.1	179.2	32.90	6.446		
6,300.0	6,198.0	6,289.6	6,146.7	23.7	27.1	-18.64	-292.9	1,151.0	216.0	182.5	33.53	6.442		
6,400.0	6,295.9	6,389.4	6,243.4	24.1	27.6	-10.77	-298.6	1,174.9	219.9	186.0	33.91	6.484		
6,500.0	6,393.3	6,488.0	6,339.1	24.4	28.1	43.02	-304.3	1,198.4	224.2	190.6	33.57	6.678		
6,600.0	6,488.4	6,588.8	6,436.8	24.6	28.5	63.55	-302.3	1,222.6	230.4	197.1	33.23	6.933		
6,700.0	6,579.7	6,692.7	6,536.4	24.9	28.9	76.63	-286.5	1,247.1	238.2	205.0	33.22	7.170		
6,800.0	6,665.6	6,800.0	6,636.1	25.0	29.3	85.83	-255.7	1,271.8	247.3	213.8	33.46	7.390		
6,900.0	6,744.6	6,910.7	6,733.5	25.2	29.6	92.73	-209.2	1,295.9	257.0	223.3	33.79	7.607		
7,000.0	6,815.5	7,024.9	6,826.0	25.3	29.8	98.05	-146.5	1,318.8	267.0	232.9	34.09	7.830		
7,100.0	6,876.9	7,142.6	6,910.8	25.5	30.1	102.17	-67.8	1,339.9	276.4	242.1	34.32	8.054		
7,200.0	6,927.8	7,263.5	6,984.7	25.6	30.3	105.30	26.0	1,358.3	284.8	250.3	34.50	8.254		
7,300.0	6,967.4	7,387.2	7,044.4	25.8	30.5	107.57	133.1	1,373.2	291.6	256.9	34.70	8.404		
7,400.0	6,995.0	7,513.1	7,087.1	26.0	30.8	109.06	250.9	1,383.9	296.5	261.4	35.10	8.448		
7,500.0	7,010.1	7,640.4	7,110.7	26.3	31.2	109.81	375.7	1,390.0	299.1	263.3	35.77	8.361		
7,600.0	7,012.8	7,759.8	7,114.8	26.8	31.6	109.91	494.9	1,391.2	299.5	262.5	36.96	8.103		
7,700.0	7,012.0	7,859.8	7,114.0	27.4	32.0	109.91	594.9	1,391.2	299.5	260.6	38.85	7.709		
7,800.0	7,011.3	7,959.8	7,113.3	28.1	32.6	109.91	694.9	1,391.2	299.5	258.5	40.96	7.312		
7,900.0	7,010.5	8,059.8	7,112.5	29.0	33.3	109.91	794.9	1,391.2	299.5	256.2	43.27	6.922		
8,000.0	7,009.8	8,159.8	7,111.7	30.0	34.1	109.91	894.9	1,391.2	299.5	253.7	45.75	6.546		
8,100.0	7,009.0	8,259.8	7,111.0	31.1	35.0	109.91	994.9	1,391.2	299.5	251.1	48.39	6.189		
8,200.0	7,008.3	8,359.8	7,110.2	32.3	36.0	109.91	1,094.9	1,391.2	299.5	248.3	51.14	5.856		
8,300.0	7,007.5	8,459.8	7,109.5	33.6	37.1	109.90	1,194.9	1,391.2	299.5	245.5	54.00	5.546		
8,400.0	7,006.8	8,559.8	7,108.7	35.0	38.3	109.90	1,294.9	1,391.2	299.5	242.5	56.96	5.258		
8,500.0	7,006.0	8,659.8	7,108.0	36.4	39.5	109.90	1,394.9	1,391.2	299.5	239.5	59.98	4.993		
8,600.0	7,005.3	8,759.8	7,107.2	37.9	40.8	109.90	1,494.9	1,391.2	299.5	236.4	63.08	4.748		
8,700.0	7,004.5	8,859.8	7,106.5	39.4	42.2	109.90	1,594.9	1,391.2	299.5	233.3	66.22	4.522		
8,800.0	7,003.8	8,959.8	7,105.7	40.9	43.6	109.90	1,694.9	1,391.2	299.5	230.1	69.42	4.314		
8,900.0	7,003.0	9,059.8	7,105.0	42.5	45.1	109.90	1,794.9	1,391.2	299.5	226.8	72.66	4.122		
9,000.0	7,002.2	9,159.8	7,104.2	44.1	46.6	109.90	1,894.9	1,391.2	299.5	223.5	75.94	3.944		
9,100.0	7,001.5	9,259.8	7,103.4	45.7	48.1	109.90	1,994.9	1,391.2	299.5	220.2	79.24	3.779		
9,200.0	7,000.7	9,359.8	7,102.7	47.4	49.7	109.90	2,094.9	1,391.2	299.5	216.9	82.58	3.626		
9,300.0	7,000.0	9,459.8	7,101.9	49.1	51.3	109.90	2,194.9	1,391.2	299.5	213.5	85.94	3.485		
9,400.0	6,999.2	9,559.8	7,101.2	50.8	52.9	109.90	2,294.9	1,391.2	299.5	210.1	89.32	3.353		
9,500.0	6,998.5	9,659.8	7,100.4	52.5	54.5	109.90	2,394.9	1,391.2	299.5	206.7	92.73	3.230		
9,600.0	6,997.7	9,759.8	7,099.7	54.2	56.2	109.90	2,494.9	1,391.2	299.5	203.3	96.15	3.115		
9,700.0	6,997.0	9,859.8	7,098.9	55.9	57.9	109.90	2,594.9	1,391.2	299.5	199.9	99.59	3.007		
9,800.0	6,996.2	9,959.8	7,098.2	57.7	59.5	109.90	2,694.9	1,391.2	299.5	196.4	103.04	2.906		
9,900.0	6,995.5	10,059.8	7,097.4	59.4	61.2	109.90	2,794.9	1,391.2	299.5	193.0	106.50	2.812		
10,000.0	6,994.7	10,159.8	7,096.6	61.2	63.0	109.90	2,894.9	1,391.2	299.5	189.5	109.97	2.723		
10,100.0	6,994.0	10,259.8	7,095.9	63.0	64.7	109.90	2,994.9	1,391.2	299.5	186.0	113.46	2.639		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-301 - Wellbore #1 - Plan #2 (6-11-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	6,993.2	10,359.8	7,095.1	64.7	66.4	109.90	3,094.8	1,391.2	299.5	182.5	116.96	2.561	
10,300.0	6,992.4	10,459.8	7,094.4	66.5	68.2	109.90	3,194.8	1,391.2	299.5	179.0	120.46	2.486	
10,400.0	6,991.7	10,559.8	7,093.6	68.3	69.9	109.90	3,294.8	1,391.2	299.5	175.5	123.97	2.416	
10,500.0	6,990.9	10,659.8	7,092.9	70.1	71.7	109.90	3,394.8	1,391.2	299.5	172.0	127.49	2.349	
10,600.0	6,990.2	10,759.8	7,092.1	72.0	73.5	109.90	3,494.8	1,391.2	299.5	168.5	131.02	2.286	
10,700.0	6,989.4	10,859.8	7,091.4	73.8	75.3	109.90	3,594.8	1,391.2	299.5	164.9	134.55	2.226	
10,800.0	6,988.7	10,959.8	7,090.6	75.6	77.1	109.90	3,694.8	1,391.2	299.5	161.4	138.09	2.169	
10,900.0	6,987.9	11,059.8	7,089.9	77.4	78.8	109.90	3,794.8	1,391.2	299.5	157.8	141.63	2.114	
11,000.0	6,987.2	11,159.8	7,089.1	79.2	80.6	109.90	3,894.8	1,391.2	299.5	154.3	145.18	2.063	
11,100.0	6,986.4	11,259.8	7,088.3	81.1	82.5	109.90	3,994.8	1,391.2	299.5	150.7	148.73	2.013	
11,200.0	6,985.7	11,359.8	7,087.6	82.9	84.3	109.90	4,094.8	1,391.2	299.5	147.2	152.29	1.966	
11,300.0	6,984.9	11,459.8	7,086.8	84.8	86.1	109.90	4,194.8	1,391.2	299.5	143.6	155.85	1.921	
11,400.0	6,984.2	11,559.8	7,086.1	86.6	87.9	109.90	4,294.8	1,391.2	299.5	140.0	159.42	1.878	
11,500.0	6,983.4	11,659.8	7,085.3	88.5	89.7	109.90	4,394.8	1,391.2	299.5	136.5	162.99	1.837	
11,538.0	6,983.1	11,697.7	7,085.0	89.2	90.4	109.90	4,432.8	1,391.2	299.5	135.1	164.34	1.822	
11,554.2	6,983.0	11,705.9	7,085.0	89.5	90.6	109.90	4,441.0	1,391.2	299.6	134.8	164.78	1.818 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-321 - Wellbore #1 - Plan #1 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	180.00	180.00	-58.3	0.0	58.3				
100.0	100.0	101.0	101.0	0.1	0.1	180.00	180.00	-58.3	0.0	58.3	58.1	0.20	294.675	
200.0	200.0	201.0	201.0	0.3	0.3	180.00	180.00	-58.3	0.0	58.3	57.6	0.65	90.040	
300.0	300.0	301.0	301.0	0.5	0.5	180.00	180.00	-58.3	0.0	58.3	57.2	1.10	53.138	
366.3	366.3	367.3	367.3	0.7	0.7	180.00	180.00	-58.3	0.0	58.3	56.9	1.40	41.780 CC	
400.0	400.0	401.0	401.0	0.8	0.8	180.00	180.00	-58.3	0.0	58.3	56.7	1.55	37.694	
500.0	500.0	500.9	500.9	1.0	1.0	178.70	178.70	-58.4	1.3	58.4	56.4	1.98	29.461 ES	
600.0	600.0	600.6	600.5	1.2	1.2	174.89	174.89	-58.7	5.3	58.9	56.5	2.42	24.388	
700.0	700.0	700.0	699.7	1.4	1.4	168.77	168.77	-59.2	11.7	60.3	57.5	2.86	21.093	
800.0	800.0	799.1	798.4	1.7	1.7	160.85	160.85	-59.8	20.8	63.4	60.1	3.32	19.097	
900.0	900.0	897.6	896.2	1.9	1.9	151.99	151.99	-60.7	32.3	68.9	65.1	3.80	18.122	
1,000.0	1,000.0	995.5	993.0	2.1	2.2	143.18	143.18	-61.7	46.2	77.5	73.2	4.32	17.944 SF	
1,100.0	1,100.0	1,092.5	1,088.7	2.3	2.6	135.22	135.22	-62.9	62.4	89.5	84.6	4.87	18.357	
1,200.0	1,200.0	1,188.7	1,183.1	2.6	2.9	128.47	128.47	-64.3	80.9	104.9	99.4	5.47	19.172	
1,300.0	1,300.0	1,284.1	1,276.3	2.8	3.3	15.42	15.42	-65.8	101.6	122.3	116.6	5.68	21.546	
1,400.0	1,399.9	1,379.1	1,368.4	3.0	3.8	11.17	11.17	-67.5	124.5	140.3	134.2	6.11	22.953	
1,500.0	1,499.7	1,473.6	1,459.5	3.2	4.2	7.71	7.71	-69.4	149.5	158.6	152.0	6.55	24.202	
1,600.0	1,599.3	1,567.6	1,549.5	3.4	4.8	4.83	4.83	-71.4	176.6	177.0	170.0	7.00	25.308	
1,700.0	1,698.6	1,661.1	1,638.3	3.6	5.3	2.35	2.35	-73.5	205.7	195.7	188.2	7.45	26.270	
1,800.0	1,797.5	1,754.8	1,726.6	3.9	6.0	0.17	0.17	-75.9	237.1	214.3	206.4	7.91	27.100	
1,900.0	1,896.1	1,853.0	1,818.8	4.2	6.6	-1.81	-1.81	-78.4	270.8	231.6	223.2	8.39	27.616	
2,000.0	1,994.2	1,951.7	1,911.4	4.5	7.3	-3.53	-3.53	-80.9	304.6	246.5	237.6	8.87	27.785	
2,100.0	2,091.9	2,050.5	2,004.2	4.9	8.0	-5.10	-5.10	-83.4	338.5	260.1	250.7	9.39	27.705	
2,200.0	2,189.7	2,149.3	2,097.0	5.2	8.7	-6.51	-6.51	-85.9	372.4	273.8	263.9	9.92	27.613	
2,300.0	2,287.5	2,248.2	2,189.8	5.6	9.4	-7.79	-7.79	-88.4	406.4	287.7	277.3	10.46	27.518	
2,400.0	2,385.2	2,347.0	2,282.6	6.0	10.1	-8.95	-8.95	-90.9	440.3	301.8	290.8	11.01	27.418	
2,500.0	2,483.0	2,445.8	2,375.4	6.4	10.8	-10.01	-10.01	-93.5	474.2	315.9	304.3	11.57	27.314	
2,600.0	2,580.8	2,544.7	2,468.2	6.8	11.6	-10.97	-10.97	-96.0	508.1	330.1	318.0	12.14	27.205	
2,700.0	2,678.5	2,643.5	2,561.0	7.3	12.3	-11.86	-11.86	-98.5	542.0	344.5	331.7	12.71	27.093	
2,800.0	2,776.3	2,742.3	2,653.8	7.7	13.0	-12.67	-12.67	-101.0	575.9	358.8	345.5	13.30	26.978	
2,900.0	2,874.0	2,841.2	2,746.6	8.1	13.7	-13.43	-13.43	-103.5	609.8	373.3	359.4	13.90	26.861	
3,000.0	2,971.8	2,940.0	2,839.4	8.6	14.4	-14.12	-14.12	-106.0	643.7	387.8	373.3	14.50	26.743	
3,100.0	3,069.6	3,038.8	2,932.2	9.0	15.1	-14.77	-14.77	-108.5	677.6	402.4	387.3	15.11	26.625	
3,200.0	3,167.3	3,137.7	3,025.0	9.4	15.9	-15.37	-15.37	-111.1	711.5	417.0	401.3	15.73	26.507	
3,300.0	3,265.1	3,236.5	3,117.8	9.9	16.6	-15.93	-15.93	-113.6	745.4	431.7	415.3	16.36	26.391	
3,400.0	3,362.9	3,335.3	3,210.6	10.3	17.3	-16.46	-16.46	-116.1	779.4	446.4	429.4	16.99	26.276	
3,500.0	3,460.6	3,434.2	3,303.4	10.8	18.0	-16.95	-16.95	-118.6	813.3	461.1	443.5	17.62	26.162	
3,600.0	3,558.4	3,533.0	3,396.2	11.2	18.8	-17.41	-17.41	-121.1	847.2	475.9	457.6	18.27	26.051	
3,700.0	3,656.2	3,631.8	3,489.0	11.7	19.5	-17.84	-17.84	-123.6	881.1	490.7	471.7	18.91	25.943	
3,800.0	3,753.9	3,730.7	3,581.8	12.1	20.2	-18.24	-18.24	-126.2	915.0	505.5	485.9	19.56	25.837	
3,900.0	3,851.7	3,829.5	3,674.6	12.6	20.9	-18.63	-18.63	-128.7	948.9	520.3	500.1	20.22	25.733	
4,000.0	3,949.5	3,928.3	3,767.4	13.1	21.7	-18.99	-18.99	-131.2	982.8	535.2	514.3	20.88	25.632	
4,100.0	4,047.2	4,027.2	3,860.2	13.5	22.4	-19.33	-19.33	-133.7	1,016.7	550.0	528.5	21.54	25.535	
4,200.0	4,145.0	4,126.0	3,953.0	14.0	23.1	-19.66	-19.66	-136.2	1,050.6	564.9	542.7	22.21	25.440	
4,300.0	4,242.8	4,224.8	4,045.8	14.4	23.8	-19.97	-19.97	-138.7	1,084.5	579.9	557.0	22.88	25.347	
4,400.0	4,340.5	4,323.7	4,138.6	14.9	24.6	-20.26	-20.26	-141.2	1,118.5	594.8	571.2	23.55	25.258	
4,500.0	4,438.3	4,422.5	4,231.4	15.3	25.3	-20.54	-20.54	-143.8	1,152.4	609.7	585.5	24.22	25.171	
4,600.0	4,536.0	4,521.3	4,324.2	15.8	26.0	-20.80	-20.80	-146.3	1,186.3	624.7	599.8	24.90	25.087	
4,700.0	4,633.8	4,620.2	4,417.0	16.3	26.7	-21.06	-21.06	-148.8	1,220.2	639.7	614.1	25.58	25.005	
4,800.0	4,731.6	4,719.0	4,509.8	16.7	27.5	-21.30	-21.30	-151.3	1,254.1	654.7	628.4	26.26	24.926	
4,900.0	4,829.3	4,817.9	4,602.7	17.2	28.2	-21.53	-21.53	-153.8	1,288.0	669.6	642.7	26.95	24.849	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-321 - Wellbore #1 - Plan #1 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,000.0	4,927.1	4,916.7	4,695.5	17.6	28.9	-21.75	-156.3	1,321.9	684.7	657.0	27.63	24.775		
5,100.0	5,024.9	5,015.5	4,788.3	18.1	29.6	-21.96	-158.8	1,355.8	699.7	671.3	28.32	24.703		
5,200.0	5,122.6	5,114.4	4,881.1	18.6	30.4	-22.16	-161.4	1,389.7	714.7	685.7	29.01	24.633		
5,300.0	5,220.4	5,213.2	4,973.9	19.0	31.1	-22.35	-163.9	1,423.6	729.7	700.0	29.71	24.566		
5,400.0	5,318.2	5,312.0	5,066.7	19.5	31.8	-22.54	-166.4	1,457.5	744.8	714.4	30.40	24.500		
5,500.0	5,415.9	5,410.9	5,159.5	19.9	32.5	-22.72	-168.9	1,491.5	759.8	728.7	31.09	24.436		
5,600.0	5,513.7	5,509.7	5,252.3	20.4	33.3	-22.89	-171.4	1,525.4	774.9	743.1	31.79	24.375		
5,700.0	5,611.5	5,608.5	5,345.1	20.9	34.0	-23.06	-173.9	1,559.3	789.9	757.4	32.49	24.315		
5,800.0	5,709.2	5,707.4	5,437.9	21.3	34.7	-23.21	-176.5	1,593.2	805.0	771.8	33.19	24.257		
5,900.0	5,807.0	5,806.2	5,530.7	21.8	35.5	-23.37	-179.0	1,627.1	820.1	786.2	33.89	24.201		
6,000.0	5,904.8	5,905.0	5,623.5	22.3	36.2	-23.51	-181.5	1,661.0	835.1	800.5	34.59	24.146		
6,100.0	6,002.5	6,003.9	5,716.3	22.7	36.9	-23.66	-184.0	1,694.9	850.2	814.9	35.29	24.093		
6,200.0	6,100.3	6,102.7	5,809.1	23.2	37.6	-23.79	-186.5	1,728.8	865.3	829.3	35.99	24.042		
6,300.0	6,198.0	6,201.5	5,901.9	23.7	38.4	-23.93	-189.0	1,762.7	880.4	843.7	36.70	23.992		
6,400.0	6,295.9	6,300.4	5,994.7	24.1	39.1	4.01	-191.5	1,796.6	895.0	857.4	37.56	23.826		
6,500.0	6,393.3	6,398.4	6,086.7	24.4	39.8	32.41	-194.0	1,830.3	908.0	870.0	38.05	23.864		
6,600.0	6,488.4	6,493.8	6,176.3	24.6	40.5	48.75	-196.5	1,863.0	919.9	881.7	38.14	24.118		
6,700.0	6,579.7	6,585.0	6,262.0	24.9	41.2	58.59	-198.8	1,894.3	931.4	893.4	38.00	24.514		
6,800.0	6,665.6	6,670.6	6,342.3	25.0	41.8	65.34	-201.0	1,923.6	943.9	906.1	37.82	24.960		
6,900.0	6,744.6	6,751.3	6,418.1	25.2	42.4	70.41	-202.6	1,951.4	958.8	921.1	37.75	25.399		
7,000.0	6,815.5	6,839.8	6,501.0	25.3	43.0	74.60	-196.9	1,981.7	976.7	938.9	37.85	25.806		
7,100.0	6,876.9	6,937.4	6,590.9	25.5	43.5	78.21	-178.8	2,014.6	997.3	959.1	38.16	26.135		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	176.35	176.35	-43.7	2.8	43.8				
100.0	100.0	101.0	101.0	0.1	0.1	176.35	176.35	-43.7	2.8	43.8	43.6	0.20	221.450	
200.0	200.0	201.0	201.0	0.3	0.3	176.35	176.35	-43.7	2.8	43.8	43.2	0.65	67.665	
300.0	300.0	301.0	301.0	0.5	0.5	176.35	176.35	-43.7	2.8	43.8	42.7	1.10	39.934	
400.0	400.0	401.0	401.0	0.8	0.8	176.35	176.35	-43.7	2.8	43.8	42.3	1.55	28.325	
500.0	500.0	501.0	501.0	1.0	1.0	176.35	176.35	-43.7	2.8	43.8	41.8	2.00	21.946	
566.3	566.3	567.3	567.3	1.1	1.1	176.35	176.35	-43.7	2.8	43.8	41.5	2.29	19.093 CC	
600.0	600.0	601.0	601.0	1.2	1.2	176.35	176.35	-43.7	2.8	43.8	41.4	2.45	17.913	
700.0	700.0	700.8	700.8	1.4	1.4	174.65	174.65	-43.9	4.1	44.1	41.2	2.88	15.303 ES	
800.0	800.0	800.4	800.3	1.7	1.6	169.77	169.77	-44.4	8.0	45.1	41.8	3.31	13.627	
900.0	900.0	900.0	899.7	1.9	1.9	162.22	162.22	-45.1	14.5	47.4	43.7	3.75	12.658	
1,000.0	1,000.0	998.7	998.0	2.1	2.1	153.14	153.14	-46.2	23.4	51.9	47.7	4.20	12.361	
1,100.0	1,100.0	1,097.1	1,095.7	2.3	2.3	143.81	143.81	-47.6	34.9	59.3	54.6	4.68	12.668	
1,200.0	1,200.0	1,194.9	1,192.5	2.6	2.6	135.39	135.39	-49.3	48.7	69.8	64.6	5.19	13.463	
1,300.0	1,300.0	1,292.1	1,288.3	2.8	2.9	21.00	21.00	-51.3	64.8	82.5	76.9	5.55	14.854	
1,400.0	1,399.9	1,388.9	1,383.3	3.0	3.3	15.83	15.83	-53.6	83.4	95.7	89.7	5.97	16.018	
1,500.0	1,499.7	1,485.3	1,477.4	3.2	3.7	11.72	11.72	-56.1	104.2	109.3	102.9	6.40	17.072	
1,600.0	1,599.3	1,581.4	1,570.6	3.4	4.1	8.35	8.35	-59.0	127.2	123.1	116.3	6.83	18.015	
1,700.0	1,698.6	1,677.1	1,662.8	3.6	4.6	5.50	5.50	-62.1	152.5	137.1	129.8	7.27	18.849	
1,800.0	1,797.5	1,772.4	1,754.0	3.9	5.1	3.03	3.03	-65.4	180.0	151.2	143.5	7.72	19.596	
1,900.0	1,896.1	1,869.6	1,846.5	4.2	5.7	0.83	0.83	-69.1	209.9	165.0	156.8	8.17	20.182	
2,000.0	1,994.2	1,968.8	1,940.7	4.5	6.3	-1.09	-1.09	-72.9	240.7	176.6	168.0	8.64	20.434	
2,100.0	2,091.9	2,068.1	2,035.0	4.9	6.9	-2.80	-2.80	-76.6	271.5	186.9	177.7	9.14	20.436	
2,200.0	2,189.7	2,167.4	2,129.4	5.2	7.5	-4.32	-4.32	-80.4	302.3	197.3	187.6	9.66	20.425	
2,300.0	2,287.5	2,266.7	2,223.7	5.6	8.2	-5.70	-5.70	-84.2	333.1	207.8	197.6	10.18	20.407	
2,400.0	2,385.2	2,366.1	2,318.1	6.0	8.8	-6.94	-6.94	-87.9	363.9	218.4	207.7	10.72	20.382	
2,500.0	2,483.0	2,465.4	2,412.5	6.4	9.4	-8.06	-8.06	-91.7	394.7	229.1	217.9	11.26	20.349	
2,600.0	2,580.8	2,564.7	2,506.8	6.8	10.1	-9.08	-9.08	-95.5	425.5	239.9	228.1	11.81	20.310	
2,700.0	2,678.5	2,664.0	2,601.2	7.3	10.7	-10.02	-10.02	-99.3	456.3	250.8	238.4	12.38	20.265	
2,800.0	2,776.3	2,763.4	2,695.5	7.7	11.4	-10.88	-10.88	-103.0	487.1	261.7	248.8	12.95	20.214	
2,900.0	2,874.0	2,862.7	2,789.9	8.1	12.0	-11.67	-11.67	-106.8	517.9	272.7	259.2	13.53	20.160	
3,000.0	2,971.8	2,962.0	2,884.2	8.6	12.7	-12.40	-12.40	-110.6	548.7	283.8	269.6	14.12	20.103	
3,100.0	3,069.6	3,061.4	2,978.6	9.0	13.3	-13.07	-13.07	-114.4	579.5	294.8	280.1	14.71	20.043	
3,200.0	3,167.3	3,160.7	3,072.9	9.4	14.0	-13.69	-13.69	-118.1	610.3	305.9	290.6	15.31	19.982	
3,300.0	3,265.1	3,260.0	3,167.3	9.9	14.6	-14.27	-14.27	-121.9	641.1	317.1	301.2	15.92	19.919	
3,400.0	3,362.9	3,359.3	3,261.7	10.3	15.3	-14.82	-14.82	-125.7	671.9	328.3	311.7	16.53	19.856	
3,500.0	3,460.6	3,458.7	3,356.0	10.8	15.9	-15.32	-15.32	-129.4	702.7	339.5	322.3	17.15	19.793	
3,600.0	3,558.4	3,558.0	3,450.4	11.2	16.6	-15.80	-15.80	-133.2	733.5	350.7	332.9	17.77	19.730	
3,700.0	3,656.2	3,657.3	3,544.7	11.7	17.3	-16.24	-16.24	-137.0	764.3	361.9	343.5	18.40	19.667	
3,800.0	3,753.9	3,756.6	3,639.1	12.1	17.9	-16.66	-16.66	-140.8	795.1	373.2	354.2	19.04	19.606	
3,900.0	3,851.7	3,856.0	3,733.4	12.6	18.6	-17.05	-17.05	-144.5	825.9	384.5	364.8	19.67	19.545	
4,000.0	3,949.5	3,955.3	3,827.8	13.1	19.2	-17.42	-17.42	-148.3	856.7	395.8	375.5	20.31	19.485	
4,100.0	4,047.2	4,054.6	3,922.1	13.5	19.9	-17.77	-17.77	-152.1	887.5	407.1	386.2	20.96	19.426	
4,200.0	4,145.0	4,154.0	4,016.5	14.0	20.5	-18.10	-18.10	-155.9	918.3	418.5	396.9	21.60	19.369	
4,300.0	4,242.8	4,253.3	4,110.9	14.4	21.2	-18.41	-18.41	-159.6	949.1	429.8	407.6	22.26	19.313	
4,400.0	4,340.5	4,352.6	4,205.2	14.9	21.9	-18.71	-18.71	-163.4	979.9	441.2	418.3	22.91	19.258	
4,500.0	4,438.3	4,451.9	4,299.6	15.3	22.5	-18.99	-18.99	-167.2	1,010.7	452.5	429.0	23.56	19.204	
4,600.0	4,536.0	4,551.3	4,393.9	15.8	23.2	-19.26	-19.26	-171.0	1,041.5	463.9	439.7	24.22	19.152	
4,700.0	4,633.8	4,650.6	4,488.3	16.3	23.8	-19.52	-19.52	-174.7	1,072.3	475.3	450.4	24.88	19.102	
4,800.0	4,731.6	4,749.9	4,582.6	16.7	24.5	-19.76	-19.76	-178.5	1,103.1	486.7	461.2	25.55	19.052	
4,900.0	4,829.3	4,849.2	4,677.0	17.2	25.2	-19.99	-19.99	-182.3	1,133.9	498.1	471.9	26.21	19.005	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,927.1	4,948.6	4,771.4	17.6	25.8	-20.22	-186.0	1,164.7	509.5	482.7	26.88	18.958		
5,100.0	5,024.9	5,047.9	4,865.7	18.1	26.5	-20.43	-189.8	1,195.5	521.0	493.4	27.55	18.913		
5,200.0	5,122.6	5,147.2	4,960.1	18.6	27.2	-20.63	-193.6	1,226.3	532.4	504.2	28.22	18.868		
5,300.0	5,220.4	5,246.6	5,054.4	19.0	27.8	-20.83	-197.4	1,257.1	543.8	514.9	28.89	18.826		
5,400.0	5,318.2	5,345.9	5,148.8	19.5	28.5	-21.01	-201.1	1,287.9	555.3	525.7	29.56	18.784		
5,500.0	5,415.9	5,445.2	5,243.1	19.9	29.1	-21.19	-204.9	1,318.7	566.7	536.5	30.23	18.744		
5,600.0	5,513.7	5,544.5	5,337.5	20.4	29.8	-21.36	-208.7	1,349.5	578.2	547.2	30.91	18.704		
5,700.0	5,611.5	5,643.9	5,431.8	20.9	30.5	-21.53	-212.5	1,380.3	589.6	558.0	31.59	18.666		
5,800.0	5,709.2	5,743.2	5,526.2	21.3	31.1	-21.69	-216.2	1,411.1	601.1	568.8	32.27	18.629		
5,900.0	5,807.0	5,842.5	5,620.6	21.8	31.8	-21.84	-220.0	1,441.9	612.5	579.6	32.95	18.593		
6,000.0	5,904.8	5,941.8	5,714.9	22.3	32.5	-21.99	-223.8	1,472.7	624.0	590.4	33.63	18.558		
6,100.0	6,002.5	6,041.2	5,809.3	22.7	33.1	-22.13	-227.5	1,503.5	635.5	601.2	34.31	18.523		
6,200.0	6,100.3	6,140.5	5,903.6	23.2	33.8	-22.27	-231.3	1,534.3	647.0	612.0	34.99	18.490		
6,300.0	6,198.0	6,239.8	5,998.0	23.7	34.4	-22.40	-235.1	1,565.1	658.4	622.8	35.67	18.458		
6,400.0	6,295.9	6,339.1	6,092.3	24.1	35.1	5.83	-238.9	1,595.8	669.5	633.1	36.40	18.395		
6,500.0	6,393.3	6,437.4	6,185.6	24.4	35.8	34.81	-242.6	1,626.3	679.5	642.8	36.70	18.518		
6,600.0	6,488.4	6,532.9	6,276.4	24.6	36.4	51.92	-246.2	1,655.9	689.1	652.5	36.63	18.811		
6,700.0	6,579.7	6,624.1	6,363.0	24.9	37.0	62.61	-249.7	1,684.2	699.5	663.1	36.42	19.208		
6,800.0	6,665.6	6,709.4	6,444.0	25.0	37.6	70.20	-252.9	1,710.7	712.6	676.3	36.27	19.648		
6,900.0	6,744.6	6,798.2	6,528.4	25.2	38.1	76.32	-253.7	1,738.2	729.8	693.6	36.26	20.130		
7,000.0	6,815.5	6,898.6	6,623.3	25.3	38.7	81.56	-242.7	1,769.1	750.8	714.4	36.43	20.611		
7,100.0	6,876.9	7,011.1	6,726.8	25.5	39.2	86.20	-214.9	1,802.8	774.9	738.1	36.75	21.082		
7,200.0	6,927.8	7,140.1	6,839.3	25.6	39.8	90.52	-163.8	1,839.4	800.8	763.6	37.16	21.550		
7,300.0	6,967.4	7,291.5	6,958.7	25.8	40.4	94.66	-79.6	1,878.1	826.9	789.3	37.58	22.004		
7,400.0	6,995.0	7,472.1	7,077.1	26.0	41.0	98.55	50.7	1,916.4	850.8	812.8	38.00	22.389		
7,500.0	7,010.1	7,686.4	7,175.3	26.3	41.6	101.80	237.7	1,947.9	869.2	830.5	38.65	22.487		
7,600.0	7,012.8	7,930.3	7,222.3	26.8	42.2	103.73	475.6	1,962.6	878.3	838.1	40.18	21.859		
7,700.0	7,012.0	8,047.1	7,223.8	27.4	42.6	103.87	592.4	1,962.7	878.8	836.6	42.16	20.845		
7,800.0	7,011.3	8,147.1	7,224.6	28.1	43.0	103.97	692.3	1,962.7	879.2	834.9	44.21	19.887		
7,900.0	7,010.5	8,247.1	7,225.5	29.0	43.4	104.08	792.3	1,962.7	879.5	833.1	46.47	18.929		
8,000.0	7,009.8	8,347.1	7,226.3	30.0	43.9	104.18	892.3	1,962.7	879.9	831.0	48.90	17.995		
8,100.0	7,009.0	8,447.1	7,227.2	31.1	44.5	104.28	992.3	1,962.7	880.3	828.8	51.48	17.099		
8,200.0	7,008.3	8,547.0	7,228.0	32.3	45.2	104.38	1,092.3	1,962.7	880.7	826.5	54.20	16.251		
8,300.0	7,007.5	8,647.0	7,228.9	33.6	46.0	104.48	1,192.3	1,962.7	881.1	824.1	57.02	15.453		
8,400.0	7,006.8	8,747.0	7,229.7	35.0	46.8	104.58	1,292.2	1,962.7	881.5	821.6	59.93	14.708		
8,500.0	7,006.0	8,847.0	7,230.6	36.4	47.7	104.68	1,392.2	1,962.7	881.9	819.0	62.93	14.014		
8,600.0	7,005.3	8,947.0	7,231.4	37.9	48.7	104.78	1,492.2	1,962.7	882.3	816.3	66.00	13.370		
8,700.0	7,004.5	9,047.0	7,232.3	39.4	49.7	104.88	1,592.2	1,962.7	882.8	813.6	69.12	12.771		
8,800.0	7,003.8	9,147.0	7,233.1	40.9	50.8	104.99	1,692.2	1,962.7	883.2	810.9	72.29	12.216		
8,900.0	7,003.0	9,247.0	7,234.0	42.5	52.0	105.09	1,792.2	1,962.7	883.6	808.1	75.51	11.701		
9,000.0	7,002.2	9,346.9	7,234.8	44.1	53.2	105.19	1,892.1	1,962.7	884.0	805.2	78.77	11.223		
9,100.0	7,001.5	9,446.9	7,235.7	45.7	54.4	105.29	1,992.1	1,962.7	884.4	802.4	82.06	10.778		
9,200.0	7,000.7	9,546.9	7,236.5	47.4	55.7	105.39	2,092.1	1,962.7	884.9	799.5	85.38	10.364		
9,300.0	7,000.0	9,646.9	7,237.4	49.1	57.1	105.49	2,192.1	1,962.7	885.3	796.6	88.73	9.978		
9,400.0	6,999.2	9,746.9	7,238.3	50.8	58.5	105.59	2,292.1	1,962.7	885.7	793.6	92.09	9.618		
9,500.0	6,998.5	9,846.9	7,239.1	52.5	59.9	105.69	2,392.1	1,962.7	886.1	790.7	95.48	9.281		
9,600.0	6,997.7	9,946.9	7,240.0	54.2	61.4	105.79	2,492.0	1,962.7	886.6	787.7	98.88	8.966		
9,700.0	6,997.0	10,046.9	7,240.8	55.9	62.9	105.89	2,592.0	1,962.7	887.0	784.7	102.30	8.671		
9,800.0	6,996.2	10,146.8	7,241.7	57.7	64.4	105.99	2,692.0	1,962.7	887.5	781.7	105.73	8.393		
9,900.0	6,995.5	10,246.8	7,242.5	59.4	65.9	106.09	2,792.0	1,962.7	887.9	778.7	109.18	8.133		
10,000.0	6,994.7	10,346.8	7,243.4	61.2	67.5	106.19	2,892.0	1,962.7	888.3	775.7	112.63	7.887		

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10T-421 - Wellbore #1 - Plan #1 (6-11-15)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,994.0	10,446.8	7,244.2	63.0	69.1	106.29	2,992.0	1,962.7	888.8	772.7	116.09	7.656	
10,200.0	6,993.2	10,546.8	7,245.1	64.7	70.7	106.38	3,091.9	1,962.7	889.3	769.7	119.56	7.437	
10,300.0	6,992.4	10,646.8	7,245.9	66.5	72.3	106.48	3,191.9	1,962.7	889.7	766.7	123.04	7.231	
10,400.0	6,991.7	10,746.8	7,246.8	68.3	73.9	106.58	3,291.9	1,962.7	890.2	763.6	126.52	7.036	
10,500.0	6,990.9	10,846.7	7,247.6	70.1	75.6	106.68	3,391.9	1,962.7	890.6	760.6	130.01	6.850	
10,600.0	6,990.2	10,946.7	7,248.5	72.0	77.2	106.78	3,491.9	1,962.7	891.1	757.6	133.51	6.674	
10,700.0	6,989.4	11,046.7	7,249.3	73.8	78.9	106.88	3,591.9	1,962.7	891.6	754.5	137.00	6.508	
10,800.0	6,988.7	11,146.7	7,250.2	75.6	80.6	106.98	3,691.8	1,962.7	892.0	751.5	140.50	6.349	
10,900.0	6,987.9	11,246.7	7,251.0	77.4	82.3	107.08	3,791.8	1,962.7	892.5	748.5	144.01	6.198	
11,000.0	6,987.2	11,346.7	7,251.9	79.2	84.0	107.18	3,891.8	1,962.7	893.0	745.5	147.51	6.054	
11,100.0	6,986.4	11,446.7	7,252.7	81.1	85.8	107.27	3,991.8	1,962.7	893.4	742.4	151.02	5.916	
11,200.0	6,985.7	11,546.7	7,253.6	82.9	87.5	107.37	4,091.8	1,962.7	893.9	739.4	154.53	5.785	
11,300.0	6,984.9	11,646.6	7,254.4	84.8	89.2	107.47	4,191.8	1,962.7	894.4	736.4	158.04	5.659	
11,400.0	6,984.2	11,746.6	7,255.3	86.6	91.0	107.57	4,291.7	1,962.7	894.9	733.3	161.55	5.539	
11,500.0	6,983.4	11,846.6	7,256.2	88.5	92.7	107.67	4,391.7	1,962.7	895.4	730.3	165.06	5.425	
11,554.2	6,983.0	11,885.0	7,256.5	89.5	93.4	107.70	4,430.1	1,962.7	895.8	729.1	166.69	5.374 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10Y-241 - Wellbore #1 - Plan #1 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWDD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	180.00	180.00	-72.9	0.0	72.9				
100.0	100.0	101.0	101.0	0.1	0.1	180.00	180.00	-72.9	0.0	72.9	72.7	0.20	368.349	
166.3	166.3	167.3	167.3	0.2	0.2	180.00	180.00	-72.9	0.0	72.9	72.4	0.50	146.899 CC	
200.0	200.0	201.0	201.0	0.3	0.3	180.00	180.00	-72.9	0.0	72.9	72.2	0.65	112.572	
300.0	300.0	300.8	300.7	0.5	0.5	178.96	178.96	-73.0	1.3	73.0	71.9	1.08	67.324 ES	
400.0	400.0	400.4	400.3	0.8	0.8	175.94	175.94	-73.5	5.2	73.7	72.1	1.53	48.263	
500.0	500.0	499.7	499.4	1.0	1.0	171.06	171.06	-74.2	11.7	75.1	73.2	1.98	37.956	
600.0	600.0	598.7	597.9	1.2	1.2	164.66	164.66	-75.3	20.6	78.1	75.6	2.45	31.897	
700.0	700.0	697.1	695.7	1.4	1.5	157.27	157.27	-76.6	32.1	83.2	80.3	2.94	28.291	
800.0	800.0	794.8	792.4	1.7	1.8	149.58	149.58	-78.2	45.9	91.1	87.6	3.47	26.261	
900.0	900.0	891.8	888.0	1.9	2.2	142.22	142.22	-80.1	62.1	102.1	98.1	4.04	25.295	
1,000.0	1,000.0	987.9	982.3	2.1	2.6	135.62	135.62	-82.2	80.4	116.5	111.9	4.65	25.056 SF	
1,100.0	1,100.0	1,083.0	1,075.1	2.3	3.0	129.96	129.96	-84.6	100.9	134.2	128.9	5.30	25.303	
1,200.0	1,200.0	1,176.9	1,166.3	2.6	3.4	125.24	125.24	-87.2	123.4	155.0	149.0	5.99	25.865	
1,300.0	1,300.0	1,270.0	1,256.1	2.8	3.9	13.74	13.74	-90.0	147.9	177.6	171.8	5.85	30.367	
1,400.0	1,399.9	1,362.6	1,344.7	3.0	4.5	10.63	10.63	-93.1	174.4	200.6	194.3	6.30	31.857	
1,500.0	1,499.7	1,454.6	1,432.2	3.2	5.0	8.07	8.07	-96.4	202.8	223.7	216.9	6.75	33.150	
1,600.0	1,599.3	1,546.1	1,518.4	3.4	5.7	5.91	5.91	-99.9	233.2	246.8	239.6	7.21	34.243	
1,700.0	1,698.6	1,637.1	1,603.4	3.6	6.3	4.05	4.05	-103.7	265.4	270.0	262.3	7.68	35.171	
1,800.0	1,797.5	1,727.5	1,687.1	3.9	7.0	2.42	2.42	-107.6	299.4	293.1	285.0	8.15	35.950	
1,900.0	1,896.1	1,823.9	1,775.8	4.2	7.8	0.90	0.90	-112.0	336.9	315.3	306.6	8.65	36.435	
2,000.0	1,994.2	1,921.6	1,865.7	4.5	8.6	-0.43	-0.43	-116.4	374.9	335.1	326.0	9.16	36.571	
2,100.0	2,091.9	2,019.6	1,955.9	4.9	9.4	-1.61	-1.61	-120.8	413.1	353.6	343.9	9.70	36.453	
2,200.0	2,189.7	2,117.7	2,046.1	5.2	10.2	-2.68	-2.68	-125.2	451.2	372.2	361.9	10.25	36.325	
2,300.0	2,287.5	2,215.7	2,136.3	5.6	11.0	-3.65	-3.65	-129.7	489.4	390.9	380.1	10.80	36.198	
2,400.0	2,385.2	2,313.7	2,226.5	6.0	11.8	-4.52	-4.52	-134.1	527.6	409.6	398.3	11.36	36.069	
2,500.0	2,483.0	2,411.8	2,316.6	6.4	12.7	-5.33	-5.33	-138.5	565.7	428.5	416.6	11.92	35.939	
2,600.0	2,580.8	2,509.8	2,406.8	6.8	13.5	-6.06	-6.06	-143.0	603.9	447.5	435.0	12.50	35.809	
2,700.0	2,678.5	2,607.8	2,497.0	7.3	14.3	-6.73	-6.73	-147.4	642.1	466.5	453.4	13.08	35.677	
2,800.0	2,776.3	2,705.9	2,587.2	7.7	15.1	-7.36	-7.36	-151.8	680.2	485.6	471.9	13.66	35.546	
2,900.0	2,874.0	2,803.9	2,677.4	8.1	15.9	-7.93	-7.93	-156.3	718.4	504.7	490.4	14.25	35.415	
3,000.0	2,971.8	2,901.9	2,767.6	8.6	16.8	-8.46	-8.46	-160.7	756.6	523.9	509.0	14.85	35.285	
3,100.0	3,069.6	3,000.0	2,857.8	9.0	17.6	-8.96	-8.96	-165.1	794.7	543.1	527.6	15.45	35.156	
3,200.0	3,167.3	3,098.0	2,948.0	9.4	18.4	-9.42	-9.42	-169.6	832.9	562.3	546.3	16.05	35.029	
3,300.0	3,265.1	3,196.0	3,038.2	9.9	19.2	-9.85	-9.85	-174.0	871.1	581.6	564.9	16.66	34.904	
3,400.0	3,362.9	3,294.1	3,128.4	10.3	20.1	-10.25	-10.25	-178.4	909.2	600.9	583.6	17.28	34.781	
3,500.0	3,460.6	3,392.1	3,218.5	10.8	20.9	-10.63	-10.63	-182.9	947.4	620.3	602.4	17.90	34.661	
3,600.0	3,558.4	3,490.1	3,308.7	11.2	21.7	-10.99	-10.99	-187.3	985.6	639.6	621.1	18.52	34.543	
3,700.0	3,656.2	3,588.2	3,398.9	11.7	22.6	-11.32	-11.32	-191.7	1,023.7	659.0	639.9	19.14	34.428	
3,800.0	3,753.9	3,686.2	3,489.1	12.1	23.4	-11.63	-11.63	-196.1	1,061.9	678.4	658.6	19.77	34.315	
3,900.0	3,851.7	3,784.2	3,579.3	12.6	24.2	-11.93	-11.93	-200.6	1,100.1	697.8	677.4	20.40	34.206	
4,000.0	3,949.5	3,882.3	3,669.5	13.1	25.0	-12.21	-12.21	-205.0	1,138.2	717.3	696.2	21.03	34.099	
4,100.0	4,047.2	3,980.3	3,759.7	13.5	25.9	-12.48	-12.48	-209.4	1,176.4	736.7	715.1	21.67	33.996	
4,200.0	4,145.0	4,078.3	3,849.9	14.0	26.7	-12.73	-12.73	-213.9	1,214.6	756.2	733.9	22.31	33.895	
4,300.0	4,242.8	4,176.4	3,940.1	14.4	27.5	-12.97	-12.97	-218.3	1,252.7	775.7	752.7	22.95	33.797	
4,400.0	4,340.5	4,274.4	4,030.3	14.9	28.4	-13.20	-13.20	-222.7	1,290.9	795.2	771.6	23.60	33.701	
4,500.0	4,438.3	4,372.4	4,120.4	15.3	29.2	-13.42	-13.42	-227.2	1,329.0	814.7	790.5	24.24	33.609	
4,600.0	4,536.0	4,470.5	4,210.6	15.8	30.0	-13.63	-13.63	-231.6	1,367.2	834.2	809.3	24.89	33.519	
4,700.0	4,633.8	4,568.5	4,300.8	16.3	30.8	-13.83	-13.83	-236.0	1,405.4	853.7	828.2	25.54	33.432	
4,800.0	4,731.6	4,666.5	4,391.0	16.7	31.7	-14.02	-14.02	-240.5	1,443.5	873.3	847.1	26.19	33.347	
4,900.0	4,829.3	4,764.6	4,481.2	17.2	32.5	-14.20	-14.20	-244.9	1,481.7	892.8	866.0	26.84	33.264	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Offset Design Spaur 4N67W10LQ Pad Sec.10-T4N-R67W - Spaur 10Y-241 - Wellbore #1 - Plan #1 (6-11-15)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,000.0	4,927.1	4,862.6	4,571.4	17.6	33.3	-14.37	-249.3	1,519.9	912.4	884.9	27.49	33.184		
5,100.0	5,024.9	4,960.6	4,661.6	18.1	34.2	-14.53	-253.7	1,558.0	932.0	903.8	28.15	33.107		
5,200.0	5,122.6	5,058.7	4,751.8	18.6	35.0	-14.69	-258.2	1,596.2	951.5	922.7	28.81	33.031		
5,300.0	5,220.4	5,156.7	4,842.0	19.0	35.8	-14.85	-262.6	1,634.4	971.1	941.6	29.47	32.958		
5,400.0	5,318.2	5,254.7	4,932.1	19.5	36.7	-14.99	-267.0	1,672.5	990.7	960.6	30.12	32.886		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Spaur 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4843.0ft (RKB -13')

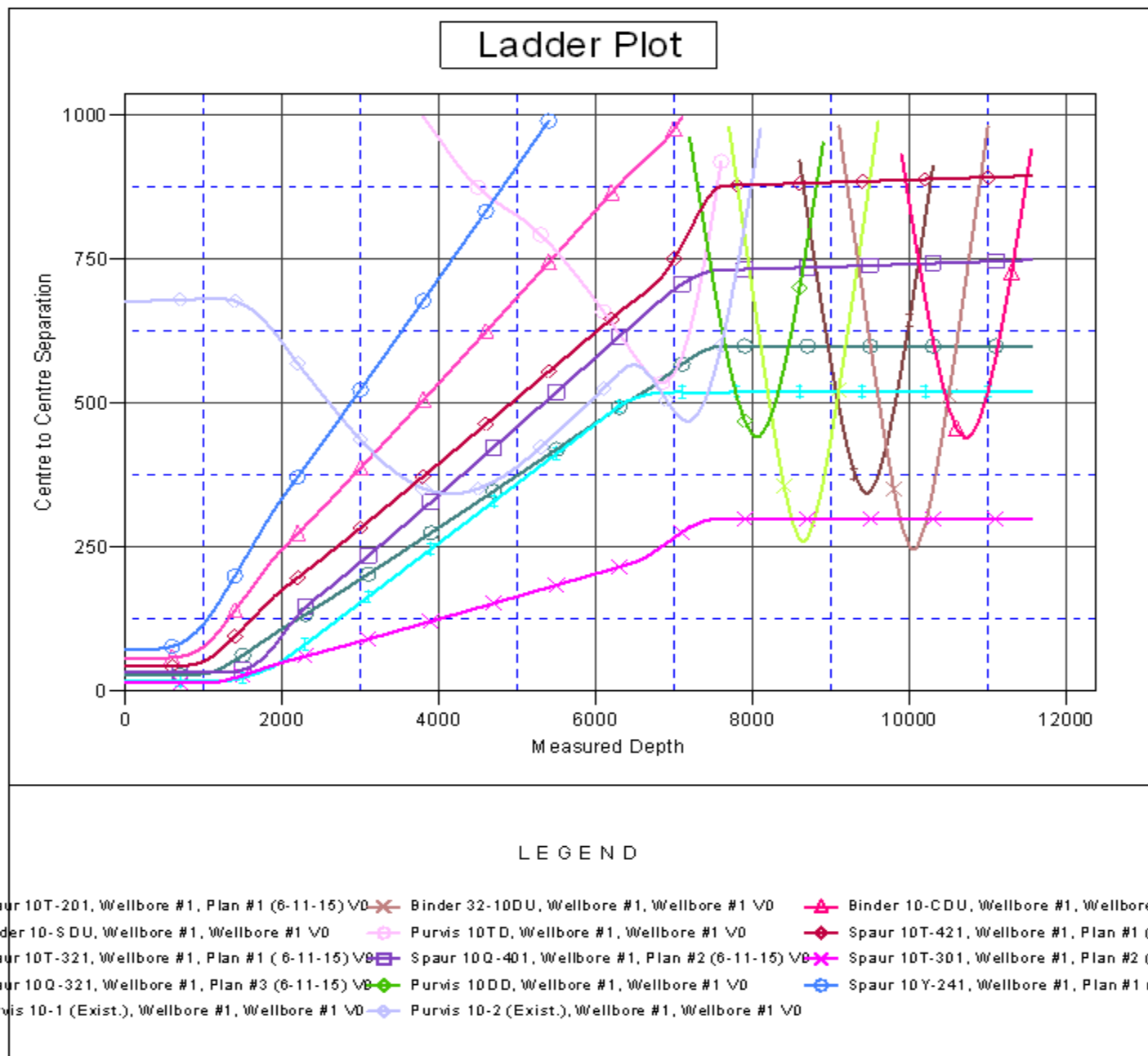
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Spaur 10T-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 10T-241
Project:	SEC.10-T4N-R67W	TVD Reference:	WELL @ 4843.0ft (RKB -13')
Reference Site:	Spaur 4N67W10LQ Pad Sec.10-T4N-R67W	MD Reference:	WELL @ 4843.0ft (RKB -13')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Spaur 10T-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 (6-11-15)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4843.0ft (RKB -13')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Spaur 10T-241

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.40°

